

Repressive matrix of functor in GVB-BCCC formula derivation

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There are 312 functors constructed:

$$\hat{O}_0 : \langle P_p | \hat{O}_\alpha^+ | P_q \rangle =$$

$$\hat{O}_\alpha^+ | P_0 \rangle = c_{0,11,0}^{mdl} P_{11} + c_{0,12,0}^{mdl} P_{12}$$

$$c_{0,11,0}^{mdl} = c_{0,2}^{ci} * c_{11,11}^{inv} + c_{0,3}^{ci} * c_{12,11}^{inv}$$

$$c_{0,12,0}^{mdl} = c_{0,2}^{ci} * c_{11,12}^{inv} + c_{0,3}^{ci} * c_{12,12}^{inv}$$

$$\hat{O}_\alpha^+ | P_1 \rangle = c_{0,11,1}^{mdl} P_{11} + c_{0,12,1}^{mdl} P_{12}$$

$$c_{0,11,1}^{mdl} = c_{1,2}^{ci} * c_{11,11}^{inv} + c_{1,3}^{ci} * c_{12,11}^{inv}$$

$$c_{0,12,1}^{mdl} = c_{1,2}^{ci} * c_{11,12}^{inv} + c_{1,3}^{ci} * c_{12,12}^{inv}$$

$$\hat{O}_\alpha^+ | P_2 \rangle = c_{0,11,2}^{mdl} P_{11} + c_{0,12,2}^{mdl} P_{12}$$

$$c_{0,11,2}^{mdl} = c_{2,2}^{ci} * c_{11,11}^{inv} + c_{2,3}^{ci} * c_{12,11}^{inv}$$

$$c_{0,12,2}^{mdl} = c_{2,2}^{ci} * c_{11,12}^{inv} + c_{2,3}^{ci} * c_{12,12}^{inv}$$

$$\hat{O}_\alpha^+ | P_3 \rangle = c_{0,11,3}^{mdl} P_{11} + c_{0,12,3}^{mdl} P_{12}$$

$$c_{0,11,3}^{mdl} = c_{3,2}^{ci} * c_{11,11}^{inv} + c_{3,3}^{ci} * c_{12,11}^{inv}$$

$$c_{0,12,3}^{mdl} = c_{3,2}^{ci} * c_{11,12}^{inv} + c_{3,3}^{ci} * c_{12,12}^{inv}$$

$$\hat{O}_\alpha^+ | P_4 \rangle =$$

$$\hat{O}_\alpha^+ | P_5 \rangle = c_{0,13,5}^{mdl} P_{13} + c_{0,14,5}^{mdl} P_{14}$$

$$c_{0,13,5}^{mdl} = c_{5,5}^{ci} * c_{13,13}^{inv}$$

$$c_{0,14,5}^{mdl} = c_{5,5}^{ci} * c_{13,14}^{inv}$$

$$\hat{O}_\alpha^+ | P_6 \rangle = c_{0,7,6}^{mdl} P_7 + c_{0,8,6}^{mdl} P_8$$

$$c_{0,7,6}^{mdl} = c_{6,6}^{ci} * c_{7,7}^{inv}$$

$$c_{0,8,6}^{mdl} = c_{6,6}^{ci} * c_{7,8}^{inv}$$

$$\hat{O}_\alpha^+ | P_7 \rangle = c_{0,4,7}^{mdl} P_4$$

$$c_{0,4,7}^{mdl} = c_{7,8}^{ci} * c_{4,4}^{inv}$$

$$\hat{O}_\alpha^+ | P_8 \rangle = c_{0,4,8}^{mdl} P_4$$

$$c_{0,4,8}^{mdl} = c_{8,8}^{ci} * c_{4,4}^{inv}$$

$$\hat{O}_\alpha^+ | P_9 \rangle = c_{0,0,9}^{mdl} P_0 + c_{0,1,9}^{mdl} P_1 + c_{0,2,9}^{mdl} P_2 + c_{0,3,9}^{mdl} P_3$$

$$c_{0,0,9}^{mdl} = c_{9,9}^{ci} * c_{0,0}^{inv} + c_{9,10}^{ci} * c_{1,0}^{inv}$$

$$c_{0,1,9}^{mdl} = c_{9,9}^{ci} * c_{0,1}^{inv} + c_{9,10}^{ci} * c_{1,1}^{inv}$$

$$c_{0,2,9}^{mdl} = c_{9,9}^{ci} * c_{0,2}^{inv} + c_{9,10}^{ci} * c_{1,2}^{inv}$$

$$c_{0,3,9}^{mdl} = c_{9,9}^{ci} * c_{0,3}^{inv} + c_{9,10}^{ci} * c_{1,3}^{inv}$$

$$\hat{0}_\alpha^+ |P_{10}\rangle = c_{0,0,10}^{mdl} P_0 + c_{0,1,10}^{mdl} P_1 + c_{0,2,10}^{mdl} P_2 + c_{0,3,10}^{mdl} P_3$$

$$c_{0,0,10}^{mdl} = c_{10,9}^{ci} * c_{0,0}^{inv} + c_{10,10}^{ci} * c_{1,0}^{inv}$$

$$c_{0,1,10}^{mdl} = c_{10,9}^{ci} * c_{0,1}^{inv} + c_{10,10}^{ci} * c_{1,1}^{inv}$$

$$c_{0,2,10}^{mdl} = c_{10,9}^{ci} * c_{0,2}^{inv} + c_{10,10}^{ci} * c_{1,2}^{inv}$$

$$c_{0,3,10}^{mdl} = c_{10,9}^{ci} * c_{0,3}^{inv} + c_{10,10}^{ci} * c_{1,3}^{inv}$$

$$\hat{0}_\alpha^+ |P_{11}\rangle =$$

$$\hat{0}_\alpha^+ |P_{12}\rangle =$$

$$\hat{0}_\alpha^+ |P_{13}\rangle = c_{0,15,13}^{mdl} P_{15}$$

$$c_{0,15,13}^{mdl} = c_{13,14}^{ci} * c_{15,15}^{inv}$$

$$\hat{0}_\alpha^+ |P_{14}\rangle = c_{0,15,14}^{mdl} P_{15}$$

$$c_{0,15,14}^{mdl} = c_{14,14}^{ci} * c_{15,15}^{inv}$$

$$\hat{0}_\alpha^+ |P_{15}\rangle =$$

$$\hat{O}_1 : \langle P_p | \hat{0}_\alpha^- | P_q \rangle =>$$

$$\hat{0}_\alpha^- |P_0\rangle = c_{1,9,0}^{mdl} P_9 + c_{1,10,0}^{mdl} P_{10}$$

$$c_{1,9,0}^{mdl} = c_{0,0}^{ci} * c_{9,9}^{inv} + c_{0,1}^{ci} * c_{10,9}^{inv}$$

$$c_{1,10,0}^{mdl} = c_{0,0}^{ci} * c_{9,10}^{inv} + c_{0,1}^{ci} * c_{10,10}^{inv}$$

$$\hat{0}_\alpha^- |P_1\rangle = c_{1,9,1}^{mdl} P_9 + c_{1,10,1}^{mdl} P_{10}$$

$$c_{1,9,1}^{mdl} = c_{1,0}^{ci} * c_{9,9}^{inv} + c_{1,1}^{ci} * c_{10,9}^{inv}$$

$$c_{1,10,1}^{mdl} = c_{1,0}^{ci} * c_{9,10}^{inv} + c_{1,1}^{ci} * c_{10,10}^{inv}$$

$$\hat{0}_\alpha^- |P_2\rangle = c_{1,9,2}^{mdl} P_9 + c_{1,10,2}^{mdl} P_{10}$$

$$c_{1,9,2}^{mdl} = c_{2,0}^{ci} * c_{9,9}^{inv} + c_{2,1}^{ci} * c_{10,9}^{inv}$$

$$c_{1,10,2}^{mdl} = c_{2,0}^{ci} * c_{9,10}^{inv} + c_{2,1}^{ci} * c_{10,10}^{inv}$$

$$\hat{0}_\alpha^- |P_3\rangle = c_{1,9,3}^{mdl} P_9 + c_{1,10,3}^{mdl} P_{10}$$

$$c_{1,9,3}^{mdl} = c_{3,0}^{ci} * c_{9,9}^{inv} + c_{3,1}^{ci} * c_{10,9}^{inv}$$

$$c_{1,10,3}^{mdl} = c_{3,0}^{ci} * c_{9,10}^{inv} + c_{3,1}^{ci} * c_{10,10}^{inv}$$

$$\hat{0}_\alpha^- |P_4\rangle = c_{1,7,4}^{mdl} P_7 + c_{1,8,4}^{mdl} P_8$$

$$c_{1,7,4}^{mdl} = c_{4,4}^{ci} * c_{8,7}^{inv}$$

$$c_{1,8,4}^{mdl} = c_{4,4}^{ci} * c_{8,8}^{inv}$$

$$\hat{0}_\alpha^- |P_5\rangle =$$

$$\hat{0}_\alpha^- |P_6\rangle =$$

$$\hat{0}_\alpha^- |P_7\rangle = c_{1,6,7}^{mdl} P_6$$

$$c_{1,6,7}^{mdl} = c_{7,7}^{ci} * c_{6,6}^{inv}$$

$$\hat{0}_\alpha^- |P_8\rangle = c_{1,6,8}^{mdl} P_6$$

$$c_{1,6,8}^{mdl} = c_{8,7}^{ci} * c_{6,6}^{inv}$$

$$\hat{0}_\alpha^- |P_9\rangle =$$

$$\hat{0}_\alpha^- |P_{10}\rangle =$$

$$\hat{0}_\alpha^- |P_{11}\rangle = c_{1,0,11}^{mdl} P_0 + c_{1,1,11}^{mdl} P_1 + c_{1,2,11}^{mdl} P_2 + c_{1,3,11}^{mdl} P_3$$

$$c_{1,0,11}^{mdl} = c_{11,11}^{ci} * c_{2,0}^{inv} + c_{11,12}^{ci} * c_{3,0}^{inv}$$

$$c_{1,1,11}^{mdl} = c_{11,11}^{ci} * c_{2,1}^{inv} + c_{11,12}^{ci} * c_{3,1}^{inv}$$

$$c_{1,2,11}^{mdl} = c_{11,11}^{ci} * c_{2,2}^{inv} + c_{11,12}^{ci} * c_{3,2}^{inv}$$

$$c_{1,3,11}^{mdl} = c_{11,11}^{ci} * c_{2,3}^{inv} + c_{11,12}^{ci} * c_{3,3}^{inv}$$

$$\hat{0}_\alpha^- |P_{12}\rangle = c_{1,0,12}^{mdl} P_0 + c_{1,1,12}^{mdl} P_1 + c_{1,2,12}^{mdl} P_2 + c_{1,3,12}^{mdl} P_3$$

$$c_{1,0,12}^{mdl} = c_{12,11}^{ci} * c_{2,0}^{inv} + c_{12,12}^{ci} * c_{3,0}^{inv}$$

$$c_{1,1,12}^{mdl} = c_{12,11}^{ci} * c_{2,1}^{inv} + c_{12,12}^{ci} * c_{3,1}^{inv}$$

$$c_{1,2,12}^{mdl} = c_{12,11}^{ci} * c_{2,2}^{inv} + c_{12,12}^{ci} * c_{3,2}^{inv}$$

$$c_{1,3,12}^{mdl} = c_{12,11}^{ci} * c_{2,3}^{inv} + c_{12,12}^{ci} * c_{3,3}^{inv}$$

$$\hat{0}_\alpha^- |P_{13}\rangle = c_{1,5,13}^{mdl} P_5$$

$$c_{1,5,13}^{mdl} = c_{13,13}^{ci} * c_{5,5}^{inv}$$

$$\hat{0}_\alpha^- |P_{14}\rangle = c_{1,5,14}^{mdl} P_5$$

$$c_{1,5,14}^{mdl} = c_{14,13}^{ci} * c_{5,5}^{inv}$$

$$\hat{0}_\alpha^- |P_{15}\rangle = c_{1,13,15}^{mdl} P_{13} + c_{1,14,15}^{mdl} P_{14}$$

$$c_{1,13,15}^{mdl} = c_{15,15}^{ci} * c_{14,13}^{inv}$$

$$c_{1,14,15}^{mdl} = c_{15,15}^{ci} * c_{14,14}^{inv}$$

$$\hat{O}_2 : \langle P_p | \hat{0}_\beta^+ | P_q \rangle = >$$

$$\hat{0}_\beta^+ |P_0\rangle = c_{2,13,0}^{mdl} P_{13} + c_{2,14,0}^{mdl} P_{14}$$

$$c_{2,13,0}^{mdl} = (-c_{0,1}^{ci}) * c_{13,13}^{inv} + c_{0,3}^{ci} * c_{14,13}^{inv}$$

$$c_{2,14,0}^{mdl} = (-c_{0,1}^{ci}) * c_{13,14}^{inv} + c_{0,3}^{ci} * c_{14,14}^{inv}$$

$$\hat{0}_\beta^+ |P_1\rangle = c_{2,13,1}^{mdl} P_{13} + c_{2,14,1}^{mdl} P_{14}$$

$$c_{2,13,1}^{mdl} = (-c_{1,1}^{ci}) * c_{13,13}^{inv} + c_{1,3}^{ci} * c_{14,13}^{inv}$$

$$c_{2,14,1}^{mdl} = (-c_{1,1}^{ci}) * c_{13,14}^{inv} + c_{1,3}^{ci} * c_{14,14}^{inv}$$

$$\hat{0}_\beta^+ |P_2\rangle = c_{2,13,2}^{mdl} P_{13} + c_{2,14,2}^{mdl} P_{14}$$

$$c_{2,13,2}^{mdl} = (-c_{2,1}^{ci}) * c_{13,13}^{inv} + c_{2,3}^{ci} * c_{14,13}^{inv}$$

$$c_{2,14,2}^{mdl} = (-c_{2,1}^{ci}) * c_{13,14}^{inv} + c_{2,3}^{ci} * c_{14,14}^{inv}$$

$$\hat{0}_\beta^+ |P_3\rangle = c_{2,13,3}^{mdl} P_{13} + c_{2,14,3}^{mdl} P_{14}$$

$$c_{2,13,3}^{mdl} = (-c_{3,1}^{ci}) * c_{13,13}^{inv} + c_{3,3}^{ci} * c_{14,13}^{inv}$$

$$c_{2,14,3}^{mdl} = (-c_{3,1}^{ci}) * c_{13,14}^{inv} + c_{3,3}^{ci} * c_{14,14}^{inv}$$

$$\hat{0}_\beta^+ |P_4\rangle = c_{2,11,4}^{mdl} P_{11} + c_{2,12,4}^{mdl} P_{12}$$

$$c_{2,11,4}^{mdl} = (-c_{4,4}^{ci}) * c_{11,11}^{inv}$$

$$c_{2,12,4}^{mdl} = (-c_{4,4}^{ci}) * c_{11,12}^{inv}$$

$$\hat{0}_\beta^+ |P_5\rangle =$$

$$\hat{0}_\beta^+ |P_6\rangle = c_{2,9,6}^{mdl} P_9 + c_{2,10,6}^{mdl} P_{10}$$

$$c_{2,9,6}^{mdl} = c_{6,6}^{ci} * c_{9,9}^{inv}$$

$$c_{2,10,6}^{mdl} = c_{6,6}^{ci} * c_{9,10}^{inv}$$

$$\hat{0}_\beta^+ |P_7\rangle = c_{2,0,7}^{mdl} P_0 + c_{2,1,7}^{mdl} P_1 + c_{2,2,7}^{mdl} P_2 + c_{2,3,7}^{mdl} P_3$$

$$c_{2,0,7}^{mdl} = (-c_{7,7}^{ci}) * c_{0,0}^{inv} + c_{7,8}^{ci} * c_{2,0}^{inv}$$

$$c_{2,1,7}^{mdl} = (-c_{7,7}^{ci}) * c_{0,1}^{inv} + c_{7,8}^{ci} * c_{2,1}^{inv}$$

$$c_{2,2,7}^{mdl} = (-c_{7,7}^{ci}) * c_{0,2}^{inv} + c_{7,8}^{ci} * c_{2,2}^{inv}$$

$$c_{2,3,7}^{mdl} = (-c_{7,7}^{ci}) * c_{0,3}^{inv} + c_{7,8}^{ci} * c_{2,3}^{inv}$$

$$\hat{0}_\beta^+ |P_8\rangle = c_{2,0,8}^{mdl} P_0 + c_{2,1,8}^{mdl} P_1 + c_{2,2,8}^{mdl} P_2 + c_{2,3,8}^{mdl} P_3$$

$$c_{2,0,8}^{mdl} = (-c_{8,7}^{ci}) * c_{0,0}^{inv} + c_{8,8}^{ci} * c_{2,0}^{inv}$$

$$c_{2,1,8}^{mdl} = (-c_{8,7}^{ci}) * c_{0,1}^{inv} + c_{8,8}^{ci} * c_{2,1}^{inv}$$

$$c_{2,2,8}^{mdl} = (-c_{8,7}^{ci}) * c_{0,2}^{inv} + c_{8,8}^{ci} * c_{2,2}^{inv}$$

$$c_{2,3,8}^{mdl} = (-c_{8,7}^{ci}) * c_{0,3}^{inv} + c_{8,8}^{ci} * c_{2,3}^{inv}$$

$$\hat{0}_\beta^+ |P_9\rangle = c_{2,5,9}^{mdl} P_5$$

$$c_{2,5,9}^{mdl} = c_{9,10}^{ci} * c_{5,5}^{inv}$$

$$\hat{0}_\beta^+ |P_{10}\rangle = c_{2,5,10}^{mdl} P_5$$

$$c_{2,5,10}^{mdl} = c_{10,10}^{ci} * c_{5,5}^{inv}$$

$$\hat{0}_\beta^+ |P_{11}\rangle = c_{2,15,11}^{mdl} P_{15}$$

$$c_{2,15,11}^{mdl} = (-c_{11,12}^{ci}) * c_{15,15}^{inv}$$

$$\hat{0}_\beta^+ |P_{12}\rangle = c_{2,15,12}^{mdl} P_{15}$$

$$c_{2,15,12}^{mdl} = (-c_{12,12}^{ci}) * c_{15,15}^{inv}$$

$$\hat{0}_\beta^+ |P_{13}\rangle =$$

$$\hat{0}_\beta^+ |P_{14}\rangle =$$

$$\hat{0}_\beta^+ |P_{15}\rangle =$$

$$\hat{O}_3 : \langle P_p | \hat{0}_\beta^- | P_q \rangle =>$$

$$\hat{0}_\beta^- |P_0\rangle = c_{3,7,0}^{mdl} P_7 + c_{3,8,0}^{mdl} P_8$$

$$c_{3,7,0}^{mdl} = (-c_{0,0}^{ci}) * c_{7,7}^{inv} + c_{0,2}^{ci} * c_{8,7}^{inv}$$

$$c_{3,8,0}^{mdl} = (-c_{0,0}^{ci}) * c_{7,8}^{inv} + c_{0,2}^{ci} * c_{8,8}^{inv}$$

$$\hat{0}_\beta^- |P_1\rangle = c_{3,7,1}^{mdl} P_7 + c_{3,8,1}^{mdl} P_8$$

$$c_{3,7,1}^{mdl} = (-c_{1,0}^{ci}) * c_{7,7}^{inv} + c_{1,2}^{ci} * c_{8,7}^{inv}$$

$$c_{3,8,1}^{mdl} = (-c_{1,0}^{ci}) * c_{7,8}^{inv} + c_{1,2}^{ci} * c_{8,8}^{inv}$$

$$\hat{0}_\beta^- |P_2\rangle = c_{3,7,2}^{mdl} P_7 + c_{3,8,2}^{mdl} P_8$$

$$c_{3,7,2}^{mdl} = (-c_{2,0}^{ci}) * c_{7,7}^{inv} + c_{2,2}^{ci} * c_{8,7}^{inv}$$

$$c_{3,8,2}^{mdl} = (-c_{2,0}^{ci}) * c_{7,8}^{inv} + c_{2,2}^{ci} * c_{8,8}^{inv}$$

$$\hat{0}_\beta^- |P_3\rangle = c_{3,7,3}^{mdl} P_7 + c_{3,8,3}^{mdl} P_8$$

$$c_{3,7,3}^{mdl} = (-c_{3,0}^{ci}) * c_{7,7}^{inv} + c_{3,2}^{ci} * c_{8,7}^{inv}$$

$$c_{3,8,3}^{mdl} = (-c_{3,0}^{ci}) * c_{7,8}^{inv} + c_{3,2}^{ci} * c_{8,8}^{inv}$$

$$\hat{0}_\beta^- |P_4\rangle =$$

$$\hat{0}_\beta^- |P_5\rangle = c_{3,9,5}^{mdl} P_9 + c_{3,10,5}^{mdl} P_{10}$$

$$c_{3,9,5}^{mdl} = c_{5,5}^{ci} * c_{10,9}^{inv}$$

$$c_{3,10,5}^{mdl} = c_{5,5}^{ci} * c_{10,10}^{inv}$$

$$\hat{0}_\beta^- |P_6\rangle =$$

$$\begin{aligned}
\hat{0}_\beta^- |P_7\rangle &= \\
\hat{0}_\beta^- |P_8\rangle &= \\
\hat{0}_\beta^- |P_9\rangle &= c_{3,6,9}^{mdl} P_6 \\
c_{3,6,9}^{mdl} &= c_{9,9}^{ci} * c_{6,6}^{inv} \\
\hat{0}_\beta^- |P_{10}\rangle &= c_{3,6,10}^{mdl} P_6 \\
c_{3,6,10}^{mdl} &= c_{10,9}^{ci} * c_{6,6}^{inv} \\
\hat{0}_\beta^- |P_{11}\rangle &= c_{3,4,11}^{mdl} P_4 \\
c_{3,4,11}^{mdl} &= (-c_{11,11}^{ci}) * c_{4,4}^{inv} \\
\hat{0}_\beta^- |P_{12}\rangle &= c_{3,4,12}^{mdl} P_4 \\
c_{3,4,12}^{mdl} &= (-c_{12,11}^{ci}) * c_{4,4}^{inv} \\
\hat{0}_\beta^- |P_{13}\rangle &= c_{3,0,13}^{mdl} P_0 + c_{3,1,13}^{mdl} P_1 + c_{3,2,13}^{mdl} P_2 + c_{3,3,13}^{mdl} P_3 \\
c_{3,0,13}^{mdl} &= (-c_{13,13}^{ci}) * c_{1,0}^{inv} + c_{13,14}^{ci} * c_{3,0}^{inv} \\
c_{3,1,13}^{mdl} &= (-c_{13,13}^{ci}) * c_{1,1}^{inv} + c_{13,14}^{ci} * c_{3,1}^{inv} \\
c_{3,2,13}^{mdl} &= (-c_{13,13}^{ci}) * c_{1,2}^{inv} + c_{13,14}^{ci} * c_{3,2}^{inv} \\
c_{3,3,13}^{mdl} &= (-c_{13,13}^{ci}) * c_{1,3}^{inv} + c_{13,14}^{ci} * c_{3,3}^{inv} \\
\hat{0}_\beta^- |P_{14}\rangle &= c_{3,0,14}^{mdl} P_0 + c_{3,1,14}^{mdl} P_1 + c_{3,2,14}^{mdl} P_2 + c_{3,3,14}^{mdl} P_3 \\
c_{3,0,14}^{mdl} &= (-c_{14,13}^{ci}) * c_{1,0}^{inv} + c_{14,14}^{ci} * c_{3,0}^{inv} \\
c_{3,1,14}^{mdl} &= (-c_{14,13}^{ci}) * c_{1,1}^{inv} + c_{14,14}^{ci} * c_{3,1}^{inv} \\
c_{3,2,14}^{mdl} &= (-c_{14,13}^{ci}) * c_{1,2}^{inv} + c_{14,14}^{ci} * c_{3,2}^{inv} \\
c_{3,3,14}^{mdl} &= (-c_{14,13}^{ci}) * c_{1,3}^{inv} + c_{14,14}^{ci} * c_{3,3}^{inv} \\
\hat{0}_\beta^- |P_{15}\rangle &= c_{3,11,15}^{mdl} P_{11} + c_{3,12,15}^{mdl} P_{12} \\
c_{3,11,15}^{mdl} &= (-c_{15,15}^{ci}) * c_{12,11}^{inv} \\
c_{3,12,15}^{mdl} &= (-c_{15,15}^{ci}) * c_{12,12}^{inv}
\end{aligned}$$

$$\hat{O}_4 : \langle P_p | \hat{1}_\alpha^+ | P_q \rangle = >$$

$$\begin{aligned}
\hat{1}_\alpha^+ |P_0\rangle &= c_{4,11,0}^{mdl} P_{11} + c_{4,12,0}^{mdl} P_{12} \\
c_{4,11,0}^{mdl} &= c_{0,0}^{ci} * c_{11,11}^{inv} + (-c_{0,1}^{ci}) * c_{12,11}^{inv} \\
c_{4,12,0}^{mdl} &= c_{0,0}^{ci} * c_{11,12}^{inv} + (-c_{0,1}^{ci}) * c_{12,12}^{inv} \\
\hat{1}_\alpha^+ |P_1\rangle &= c_{4,11,1}^{mdl} P_{11} + c_{4,12,1}^{mdl} P_{12}
\end{aligned}$$

$$\begin{aligned}
c_{4,11,1}^{mdl} &= c_{1,0}^{ci} * c_{11,11}^{inv} + (-c_{1,1}^{ci}) * c_{12,11}^{inv} \\
c_{4,12,1}^{mdl} &= c_{1,0}^{ci} * c_{11,12}^{inv} + (-c_{1,1}^{ci}) * c_{12,12}^{inv} \\
\hat{1}_\alpha^+ |P_2\rangle &= c_{4,11,2}^{mdl} P_{11} + c_{4,12,2}^{mdl} P_{12} \\
c_{4,11,2}^{mdl} &= c_{2,0}^{ci} * c_{11,11}^{inv} + (-c_{2,1}^{ci}) * c_{12,11}^{inv} \\
c_{4,12,2}^{mdl} &= c_{2,0}^{ci} * c_{11,12}^{inv} + (-c_{2,1}^{ci}) * c_{12,12}^{inv} \\
\hat{1}_\alpha^+ |P_3\rangle &= c_{4,11,3}^{mdl} P_{11} + c_{4,12,3}^{mdl} P_{12} \\
c_{4,11,3}^{mdl} &= c_{3,0}^{ci} * c_{11,11}^{inv} + (-c_{3,1}^{ci}) * c_{12,11}^{inv} \\
c_{4,12,3}^{mdl} &= c_{3,0}^{ci} * c_{11,12}^{inv} + (-c_{3,1}^{ci}) * c_{12,12}^{inv} \\
\hat{1}_\alpha^+ |P_4\rangle &= \\
\hat{1}_\alpha^+ |P_5\rangle &= c_{4,13,5}^{mdl} P_{13} + c_{4,14,5}^{mdl} P_{14} \\
c_{4,13,5}^{mdl} &= (-c_{5,5}^{ci}) * c_{14,13}^{inv} \\
c_{4,14,5}^{mdl} &= (-c_{5,5}^{ci}) * c_{14,14}^{inv} \\
\hat{1}_\alpha^+ |P_6\rangle &= c_{4,7,6}^{mdl} P_7 + c_{4,8,6}^{mdl} P_8 \\
c_{4,7,6}^{mdl} &= c_{6,6}^{ci} * c_{8,7}^{inv} \\
c_{4,8,6}^{mdl} &= c_{6,6}^{ci} * c_{8,8}^{inv} \\
\hat{1}_\alpha^+ |P_7\rangle &= c_{4,4,7}^{mdl} P_4 \\
c_{4,4,7}^{mdl} &= (-c_{7,7}^{ci}) * c_{4,4}^{inv} \\
\hat{1}_\alpha^+ |P_8\rangle &= c_{4,4,8}^{mdl} P_4 \\
c_{4,4,8}^{mdl} &= (-c_{8,7}^{ci}) * c_{4,4}^{inv} \\
\hat{1}_\alpha^+ |P_9\rangle &= c_{4,0,9}^{mdl} P_0 + c_{4,1,9}^{mdl} P_1 + c_{4,2,9}^{mdl} P_2 + c_{4,3,9}^{mdl} P_3 \\
c_{4,0,9}^{mdl} &= (-c_{9,9}^{ci}) * c_{2,0}^{inv} + c_{9,10}^{ci} * c_{3,0}^{inv} \\
c_{4,1,9}^{mdl} &= (-c_{9,9}^{ci}) * c_{2,1}^{inv} + c_{9,10}^{ci} * c_{3,1}^{inv} \\
c_{4,2,9}^{mdl} &= (-c_{9,9}^{ci}) * c_{2,2}^{inv} + c_{9,10}^{ci} * c_{3,2}^{inv} \\
c_{4,3,9}^{mdl} &= (-c_{9,9}^{ci}) * c_{2,3}^{inv} + c_{9,10}^{ci} * c_{3,3}^{inv} \\
\hat{1}_\alpha^+ |P_{10}\rangle &= c_{4,0,10}^{mdl} P_0 + c_{4,1,10}^{mdl} P_1 + c_{4,2,10}^{mdl} P_2 + c_{4,3,10}^{mdl} P_3 \\
c_{4,0,10}^{mdl} &= (-c_{10,9}^{ci}) * c_{2,0}^{inv} + c_{10,10}^{ci} * c_{3,0}^{inv} \\
c_{4,1,10}^{mdl} &= (-c_{10,9}^{ci}) * c_{2,1}^{inv} + c_{10,10}^{ci} * c_{3,1}^{inv} \\
c_{4,2,10}^{mdl} &= (-c_{10,9}^{ci}) * c_{2,2}^{inv} + c_{10,10}^{ci} * c_{3,2}^{inv} \\
c_{4,3,10}^{mdl} &= (-c_{10,9}^{ci}) * c_{2,3}^{inv} + c_{10,10}^{ci} * c_{3,3}^{inv}
\end{aligned}$$

$$\hat{1}_\alpha^+ |P_{11}\rangle =$$

$$\hat{1}_\alpha^+ |P_{12}\rangle =$$

$$\hat{1}_\alpha^+ |P_{13}\rangle = c_{4,15,13}^{mdl} P_{15}$$

$$c_{4,15,13}^{mdl} = c_{13,13}^{ci} * c_{15,15}^{inv}$$

$$\hat{1}_\alpha^+ |P_{14}\rangle = c_{4,15,14}^{mdl} P_{15}$$

$$c_{4,15,14}^{mdl} = c_{14,13}^{ci} * c_{15,15}^{inv}$$

$$\hat{1}_\alpha^+ |P_{15}\rangle =$$

$$\hat{O}_5 : \langle P_p | \hat{1}_\alpha^- | P_q \rangle =>$$

$$\hat{1}_\alpha^- |P_0\rangle = c_{5,9,0}^{mdl} P_9 + c_{5,10,0}^{mdl} P_{10}$$

$$c_{5,9,0}^{mdl} = (-c_{0,2}^{ci}) * c_{9,9}^{inv} + c_{0,3}^{ci} * c_{10,9}^{inv}$$

$$c_{5,10,0}^{mdl} = (-c_{0,2}^{ci}) * c_{9,10}^{inv} + c_{0,3}^{ci} * c_{10,10}^{inv}$$

$$\hat{1}_\alpha^- |P_1\rangle = c_{5,9,1}^{mdl} P_9 + c_{5,10,1}^{mdl} P_{10}$$

$$c_{5,9,1}^{mdl} = (-c_{1,2}^{ci}) * c_{9,9}^{inv} + c_{1,3}^{ci} * c_{10,9}^{inv}$$

$$c_{5,10,1}^{mdl} = (-c_{1,2}^{ci}) * c_{9,10}^{inv} + c_{1,3}^{ci} * c_{10,10}^{inv}$$

$$\hat{1}_\alpha^- |P_2\rangle = c_{5,9,2}^{mdl} P_9 + c_{5,10,2}^{mdl} P_{10}$$

$$c_{5,9,2}^{mdl} = (-c_{2,2}^{ci}) * c_{9,9}^{inv} + c_{2,3}^{ci} * c_{10,9}^{inv}$$

$$c_{5,10,2}^{mdl} = (-c_{2,2}^{ci}) * c_{9,10}^{inv} + c_{2,3}^{ci} * c_{10,10}^{inv}$$

$$\hat{1}_\alpha^- |P_3\rangle = c_{5,9,3}^{mdl} P_9 + c_{5,10,3}^{mdl} P_{10}$$

$$c_{5,9,3}^{mdl} = (-c_{3,2}^{ci}) * c_{9,9}^{inv} + c_{3,3}^{ci} * c_{10,9}^{inv}$$

$$c_{5,10,3}^{mdl} = (-c_{3,2}^{ci}) * c_{9,10}^{inv} + c_{3,3}^{ci} * c_{10,10}^{inv}$$

$$\hat{1}_\alpha^- |P_4\rangle = c_{5,7,4}^{mdl} P_7 + c_{5,8,4}^{mdl} P_8$$

$$c_{5,7,4}^{mdl} = (-c_{4,4}^{ci}) * c_{7,7}^{inv}$$

$$c_{5,8,4}^{mdl} = (-c_{4,4}^{ci}) * c_{7,8}^{inv}$$

$$\hat{1}_\alpha^- |P_5\rangle =$$

$$\hat{1}_\alpha^- |P_6\rangle =$$

$$\hat{1}_\alpha^- |P_7\rangle = c_{5,6,7}^{mdl} P_6$$

$$c_{5,6,7}^{mdl} = c_{7,8}^{ci} * c_{6,6}^{inv}$$

$$\hat{1}_\alpha^- |P_8\rangle = c_{5,6,8}^{mdl} P_6$$

$$c_{5,6,8}^{mdl} = c_{8,8}^{ci} * c_{6,6}^{inv}$$

$$\hat{1}_{\alpha}^{-}|P_9\rangle =$$

$$\hat{1}_{\alpha}^{-}|P_{10}\rangle =$$

$$\hat{1}_{\alpha}^{-}|P_{11}\rangle = c_{5,0,11}^{mdl}P_0 + c_{5,1,11}^{mdl}P_1 + c_{5,2,11}^{mdl}P_2 + c_{5,3,11}^{mdl}P_3$$

$$c_{5,0,11}^{mdl} = c_{11,11}^{ci} * c_{0,0}^{inv} + (-c_{11,12}^{ci}) * c_{1,0}^{inv}$$

$$c_{5,1,11}^{mdl} = c_{11,11}^{ci} * c_{0,1}^{inv} + (-c_{11,12}^{ci}) * c_{1,1}^{inv}$$

$$c_{5,2,11}^{mdl} = c_{11,11}^{ci} * c_{0,2}^{inv} + (-c_{11,12}^{ci}) * c_{1,2}^{inv}$$

$$c_{5,3,11}^{mdl} = c_{11,11}^{ci} * c_{0,3}^{inv} + (-c_{11,12}^{ci}) * c_{1,3}^{inv}$$

$$\hat{1}_{\alpha}^{-}|P_{12}\rangle = c_{5,0,12}^{mdl}P_0 + c_{5,1,12}^{mdl}P_1 + c_{5,2,12}^{mdl}P_2 + c_{5,3,12}^{mdl}P_3$$

$$c_{5,0,12}^{mdl} = c_{12,11}^{ci} * c_{0,0}^{inv} + (-c_{12,12}^{ci}) * c_{1,0}^{inv}$$

$$c_{5,1,12}^{mdl} = c_{12,11}^{ci} * c_{0,1}^{inv} + (-c_{12,12}^{ci}) * c_{1,1}^{inv}$$

$$c_{5,2,12}^{mdl} = c_{12,11}^{ci} * c_{0,2}^{inv} + (-c_{12,12}^{ci}) * c_{1,2}^{inv}$$

$$c_{5,3,12}^{mdl} = c_{12,11}^{ci} * c_{0,3}^{inv} + (-c_{12,12}^{ci}) * c_{1,3}^{inv}$$

$$\hat{1}_{\alpha}^{-}|P_{13}\rangle = c_{5,5,13}^{mdl}P_5$$

$$c_{5,5,13}^{mdl} = (-c_{13,14}^{ci}) * c_{5,5}^{inv}$$

$$\hat{1}_{\alpha}^{-}|P_{14}\rangle = c_{5,5,14}^{mdl}P_5$$

$$c_{5,5,14}^{mdl} = (-c_{14,14}^{ci}) * c_{5,5}^{inv}$$

$$\hat{1}_{\alpha}^{-}|P_{15}\rangle = c_{5,13,15}^{mdl}P_{13} + c_{5,14,15}^{mdl}P_{14}$$

$$c_{5,13,15}^{mdl} = c_{15,15}^{ci} * c_{13,13}^{inv}$$

$$c_{5,14,15}^{mdl} = c_{15,15}^{ci} * c_{13,14}^{inv}$$

$$\hat{O}_6 : \langle P_p | \hat{1}_{\beta}^{+} | P_q \rangle = >$$

$$\hat{1}_{\beta}^{+}|P_0\rangle = c_{6,13,0}^{mdl}P_{13} + c_{6,14,0}^{mdl}P_{14}$$

$$c_{6,13,0}^{mdl} = c_{0,0}^{ci} * c_{13,13}^{inv} + c_{0,2}^{ci} * c_{14,13}^{inv}$$

$$c_{6,14,0}^{mdl} = c_{0,0}^{ci} * c_{13,14}^{inv} + c_{0,2}^{ci} * c_{14,14}^{inv}$$

$$\hat{1}_{\beta}^{+}|P_1\rangle = c_{6,13,1}^{mdl}P_{13} + c_{6,14,1}^{mdl}P_{14}$$

$$c_{6,13,1}^{mdl} = c_{1,0}^{ci} * c_{13,13}^{inv} + c_{1,2}^{ci} * c_{14,13}^{inv}$$

$$c_{6,14,1}^{mdl} = c_{1,0}^{ci} * c_{13,14}^{inv} + c_{1,2}^{ci} * c_{14,14}^{inv}$$

$$\hat{1}_{\beta}^{+}|P_2\rangle = c_{6,13,2}^{mdl}P_{13} + c_{6,14,2}^{mdl}P_{14}$$

$$\begin{aligned}
c_{6,13,2}^{mdl} &= c_{2,0}^{ci} * c_{13,13}^{inv} + c_{2,2}^{ci} * c_{14,13}^{inv} \\
c_{6,14,2}^{mdl} &= c_{2,0}^{ci} * c_{13,14}^{inv} + c_{2,2}^{ci} * c_{14,14}^{inv} \\
\hat{1}_\beta^+ |P_3\rangle &= c_{6,13,3}^{mdl} P_{13} + c_{6,14,3}^{mdl} P_{14} \\
c_{6,13,3}^{mdl} &= c_{3,0}^{ci} * c_{13,13}^{inv} + c_{3,2}^{ci} * c_{14,13}^{inv} \\
c_{6,14,3}^{mdl} &= c_{3,0}^{ci} * c_{13,14}^{inv} + c_{3,2}^{ci} * c_{14,14}^{inv} \\
\hat{1}_\beta^+ |P_4\rangle &= c_{6,11,4}^{mdl} P_{11} + c_{6,12,4}^{mdl} P_{12} \\
c_{6,11,4}^{mdl} &= c_{4,4}^{ci} * c_{12,11}^{inv} \\
c_{6,12,4}^{mdl} &= c_{4,4}^{ci} * c_{12,12}^{inv} \\
\hat{1}_\beta^+ |P_5\rangle &= \\
\hat{1}_\beta^+ |P_6\rangle &= c_{6,9,6}^{mdl} P_9 + c_{6,10,6}^{mdl} P_{10} \\
c_{6,9,6}^{mdl} &= c_{6,6}^{ci} * c_{10,9}^{inv} \\
c_{6,10,6}^{mdl} &= c_{6,6}^{ci} * c_{10,10}^{inv} \\
\hat{1}_\beta^+ |P_7\rangle &= c_{6,0,7}^{mdl} P_0 + c_{6,1,7}^{mdl} P_1 + c_{6,2,7}^{mdl} P_2 + c_{6,3,7}^{mdl} P_3 \\
c_{6,0,7}^{mdl} &= (-c_{7,7}^{ci}) * c_{1,0}^{inv} + (-c_{7,8}^{ci}) * c_{3,0}^{inv} \\
c_{6,1,7}^{mdl} &= (-c_{7,7}^{ci}) * c_{1,1}^{inv} + (-c_{7,8}^{ci}) * c_{3,1}^{inv} \\
c_{6,2,7}^{mdl} &= (-c_{7,7}^{ci}) * c_{1,2}^{inv} + (-c_{7,8}^{ci}) * c_{3,2}^{inv} \\
c_{6,3,7}^{mdl} &= (-c_{7,7}^{ci}) * c_{1,3}^{inv} + (-c_{7,8}^{ci}) * c_{3,3}^{inv} \\
\hat{1}_\beta^+ |P_8\rangle &= c_{6,0,8}^{mdl} P_0 + c_{6,1,8}^{mdl} P_1 + c_{6,2,8}^{mdl} P_2 + c_{6,3,8}^{mdl} P_3 \\
c_{6,0,8}^{mdl} &= (-c_{8,7}^{ci}) * c_{1,0}^{inv} + (-c_{8,8}^{ci}) * c_{3,0}^{inv} \\
c_{6,1,8}^{mdl} &= (-c_{8,7}^{ci}) * c_{1,1}^{inv} + (-c_{8,8}^{ci}) * c_{3,1}^{inv} \\
c_{6,2,8}^{mdl} &= (-c_{8,7}^{ci}) * c_{1,2}^{inv} + (-c_{8,8}^{ci}) * c_{3,2}^{inv} \\
c_{6,3,8}^{mdl} &= (-c_{8,7}^{ci}) * c_{1,3}^{inv} + (-c_{8,8}^{ci}) * c_{3,3}^{inv} \\
\hat{1}_\beta^+ |P_9\rangle &= c_{6,5,9}^{mdl} P_5 \\
c_{6,5,9}^{mdl} &= (-c_{9,9}^{ci}) * c_{5,5}^{inv} \\
\hat{1}_\beta^+ |P_{10}\rangle &= c_{6,5,10}^{mdl} P_5 \\
c_{6,5,10}^{mdl} &= (-c_{10,9}^{ci}) * c_{5,5}^{inv} \\
\hat{1}_\beta^+ |P_{11}\rangle &= c_{6,15,11}^{mdl} P_{15} \\
c_{6,15,11}^{mdl} &= (-c_{11,11}^{ci}) * c_{15,15}^{inv} \\
\hat{1}_\beta^+ |P_{12}\rangle &= c_{6,15,12}^{mdl} P_{15}
\end{aligned}$$

$$c_{6,15,12}^{mdl} = (-c_{12,11}^{ci}) * c_{15,15}^{inv}$$

$$\hat{1}_{\beta}^{+}|P_{13}\rangle =$$

$$\hat{1}_{\beta}^{+}|P_{14}\rangle =$$

$$\hat{1}_{\beta}^{+}|P_{15}\rangle =$$

$$\hat{O}_7 : \langle P_p | \hat{1}_{\beta}^{-} | P_q \rangle = \Rightarrow$$

$$\hat{1}_{\beta}^{-}|P_0\rangle = c_{7,7,0}^{mdl} P_7 + c_{7,8,0}^{mdl} P_8$$

$$c_{7,7,0}^{mdl} = (-c_{0,1}^{ci}) * c_{7,7}^{inv} + (-c_{0,3}^{ci}) * c_{8,7}^{inv}$$

$$c_{7,8,0}^{mdl} = (-c_{0,1}^{ci}) * c_{7,8}^{inv} + (-c_{0,3}^{ci}) * c_{8,8}^{inv}$$

$$\hat{1}_{\beta}^{-}|P_1\rangle = c_{7,7,1}^{mdl} P_7 + c_{7,8,1}^{mdl} P_8$$

$$c_{7,7,1}^{mdl} = (-c_{1,1}^{ci}) * c_{7,7}^{inv} + (-c_{1,3}^{ci}) * c_{8,7}^{inv}$$

$$c_{7,8,1}^{mdl} = (-c_{1,1}^{ci}) * c_{7,8}^{inv} + (-c_{1,3}^{ci}) * c_{8,8}^{inv}$$

$$\hat{1}_{\beta}^{-}|P_2\rangle = c_{7,7,2}^{mdl} P_7 + c_{7,8,2}^{mdl} P_8$$

$$c_{7,7,2}^{mdl} = (-c_{2,1}^{ci}) * c_{7,7}^{inv} + (-c_{2,3}^{ci}) * c_{8,7}^{inv}$$

$$c_{7,8,2}^{mdl} = (-c_{2,1}^{ci}) * c_{7,8}^{inv} + (-c_{2,3}^{ci}) * c_{8,8}^{inv}$$

$$\hat{1}_{\beta}^{-}|P_3\rangle = c_{7,7,3}^{mdl} P_7 + c_{7,8,3}^{mdl} P_8$$

$$c_{7,7,3}^{mdl} = (-c_{3,1}^{ci}) * c_{7,7}^{inv} + (-c_{3,3}^{ci}) * c_{8,7}^{inv}$$

$$c_{7,8,3}^{mdl} = (-c_{3,1}^{ci}) * c_{7,8}^{inv} + (-c_{3,3}^{ci}) * c_{8,8}^{inv}$$

$$\hat{1}_{\beta}^{-}|P_4\rangle =$$

$$\hat{1}_{\beta}^{-}|P_5\rangle = c_{7,9,5}^{mdl} P_9 + c_{7,10,5}^{mdl} P_{10}$$

$$c_{7,9,5}^{mdl} = (-c_{5,5}^{ci}) * c_{9,9}^{inv}$$

$$c_{7,10,5}^{mdl} = (-c_{5,5}^{ci}) * c_{9,10}^{inv}$$

$$\hat{1}_{\beta}^{-}|P_6\rangle =$$

$$\hat{1}_{\beta}^{-}|P_7\rangle =$$

$$\hat{1}_{\beta}^{-}|P_8\rangle =$$

$$\hat{1}_{\beta}^{-}|P_9\rangle = c_{7,6,9}^{mdl} P_6$$

$$c_{7,6,9}^{mdl} = c_{9,10}^{ci} * c_{6,6}^{inv}$$

$$\hat{1}_{\beta}^{-}|P_{10}\rangle = c_{7,6,10}^{mdl} P_6$$

$$c_{7,6,10}^{mdl} = c_{10,10}^{ci} * c_{6,6}^{inv}$$

$$\begin{aligned}
\hat{1}_\beta^- |P_{11}\rangle &= c_{7,4,11}^{mdl} P_4 \\
c_{7,4,11}^{mdl} &= c_{11,12}^{ci} * c_{4,4}^{inv} \\
\hat{1}_\beta^- |P_{12}\rangle &= c_{7,4,12}^{mdl} P_4 \\
c_{7,4,12}^{mdl} &= c_{12,12}^{ci} * c_{4,4}^{inv} \\
\hat{1}_\beta^- |P_{13}\rangle &= c_{7,0,13}^{mdl} P_0 + c_{7,1,13}^{mdl} P_1 + c_{7,2,13}^{mdl} P_2 + c_{7,3,13}^{mdl} P_3 \\
c_{7,0,13}^{mdl} &= c_{13,13}^{ci} * c_{0,0}^{inv} + c_{13,14}^{ci} * c_{2,0}^{inv} \\
c_{7,1,13}^{mdl} &= c_{13,13}^{ci} * c_{0,1}^{inv} + c_{13,14}^{ci} * c_{2,1}^{inv} \\
c_{7,2,13}^{mdl} &= c_{13,13}^{ci} * c_{0,2}^{inv} + c_{13,14}^{ci} * c_{2,2}^{inv} \\
c_{7,3,13}^{mdl} &= c_{13,13}^{ci} * c_{0,3}^{inv} + c_{13,14}^{ci} * c_{2,3}^{inv} \\
\hat{1}_\beta^- |P_{14}\rangle &= c_{7,0,14}^{mdl} P_0 + c_{7,1,14}^{mdl} P_1 + c_{7,2,14}^{mdl} P_2 + c_{7,3,14}^{mdl} P_3 \\
c_{7,0,14}^{mdl} &= c_{14,13}^{ci} * c_{0,0}^{inv} + c_{14,14}^{ci} * c_{2,0}^{inv} \\
c_{7,1,14}^{mdl} &= c_{14,13}^{ci} * c_{0,1}^{inv} + c_{14,14}^{ci} * c_{2,1}^{inv} \\
c_{7,2,14}^{mdl} &= c_{14,13}^{ci} * c_{0,2}^{inv} + c_{14,14}^{ci} * c_{2,2}^{inv} \\
c_{7,3,14}^{mdl} &= c_{14,13}^{ci} * c_{0,3}^{inv} + c_{14,14}^{ci} * c_{2,3}^{inv} \\
\hat{1}_\beta^- |P_{15}\rangle &= c_{7,11,15}^{mdl} P_{11} + c_{7,12,15}^{mdl} P_{12} \\
c_{7,11,15}^{mdl} &= (-c_{15,15}^{ci}) * c_{11,11}^{inv} \\
c_{7,12,15}^{mdl} &= (-c_{15,15}^{ci}) * c_{11,12}^{inv}
\end{aligned}$$

$$\hat{O}_8 : \langle P_p | \hat{0}_\alpha^+ \hat{0}_\alpha^+ | P_q \rangle =>$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ | P_0 \rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ | P_1 \rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ | P_2 \rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ | P_3 \rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ | P_4 \rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ | P_5 \rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ | P_6 \rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ | P_7 \rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ | P_8 \rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ | P_9 \rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ |P_{10}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ |P_{11}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ |P_{12}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ |P_{13}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ |P_{14}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ |P_{15}\rangle =$$

$$\hat{O}_9 : \langle P_p | \hat{0}_\alpha^+ \hat{0}_\alpha^- | P_q \rangle =>$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- |P_0\rangle = c_{9,0,0}^{mdl} P_0 + c_{9,1,0}^{mdl} P_1 + c_{9,2,0}^{mdl} P_2 + c_{9,3,0}^{mdl} P_3$$

$$c_{9,0,0}^{mdl} = c_{0,0}^{ci} * c_{0,0}^{inv} + c_{0,1}^{ci} * c_{1,0}^{inv}$$

$$c_{9,1,0}^{mdl} = c_{0,0}^{ci} * c_{0,1}^{inv} + c_{0,1}^{ci} * c_{1,1}^{inv}$$

$$c_{9,2,0}^{mdl} = c_{0,0}^{ci} * c_{0,2}^{inv} + c_{0,1}^{ci} * c_{1,2}^{inv}$$

$$c_{9,3,0}^{mdl} = c_{0,0}^{ci} * c_{0,3}^{inv} + c_{0,1}^{ci} * c_{1,3}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- |P_1\rangle = c_{9,0,1}^{mdl} P_0 + c_{9,1,1}^{mdl} P_1 + c_{9,2,1}^{mdl} P_2 + c_{9,3,1}^{mdl} P_3$$

$$c_{9,0,1}^{mdl} = c_{1,0}^{ci} * c_{0,0}^{inv} + c_{1,1}^{ci} * c_{1,0}^{inv}$$

$$c_{9,1,1}^{mdl} = c_{1,0}^{ci} * c_{0,1}^{inv} + c_{1,1}^{ci} * c_{1,1}^{inv}$$

$$c_{9,2,1}^{mdl} = c_{1,0}^{ci} * c_{0,2}^{inv} + c_{1,1}^{ci} * c_{1,2}^{inv}$$

$$c_{9,3,1}^{mdl} = c_{1,0}^{ci} * c_{0,3}^{inv} + c_{1,1}^{ci} * c_{1,3}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- |P_2\rangle = c_{9,0,2}^{mdl} P_0 + c_{9,1,2}^{mdl} P_1 + c_{9,2,2}^{mdl} P_2 + c_{9,3,2}^{mdl} P_3$$

$$c_{9,0,2}^{mdl} = c_{2,0}^{ci} * c_{0,0}^{inv} + c_{2,1}^{ci} * c_{1,0}^{inv}$$

$$c_{9,1,2}^{mdl} = c_{2,0}^{ci} * c_{0,1}^{inv} + c_{2,1}^{ci} * c_{1,1}^{inv}$$

$$c_{9,2,2}^{mdl} = c_{2,0}^{ci} * c_{0,2}^{inv} + c_{2,1}^{ci} * c_{1,2}^{inv}$$

$$c_{9,3,2}^{mdl} = c_{2,0}^{ci} * c_{0,3}^{inv} + c_{2,1}^{ci} * c_{1,3}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- |P_3\rangle = c_{9,0,3}^{mdl} P_0 + c_{9,1,3}^{mdl} P_1 + c_{9,2,3}^{mdl} P_2 + c_{9,3,3}^{mdl} P_3$$

$$c_{9,0,3}^{mdl} = c_{3,0}^{ci} * c_{0,0}^{inv} + c_{3,1}^{ci} * c_{1,0}^{inv}$$

$$c_{9,1,3}^{mdl} = c_{3,0}^{ci} * c_{0,1}^{inv} + c_{3,1}^{ci} * c_{1,1}^{inv}$$

$$c_{9,2,3}^{mdl} = c_{3,0}^{ci} * c_{0,2}^{inv} + c_{3,1}^{ci} * c_{1,2}^{inv}$$

$$c_{9,3,3}^{mdl} = c_{3,0}^{ci} * c_{0,3}^{inv} + c_{3,1}^{ci} * c_{1,3}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- |P_4\rangle = c_{9,4,4}^{mdl} P_4$$

$$c_{9,4,4}^{mdl} = c_{4,4}^{ci} * c_{4,4}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- |P_5\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- |P_6\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- |P_7\rangle = c_{9,7,7}^{mdl} P_7 + c_{9,8,7}^{mdl} P_8$$

$$c_{9,7,7}^{mdl} = c_{7,7}^{ci} * c_{7,7}^{inv}$$

$$c_{9,8,7}^{mdl} = c_{7,7}^{ci} * c_{7,8}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- |P_8\rangle = c_{9,7,8}^{mdl} P_7 + c_{9,8,8}^{mdl} P_8$$

$$c_{9,7,8}^{mdl} = c_{8,7}^{ci} * c_{7,7}^{inv}$$

$$c_{9,8,8}^{mdl} = c_{8,7}^{ci} * c_{7,8}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- |P_9\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- |P_{10}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- |P_{11}\rangle = c_{9,11,11}^{mdl} P_{11} + c_{9,12,11}^{mdl} P_{12}$$

$$c_{9,11,11}^{mdl} = c_{11,11}^{ci} * c_{11,11}^{inv} + c_{11,12}^{ci} * c_{12,11}^{inv}$$

$$c_{9,12,11}^{mdl} = c_{11,11}^{ci} * c_{11,12}^{inv} + c_{11,12}^{ci} * c_{12,12}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- |P_{12}\rangle = c_{9,11,12}^{mdl} P_{11} + c_{9,12,12}^{mdl} P_{12}$$

$$c_{9,11,12}^{mdl} = c_{12,11}^{ci} * c_{11,11}^{inv} + c_{12,12}^{ci} * c_{12,11}^{inv}$$

$$c_{9,12,12}^{mdl} = c_{12,11}^{ci} * c_{11,12}^{inv} + c_{12,12}^{ci} * c_{12,12}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- |P_{13}\rangle = c_{9,13,13}^{mdl} P_{13} + c_{9,14,13}^{mdl} P_{14}$$

$$c_{9,13,13}^{mdl} = c_{13,13}^{ci} * c_{13,13}^{inv}$$

$$c_{9,14,13}^{mdl} = c_{13,13}^{ci} * c_{13,14}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- |P_{14}\rangle = c_{9,13,14}^{mdl} P_{13} + c_{9,14,14}^{mdl} P_{14}$$

$$c_{9,13,14}^{mdl} = c_{14,13}^{ci} * c_{13,13}^{inv}$$

$$c_{9,14,14}^{mdl} = c_{14,13}^{ci} * c_{13,14}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- |P_{15}\rangle = c_{9,15,15}^{mdl} P_{15}$$

$$c_{9,15,15}^{mdl} = c_{15,15}^{ci} * c_{15,15}^{inv}$$

$$\hat{O}_{10} : \langle P_p | \hat{0}_\alpha^- \hat{0}_\alpha^- | P_q \rangle = >$$

$$\hat{0}_\alpha^- \hat{0}_\alpha^- |P_0\rangle =$$

$$\hat{0}_\alpha^- \hat{0}_\alpha^- |P_1\rangle =$$

$$\hat{0}_\alpha^- \hat{0}_\alpha^- |P_2\rangle =$$

$$\hat{0}_\alpha^- \hat{0}_\alpha^- |P_3\rangle =$$

$$\hat{0}_\alpha^- \hat{0}_\alpha^- |P_4\rangle =$$

$$\hat{0}_\alpha^- \hat{0}_\alpha^- |P_5\rangle =$$

$$\hat{0}_\alpha^- \hat{0}_\alpha^- |P_6\rangle =$$

$$\hat{0}_\alpha^- \hat{0}_\alpha^- |P_7\rangle =$$

$$\hat{0}_\alpha^- \hat{0}_\alpha^- |P_8\rangle =$$

$$\hat{0}_\alpha^- \hat{0}_\alpha^- |P_9\rangle =$$

$$\hat{0}_\alpha^- \hat{0}_\alpha^- |P_{10}\rangle =$$

$$\hat{0}_\alpha^- \hat{0}_\alpha^- |P_{11}\rangle =$$

$$\hat{0}_\alpha^- \hat{0}_\alpha^- |P_{12}\rangle =$$

$$\hat{0}_\alpha^- \hat{0}_\alpha^- |P_{13}\rangle =$$

$$\hat{0}_\alpha^- \hat{0}_\alpha^- |P_{14}\rangle =$$

$$\hat{0}_\alpha^- \hat{0}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{11} : \langle P_p | \hat{0}_\alpha^+ \hat{0}_\beta^+ | P_q \rangle = >$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ |P_0\rangle = c_{11,15,0}^{mdl} P_{15}$$

$$c_{11,15,0}^{mdl} = c_{0,3}^{ci} * c_{15,15}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ |P_1\rangle = c_{11,15,1}^{mdl} P_{15}$$

$$c_{11,15,1}^{mdl} = c_{1,3}^{ci} * c_{15,15}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ |P_2\rangle = c_{11,15,2}^{mdl} P_{15}$$

$$c_{11,15,2}^{mdl} = c_{2,3}^{ci} * c_{15,15}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ |P_3\rangle = c_{11,15,3}^{mdl} P_{15}$$

$$c_{11,15,3}^{mdl} = c_{3,3}^{ci} * c_{15,15}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ |P_4\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ |P_5\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ |P_6\rangle = c_{11,0,6}^{mdl} P_0 + c_{11,1,6}^{mdl} P_1 + c_{11,2,6}^{mdl} P_2 + c_{11,3,6}^{mdl} P_3$$

$$c_{11,0,6}^{mdl} = c_{6,6}^{ci} * c_{0,0}^{inv}$$

$$c_{11,1,6}^{mdl} = c_{6,6}^{ci} * c_{0,1}^{inv}$$

$$c_{11,2,6}^{mdl} = c_{6,6}^{ci} * c_{0,2}^{inv}$$

$$c_{11,3,6}^{mdl} = c_{6,6}^{ci} * c_{0,3}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ |P_7\rangle = c_{11,11,7}^{mdl} P_{11} + c_{11,12,7}^{mdl} P_{12}$$

$$c_{11,11,7}^{mdl} = c_{7,8}^{ci} * c_{11,11}^{inv}$$

$$c_{11,12,7}^{mdl} = c_{7,8}^{ci} * c_{11,12}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ |P_8\rangle = c_{11,11,8}^{mdl} P_{11} + c_{11,12,8}^{mdl} P_{12}$$

$$c_{11,11,8}^{mdl} = c_{8,8}^{ci} * c_{11,11}^{inv}$$

$$c_{11,12,8}^{mdl} = c_{8,8}^{ci} * c_{11,12}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ |P_9\rangle = c_{11,13,9}^{mdl} P_{13} + c_{11,14,9}^{mdl} P_{14}$$

$$c_{11,13,9}^{mdl} = c_{9,10}^{ci} * c_{13,13}^{inv}$$

$$c_{11,14,9}^{mdl} = c_{9,10}^{ci} * c_{13,14}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ |P_{10}\rangle = c_{11,13,10}^{mdl} P_{13} + c_{11,14,10}^{mdl} P_{14}$$

$$c_{11,13,10}^{mdl} = c_{10,10}^{ci} * c_{13,13}^{inv}$$

$$c_{11,14,10}^{mdl} = c_{10,10}^{ci} * c_{13,14}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ |P_{11}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ |P_{12}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ |P_{13}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ |P_{14}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ |P_{15}\rangle =$$

$$\hat{O}_{12} : \langle P_p | \hat{0}_\alpha^+ \hat{0}_\beta^- | P_q \rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^- |P_0\rangle = c_{12,4,0}^{mdl} P_4$$

$$c_{12,4,0}^{mdl} = c_{0,2}^{ci} * c_{4,4}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^- |P_1\rangle = c_{12,4,1}^{mdl} P_4$$

$$c_{12,4,1}^{mdl} = c_{1,2}^{ci} * c_{4,4}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^- |P_2\rangle = c_{12,4,2}^{mdl} P_4$$

$$c_{12,4,2}^{mdl} = c_{2,2}^{ci} * c_{4,4}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^- |P_3\rangle = c_{12,4,3}^{mdl} P_4$$

$$c_{12,4,3}^{mdl} = c_{3,2}^{ci} * c_{4,4}^{inv}$$

$$\begin{aligned}
\hat{0}_\alpha^+ \hat{0}_\beta^- |P_4\rangle &= \\
\hat{0}_\alpha^+ \hat{0}_\beta^- |P_5\rangle &= c_{12,0,5}^{mdl} P_0 + c_{12,1,5}^{mdl} P_1 + c_{12,2,5}^{mdl} P_2 + c_{12,3,5}^{mdl} P_3 \\
c_{12,0,5}^{mdl} &= c_{5,5}^{ci} * c_{1,0}^{inv} \\
c_{12,1,5}^{mdl} &= c_{5,5}^{ci} * c_{1,1}^{inv} \\
c_{12,2,5}^{mdl} &= c_{5,5}^{ci} * c_{1,2}^{inv} \\
c_{12,3,5}^{mdl} &= c_{5,5}^{ci} * c_{1,3}^{inv} \\
\hat{0}_\alpha^+ \hat{0}_\beta^- |P_6\rangle &= \\
\hat{0}_\alpha^+ \hat{0}_\beta^- |P_7\rangle &= \\
\hat{0}_\alpha^+ \hat{0}_\beta^- |P_8\rangle &= \\
\hat{0}_\alpha^+ \hat{0}_\beta^- |P_9\rangle &= c_{12,7,9}^{mdl} P_7 + c_{12,8,9}^{mdl} P_8 \\
c_{12,7,9}^{mdl} &= c_{9,9}^{ci} * c_{7,7}^{inv} \\
c_{12,8,9}^{mdl} &= c_{9,9}^{ci} * c_{7,8}^{inv} \\
\hat{0}_\alpha^+ \hat{0}_\beta^- |P_{10}\rangle &= c_{12,7,10}^{mdl} P_7 + c_{12,8,10}^{mdl} P_8 \\
c_{12,7,10}^{mdl} &= c_{10,9}^{ci} * c_{7,7}^{inv} \\
c_{12,8,10}^{mdl} &= c_{10,9}^{ci} * c_{7,8}^{inv} \\
\hat{0}_\alpha^+ \hat{0}_\beta^- |P_{11}\rangle &= \\
\hat{0}_\alpha^+ \hat{0}_\beta^- |P_{12}\rangle &= \\
\hat{0}_\alpha^+ \hat{0}_\beta^- |P_{13}\rangle &= c_{12,11,13}^{mdl} P_{11} + c_{12,12,13}^{mdl} P_{12} \\
c_{12,11,13}^{mdl} &= c_{13,14}^{ci} * c_{12,11}^{inv} \\
c_{12,12,13}^{mdl} &= c_{13,14}^{ci} * c_{12,12}^{inv} \\
\hat{0}_\alpha^+ \hat{0}_\beta^- |P_{14}\rangle &= c_{12,11,14}^{mdl} P_{11} + c_{12,12,14}^{mdl} P_{12} \\
c_{12,11,14}^{mdl} &= c_{14,14}^{ci} * c_{12,11}^{inv} \\
c_{12,12,14}^{mdl} &= c_{14,14}^{ci} * c_{12,12}^{inv} \\
\hat{0}_\alpha^+ \hat{0}_\beta^- |P_{15}\rangle &= \\
\hat{O}_{13} : \langle P_p | \hat{0}_\alpha^- \hat{0}_\beta^- | P_q \rangle &=> \\
\hat{0}_\alpha^- \hat{0}_\beta^- |P_0\rangle &= c_{13,6,0}^{mdl} P_6 \\
c_{13,6,0}^{mdl} &= (-c_{0,0}^{ci}) * c_{6,6}^{inv} \\
\hat{0}_\alpha^- \hat{0}_\beta^- |P_1\rangle &= c_{13,6,1}^{mdl} P_6
\end{aligned}$$

$$\begin{aligned}
c_{13,6,1}^{mdl} &= (-c_{1,0}^{ci}) * c_{6,6}^{inv} \\
\hat{0}_\alpha^- \hat{0}_\beta^- |P_2\rangle &= c_{13,6,2}^{mdl} P_6 \\
c_{13,6,2}^{mdl} &= (-c_{2,0}^{ci}) * c_{6,6}^{inv} \\
\hat{0}_\alpha^- \hat{0}_\beta^- |P_3\rangle &= c_{13,6,3}^{mdl} P_6 \\
c_{13,6,3}^{mdl} &= (-c_{3,0}^{ci}) * c_{6,6}^{inv} \\
\hat{0}_\alpha^- \hat{0}_\beta^- |P_4\rangle &= \\
\hat{0}_\alpha^- \hat{0}_\beta^- |P_5\rangle &= \\
\hat{0}_\alpha^- \hat{0}_\beta^- |P_6\rangle &= \\
\hat{0}_\alpha^- \hat{0}_\beta^- |P_7\rangle &= \\
\hat{0}_\alpha^- \hat{0}_\beta^- |P_8\rangle &= \\
\hat{0}_\alpha^- \hat{0}_\beta^- |P_9\rangle &= \\
\hat{0}_\alpha^- \hat{0}_\beta^- |P_{10}\rangle &= \\
\hat{0}_\alpha^- \hat{0}_\beta^- |P_{11}\rangle &= c_{13,7,11}^{mdl} P_7 + c_{13,8,11}^{mdl} P_8 \\
c_{13,7,11}^{mdl} &= (-c_{11,11}^{ci}) * c_{8,7}^{inv} \\
c_{13,8,11}^{mdl} &= (-c_{11,11}^{ci}) * c_{8,8}^{inv} \\
\hat{0}_\alpha^- \hat{0}_\beta^- |P_{12}\rangle &= c_{13,7,12}^{mdl} P_7 + c_{13,8,12}^{mdl} P_8 \\
c_{13,7,12}^{mdl} &= (-c_{12,11}^{ci}) * c_{8,7}^{inv} \\
c_{13,8,12}^{mdl} &= (-c_{12,11}^{ci}) * c_{8,8}^{inv} \\
\hat{0}_\alpha^- \hat{0}_\beta^- |P_{13}\rangle &= c_{13,9,13}^{mdl} P_9 + c_{13,10,13}^{mdl} P_{10} \\
c_{13,9,13}^{mdl} &= (-c_{13,13}^{ci}) * c_{10,9}^{inv} \\
c_{13,10,13}^{mdl} &= (-c_{13,13}^{ci}) * c_{10,10}^{inv} \\
\hat{0}_\alpha^- \hat{0}_\beta^- |P_{14}\rangle &= c_{13,9,14}^{mdl} P_9 + c_{13,10,14}^{mdl} P_{10} \\
c_{13,9,14}^{mdl} &= (-c_{14,13}^{ci}) * c_{10,9}^{inv} \\
c_{13,10,14}^{mdl} &= (-c_{14,13}^{ci}) * c_{10,10}^{inv} \\
\hat{0}_\alpha^- \hat{0}_\beta^- |P_{15}\rangle &= c_{13,0,15}^{mdl} P_0 + c_{13,1,15}^{mdl} P_1 + c_{13,2,15}^{mdl} P_2 + c_{13,3,15}^{mdl} P_3 \\
c_{13,0,15}^{mdl} &= (-c_{15,15}^{ci}) * c_{3,0}^{inv} \\
c_{13,1,15}^{mdl} &= (-c_{15,15}^{ci}) * c_{3,1}^{inv} \\
c_{13,2,15}^{mdl} &= (-c_{15,15}^{ci}) * c_{3,2}^{inv} \\
c_{13,3,15}^{mdl} &= (-c_{15,15}^{ci}) * c_{3,3}^{inv}
\end{aligned}$$

$$\hat{O}_{14} : \langle P_p | \hat{0}_\alpha^+ \hat{1}_\alpha^+ | P_q \rangle = >$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ | P_0 \rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ | P_1 \rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ | P_2 \rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ | P_3 \rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ | P_4 \rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ | P_5 \rangle = c_{14,15,5}^{mdl} P_{15}$$

$$c_{14,15,5}^{mdl} = (-c_{5,5}^{ci}) * c_{15,15}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ | P_6 \rangle = c_{14,4,6}^{mdl} P_4$$

$$c_{14,4,6}^{mdl} = c_{6,6}^{ci} * c_{4,4}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ | P_7 \rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ | P_8 \rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ | P_9 \rangle = c_{14,11,9}^{mdl} P_{11} + c_{14,12,9}^{mdl} P_{12}$$

$$c_{14,11,9}^{mdl} = (-c_{9,9}^{ci}) * c_{11,11}^{inv} + c_{9,10}^{ci} * c_{12,11}^{inv}$$

$$c_{14,12,9}^{mdl} = (-c_{9,9}^{ci}) * c_{11,12}^{inv} + c_{9,10}^{ci} * c_{12,12}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ | P_{10} \rangle = c_{14,11,10}^{mdl} P_{11} + c_{14,12,10}^{mdl} P_{12}$$

$$c_{14,11,10}^{mdl} = (-c_{10,9}^{ci}) * c_{11,11}^{inv} + c_{10,10}^{ci} * c_{12,11}^{inv}$$

$$c_{14,12,10}^{mdl} = (-c_{10,9}^{ci}) * c_{11,12}^{inv} + c_{10,10}^{ci} * c_{12,12}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ | P_{11} \rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ | P_{12} \rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ | P_{13} \rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ | P_{14} \rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ | P_{15} \rangle =$$

$$\hat{O}_{15} : \langle P_p | \hat{0}_\alpha^+ \hat{1}_\alpha^- | P_q \rangle = >$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^- | P_0 \rangle = c_{15,0,0}^{mdl} P_0 + c_{15,1,0}^{mdl} P_1 + c_{15,2,0}^{mdl} P_2 + c_{15,3,0}^{mdl} P_3$$

$$c_{15,0,0}^{mdl} = (-c_{0,2}^{ci}) * c_{0,0}^{inv} + c_{0,3}^{ci} * c_{1,0}^{inv}$$

$$c_{15,1,0}^{mdl} = (-c_{0,2}^{ci}) * c_{0,1}^{inv} + c_{0,3}^{ci} * c_{1,1}^{inv}$$

$$\begin{aligned}
c_{15,2,0}^{mdl} &= (-c_{0,2}^{ci}) * c_{0,2}^{inv} + c_{0,3}^{ci} * c_{1,2}^{inv} \\
c_{15,3,0}^{mdl} &= (-c_{0,2}^{ci}) * c_{0,3}^{inv} + c_{0,3}^{ci} * c_{1,3}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\alpha^- |P_1\rangle &= c_{15,0,1}^{mdl} P_0 + c_{15,1,1}^{mdl} P_1 + c_{15,2,1}^{mdl} P_2 + c_{15,3,1}^{mdl} P_3 \\
c_{15,0,1}^{mdl} &= (-c_{1,2}^{ci}) * c_{0,0}^{inv} + c_{1,3}^{ci} * c_{1,0}^{inv} \\
c_{15,1,1}^{mdl} &= (-c_{1,2}^{ci}) * c_{0,1}^{inv} + c_{1,3}^{ci} * c_{1,1}^{inv} \\
c_{15,2,1}^{mdl} &= (-c_{1,2}^{ci}) * c_{0,2}^{inv} + c_{1,3}^{ci} * c_{1,2}^{inv} \\
c_{15,3,1}^{mdl} &= (-c_{1,2}^{ci}) * c_{0,3}^{inv} + c_{1,3}^{ci} * c_{1,3}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\alpha^- |P_2\rangle &= c_{15,0,2}^{mdl} P_0 + c_{15,1,2}^{mdl} P_1 + c_{15,2,2}^{mdl} P_2 + c_{15,3,2}^{mdl} P_3 \\
c_{15,0,2}^{mdl} &= (-c_{2,2}^{ci}) * c_{0,0}^{inv} + c_{2,3}^{ci} * c_{1,0}^{inv} \\
c_{15,1,2}^{mdl} &= (-c_{2,2}^{ci}) * c_{0,1}^{inv} + c_{2,3}^{ci} * c_{1,1}^{inv} \\
c_{15,2,2}^{mdl} &= (-c_{2,2}^{ci}) * c_{0,2}^{inv} + c_{2,3}^{ci} * c_{1,2}^{inv} \\
c_{15,3,2}^{mdl} &= (-c_{2,2}^{ci}) * c_{0,3}^{inv} + c_{2,3}^{ci} * c_{1,3}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\alpha^- |P_3\rangle &= c_{15,0,3}^{mdl} P_0 + c_{15,1,3}^{mdl} P_1 + c_{15,2,3}^{mdl} P_2 + c_{15,3,3}^{mdl} P_3 \\
c_{15,0,3}^{mdl} &= (-c_{3,2}^{ci}) * c_{0,0}^{inv} + c_{3,3}^{ci} * c_{1,0}^{inv} \\
c_{15,1,3}^{mdl} &= (-c_{3,2}^{ci}) * c_{0,1}^{inv} + c_{3,3}^{ci} * c_{1,1}^{inv} \\
c_{15,2,3}^{mdl} &= (-c_{3,2}^{ci}) * c_{0,2}^{inv} + c_{3,3}^{ci} * c_{1,2}^{inv} \\
c_{15,3,3}^{mdl} &= (-c_{3,2}^{ci}) * c_{0,3}^{inv} + c_{3,3}^{ci} * c_{1,3}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\alpha^- |P_4\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\alpha^- |P_5\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\alpha^- |P_6\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\alpha^- |P_7\rangle &= c_{15,7,7}^{mdl} P_7 + c_{15,8,7}^{mdl} P_8 \\
c_{15,7,7}^{mdl} &= c_{7,8}^{ci} * c_{7,7}^{inv} \\
c_{15,8,7}^{mdl} &= c_{7,8}^{ci} * c_{7,8}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\alpha^- |P_8\rangle &= c_{15,7,8}^{mdl} P_7 + c_{15,8,8}^{mdl} P_8 \\
c_{15,7,8}^{mdl} &= c_{8,8}^{ci} * c_{7,7}^{inv} \\
c_{15,8,8}^{mdl} &= c_{8,8}^{ci} * c_{7,8}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\alpha^- |P_9\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\alpha^- |P_{10}\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\alpha^- |P_{11}\rangle &=
\end{aligned}$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^- |P_{12}\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^- |P_{13}\rangle = c_{15,13,13}^{mdl} P_{13} + c_{15,14,13}^{mdl} P_{14}$$

$$c_{15,13,13}^{mdl} = (-c_{13,14}^{ci}) * c_{13,13}^{inv}$$

$$c_{15,14,13}^{mdl} = (-c_{13,14}^{ci}) * c_{13,14}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^- |P_{14}\rangle = c_{15,13,14}^{mdl} P_{13} + c_{15,14,14}^{mdl} P_{14}$$

$$c_{15,13,14}^{mdl} = (-c_{14,14}^{ci}) * c_{13,13}^{inv}$$

$$c_{15,14,14}^{mdl} = (-c_{14,14}^{ci}) * c_{13,14}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{16} : \langle P_p | \hat{0}_\alpha^- \hat{1}_\alpha^- | P_q \rangle =>$$

$$\hat{0}_\alpha^- \hat{1}_\alpha^- |P_0\rangle =$$

$$\hat{0}_\alpha^- \hat{1}_\alpha^- |P_1\rangle =$$

$$\hat{0}_\alpha^- \hat{1}_\alpha^- |P_2\rangle =$$

$$\hat{0}_\alpha^- \hat{1}_\alpha^- |P_3\rangle =$$

$$\hat{0}_\alpha^- \hat{1}_\alpha^- |P_4\rangle = c_{16,6,4}^{mdl} P_6$$

$$c_{16,6,4}^{mdl} = (-c_{4,4}^{ci}) * c_{6,6}^{inv}$$

$$\hat{0}_\alpha^- \hat{1}_\alpha^- |P_5\rangle =$$

$$\hat{0}_\alpha^- \hat{1}_\alpha^- |P_6\rangle =$$

$$\hat{0}_\alpha^- \hat{1}_\alpha^- |P_7\rangle =$$

$$\hat{0}_\alpha^- \hat{1}_\alpha^- |P_8\rangle =$$

$$\hat{0}_\alpha^- \hat{1}_\alpha^- |P_9\rangle =$$

$$\hat{0}_\alpha^- \hat{1}_\alpha^- |P_{10}\rangle =$$

$$\hat{0}_\alpha^- \hat{1}_\alpha^- |P_{11}\rangle = c_{16,9,11}^{mdl} P_9 + c_{16,10,11}^{mdl} P_{10}$$

$$c_{16,9,11}^{mdl} = c_{11,11}^{ci} * c_{9,9}^{inv} + (-c_{11,12}^{ci}) * c_{10,9}^{inv}$$

$$c_{16,10,11}^{mdl} = c_{11,11}^{ci} * c_{9,10}^{inv} + (-c_{11,12}^{ci}) * c_{10,10}^{inv}$$

$$\hat{0}_\alpha^- \hat{1}_\alpha^- |P_{12}\rangle = c_{16,9,12}^{mdl} P_9 + c_{16,10,12}^{mdl} P_{10}$$

$$c_{16,9,12}^{mdl} = c_{12,11}^{ci} * c_{9,9}^{inv} + (-c_{12,12}^{ci}) * c_{10,9}^{inv}$$

$$c_{16,10,12}^{mdl} = c_{12,11}^{ci} * c_{9,10}^{inv} + (-c_{12,12}^{ci}) * c_{10,10}^{inv}$$

$$\hat{0}_\alpha^- \hat{1}_\alpha^- |P_{13}\rangle =$$

$$\hat{0}_\alpha^- \hat{1}_\alpha^- |P_{14}\rangle =$$

$$\hat{0}_\alpha^- \hat{1}_\alpha^- |P_{15}\rangle = c_{16,5,15}^{mdl} P_5$$

$$c_{16,5,15}^{mdl} = c_{15,15}^{ci} * c_{5,5}^{inv}$$

$$\hat{O}_{17} : \langle P_p | \hat{0}_\alpha^+ \hat{1}_\beta^+ | P_q \rangle =>$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ |P_0\rangle = c_{17,15,0}^{mdl} P_{15}$$

$$c_{17,15,0}^{mdl} = c_{0,2}^{ci} * c_{15,15}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ |P_1\rangle = c_{17,15,1}^{mdl} P_{15}$$

$$c_{17,15,1}^{mdl} = c_{1,2}^{ci} * c_{15,15}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ |P_2\rangle = c_{17,15,2}^{mdl} P_{15}$$

$$c_{17,15,2}^{mdl} = c_{2,2}^{ci} * c_{15,15}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ |P_3\rangle = c_{17,15,3}^{mdl} P_{15}$$

$$c_{17,15,3}^{mdl} = c_{3,2}^{ci} * c_{15,15}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ |P_4\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ |P_5\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ |P_6\rangle = c_{17,0,6}^{mdl} P_0 + c_{17,1,6}^{mdl} P_1 + c_{17,2,6}^{mdl} P_2 + c_{17,3,6}^{mdl} P_3$$

$$c_{17,0,6}^{mdl} = c_{6,6}^{ci} * c_{1,0}^{inv}$$

$$c_{17,1,6}^{mdl} = c_{6,6}^{ci} * c_{1,1}^{inv}$$

$$c_{17,2,6}^{mdl} = c_{6,6}^{ci} * c_{1,2}^{inv}$$

$$c_{17,3,6}^{mdl} = c_{6,6}^{ci} * c_{1,3}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ |P_7\rangle = c_{17,11,7}^{mdl} P_{11} + c_{17,12,7}^{mdl} P_{12}$$

$$c_{17,11,7}^{mdl} = (-c_{7,8}^{ci}) * c_{12,11}^{inv}$$

$$c_{17,12,7}^{mdl} = (-c_{7,8}^{ci}) * c_{12,12}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ |P_8\rangle = c_{17,11,8}^{mdl} P_{11} + c_{17,12,8}^{mdl} P_{12}$$

$$c_{17,11,8}^{mdl} = (-c_{8,8}^{ci}) * c_{12,11}^{inv}$$

$$c_{17,12,8}^{mdl} = (-c_{8,8}^{ci}) * c_{12,12}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ |P_9\rangle = c_{17,13,9}^{mdl} P_{13} + c_{17,14,9}^{mdl} P_{14}$$

$$c_{17,13,9}^{mdl} = (-c_{9,9}^{ci}) * c_{13,13}^{inv}$$

$$c_{17,14,9}^{mdl} = (-c_{9,9}^{ci}) * c_{13,14}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ |P_{10}\rangle = c_{17,13,10}^{mdl} P_{13} + c_{17,14,10}^{mdl} P_{14}$$

$$c_{17,13,10}^{mdl} = (-c_{10,9}^{ci}) * c_{13,13}^{inv}$$

$$c_{17,14,10}^{mdl} = (-c_{10,9}^{ci}) * c_{13,14}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ |P_{11}\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ |P_{12}\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ |P_{13}\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ |P_{14}\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ |P_{15}\rangle =$$

$$\hat{O}_{18} : \langle P_p | \hat{0}_\alpha^+ \hat{1}_\beta^- | P_q \rangle =>$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^- |P_0\rangle = c_{18,4,0}^{mdl} P_4$$

$$c_{18,4,0}^{mdl} = (-c_{0,3}^{ci}) * c_{4,4}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^- |P_1\rangle = c_{18,4,1}^{mdl} P_4$$

$$c_{18,4,1}^{mdl} = (-c_{1,3}^{ci}) * c_{4,4}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^- |P_2\rangle = c_{18,4,2}^{mdl} P_4$$

$$c_{18,4,2}^{mdl} = (-c_{2,3}^{ci}) * c_{4,4}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^- |P_3\rangle = c_{18,4,3}^{mdl} P_4$$

$$c_{18,4,3}^{mdl} = (-c_{3,3}^{ci}) * c_{4,4}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^- |P_4\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^- |P_5\rangle = c_{18,0,5}^{mdl} P_0 + c_{18,1,5}^{mdl} P_1 + c_{18,2,5}^{mdl} P_2 + c_{18,3,5}^{mdl} P_3$$

$$c_{18,0,5}^{mdl} = (-c_{5,5}^{ci}) * c_{0,0}^{inv}$$

$$c_{18,1,5}^{mdl} = (-c_{5,5}^{ci}) * c_{0,1}^{inv}$$

$$c_{18,2,5}^{mdl} = (-c_{5,5}^{ci}) * c_{0,2}^{inv}$$

$$c_{18,3,5}^{mdl} = (-c_{5,5}^{ci}) * c_{0,3}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^- |P_6\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^- |P_7\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^- |P_8\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^- |P_9\rangle = c_{18,7,9}^{mdl} P_7 + c_{18,8,9}^{mdl} P_8$$

$$c_{18,7,9}^{mdl} = c_{9,10}^{ci} * c_{7,7}^{inv}$$

$$\begin{aligned}
c_{18,8,9}^{mdl} &= c_{9,10}^{ci} * c_{7,8}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\beta^- |P_{10}\rangle &= c_{18,7,10}^{mdl} P_7 + c_{18,8,10}^{mdl} P_8 \\
c_{18,7,10}^{mdl} &= c_{10,10}^{ci} * c_{7,7}^{inv} \\
c_{18,8,10}^{mdl} &= c_{10,10}^{ci} * c_{7,8}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\beta^- |P_{11}\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^- |P_{12}\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^- |P_{13}\rangle &= c_{18,11,13}^{mdl} P_{11} + c_{18,12,13}^{mdl} P_{12} \\
c_{18,11,13}^{mdl} &= c_{13,14}^{ci} * c_{11,11}^{inv} \\
c_{18,12,13}^{mdl} &= c_{13,14}^{ci} * c_{11,12}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\beta^- |P_{14}\rangle &= c_{18,11,14}^{mdl} P_{11} + c_{18,12,14}^{mdl} P_{12} \\
c_{18,11,14}^{mdl} &= c_{14,14}^{ci} * c_{11,11}^{inv} \\
c_{18,12,14}^{mdl} &= c_{14,14}^{ci} * c_{11,12}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\beta^- |P_{15}\rangle &=
\end{aligned}$$

$$\begin{aligned}
\hat{O}_{19} : \langle P_p | \hat{0}_\alpha^- \hat{1}_\beta^- | P_q \rangle &= > \\
\hat{0}_\alpha^- \hat{1}_\beta^- |P_0\rangle &= c_{19,6,0}^{mdl} P_6 \\
c_{19,6,0}^{mdl} &= (-c_{0,1}^{ci}) * c_{6,6}^{inv} \\
\hat{0}_\alpha^- \hat{1}_\beta^- |P_1\rangle &= c_{19,6,1}^{mdl} P_6 \\
c_{19,6,1}^{mdl} &= (-c_{1,1}^{ci}) * c_{6,6}^{inv} \\
\hat{0}_\alpha^- \hat{1}_\beta^- |P_2\rangle &= c_{19,6,2}^{mdl} P_6 \\
c_{19,6,2}^{mdl} &= (-c_{2,1}^{ci}) * c_{6,6}^{inv} \\
\hat{0}_\alpha^- \hat{1}_\beta^- |P_3\rangle &= c_{19,6,3}^{mdl} P_6 \\
c_{19,6,3}^{mdl} &= (-c_{3,1}^{ci}) * c_{6,6}^{inv} \\
\hat{0}_\alpha^- \hat{1}_\beta^- |P_4\rangle &= \\
\hat{0}_\alpha^- \hat{1}_\beta^- |P_5\rangle &= \\
\hat{0}_\alpha^- \hat{1}_\beta^- |P_6\rangle &= \\
\hat{0}_\alpha^- \hat{1}_\beta^- |P_7\rangle &= \\
\hat{0}_\alpha^- \hat{1}_\beta^- |P_8\rangle &= \\
\hat{0}_\alpha^- \hat{1}_\beta^- |P_9\rangle &=
\end{aligned}$$

$$\begin{aligned}
\hat{0}_\alpha^- \hat{1}_\beta^- |P_{10}\rangle &= \\
\hat{0}_\alpha^- \hat{1}_\beta^- |P_{11}\rangle &= c_{19,7,11}^{mdl} P_7 + c_{19,8,11}^{mdl} P_8 \\
c_{19,7,11}^{mdl} &= c_{11,12}^{ci} * c_{8,7}^{inv} \\
c_{19,8,11}^{mdl} &= c_{11,12}^{ci} * c_{8,8}^{inv} \\
\hat{0}_\alpha^- \hat{1}_\beta^- |P_{12}\rangle &= c_{19,7,12}^{mdl} P_7 + c_{19,8,12}^{mdl} P_8 \\
c_{19,7,12}^{mdl} &= c_{12,12}^{ci} * c_{8,7}^{inv} \\
c_{19,8,12}^{mdl} &= c_{12,12}^{ci} * c_{8,8}^{inv} \\
\hat{0}_\alpha^- \hat{1}_\beta^- |P_{13}\rangle &= c_{19,9,13}^{mdl} P_9 + c_{19,10,13}^{mdl} P_{10} \\
c_{19,9,13}^{mdl} &= c_{13,13}^{ci} * c_{9,9}^{inv} \\
c_{19,10,13}^{mdl} &= c_{13,13}^{ci} * c_{9,10}^{inv} \\
\hat{0}_\alpha^- \hat{1}_\beta^- |P_{14}\rangle &= c_{19,9,14}^{mdl} P_9 + c_{19,10,14}^{mdl} P_{10} \\
c_{19,9,14}^{mdl} &= c_{14,13}^{ci} * c_{9,9}^{inv} \\
c_{19,10,14}^{mdl} &= c_{14,13}^{ci} * c_{9,10}^{inv} \\
\hat{0}_\alpha^- \hat{1}_\beta^- |P_{15}\rangle &= c_{19,0,15}^{mdl} P_0 + c_{19,1,15}^{mdl} P_1 + c_{19,2,15}^{mdl} P_2 + c_{19,3,15}^{mdl} P_3 \\
c_{19,0,15}^{mdl} &= (-c_{15,15}^{ci}) * c_{2,0}^{inv} \\
c_{19,1,15}^{mdl} &= (-c_{15,15}^{ci}) * c_{2,1}^{inv} \\
c_{19,2,15}^{mdl} &= (-c_{15,15}^{ci}) * c_{2,2}^{inv} \\
c_{19,3,15}^{mdl} &= (-c_{15,15}^{ci}) * c_{2,3}^{inv}
\end{aligned}$$

$$\begin{aligned}
\hat{O}_{20} : \langle P_p | \hat{0}_\beta^+ \hat{0}_\alpha^+ | P_q \rangle &=> \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ | P_0 \rangle &= c_{20,15,0}^{mdl} P_{15} \\
c_{20,15,0}^{mdl} &= (-c_{0,3}^{ci}) * c_{15,15}^{inv} \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ | P_1 \rangle &= c_{20,15,1}^{mdl} P_{15} \\
c_{20,15,1}^{mdl} &= (-c_{1,3}^{ci}) * c_{15,15}^{inv} \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ | P_2 \rangle &= c_{20,15,2}^{mdl} P_{15} \\
c_{20,15,2}^{mdl} &= (-c_{2,3}^{ci}) * c_{15,15}^{inv} \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ | P_3 \rangle &= c_{20,15,3}^{mdl} P_{15} \\
c_{20,15,3}^{mdl} &= (-c_{3,3}^{ci}) * c_{15,15}^{inv} \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ | P_4 \rangle &=
\end{aligned}$$

$$\begin{aligned}
\hat{0}_\beta^+ \hat{0}_\alpha^+ |P_5\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ |P_6\rangle &= c_{20,0,6}^{mdl} P_0 + c_{20,1,6}^{mdl} P_1 + c_{20,2,6}^{mdl} P_2 + c_{20,3,6}^{mdl} P_3 \\
c_{20,0,6}^{mdl} &= (-c_{6,6}^{ci}) * c_{0,0}^{inv} \\
c_{20,1,6}^{mdl} &= (-c_{6,6}^{ci}) * c_{0,1}^{inv} \\
c_{20,2,6}^{mdl} &= (-c_{6,6}^{ci}) * c_{0,2}^{inv} \\
c_{20,3,6}^{mdl} &= (-c_{6,6}^{ci}) * c_{0,3}^{inv} \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ |P_7\rangle &= c_{20,11,7}^{mdl} P_{11} + c_{20,12,7}^{mdl} P_{12} \\
c_{20,11,7}^{mdl} &= (-c_{7,8}^{ci}) * c_{11,11}^{inv} \\
c_{20,12,7}^{mdl} &= (-c_{7,8}^{ci}) * c_{11,12}^{inv} \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ |P_8\rangle &= c_{20,11,8}^{mdl} P_{11} + c_{20,12,8}^{mdl} P_{12} \\
c_{20,11,8}^{mdl} &= (-c_{8,8}^{ci}) * c_{11,11}^{inv} \\
c_{20,12,8}^{mdl} &= (-c_{8,8}^{ci}) * c_{11,12}^{inv} \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ |P_9\rangle &= c_{20,13,9}^{mdl} P_{13} + c_{20,14,9}^{mdl} P_{14} \\
c_{20,13,9}^{mdl} &= (-c_{9,10}^{ci}) * c_{13,13}^{inv} \\
c_{20,14,9}^{mdl} &= (-c_{9,10}^{ci}) * c_{13,14}^{inv} \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ |P_{10}\rangle &= c_{20,13,10}^{mdl} P_{13} + c_{20,14,10}^{mdl} P_{14} \\
c_{20,13,10}^{mdl} &= (-c_{10,10}^{ci}) * c_{13,13}^{inv} \\
c_{20,14,10}^{mdl} &= (-c_{10,10}^{ci}) * c_{13,14}^{inv} \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ |P_{11}\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ |P_{12}\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ |P_{13}\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ |P_{14}\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ |P_{15}\rangle &= \\
\hat{O}_{21} : \langle P_p | \hat{0}_\beta^+ \hat{0}_\alpha^- | P_q \rangle &=> \\
\hat{0}_\beta^+ \hat{0}_\alpha^- |P_0\rangle &= c_{21,5,0}^{mdl} P_5 \\
c_{21,5,0}^{mdl} &= c_{0,1}^{ci} * c_{5,5}^{inv} \\
\hat{0}_\beta^+ \hat{0}_\alpha^- |P_1\rangle &= c_{21,5,1}^{mdl} P_5 \\
c_{21,5,1}^{mdl} &= c_{1,1}^{ci} * c_{5,5}^{inv}
\end{aligned}$$

$$\begin{aligned}
\hat{0}_\beta^+ \hat{0}_\alpha^- |P_2\rangle &= c_{21,5,2}^{mdl} P_5 \\
c_{21,5,2}^{mdl} &= c_{2,1}^{ci} * c_{5,5}^{inv} \\
\hat{0}_\beta^+ \hat{0}_\alpha^- |P_3\rangle &= c_{21,5,3}^{mdl} P_5 \\
c_{21,5,3}^{mdl} &= c_{3,1}^{ci} * c_{5,5}^{inv} \\
\hat{0}_\beta^+ \hat{0}_\alpha^- |P_4\rangle &= c_{21,0,4}^{mdl} P_0 + c_{21,1,4}^{mdl} P_1 + c_{21,2,4}^{mdl} P_2 + c_{21,3,4}^{mdl} P_3 \\
c_{21,0,4}^{mdl} &= c_{4,4}^{ci} * c_{2,0}^{inv} \\
c_{21,1,4}^{mdl} &= c_{4,4}^{ci} * c_{2,1}^{inv} \\
c_{21,2,4}^{mdl} &= c_{4,4}^{ci} * c_{2,2}^{inv} \\
c_{21,3,4}^{mdl} &= c_{4,4}^{ci} * c_{2,3}^{inv} \\
\hat{0}_\beta^+ \hat{0}_\alpha^- |P_5\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\alpha^- |P_6\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\alpha^- |P_7\rangle &= c_{21,9,7}^{mdl} P_9 + c_{21,10,7}^{mdl} P_{10} \\
c_{21,9,7}^{mdl} &= c_{7,7}^{ci} * c_{9,9}^{inv} \\
c_{21,10,7}^{mdl} &= c_{7,7}^{ci} * c_{9,10}^{inv} \\
\hat{0}_\beta^+ \hat{0}_\alpha^- |P_8\rangle &= c_{21,9,8}^{mdl} P_9 + c_{21,10,8}^{mdl} P_{10} \\
c_{21,9,8}^{mdl} &= c_{8,7}^{ci} * c_{9,9}^{inv} \\
c_{21,10,8}^{mdl} &= c_{8,7}^{ci} * c_{9,10}^{inv} \\
\hat{0}_\beta^+ \hat{0}_\alpha^- |P_9\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\alpha^- |P_{10}\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\alpha^- |P_{11}\rangle &= c_{21,13,11}^{mdl} P_{13} + c_{21,14,11}^{mdl} P_{14} \\
c_{21,13,11}^{mdl} &= c_{11,12}^{ci} * c_{14,13}^{inv} \\
c_{21,14,11}^{mdl} &= c_{11,12}^{ci} * c_{14,14}^{inv} \\
\hat{0}_\beta^+ \hat{0}_\alpha^- |P_{12}\rangle &= c_{21,13,12}^{mdl} P_{13} + c_{21,14,12}^{mdl} P_{14} \\
c_{21,13,12}^{mdl} &= c_{12,12}^{ci} * c_{14,13}^{inv} \\
c_{21,14,12}^{mdl} &= c_{12,12}^{ci} * c_{14,14}^{inv} \\
\hat{0}_\beta^+ \hat{0}_\alpha^- |P_{13}\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\alpha^- |P_{14}\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\alpha^- |P_{15}\rangle &=
\end{aligned}$$

$$\begin{aligned}
\hat{O}_{22} : \langle P_p | \hat{0}_\beta^- \hat{0}_\alpha^- | P_q \rangle &=> \\
\hat{0}_\beta^- \hat{0}_\alpha^- | P_0 \rangle &= c_{22,6,0}^{mdl} P_6 \\
c_{22,6,0}^{mdl} &= c_{0,0}^{ci} * c_{6,6}^{inv} \\
\hat{0}_\beta^- \hat{0}_\alpha^- | P_1 \rangle &= c_{22,6,1}^{mdl} P_6 \\
c_{22,6,1}^{mdl} &= c_{1,0}^{ci} * c_{6,6}^{inv} \\
\hat{0}_\beta^- \hat{0}_\alpha^- | P_2 \rangle &= c_{22,6,2}^{mdl} P_6 \\
c_{22,6,2}^{mdl} &= c_{2,0}^{ci} * c_{6,6}^{inv} \\
\hat{0}_\beta^- \hat{0}_\alpha^- | P_3 \rangle &= c_{22,6,3}^{mdl} P_6 \\
c_{22,6,3}^{mdl} &= c_{3,0}^{ci} * c_{6,6}^{inv} \\
\hat{0}_\beta^- \hat{0}_\alpha^- | P_4 \rangle &= \\
\hat{0}_\beta^- \hat{0}_\alpha^- | P_5 \rangle &= \\
\hat{0}_\beta^- \hat{0}_\alpha^- | P_6 \rangle &= \\
\hat{0}_\beta^- \hat{0}_\alpha^- | P_7 \rangle &= \\
\hat{0}_\beta^- \hat{0}_\alpha^- | P_8 \rangle &= \\
\hat{0}_\beta^- \hat{0}_\alpha^- | P_9 \rangle &= \\
\hat{0}_\beta^- \hat{0}_\alpha^- | P_{10} \rangle &= \\
\hat{0}_\beta^- \hat{0}_\alpha^- | P_{11} \rangle &= c_{22,7,11}^{mdl} P_7 + c_{22,8,11}^{mdl} P_8 \\
c_{22,7,11}^{mdl} &= c_{11,11}^{ci} * c_{8,7}^{inv} \\
c_{22,8,11}^{mdl} &= c_{11,11}^{ci} * c_{8,8}^{inv} \\
\hat{0}_\beta^- \hat{0}_\alpha^- | P_{12} \rangle &= c_{22,7,12}^{mdl} P_7 + c_{22,8,12}^{mdl} P_8 \\
c_{22,7,12}^{mdl} &= c_{12,11}^{ci} * c_{8,7}^{inv} \\
c_{22,8,12}^{mdl} &= c_{12,11}^{ci} * c_{8,8}^{inv} \\
\hat{0}_\beta^- \hat{0}_\alpha^- | P_{13} \rangle &= c_{22,9,13}^{mdl} P_9 + c_{22,10,13}^{mdl} P_{10} \\
c_{22,9,13}^{mdl} &= c_{13,13}^{ci} * c_{10,9}^{inv} \\
c_{22,10,13}^{mdl} &= c_{13,13}^{ci} * c_{10,10}^{inv} \\
\hat{0}_\beta^- \hat{0}_\alpha^- | P_{14} \rangle &= c_{22,9,14}^{mdl} P_9 + c_{22,10,14}^{mdl} P_{10} \\
c_{22,9,14}^{mdl} &= c_{14,13}^{ci} * c_{10,9}^{inv} \\
c_{22,10,14}^{mdl} &= c_{14,13}^{ci} * c_{10,10}^{inv} \\
\hat{0}_\beta^- \hat{0}_\alpha^- | P_{15} \rangle &= c_{22,0,15}^{mdl} P_0 + c_{22,1,15}^{mdl} P_1 + c_{22,2,15}^{mdl} P_2 + c_{22,3,15}^{mdl} P_3
\end{aligned}$$

$$c_{22,0,15}^{mdl} = c_{15,15}^{ci} * c_{3,0}^{inv}$$

$$c_{22,1,15}^{mdl} = c_{15,15}^{ci} * c_{3,1}^{inv}$$

$$c_{22,2,15}^{mdl} = c_{15,15}^{ci} * c_{3,2}^{inv}$$

$$c_{22,3,15}^{mdl} = c_{15,15}^{ci} * c_{3,3}^{inv}$$

$$\hat{O}_{23} : \langle P_p | \hat{0}_\beta^+ \hat{0}_\beta^+ | P_q \rangle =>$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ | P_0 \rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ | P_1 \rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ | P_2 \rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ | P_3 \rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ | P_4 \rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ | P_5 \rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ | P_6 \rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ | P_7 \rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ | P_8 \rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ | P_9 \rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ | P_{10} \rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ | P_{11} \rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ | P_{12} \rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ | P_{13} \rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ | P_{14} \rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ | P_{15} \rangle =$$

$$\hat{O}_{24} : \langle P_p | \hat{0}_\beta^+ \hat{0}_\beta^- | P_q \rangle =>$$

$$\hat{0}_\beta^+ \hat{0}_\beta^- | P_0 \rangle = c_{24,0,0}^{mdl} P_0 + c_{24,1,0}^{mdl} P_1 + c_{24,2,0}^{mdl} P_2 + c_{24,3,0}^{mdl} P_3$$

$$c_{24,0,0}^{mdl} = (-(-c_{0,0}^{ci})) * c_{0,0}^{inv} + c_{0,2}^{ci} * c_{2,0}^{inv}$$

$$c_{24,1,0}^{mdl} = (-(-c_{0,0}^{ci})) * c_{0,1}^{inv} + c_{0,2}^{ci} * c_{2,1}^{inv}$$

$$c_{24,2,0}^{mdl} = (-(-c_{0,0}^{ci})) * c_{0,2}^{inv} + c_{0,2}^{ci} * c_{2,2}^{inv}$$

$$c_{24,3,0}^{mdl} = (-(-c_{0,0}^{ci})) * c_{0,3}^{inv} + c_{0,2}^{ci} * c_{2,3}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\beta^- |P_1\rangle = c_{24,0,1}^{mdl} P_0 + c_{24,1,1}^{mdl} P_1 + c_{24,2,1}^{mdl} P_2 + c_{24,3,1}^{mdl} P_3$$

$$c_{24,0,1}^{mdl} = (-(-c_{1,0}^{ci})) * c_{0,0}^{inv} + c_{1,2}^{ci} * c_{2,0}^{inv}$$

$$c_{24,1,1}^{mdl} = (-(-c_{1,0}^{ci})) * c_{0,1}^{inv} + c_{1,2}^{ci} * c_{2,1}^{inv}$$

$$c_{24,2,1}^{mdl} = (-(-c_{1,0}^{ci})) * c_{0,2}^{inv} + c_{1,2}^{ci} * c_{2,2}^{inv}$$

$$c_{24,3,1}^{mdl} = (-(-c_{1,0}^{ci})) * c_{0,3}^{inv} + c_{1,2}^{ci} * c_{2,3}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\beta^- |P_2\rangle = c_{24,0,2}^{mdl} P_0 + c_{24,1,2}^{mdl} P_1 + c_{24,2,2}^{mdl} P_2 + c_{24,3,2}^{mdl} P_3$$

$$c_{24,0,2}^{mdl} = (-(-c_{2,0}^{ci})) * c_{0,0}^{inv} + c_{2,2}^{ci} * c_{2,0}^{inv}$$

$$c_{24,1,2}^{mdl} = (-(-c_{2,0}^{ci})) * c_{0,1}^{inv} + c_{2,2}^{ci} * c_{2,1}^{inv}$$

$$c_{24,2,2}^{mdl} = (-(-c_{2,0}^{ci})) * c_{0,2}^{inv} + c_{2,2}^{ci} * c_{2,2}^{inv}$$

$$c_{24,3,2}^{mdl} = (-(-c_{2,0}^{ci})) * c_{0,3}^{inv} + c_{2,2}^{ci} * c_{2,3}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\beta^- |P_3\rangle = c_{24,0,3}^{mdl} P_0 + c_{24,1,3}^{mdl} P_1 + c_{24,2,3}^{mdl} P_2 + c_{24,3,3}^{mdl} P_3$$

$$c_{24,0,3}^{mdl} = (-(-c_{3,0}^{ci})) * c_{0,0}^{inv} + c_{3,2}^{ci} * c_{2,0}^{inv}$$

$$c_{24,1,3}^{mdl} = (-(-c_{3,0}^{ci})) * c_{0,1}^{inv} + c_{3,2}^{ci} * c_{2,1}^{inv}$$

$$c_{24,2,3}^{mdl} = (-(-c_{3,0}^{ci})) * c_{0,2}^{inv} + c_{3,2}^{ci} * c_{2,2}^{inv}$$

$$c_{24,3,3}^{mdl} = (-(-c_{3,0}^{ci})) * c_{0,3}^{inv} + c_{3,2}^{ci} * c_{2,3}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\beta^- |P_4\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^- |P_5\rangle = c_{24,5,5}^{mdl} P_5$$

$$c_{24,5,5}^{mdl} = c_{5,5}^{ci} * c_{5,5}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\beta^- |P_6\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^- |P_7\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^- |P_8\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^- |P_9\rangle = c_{24,9,9}^{mdl} P_9 + c_{24,10,9}^{mdl} P_{10}$$

$$c_{24,9,9}^{mdl} = c_{9,9}^{ci} * c_{9,9}^{inv}$$

$$c_{24,10,9}^{mdl} = c_{9,9}^{ci} * c_{9,10}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\beta^- |P_{10}\rangle = c_{24,9,10}^{mdl} P_9 + c_{24,10,10}^{mdl} P_{10}$$

$$c_{24,9,10}^{mdl} = c_{10,9}^{ci} * c_{9,9}^{inv}$$

$$c_{24,10,10}^{mdl} = c_{10,9}^{ci} * c_{9,10}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\beta^- |P_{11}\rangle = c_{24,11,11}^{mdl} P_{11} + c_{24,12,11}^{mdl} P_{12}$$

$$c_{24,11,11}^{mdl} = (-(-c_{11,11}^{ci})) * c_{11,11}^{inv}$$

$$\begin{aligned}
c_{24,12,11}^{mdl} &= (-(-c_{11,11}^{ci})) * c_{11,12}^{inv} \\
\hat{0}_\beta^+ \hat{0}_\beta^- |P_{12}\rangle &= c_{24,11,12}^{mdl} P_{11} + c_{24,12,12}^{mdl} P_{12} \\
c_{24,11,12}^{mdl} &= (-(-c_{12,11}^{ci})) * c_{11,11}^{inv} \\
c_{24,12,12}^{mdl} &= (-(-c_{12,11}^{ci})) * c_{11,12}^{inv} \\
\hat{0}_\beta^+ \hat{0}_\beta^- |P_{13}\rangle &= c_{24,13,13}^{mdl} P_{13} + c_{24,14,13}^{mdl} P_{14} \\
c_{24,13,13}^{mdl} &= (-(-c_{13,13}^{ci})) * c_{13,13}^{inv} + c_{13,14}^{ci} * c_{14,13}^{inv} \\
c_{24,14,13}^{mdl} &= (-(-c_{13,13}^{ci})) * c_{13,14}^{inv} + c_{13,14}^{ci} * c_{14,14}^{inv} \\
\hat{0}_\beta^+ \hat{0}_\beta^- |P_{14}\rangle &= c_{24,13,14}^{mdl} P_{13} + c_{24,14,14}^{mdl} P_{14} \\
c_{24,13,14}^{mdl} &= (-(-c_{14,13}^{ci})) * c_{13,13}^{inv} + c_{14,14}^{ci} * c_{14,13}^{inv} \\
c_{24,14,14}^{mdl} &= (-(-c_{14,13}^{ci})) * c_{13,14}^{inv} + c_{14,14}^{ci} * c_{14,14}^{inv} \\
\hat{0}_\beta^+ \hat{0}_\beta^- |P_{15}\rangle &= c_{24,15,15}^{mdl} P_{15} \\
c_{24,15,15}^{mdl} &= (-(-c_{15,15}^{ci})) * c_{15,15}^{inv}
\end{aligned}$$

$$\hat{O}_{25} : \langle P_p | \hat{0}_\beta^- \hat{0}_\beta^- | P_q \rangle =>$$

$$\hat{0}_\beta^- \hat{0}_\beta^- |P_0\rangle =$$

$$\hat{0}_\beta^- \hat{0}_\beta^- |P_1\rangle =$$

$$\hat{0}_\beta^- \hat{0}_\beta^- |P_2\rangle =$$

$$\hat{0}_\beta^- \hat{0}_\beta^- |P_3\rangle =$$

$$\hat{0}_\beta^- \hat{0}_\beta^- |P_4\rangle =$$

$$\hat{0}_\beta^- \hat{0}_\beta^- |P_5\rangle =$$

$$\hat{0}_\beta^- \hat{0}_\beta^- |P_6\rangle =$$

$$\hat{0}_\beta^- \hat{0}_\beta^- |P_7\rangle =$$

$$\hat{0}_\beta^- \hat{0}_\beta^- |P_8\rangle =$$

$$\hat{0}_\beta^- \hat{0}_\beta^- |P_9\rangle =$$

$$\hat{0}_\beta^- \hat{0}_\beta^- |P_{10}\rangle =$$

$$\hat{0}_\beta^- \hat{0}_\beta^- |P_{11}\rangle =$$

$$\hat{0}_\beta^- \hat{0}_\beta^- |P_{12}\rangle =$$

$$\hat{0}_\beta^- \hat{0}_\beta^- |P_{13}\rangle =$$

$$\hat{0}_\beta^- \hat{0}_\beta^- |P_{14}\rangle =$$

$$\hat{0}_\beta^- \hat{0}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{26} : \langle P_p | \hat{0}_\beta^+ \hat{1}_\alpha^+ | P_q \rangle = >$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ |P_0\rangle = c_{26,15,0}^{mdl} P_{15}$$

$$c_{26,15,0}^{mdl} = c_{0,1}^{ci} * c_{15,15}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ |P_1\rangle = c_{26,15,1}^{mdl} P_{15}$$

$$c_{26,15,1}^{mdl} = c_{1,1}^{ci} * c_{15,15}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ |P_2\rangle = c_{26,15,2}^{mdl} P_{15}$$

$$c_{26,15,2}^{mdl} = c_{2,1}^{ci} * c_{15,15}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ |P_3\rangle = c_{26,15,3}^{mdl} P_{15}$$

$$c_{26,15,3}^{mdl} = c_{3,1}^{ci} * c_{15,15}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ |P_4\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ |P_5\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ |P_6\rangle = c_{26,0,6}^{mdl} P_0 + c_{26,1,6}^{mdl} P_1 + c_{26,2,6}^{mdl} P_2 + c_{26,3,6}^{mdl} P_3$$

$$c_{26,0,6}^{mdl} = c_{6,6}^{ci} * c_{2,0}^{inv}$$

$$c_{26,1,6}^{mdl} = c_{6,6}^{ci} * c_{2,1}^{inv}$$

$$c_{26,2,6}^{mdl} = c_{6,6}^{ci} * c_{2,2}^{inv}$$

$$c_{26,3,6}^{mdl} = c_{6,6}^{ci} * c_{2,3}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ |P_7\rangle = c_{26,11,7}^{mdl} P_{11} + c_{26,12,7}^{mdl} P_{12}$$

$$c_{26,11,7}^{mdl} = c_{7,7}^{ci} * c_{11,11}^{inv}$$

$$c_{26,12,7}^{mdl} = c_{7,7}^{ci} * c_{11,12}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ |P_8\rangle = c_{26,11,8}^{mdl} P_{11} + c_{26,12,8}^{mdl} P_{12}$$

$$c_{26,11,8}^{mdl} = c_{8,7}^{ci} * c_{11,11}^{inv}$$

$$c_{26,12,8}^{mdl} = c_{8,7}^{ci} * c_{11,12}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ |P_9\rangle = c_{26,13,9}^{mdl} P_{13} + c_{26,14,9}^{mdl} P_{14}$$

$$c_{26,13,9}^{mdl} = c_{9,10}^{ci} * c_{14,13}^{inv}$$

$$c_{26,14,9}^{mdl} = c_{9,10}^{ci} * c_{14,14}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ |P_{10}\rangle = c_{26,13,10}^{mdl} P_{13} + c_{26,14,10}^{mdl} P_{14}$$

$$c_{26,13,10}^{mdl} = c_{10,10}^{ci} * c_{14,13}^{inv}$$

$$c_{26,14,10}^{mdl} = c_{10,10}^{ci} * c_{14,14}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ |P_{11}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ |P_{12}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ |P_{13}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ |P_{14}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ |P_{15}\rangle =$$

$$\hat{O}_{27} : \langle P_p | \hat{0}_\beta^+ \hat{1}_\alpha^- | P_q \rangle =>$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^- |P_0\rangle = c_{27,5,0}^{mdl} P_5$$

$$c_{27,5,0}^{mdl} = c_{0,3}^{ci} * c_{5,5}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^- |P_1\rangle = c_{27,5,1}^{mdl} P_5$$

$$c_{27,5,1}^{mdl} = c_{1,3}^{ci} * c_{5,5}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^- |P_2\rangle = c_{27,5,2}^{mdl} P_5$$

$$c_{27,5,2}^{mdl} = c_{2,3}^{ci} * c_{5,5}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^- |P_3\rangle = c_{27,5,3}^{mdl} P_5$$

$$c_{27,5,3}^{mdl} = c_{3,3}^{ci} * c_{5,5}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^- |P_4\rangle = c_{27,0,4}^{mdl} P_0 + c_{27,1,4}^{mdl} P_1 + c_{27,2,4}^{mdl} P_2 + c_{27,3,4}^{mdl} P_3$$

$$c_{27,0,4}^{mdl} = (-(-c_{4,4}^{ci})) * c_{0,0}^{inv}$$

$$c_{27,1,4}^{mdl} = (-(-c_{4,4}^{ci})) * c_{0,1}^{inv}$$

$$c_{27,2,4}^{mdl} = (-(-c_{4,4}^{ci})) * c_{0,2}^{inv}$$

$$c_{27,3,4}^{mdl} = (-(-c_{4,4}^{ci})) * c_{0,3}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^- |P_5\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^- |P_6\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^- |P_7\rangle = c_{27,9,7}^{mdl} P_9 + c_{27,10,7}^{mdl} P_{10}$$

$$c_{27,9,7}^{mdl} = c_{7,8}^{ci} * c_{9,9}^{inv}$$

$$c_{27,10,7}^{mdl} = c_{7,8}^{ci} * c_{9,10}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^- |P_8\rangle = c_{27,9,8}^{mdl} P_9 + c_{27,10,8}^{mdl} P_{10}$$

$$c_{27,9,8}^{mdl} = c_{8,8}^{ci} * c_{9,9}^{inv}$$

$$c_{27,10,8}^{mdl} = c_{8,8}^{ci} * c_{9,10}^{inv}$$

$$\begin{aligned}
\hat{0}_\beta^+ \hat{1}_\alpha^- |P_9\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\alpha^- |P_{10}\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\alpha^- |P_{11}\rangle &= c_{27,13,11}^{mdl} P_{13} + c_{27,14,11}^{mdl} P_{14} \\
c_{27,13,11}^{mdl} &= (-(-c_{11,12}^{ci})) * c_{13,13}^{inv} \\
c_{27,14,11}^{mdl} &= (-(-c_{11,12}^{ci})) * c_{13,14}^{inv} \\
\hat{0}_\beta^+ \hat{1}_\alpha^- |P_{12}\rangle &= c_{27,13,12}^{mdl} P_{13} + c_{27,14,12}^{mdl} P_{14} \\
c_{27,13,12}^{mdl} &= (-(-c_{12,12}^{ci})) * c_{13,13}^{inv} \\
c_{27,14,12}^{mdl} &= (-(-c_{12,12}^{ci})) * c_{13,14}^{inv} \\
\hat{0}_\beta^+ \hat{1}_\alpha^- |P_{13}\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\alpha^- |P_{14}\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\alpha^- |P_{15}\rangle &=
\end{aligned}$$

$$\hat{O}_{28} : \langle P_p | \hat{0}_\beta^- \hat{1}_\alpha^- | P_q \rangle =>$$

$$\begin{aligned}
\hat{0}_\beta^- \hat{1}_\alpha^- |P_0\rangle &= c_{28,6,0}^{mdl} P_6 \\
c_{28,6,0}^{mdl} &= (-c_{0,2}^{ci}) * c_{6,6}^{inv} \\
\hat{0}_\beta^- \hat{1}_\alpha^- |P_1\rangle &= c_{28,6,1}^{mdl} P_6 \\
c_{28,6,1}^{mdl} &= (-c_{1,2}^{ci}) * c_{6,6}^{inv} \\
\hat{0}_\beta^- \hat{1}_\alpha^- |P_2\rangle &= c_{28,6,2}^{mdl} P_6 \\
c_{28,6,2}^{mdl} &= (-c_{2,2}^{ci}) * c_{6,6}^{inv} \\
\hat{0}_\beta^- \hat{1}_\alpha^- |P_3\rangle &= c_{28,6,3}^{mdl} P_6 \\
c_{28,6,3}^{mdl} &= (-c_{3,2}^{ci}) * c_{6,6}^{inv} \\
\hat{0}_\beta^- \hat{1}_\alpha^- |P_4\rangle &= \\
\hat{0}_\beta^- \hat{1}_\alpha^- |P_5\rangle &= \\
\hat{0}_\beta^- \hat{1}_\alpha^- |P_6\rangle &= \\
\hat{0}_\beta^- \hat{1}_\alpha^- |P_7\rangle &= \\
\hat{0}_\beta^- \hat{1}_\alpha^- |P_8\rangle &= \\
\hat{0}_\beta^- \hat{1}_\alpha^- |P_9\rangle &= \\
\hat{0}_\beta^- \hat{1}_\alpha^- |P_{10}\rangle &= \\
\hat{0}_\beta^- \hat{1}_\alpha^- |P_{11}\rangle &= c_{28,7,11}^{mdl} P_7 + c_{28,8,11}^{mdl} P_8
\end{aligned}$$

$$c_{28,7,11}^{mdl} = (-c_{11,11}^{ci}) * c_{7,7}^{inv}$$

$$c_{28,8,11}^{mdl} = (-c_{11,11}^{ci}) * c_{7,8}^{inv}$$

$$\hat{0}_\beta^- \hat{1}_\alpha^- |P_{12}\rangle = c_{28,7,12}^{mdl} P_7 + c_{28,8,12}^{mdl} P_8$$

$$c_{28,7,12}^{mdl} = (-c_{12,11}^{ci}) * c_{7,7}^{inv}$$

$$c_{28,8,12}^{mdl} = (-c_{12,11}^{ci}) * c_{7,8}^{inv}$$

$$\hat{0}_\beta^- \hat{1}_\alpha^- |P_{13}\rangle = c_{28,9,13}^{mdl} P_9 + c_{28,10,13}^{mdl} P_{10}$$

$$c_{28,9,13}^{mdl} = (-c_{13,14}^{ci}) * c_{10,9}^{inv}$$

$$c_{28,10,13}^{mdl} = (-c_{13,14}^{ci}) * c_{10,10}^{inv}$$

$$\hat{0}_\beta^- \hat{1}_\alpha^- |P_{14}\rangle = c_{28,9,14}^{mdl} P_9 + c_{28,10,14}^{mdl} P_{10}$$

$$c_{28,9,14}^{mdl} = (-c_{14,14}^{ci}) * c_{10,9}^{inv}$$

$$c_{28,10,14}^{mdl} = (-c_{14,14}^{ci}) * c_{10,10}^{inv}$$

$$\hat{0}_\beta^- \hat{1}_\alpha^- |P_{15}\rangle = c_{28,0,15}^{mdl} P_0 + c_{28,1,15}^{mdl} P_1 + c_{28,2,15}^{mdl} P_2 + c_{28,3,15}^{mdl} P_3$$

$$c_{28,0,15}^{mdl} = (-c_{15,15}^{ci}) * c_{1,0}^{inv}$$

$$c_{28,1,15}^{mdl} = (-c_{15,15}^{ci}) * c_{1,1}^{inv}$$

$$c_{28,2,15}^{mdl} = (-c_{15,15}^{ci}) * c_{1,2}^{inv}$$

$$c_{28,3,15}^{mdl} = (-c_{15,15}^{ci}) * c_{1,3}^{inv}$$

$$\hat{O}_{29} : \langle P_p | \hat{0}_\beta^+ \hat{1}_\beta^+ | P_q \rangle = >$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ |P_0\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ |P_1\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ |P_2\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ |P_3\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ |P_4\rangle = c_{29,15,4}^{mdl} P_{15}$$

$$c_{29,15,4}^{mdl} = (-c_{4,4}^{ci}) * c_{15,15}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ |P_5\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ |P_6\rangle = c_{29,5,6}^{mdl} P_5$$

$$c_{29,5,6}^{mdl} = c_{6,6}^{ci} * c_{5,5}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ |P_7\rangle = c_{29,13,7}^{mdl} P_{13} + c_{29,14,7}^{mdl} P_{14}$$

$$c_{29,13,7}^{mdl} = c_{7,7}^{ci} * c_{13,13}^{inv} + (-c_{7,8}^{ci}) * c_{14,13}^{inv}$$

$$c_{29,14,7}^{mdl} = c_{7,7}^{ci} * c_{13,14}^{inv} + (-c_{7,8}^{ci}) * c_{14,14}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ |P_8\rangle = c_{29,13,8}^{mdl} P_{13} + c_{29,14,8}^{mdl} P_{14}$$

$$c_{29,13,8}^{mdl} = c_{8,7}^{ci} * c_{13,13}^{inv} + (-c_{8,8}^{ci}) * c_{14,13}^{inv}$$

$$c_{29,14,8}^{mdl} = c_{8,7}^{ci} * c_{13,14}^{inv} + (-c_{8,8}^{ci}) * c_{14,14}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ |P_9\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ |P_{10}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ |P_{11}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ |P_{12}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ |P_{13}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ |P_{14}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ |P_{15}\rangle =$$

$$\hat{O}_{30} : \langle P_p | \hat{0}_\beta^+ \hat{1}_\beta^- | P_q \rangle =>$$

$$\hat{0}_\beta^+ \hat{1}_\beta^- |P_0\rangle = c_{30,0,0}^{mdl} P_0 + c_{30,1,0}^{mdl} P_1 + c_{30,2,0}^{mdl} P_2 + c_{30,3,0}^{mdl} P_3$$

$$c_{30,0,0}^{mdl} = (-(-c_{0,1}^{ci})) * c_{0,0}^{inv} + (-c_{0,3}^{ci}) * c_{2,0}^{inv}$$

$$c_{30,1,0}^{mdl} = (-(-c_{0,1}^{ci})) * c_{0,1}^{inv} + (-c_{0,3}^{ci}) * c_{2,1}^{inv}$$

$$c_{30,2,0}^{mdl} = (-(-c_{0,1}^{ci})) * c_{0,2}^{inv} + (-c_{0,3}^{ci}) * c_{2,2}^{inv}$$

$$c_{30,3,0}^{mdl} = (-(-c_{0,1}^{ci})) * c_{0,3}^{inv} + (-c_{0,3}^{ci}) * c_{2,3}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\beta^- |P_1\rangle = c_{30,0,1}^{mdl} P_0 + c_{30,1,1}^{mdl} P_1 + c_{30,2,1}^{mdl} P_2 + c_{30,3,1}^{mdl} P_3$$

$$c_{30,0,1}^{mdl} = (-(-c_{1,1}^{ci})) * c_{0,0}^{inv} + (-c_{1,3}^{ci}) * c_{2,0}^{inv}$$

$$c_{30,1,1}^{mdl} = (-(-c_{1,1}^{ci})) * c_{0,1}^{inv} + (-c_{1,3}^{ci}) * c_{2,1}^{inv}$$

$$c_{30,2,1}^{mdl} = (-(-c_{1,1}^{ci})) * c_{0,2}^{inv} + (-c_{1,3}^{ci}) * c_{2,2}^{inv}$$

$$c_{30,3,1}^{mdl} = (-(-c_{1,1}^{ci})) * c_{0,3}^{inv} + (-c_{1,3}^{ci}) * c_{2,3}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\beta^- |P_2\rangle = c_{30,0,2}^{mdl} P_0 + c_{30,1,2}^{mdl} P_1 + c_{30,2,2}^{mdl} P_2 + c_{30,3,2}^{mdl} P_3$$

$$c_{30,0,2}^{mdl} = (-(-c_{2,1}^{ci})) * c_{0,0}^{inv} + (-c_{2,3}^{ci}) * c_{2,0}^{inv}$$

$$c_{30,1,2}^{mdl} = (-(-c_{2,1}^{ci})) * c_{0,1}^{inv} + (-c_{2,3}^{ci}) * c_{2,1}^{inv}$$

$$c_{30,2,2}^{mdl} = (-(-c_{2,1}^{ci})) * c_{0,2}^{inv} + (-c_{2,3}^{ci}) * c_{2,2}^{inv}$$

$$c_{30,3,2}^{mdl} = (-(-c_{2,1}^{ci})) * c_{0,3}^{inv} + (-c_{2,3}^{ci}) * c_{2,3}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\beta^- |P_3\rangle = c_{30,0,3}^{mdl} P_0 + c_{30,1,3}^{mdl} P_1 + c_{30,2,3}^{mdl} P_2 + c_{30,3,3}^{mdl} P_3$$

$$c_{30,0,3}^{mdl} = (-(-c_{3,1}^{ci})) * c_{0,0}^{inv} + (-c_{3,3}^{ci}) * c_{2,0}^{inv}$$

$$c_{30,1,3}^{mdl} = (-(-c_{3,1}^{ci})) * c_{0,1}^{inv} + (-c_{3,3}^{ci}) * c_{2,1}^{inv}$$

$$c_{30,2,3}^{mdl} = (-(-c_{3,1}^{ci})) * c_{0,2}^{inv} + (-c_{3,3}^{ci}) * c_{2,2}^{inv}$$

$$c_{30,3,3}^{mdl} = (-(-c_{3,1}^{ci})) * c_{0,3}^{inv} + (-c_{3,3}^{ci}) * c_{2,3}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\beta^- |P_4\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^- |P_5\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^- |P_6\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^- |P_7\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^- |P_8\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^- |P_9\rangle = c_{30,9,9}^{mdl} P_9 + c_{30,10,9}^{mdl} P_{10}$$

$$c_{30,9,9}^{mdl} = c_{9,10}^{ci} * c_{9,9}^{inv}$$

$$c_{30,10,9}^{mdl} = c_{9,10}^{ci} * c_{9,10}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\beta^- |P_{10}\rangle = c_{30,9,10}^{mdl} P_9 + c_{30,10,10}^{mdl} P_{10}$$

$$c_{30,9,10}^{mdl} = c_{10,10}^{ci} * c_{9,9}^{inv}$$

$$c_{30,10,10}^{mdl} = c_{10,10}^{ci} * c_{9,10}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\beta^- |P_{11}\rangle = c_{30,11,11}^{mdl} P_{11} + c_{30,12,11}^{mdl} P_{12}$$

$$c_{30,11,11}^{mdl} = (-c_{11,12}^{ci}) * c_{11,11}^{inv}$$

$$c_{30,12,11}^{mdl} = (-c_{11,12}^{ci}) * c_{11,12}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\beta^- |P_{12}\rangle = c_{30,11,12}^{mdl} P_{11} + c_{30,12,12}^{mdl} P_{12}$$

$$c_{30,11,12}^{mdl} = (-c_{12,12}^{ci}) * c_{11,11}^{inv}$$

$$c_{30,12,12}^{mdl} = (-c_{12,12}^{ci}) * c_{11,12}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\beta^- |P_{13}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^- |P_{14}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{31} : \langle P_p | \hat{0}_\beta^- \hat{1}_\beta^- | P_q \rangle = >$$

$$\hat{0}_\beta^- \hat{1}_\beta^- |P_0\rangle =$$

$$\hat{0}_\beta^- \hat{1}_\beta^- |P_1\rangle =$$

$$\hat{0}_\beta^- \hat{1}_\beta^- |P_2\rangle =$$

$$\begin{aligned}
\hat{0}_\beta^- \hat{1}_\beta^- |P_3\rangle &= \\
\hat{0}_\beta^- \hat{1}_\beta^- |P_4\rangle &= \\
\hat{0}_\beta^- \hat{1}_\beta^- |P_5\rangle &= c_{31,6,5}^{mdl} P_6 \\
c_{31,6,5}^{mdl} &= (-c_{5,5}^{ci}) * c_{6,6}^{inv} \\
\hat{0}_\beta^- \hat{1}_\beta^- |P_6\rangle &= \\
\hat{0}_\beta^- \hat{1}_\beta^- |P_7\rangle &= \\
\hat{0}_\beta^- \hat{1}_\beta^- |P_8\rangle &= \\
\hat{0}_\beta^- \hat{1}_\beta^- |P_9\rangle &= \\
\hat{0}_\beta^- \hat{1}_\beta^- |P_{10}\rangle &= \\
\hat{0}_\beta^- \hat{1}_\beta^- |P_{11}\rangle &= \\
\hat{0}_\beta^- \hat{1}_\beta^- |P_{12}\rangle &= \\
\hat{0}_\beta^- \hat{1}_\beta^- |P_{13}\rangle &= c_{31,7,13}^{mdl} P_7 + c_{31,8,13}^{mdl} P_8 \\
c_{31,7,13}^{mdl} &= (-c_{13,13}^{ci}) * c_{7,7}^{inv} + c_{13,14}^{ci} * c_{8,7}^{inv} \\
c_{31,8,13}^{mdl} &= (-c_{13,13}^{ci}) * c_{7,8}^{inv} + c_{13,14}^{ci} * c_{8,8}^{inv} \\
\hat{0}_\beta^- \hat{1}_\beta^- |P_{14}\rangle &= c_{31,7,14}^{mdl} P_7 + c_{31,8,14}^{mdl} P_8 \\
c_{31,7,14}^{mdl} &= (-c_{14,13}^{ci}) * c_{7,7}^{inv} + c_{14,14}^{ci} * c_{8,7}^{inv} \\
c_{31,8,14}^{mdl} &= (-c_{14,13}^{ci}) * c_{7,8}^{inv} + c_{14,14}^{ci} * c_{8,8}^{inv} \\
\hat{0}_\beta^- \hat{1}_\beta^- |P_{15}\rangle &= c_{31,4,15}^{mdl} P_4 \\
c_{31,4,15}^{mdl} &= c_{15,15}^{ci} * c_{4,4}^{inv}
\end{aligned}$$

$$\hat{O}_{32} : \langle P_p | \hat{1}_\alpha^+ \hat{0}_\alpha^+ | P_q \rangle = >$$

$$\begin{aligned}
\hat{1}_\alpha^+ \hat{0}_\alpha^+ |P_0\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\alpha^+ |P_1\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\alpha^+ |P_2\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\alpha^+ |P_3\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\alpha^+ |P_4\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\alpha^+ |P_5\rangle &= c_{32,15,5}^{mdl} P_{15} \\
c_{32,15,5}^{mdl} &= c_{5,5}^{ci} * c_{15,15}^{inv} \\
\hat{1}_\alpha^+ \hat{0}_\alpha^+ |P_6\rangle &= c_{32,4,6}^{mdl} P_4
\end{aligned}$$

$$c_{32,4,6}^{mdl} = (-c_{6,6}^{ci}) * c_{4,4}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ |P_7\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ |P_8\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ |P_9\rangle = c_{32,11,9}^{mdl} P_{11} + c_{32,12,9}^{mdl} P_{12}$$

$$c_{32,11,9}^{mdl} = c_{9,9}^{ci} * c_{11,11}^{inv} + (-c_{9,10}^{ci}) * c_{12,11}^{inv}$$

$$c_{32,12,9}^{mdl} = c_{9,9}^{ci} * c_{11,12}^{inv} + (-c_{9,10}^{ci}) * c_{12,12}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ |P_{10}\rangle = c_{32,11,10}^{mdl} P_{11} + c_{32,12,10}^{mdl} P_{12}$$

$$c_{32,11,10}^{mdl} = c_{10,9}^{ci} * c_{11,11}^{inv} + (-c_{10,10}^{ci}) * c_{12,11}^{inv}$$

$$c_{32,12,10}^{mdl} = c_{10,9}^{ci} * c_{11,12}^{inv} + (-c_{10,10}^{ci}) * c_{12,12}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ |P_{11}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ |P_{12}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ |P_{13}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ |P_{14}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ |P_{15}\rangle =$$

$$\hat{O}_{33} : \langle P_p | \hat{1}_\alpha^+ \hat{0}_\alpha^- | P_q \rangle = >$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^- |P_0\rangle = c_{33,0,0}^{mdl} P_0 + c_{33,1,0}^{mdl} P_1 + c_{33,2,0}^{mdl} P_2 + c_{33,3,0}^{mdl} P_3$$

$$c_{33,0,0}^{mdl} = (-c_{0,0}^{ci}) * c_{2,0}^{inv} + c_{0,1}^{ci} * c_{3,0}^{inv}$$

$$c_{33,1,0}^{mdl} = (-c_{0,0}^{ci}) * c_{2,1}^{inv} + c_{0,1}^{ci} * c_{3,1}^{inv}$$

$$c_{33,2,0}^{mdl} = (-c_{0,0}^{ci}) * c_{2,2}^{inv} + c_{0,1}^{ci} * c_{3,2}^{inv}$$

$$c_{33,3,0}^{mdl} = (-c_{0,0}^{ci}) * c_{2,3}^{inv} + c_{0,1}^{ci} * c_{3,3}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^- |P_1\rangle = c_{33,0,1}^{mdl} P_0 + c_{33,1,1}^{mdl} P_1 + c_{33,2,1}^{mdl} P_2 + c_{33,3,1}^{mdl} P_3$$

$$c_{33,0,1}^{mdl} = (-c_{1,0}^{ci}) * c_{2,0}^{inv} + c_{1,1}^{ci} * c_{3,0}^{inv}$$

$$c_{33,1,1}^{mdl} = (-c_{1,0}^{ci}) * c_{2,1}^{inv} + c_{1,1}^{ci} * c_{3,1}^{inv}$$

$$c_{33,2,1}^{mdl} = (-c_{1,0}^{ci}) * c_{2,2}^{inv} + c_{1,1}^{ci} * c_{3,2}^{inv}$$

$$c_{33,3,1}^{mdl} = (-c_{1,0}^{ci}) * c_{2,3}^{inv} + c_{1,1}^{ci} * c_{3,3}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^- |P_2\rangle = c_{33,0,2}^{mdl} P_0 + c_{33,1,2}^{mdl} P_1 + c_{33,2,2}^{mdl} P_2 + c_{33,3,2}^{mdl} P_3$$

$$c_{33,0,2}^{mdl} = (-c_{2,0}^{ci}) * c_{2,0}^{inv} + c_{2,1}^{ci} * c_{3,0}^{inv}$$

$$c_{33,1,2}^{mdl} = (-c_{2,0}^{ci}) * c_{2,1}^{inv} + c_{2,1}^{ci} * c_{3,1}^{inv}$$

$$\begin{aligned}
c_{33,2,2}^{mdl} &= (-c_{2,0}^{ci}) * c_{2,2}^{inv} + c_{2,1}^{ci} * c_{3,2}^{inv} \\
c_{33,3,2}^{mdl} &= (-c_{2,0}^{ci}) * c_{2,3}^{inv} + c_{2,1}^{ci} * c_{3,3}^{inv} \\
\hat{1}_\alpha^+ \hat{0}_\alpha^- |P_3\rangle &= c_{33,0,3}^{mdl} P_0 + c_{33,1,3}^{mdl} P_1 + c_{33,2,3}^{mdl} P_2 + c_{33,3,3}^{mdl} P_3 \\
c_{33,0,3}^{mdl} &= (-c_{3,0}^{ci}) * c_{2,0}^{inv} + c_{3,1}^{ci} * c_{3,0}^{inv} \\
c_{33,1,3}^{mdl} &= (-c_{3,0}^{ci}) * c_{2,1}^{inv} + c_{3,1}^{ci} * c_{3,1}^{inv} \\
c_{33,2,3}^{mdl} &= (-c_{3,0}^{ci}) * c_{2,2}^{inv} + c_{3,1}^{ci} * c_{3,2}^{inv} \\
c_{33,3,3}^{mdl} &= (-c_{3,0}^{ci}) * c_{2,3}^{inv} + c_{3,1}^{ci} * c_{3,3}^{inv} \\
\hat{1}_\alpha^+ \hat{0}_\alpha^- |P_4\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\alpha^- |P_5\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\alpha^- |P_6\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\alpha^- |P_7\rangle &= c_{33,7,7}^{mdl} P_7 + c_{33,8,7}^{mdl} P_8 \\
c_{33,7,7}^{mdl} &= c_{7,7}^{ci} * c_{8,7}^{inv} \\
c_{33,8,7}^{mdl} &= c_{7,7}^{ci} * c_{8,8}^{inv} \\
\hat{1}_\alpha^+ \hat{0}_\alpha^- |P_8\rangle &= c_{33,7,8}^{mdl} P_7 + c_{33,8,8}^{mdl} P_8 \\
c_{33,7,8}^{mdl} &= c_{8,7}^{ci} * c_{8,7}^{inv} \\
c_{33,8,8}^{mdl} &= c_{8,7}^{ci} * c_{8,8}^{inv} \\
\hat{1}_\alpha^+ \hat{0}_\alpha^- |P_9\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\alpha^- |P_{10}\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\alpha^- |P_{11}\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\alpha^- |P_{12}\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\alpha^- |P_{13}\rangle &= c_{33,13,13}^{mdl} P_{13} + c_{33,14,13}^{mdl} P_{14} \\
c_{33,13,13}^{mdl} &= (-c_{13,13}^{ci}) * c_{14,13}^{inv} \\
c_{33,14,13}^{mdl} &= (-c_{13,13}^{ci}) * c_{14,14}^{inv} \\
\hat{1}_\alpha^+ \hat{0}_\alpha^- |P_{14}\rangle &= c_{33,13,14}^{mdl} P_{13} + c_{33,14,14}^{mdl} P_{14} \\
c_{33,13,14}^{mdl} &= (-c_{14,13}^{ci}) * c_{14,13}^{inv} \\
c_{33,14,14}^{mdl} &= (-c_{14,13}^{ci}) * c_{14,14}^{inv} \\
\hat{1}_\alpha^+ \hat{0}_\alpha^- |P_{15}\rangle &= \\
\hat{O}_{34} : \langle P_p | \hat{1}_\alpha^- \hat{0}_\alpha^- | P_q \rangle &=>
\end{aligned}$$

$$\begin{aligned}
\hat{1}_\alpha^- \hat{0}_\alpha^- |P_0\rangle &= \\
\hat{1}_\alpha^- \hat{0}_\alpha^- |P_1\rangle &= \\
\hat{1}_\alpha^- \hat{0}_\alpha^- |P_2\rangle &= \\
\hat{1}_\alpha^- \hat{0}_\alpha^- |P_3\rangle &= \\
\hat{1}_\alpha^- \hat{0}_\alpha^- |P_4\rangle &= c_{34,6,4}^{mdl} P_6 \\
c_{34,6,4}^{mdl} &= c_{4,4}^{ci} * c_{6,6}^{inv} \\
\hat{1}_\alpha^- \hat{0}_\alpha^- |P_5\rangle &= \\
\hat{1}_\alpha^- \hat{0}_\alpha^- |P_6\rangle &= \\
\hat{1}_\alpha^- \hat{0}_\alpha^- |P_7\rangle &= \\
\hat{1}_\alpha^- \hat{0}_\alpha^- |P_8\rangle &= \\
\hat{1}_\alpha^- \hat{0}_\alpha^- |P_9\rangle &= \\
\hat{1}_\alpha^- \hat{0}_\alpha^- |P_{10}\rangle &= \\
\hat{1}_\alpha^- \hat{0}_\alpha^- |P_{11}\rangle &= c_{34,9,11}^{mdl} P_9 + c_{34,10,11}^{mdl} P_{10} \\
c_{34,9,11}^{mdl} &= (-c_{11,11}^{ci}) * c_{9,9}^{inv} + c_{11,12}^{ci} * c_{10,9}^{inv} \\
c_{34,10,11}^{mdl} &= (-c_{11,11}^{ci}) * c_{9,10}^{inv} + c_{11,12}^{ci} * c_{10,10}^{inv} \\
\hat{1}_\alpha^- \hat{0}_\alpha^- |P_{12}\rangle &= c_{34,9,12}^{mdl} P_9 + c_{34,10,12}^{mdl} P_{10} \\
c_{34,9,12}^{mdl} &= (-c_{12,11}^{ci}) * c_{9,9}^{inv} + c_{12,12}^{ci} * c_{10,9}^{inv} \\
c_{34,10,12}^{mdl} &= (-c_{12,11}^{ci}) * c_{9,10}^{inv} + c_{12,12}^{ci} * c_{10,10}^{inv} \\
\hat{1}_\alpha^- \hat{0}_\alpha^- |P_{13}\rangle &= \\
\hat{1}_\alpha^- \hat{0}_\alpha^- |P_{14}\rangle &= \\
\hat{1}_\alpha^- \hat{0}_\alpha^- |P_{15}\rangle &= c_{34,5,15}^{mdl} P_5 \\
c_{34,5,15}^{mdl} &= (-c_{15,15}^{ci}) * c_{5,5}^{inv} \\
\\
\hat{O}_{35} : \langle P_p | \hat{1}_\alpha^+ \hat{0}_\beta^+ | P_q \rangle &=> \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ |P_0\rangle &= c_{35,15,0}^{mdl} P_{15} \\
c_{35,15,0}^{mdl} &= (-c_{0,1}^{ci}) * c_{15,15}^{inv} \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ |P_1\rangle &= c_{35,15,1}^{mdl} P_{15} \\
c_{35,15,1}^{mdl} &= (-c_{1,1}^{ci}) * c_{15,15}^{inv} \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ |P_2\rangle &= c_{35,15,2}^{mdl} P_{15}
\end{aligned}$$

$$\begin{aligned}
c_{35,15,2}^{mdl} &= (-c_{2,1}^{ci}) * c_{15,15}^{inv} \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ |P_3\rangle &= c_{35,15,3}^{mdl} P_{15} \\
c_{35,15,3}^{mdl} &= (-c_{3,1}^{ci}) * c_{15,15}^{inv} \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ |P_4\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ |P_5\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ |P_6\rangle &= c_{35,0,6}^{mdl} P_0 + c_{35,1,6}^{mdl} P_1 + c_{35,2,6}^{mdl} P_2 + c_{35,3,6}^{mdl} P_3 \\
c_{35,0,6}^{mdl} &= (-c_{6,6}^{ci}) * c_{2,0}^{inv} \\
c_{35,1,6}^{mdl} &= (-c_{6,6}^{ci}) * c_{2,1}^{inv} \\
c_{35,2,6}^{mdl} &= (-c_{6,6}^{ci}) * c_{2,2}^{inv} \\
c_{35,3,6}^{mdl} &= (-c_{6,6}^{ci}) * c_{2,3}^{inv} \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ |P_7\rangle &= c_{35,11,7}^{mdl} P_{11} + c_{35,12,7}^{mdl} P_{12} \\
c_{35,11,7}^{mdl} &= (-c_{7,7}^{ci}) * c_{11,11}^{inv} \\
c_{35,12,7}^{mdl} &= (-c_{7,7}^{ci}) * c_{11,12}^{inv} \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ |P_8\rangle &= c_{35,11,8}^{mdl} P_{11} + c_{35,12,8}^{mdl} P_{12} \\
c_{35,11,8}^{mdl} &= (-c_{8,7}^{ci}) * c_{11,11}^{inv} \\
c_{35,12,8}^{mdl} &= (-c_{8,7}^{ci}) * c_{11,12}^{inv} \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ |P_9\rangle &= c_{35,13,9}^{mdl} P_{13} + c_{35,14,9}^{mdl} P_{14} \\
c_{35,13,9}^{mdl} &= (-c_{9,10}^{ci}) * c_{14,13}^{inv} \\
c_{35,14,9}^{mdl} &= (-c_{9,10}^{ci}) * c_{14,14}^{inv} \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ |P_{10}\rangle &= c_{35,13,10}^{mdl} P_{13} + c_{35,14,10}^{mdl} P_{14} \\
c_{35,13,10}^{mdl} &= (-c_{10,10}^{ci}) * c_{14,13}^{inv} \\
c_{35,14,10}^{mdl} &= (-c_{10,10}^{ci}) * c_{14,14}^{inv} \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ |P_{11}\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ |P_{12}\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ |P_{13}\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ |P_{14}\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ |P_{15}\rangle &= \\
\hat{O}_{36} : \langle P_p | \hat{1}_\alpha^+ \hat{0}_\beta^- | P_q \rangle &=>
\end{aligned}$$

$$\begin{aligned}
\hat{1}_\alpha^+ \hat{0}_\beta^- |P_0\rangle &= c_{36,4,0}^{mdl} P_4 \\
c_{36,4,0}^{mdl} &= (-(-c_{0,0}^{ci})) * c_{4,4}^{inv} \\
\hat{1}_\alpha^+ \hat{0}_\beta^- |P_1\rangle &= c_{36,4,1}^{mdl} P_4 \\
c_{36,4,1}^{mdl} &= (-(-c_{1,0}^{ci})) * c_{4,4}^{inv} \\
\hat{1}_\alpha^+ \hat{0}_\beta^- |P_2\rangle &= c_{36,4,2}^{mdl} P_4 \\
c_{36,4,2}^{mdl} &= (-(-c_{2,0}^{ci})) * c_{4,4}^{inv} \\
\hat{1}_\alpha^+ \hat{0}_\beta^- |P_3\rangle &= c_{36,4,3}^{mdl} P_4 \\
c_{36,4,3}^{mdl} &= (-(-c_{3,0}^{ci})) * c_{4,4}^{inv} \\
\hat{1}_\alpha^+ \hat{0}_\beta^- |P_4\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\beta^- |P_5\rangle &= c_{36,0,5}^{mdl} P_0 + c_{36,1,5}^{mdl} P_1 + c_{36,2,5}^{mdl} P_2 + c_{36,3,5}^{mdl} P_3 \\
c_{36,0,5}^{mdl} &= c_{5,5}^{ci} * c_{3,0}^{inv} \\
c_{36,1,5}^{mdl} &= c_{5,5}^{ci} * c_{3,1}^{inv} \\
c_{36,2,5}^{mdl} &= c_{5,5}^{ci} * c_{3,2}^{inv} \\
c_{36,3,5}^{mdl} &= c_{5,5}^{ci} * c_{3,3}^{inv} \\
\hat{1}_\alpha^+ \hat{0}_\beta^- |P_6\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\beta^- |P_7\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\beta^- |P_8\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\beta^- |P_9\rangle &= c_{36,7,9}^{mdl} P_7 + c_{36,8,9}^{mdl} P_8 \\
c_{36,7,9}^{mdl} &= c_{9,9}^{ci} * c_{8,7}^{inv} \\
c_{36,8,9}^{mdl} &= c_{9,9}^{ci} * c_{8,8}^{inv} \\
\hat{1}_\alpha^+ \hat{0}_\beta^- |P_{10}\rangle &= c_{36,7,10}^{mdl} P_7 + c_{36,8,10}^{mdl} P_8 \\
c_{36,7,10}^{mdl} &= c_{10,9}^{ci} * c_{8,7}^{inv} \\
c_{36,8,10}^{mdl} &= c_{10,9}^{ci} * c_{8,8}^{inv} \\
\hat{1}_\alpha^+ \hat{0}_\beta^- |P_{11}\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\beta^- |P_{12}\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\beta^- |P_{13}\rangle &= c_{36,11,13}^{mdl} P_{11} + c_{36,12,13}^{mdl} P_{12} \\
c_{36,11,13}^{mdl} &= (-(-c_{13,13}^{ci})) * c_{12,11}^{inv} \\
c_{36,12,13}^{mdl} &= (-(-c_{13,13}^{ci})) * c_{12,12}^{inv} \\
\hat{1}_\alpha^+ \hat{0}_\beta^- |P_{14}\rangle &= c_{36,11,14}^{mdl} P_{11} + c_{36,12,14}^{mdl} P_{12}
\end{aligned}$$

$$c_{36,11,14}^{mdl} = (-(-c_{14,13}^{ci})) * c_{12,11}^{inv}$$

$$c_{36,12,14}^{mdl} = (-(-c_{14,13}^{ci})) * c_{12,12}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{37} : \langle P_p | \hat{1}_\alpha^- \hat{0}_\beta^- | P_q \rangle =>$$

$$\hat{1}_\alpha^- \hat{0}_\beta^- |P_0\rangle = c_{37,6,0}^{mdl} P_6$$

$$c_{37,6,0}^{mdl} = c_{0,2}^{ci} * c_{6,6}^{inv}$$

$$\hat{1}_\alpha^- \hat{0}_\beta^- |P_1\rangle = c_{37,6,1}^{mdl} P_6$$

$$c_{37,6,1}^{mdl} = c_{1,2}^{ci} * c_{6,6}^{inv}$$

$$\hat{1}_\alpha^- \hat{0}_\beta^- |P_2\rangle = c_{37,6,2}^{mdl} P_6$$

$$c_{37,6,2}^{mdl} = c_{2,2}^{ci} * c_{6,6}^{inv}$$

$$\hat{1}_\alpha^- \hat{0}_\beta^- |P_3\rangle = c_{37,6,3}^{mdl} P_6$$

$$c_{37,6,3}^{mdl} = c_{3,2}^{ci} * c_{6,6}^{inv}$$

$$\hat{1}_\alpha^- \hat{0}_\beta^- |P_4\rangle =$$

$$\hat{1}_\alpha^- \hat{0}_\beta^- |P_5\rangle =$$

$$\hat{1}_\alpha^- \hat{0}_\beta^- |P_6\rangle =$$

$$\hat{1}_\alpha^- \hat{0}_\beta^- |P_7\rangle =$$

$$\hat{1}_\alpha^- \hat{0}_\beta^- |P_8\rangle =$$

$$\hat{1}_\alpha^- \hat{0}_\beta^- |P_9\rangle =$$

$$\hat{1}_\alpha^- \hat{0}_\beta^- |P_{10}\rangle =$$

$$\hat{1}_\alpha^- \hat{0}_\beta^- |P_{11}\rangle = c_{37,7,11}^{mdl} P_7 + c_{37,8,11}^{mdl} P_8$$

$$c_{37,7,11}^{mdl} = c_{11,11}^{ci} * c_{7,7}^{inv}$$

$$c_{37,8,11}^{mdl} = c_{11,11}^{ci} * c_{7,8}^{inv}$$

$$\hat{1}_\alpha^- \hat{0}_\beta^- |P_{12}\rangle = c_{37,7,12}^{mdl} P_7 + c_{37,8,12}^{mdl} P_8$$

$$c_{37,7,12}^{mdl} = c_{12,11}^{ci} * c_{7,7}^{inv}$$

$$c_{37,8,12}^{mdl} = c_{12,11}^{ci} * c_{7,8}^{inv}$$

$$\hat{1}_\alpha^- \hat{0}_\beta^- |P_{13}\rangle = c_{37,9,13}^{mdl} P_9 + c_{37,10,13}^{mdl} P_{10}$$

$$c_{37,9,13}^{mdl} = c_{13,14}^{ci} * c_{10,9}^{inv}$$

$$c_{37,10,13}^{mdl} = c_{13,14}^{ci} * c_{10,10}^{inv}$$

$$\hat{1}_\alpha^- \hat{0}_\beta^- |P_{14}\rangle = c_{37,9,14}^{mdl} P_9 + c_{37,10,14}^{mdl} P_{10}$$

$$c_{37,9,14}^{mdl} = c_{14,14}^{ci} * c_{10,9}^{inv}$$

$$c_{37,10,14}^{mdl} = c_{14,14}^{ci} * c_{10,10}^{inv}$$

$$\hat{1}_\alpha^- \hat{0}_\beta^- |P_{15}\rangle = c_{37,0,15}^{mdl} P_0 + c_{37,1,15}^{mdl} P_1 + c_{37,2,15}^{mdl} P_2 + c_{37,3,15}^{mdl} P_3$$

$$c_{37,0,15}^{mdl} = c_{15,15}^{ci} * c_{1,0}^{inv}$$

$$c_{37,1,15}^{mdl} = c_{15,15}^{ci} * c_{1,1}^{inv}$$

$$c_{37,2,15}^{mdl} = c_{15,15}^{ci} * c_{1,2}^{inv}$$

$$c_{37,3,15}^{mdl} = c_{15,15}^{ci} * c_{1,3}^{inv}$$

$$\hat{O}_{38} : \langle P_p | \hat{1}_\alpha^+ \hat{1}_\alpha^+ | P_q \rangle = >$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ |P_0\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ |P_1\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ |P_2\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ |P_3\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ |P_4\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ |P_5\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ |P_6\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ |P_7\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ |P_8\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ |P_9\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ |P_{10}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ |P_{11}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ |P_{12}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ |P_{13}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ |P_{14}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ |P_{15}\rangle =$$

$$\hat{O}_{39} : \langle P_p | \hat{1}_\alpha^+ \hat{1}_\alpha^- | P_q \rangle = >$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^- |P_0\rangle = c_{39,0,0}^{mdl} P_0 + c_{39,1,0}^{mdl} P_1 + c_{39,2,0}^{mdl} P_2 + c_{39,3,0}^{mdl} P_3$$

$$\begin{aligned}
c_{39,0,0}^{mdl} &= (-(-c_{0,2}^{ci})) * c_{2,0}^{inv} + c_{0,3}^{ci} * c_{3,0}^{inv} \\
c_{39,1,0}^{mdl} &= (-(-c_{0,2}^{ci})) * c_{2,1}^{inv} + c_{0,3}^{ci} * c_{3,1}^{inv} \\
c_{39,2,0}^{mdl} &= (-(-c_{0,2}^{ci})) * c_{2,2}^{inv} + c_{0,3}^{ci} * c_{3,2}^{inv} \\
c_{39,3,0}^{mdl} &= (-(-c_{0,2}^{ci})) * c_{2,3}^{inv} + c_{0,3}^{ci} * c_{3,3}^{inv} \\
\hat{1}_\alpha^+ \hat{1}_\alpha^- |P_1\rangle &= c_{39,0,1}^{mdl} P_0 + c_{39,1,1}^{mdl} P_1 + c_{39,2,1}^{mdl} P_2 + c_{39,3,1}^{mdl} P_3 \\
c_{39,0,1}^{mdl} &= (-(-c_{1,2}^{ci})) * c_{2,0}^{inv} + c_{1,3}^{ci} * c_{3,0}^{inv} \\
c_{39,1,1}^{mdl} &= (-(-c_{1,2}^{ci})) * c_{2,1}^{inv} + c_{1,3}^{ci} * c_{3,1}^{inv} \\
c_{39,2,1}^{mdl} &= (-(-c_{1,2}^{ci})) * c_{2,2}^{inv} + c_{1,3}^{ci} * c_{3,2}^{inv} \\
c_{39,3,1}^{mdl} &= (-(-c_{1,2}^{ci})) * c_{2,3}^{inv} + c_{1,3}^{ci} * c_{3,3}^{inv} \\
\hat{1}_\alpha^+ \hat{1}_\alpha^- |P_2\rangle &= c_{39,0,2}^{mdl} P_0 + c_{39,1,2}^{mdl} P_1 + c_{39,2,2}^{mdl} P_2 + c_{39,3,2}^{mdl} P_3 \\
c_{39,0,2}^{mdl} &= (-(-c_{2,2}^{ci})) * c_{2,0}^{inv} + c_{2,3}^{ci} * c_{3,0}^{inv} \\
c_{39,1,2}^{mdl} &= (-(-c_{2,2}^{ci})) * c_{2,1}^{inv} + c_{2,3}^{ci} * c_{3,1}^{inv} \\
c_{39,2,2}^{mdl} &= (-(-c_{2,2}^{ci})) * c_{2,2}^{inv} + c_{2,3}^{ci} * c_{3,2}^{inv} \\
c_{39,3,2}^{mdl} &= (-(-c_{2,2}^{ci})) * c_{2,3}^{inv} + c_{2,3}^{ci} * c_{3,3}^{inv} \\
\hat{1}_\alpha^+ \hat{1}_\alpha^- |P_3\rangle &= c_{39,0,3}^{mdl} P_0 + c_{39,1,3}^{mdl} P_1 + c_{39,2,3}^{mdl} P_2 + c_{39,3,3}^{mdl} P_3 \\
c_{39,0,3}^{mdl} &= (-(-c_{3,2}^{ci})) * c_{2,0}^{inv} + c_{3,3}^{ci} * c_{3,0}^{inv} \\
c_{39,1,3}^{mdl} &= (-(-c_{3,2}^{ci})) * c_{2,1}^{inv} + c_{3,3}^{ci} * c_{3,1}^{inv} \\
c_{39,2,3}^{mdl} &= (-(-c_{3,2}^{ci})) * c_{2,2}^{inv} + c_{3,3}^{ci} * c_{3,2}^{inv} \\
c_{39,3,3}^{mdl} &= (-(-c_{3,2}^{ci})) * c_{2,3}^{inv} + c_{3,3}^{ci} * c_{3,3}^{inv} \\
\hat{1}_\alpha^+ \hat{1}_\alpha^- |P_4\rangle &= c_{39,4,4}^{mdl} P_4 \\
c_{39,4,4}^{mdl} &= (-(-c_{4,4}^{ci})) * c_{4,4}^{inv} \\
\hat{1}_\alpha^+ \hat{1}_\alpha^- |P_5\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\alpha^- |P_6\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\alpha^- |P_7\rangle &= c_{39,7,7}^{mdl} P_7 + c_{39,8,7}^{mdl} P_8 \\
c_{39,7,7}^{mdl} &= c_{7,8}^{ci} * c_{8,7}^{inv} \\
c_{39,8,7}^{mdl} &= c_{7,8}^{ci} * c_{8,8}^{inv} \\
\hat{1}_\alpha^+ \hat{1}_\alpha^- |P_8\rangle &= c_{39,7,8}^{mdl} P_7 + c_{39,8,8}^{mdl} P_8 \\
c_{39,7,8}^{mdl} &= c_{8,8}^{ci} * c_{8,7}^{inv} \\
c_{39,8,8}^{mdl} &= c_{8,8}^{ci} * c_{8,8}^{inv}
\end{aligned}$$

$$\begin{aligned}
\hat{1}_\alpha^+ \hat{1}_\alpha^- |P_9\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\alpha^- |P_{10}\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\alpha^- |P_{11}\rangle &= c_{39,11,11}^{mdl} P_{11} + c_{39,12,11}^{mdl} P_{12} \\
c_{39,11,11}^{mdl} &= c_{11,11}^{ci} * c_{11,11}^{inv} + (-(-c_{11,12}^{ci})) * c_{12,11}^{inv} \\
c_{39,12,11}^{mdl} &= c_{11,11}^{ci} * c_{11,12}^{inv} + (-(-c_{11,12}^{ci})) * c_{12,12}^{inv} \\
\hat{1}_\alpha^+ \hat{1}_\alpha^- |P_{12}\rangle &= c_{39,11,12}^{mdl} P_{11} + c_{39,12,12}^{mdl} P_{12} \\
c_{39,11,12}^{mdl} &= c_{12,11}^{ci} * c_{11,11}^{inv} + (-(-c_{12,12}^{ci})) * c_{12,11}^{inv} \\
c_{39,12,12}^{mdl} &= c_{12,11}^{ci} * c_{11,12}^{inv} + (-(-c_{12,12}^{ci})) * c_{12,12}^{inv} \\
\hat{1}_\alpha^+ \hat{1}_\alpha^- |P_{13}\rangle &= c_{39,13,13}^{mdl} P_{13} + c_{39,14,13}^{mdl} P_{14} \\
c_{39,13,13}^{mdl} &= (-(-c_{13,14}^{ci})) * c_{14,13}^{inv} \\
c_{39,14,13}^{mdl} &= (-(-c_{13,14}^{ci})) * c_{14,14}^{inv} \\
\hat{1}_\alpha^+ \hat{1}_\alpha^- |P_{14}\rangle &= c_{39,13,14}^{mdl} P_{13} + c_{39,14,14}^{mdl} P_{14} \\
c_{39,13,14}^{mdl} &= (-(-c_{14,14}^{ci})) * c_{14,13}^{inv} \\
c_{39,14,14}^{mdl} &= (-(-c_{14,14}^{ci})) * c_{14,14}^{inv} \\
\hat{1}_\alpha^+ \hat{1}_\alpha^- |P_{15}\rangle &= c_{39,15,15}^{mdl} P_{15} \\
c_{39,15,15}^{mdl} &= c_{15,15}^{ci} * c_{15,15}^{inv}
\end{aligned}$$

$$\hat{O}_{40} : \langle P_p | \hat{1}_\alpha^- \hat{1}_\alpha^- | P_q \rangle = >$$

$$\begin{aligned}
\hat{1}_\alpha^- \hat{1}_\alpha^- |P_0\rangle &= \\
\hat{1}_\alpha^- \hat{1}_\alpha^- |P_1\rangle &= \\
\hat{1}_\alpha^- \hat{1}_\alpha^- |P_2\rangle &= \\
\hat{1}_\alpha^- \hat{1}_\alpha^- |P_3\rangle &= \\
\hat{1}_\alpha^- \hat{1}_\alpha^- |P_4\rangle &= \\
\hat{1}_\alpha^- \hat{1}_\alpha^- |P_5\rangle &= \\
\hat{1}_\alpha^- \hat{1}_\alpha^- |P_6\rangle &= \\
\hat{1}_\alpha^- \hat{1}_\alpha^- |P_7\rangle &= \\
\hat{1}_\alpha^- \hat{1}_\alpha^- |P_8\rangle &= \\
\hat{1}_\alpha^- \hat{1}_\alpha^- |P_9\rangle &= \\
\hat{1}_\alpha^- \hat{1}_\alpha^- |P_{10}\rangle &=
\end{aligned}$$

$$\hat{1}_\alpha^- \hat{1}_\alpha^- |P_{11}\rangle =$$

$$\hat{1}_\alpha^- \hat{1}_\alpha^- |P_{12}\rangle =$$

$$\hat{1}_\alpha^- \hat{1}_\alpha^- |P_{13}\rangle =$$

$$\hat{1}_\alpha^- \hat{1}_\alpha^- |P_{14}\rangle =$$

$$\hat{1}_\alpha^- \hat{1}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{41} : \langle P_p | \hat{1}_\alpha^+ \hat{1}_\beta^+ | P_q \rangle =>$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ |P_0\rangle = c_{41,15,0}^{mdl} P_{15}$$

$$c_{41,15,0}^{mdl} = c_{0,0}^{ci} * c_{15,15}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ |P_1\rangle = c_{41,15,1}^{mdl} P_{15}$$

$$c_{41,15,1}^{mdl} = c_{1,0}^{ci} * c_{15,15}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ |P_2\rangle = c_{41,15,2}^{mdl} P_{15}$$

$$c_{41,15,2}^{mdl} = c_{2,0}^{ci} * c_{15,15}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ |P_3\rangle = c_{41,15,3}^{mdl} P_{15}$$

$$c_{41,15,3}^{mdl} = c_{3,0}^{ci} * c_{15,15}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ |P_4\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ |P_5\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ |P_6\rangle = c_{41,0,6}^{mdl} P_0 + c_{41,1,6}^{mdl} P_1 + c_{41,2,6}^{mdl} P_2 + c_{41,3,6}^{mdl} P_3$$

$$c_{41,0,6}^{mdl} = c_{6,6}^{ci} * c_{3,0}^{inv}$$

$$c_{41,1,6}^{mdl} = c_{6,6}^{ci} * c_{3,1}^{inv}$$

$$c_{41,2,6}^{mdl} = c_{6,6}^{ci} * c_{3,2}^{inv}$$

$$c_{41,3,6}^{mdl} = c_{6,6}^{ci} * c_{3,3}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ |P_7\rangle = c_{41,11,7}^{mdl} P_{11} + c_{41,12,7}^{mdl} P_{12}$$

$$c_{41,11,7}^{mdl} = c_{7,7}^{ci} * c_{12,11}^{inv}$$

$$c_{41,12,7}^{mdl} = c_{7,7}^{ci} * c_{12,12}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ |P_8\rangle = c_{41,11,8}^{mdl} P_{11} + c_{41,12,8}^{mdl} P_{12}$$

$$c_{41,11,8}^{mdl} = c_{8,7}^{ci} * c_{12,11}^{inv}$$

$$c_{41,12,8}^{mdl} = c_{8,7}^{ci} * c_{12,12}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ |P_9\rangle = c_{41,13,9}^{mdl} P_{13} + c_{41,14,9}^{mdl} P_{14}$$

$$c_{41,13,9}^{mdl} = c_{9,9}^{ci} * c_{14,13}^{inv}$$

$$c_{41,14,9}^{mdl} = c_{9,9}^{ci} * c_{14,14}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ |P_{10}\rangle = c_{41,13,10}^{mdl} P_{13} + c_{41,14,10}^{mdl} P_{14}$$

$$c_{41,13,10}^{mdl} = c_{10,9}^{ci} * c_{14,13}^{inv}$$

$$c_{41,14,10}^{mdl} = c_{10,9}^{ci} * c_{14,14}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ |P_{11}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ |P_{12}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ |P_{13}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ |P_{14}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ |P_{15}\rangle =$$

$$\hat{O}_{42} : \langle P_p | \hat{1}_\alpha^+ \hat{1}_\beta^- | P_q \rangle =>$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^- |P_0\rangle = c_{42,4,0}^{mdl} P_4$$

$$c_{42,4,0}^{mdl} = (-(-c_{0,1}^{ci})) * c_{4,4}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^- |P_1\rangle = c_{42,4,1}^{mdl} P_4$$

$$c_{42,4,1}^{mdl} = (-(-c_{1,1}^{ci})) * c_{4,4}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^- |P_2\rangle = c_{42,4,2}^{mdl} P_4$$

$$c_{42,4,2}^{mdl} = (-(-c_{2,1}^{ci})) * c_{4,4}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^- |P_3\rangle = c_{42,4,3}^{mdl} P_4$$

$$c_{42,4,3}^{mdl} = (-(-c_{3,1}^{ci})) * c_{4,4}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^- |P_4\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^- |P_5\rangle = c_{42,0,5}^{mdl} P_0 + c_{42,1,5}^{mdl} P_1 + c_{42,2,5}^{mdl} P_2 + c_{42,3,5}^{mdl} P_3$$

$$c_{42,0,5}^{mdl} = (-(-c_{5,5}^{ci})) * c_{2,0}^{inv}$$

$$c_{42,1,5}^{mdl} = (-(-c_{5,5}^{ci})) * c_{2,1}^{inv}$$

$$c_{42,2,5}^{mdl} = (-(-c_{5,5}^{ci})) * c_{2,2}^{inv}$$

$$c_{42,3,5}^{mdl} = (-(-c_{5,5}^{ci})) * c_{2,3}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^- |P_6\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^- |P_7\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^- |P_8\rangle =$$

$$\begin{aligned}
\hat{1}_\alpha^+ \hat{1}_\beta^- |P_9\rangle &= c_{42,7,9}^{mdl} P_7 + c_{42,8,9}^{mdl} P_8 \\
c_{42,7,9}^{mdl} &= c_{9,10}^{ci} * c_{8,7}^{inv} \\
c_{42,8,9}^{mdl} &= c_{9,10}^{ci} * c_{8,8}^{inv} \\
\hat{1}_\alpha^+ \hat{1}_\beta^- |P_{10}\rangle &= c_{42,7,10}^{mdl} P_7 + c_{42,8,10}^{mdl} P_8 \\
c_{42,7,10}^{mdl} &= c_{10,10}^{ci} * c_{8,7}^{inv} \\
c_{42,8,10}^{mdl} &= c_{10,10}^{ci} * c_{8,8}^{inv} \\
\hat{1}_\alpha^+ \hat{1}_\beta^- |P_{11}\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\beta^- |P_{12}\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\beta^- |P_{13}\rangle &= c_{42,11,13}^{mdl} P_{11} + c_{42,12,13}^{mdl} P_{12} \\
c_{42,11,13}^{mdl} &= c_{13,13}^{ci} * c_{11,11}^{inv} \\
c_{42,12,13}^{mdl} &= c_{13,13}^{ci} * c_{11,12}^{inv} \\
\hat{1}_\alpha^+ \hat{1}_\beta^- |P_{14}\rangle &= c_{42,11,14}^{mdl} P_{11} + c_{42,12,14}^{mdl} P_{12} \\
c_{42,11,14}^{mdl} &= c_{14,13}^{ci} * c_{11,11}^{inv} \\
c_{42,12,14}^{mdl} &= c_{14,13}^{ci} * c_{11,12}^{inv} \\
\hat{1}_\alpha^+ \hat{1}_\beta^- |P_{15}\rangle &=
\end{aligned}$$

$$\hat{O}_{43} : \langle P_p | \hat{1}_\alpha^- \hat{1}_\beta^- | P_q \rangle =$$

$$\begin{aligned}
\hat{1}_\alpha^- \hat{1}_\beta^- |P_0\rangle &= c_{43,6,0}^{mdl} P_6 \\
c_{43,6,0}^{mdl} &= (-c_{0,3}^{ci}) * c_{6,6}^{inv} \\
\hat{1}_\alpha^- \hat{1}_\beta^- |P_1\rangle &= c_{43,6,1}^{mdl} P_6 \\
c_{43,6,1}^{mdl} &= (-c_{1,3}^{ci}) * c_{6,6}^{inv} \\
\hat{1}_\alpha^- \hat{1}_\beta^- |P_2\rangle &= c_{43,6,2}^{mdl} P_6 \\
c_{43,6,2}^{mdl} &= (-c_{2,3}^{ci}) * c_{6,6}^{inv} \\
\hat{1}_\alpha^- \hat{1}_\beta^- |P_3\rangle &= c_{43,6,3}^{mdl} P_6 \\
c_{43,6,3}^{mdl} &= (-c_{3,3}^{ci}) * c_{6,6}^{inv} \\
\hat{1}_\alpha^- \hat{1}_\beta^- |P_4\rangle &= \\
\hat{1}_\alpha^- \hat{1}_\beta^- |P_5\rangle &= \\
\hat{1}_\alpha^- \hat{1}_\beta^- |P_6\rangle &= \\
\hat{1}_\alpha^- \hat{1}_\beta^- |P_7\rangle &=
\end{aligned}$$

$$\begin{aligned}
\hat{1}_\alpha^- \hat{1}_\beta^- |P_8\rangle &= \\
\hat{1}_\alpha^- \hat{1}_\beta^- |P_9\rangle &= \\
\hat{1}_\alpha^- \hat{1}_\beta^- |P_{10}\rangle &= \\
\hat{1}_\alpha^- \hat{1}_\beta^- |P_{11}\rangle &= c_{43,7,11}^{mdl} P_7 + c_{43,8,11}^{mdl} P_8 \\
c_{43,7,11}^{mdl} &= (-c_{11,12}^{ci}) * c_{7,7}^{inv} \\
c_{43,8,11}^{mdl} &= (-c_{11,12}^{ci}) * c_{7,8}^{inv} \\
\hat{1}_\alpha^- \hat{1}_\beta^- |P_{12}\rangle &= c_{43,7,12}^{mdl} P_7 + c_{43,8,12}^{mdl} P_8 \\
c_{43,7,12}^{mdl} &= (-c_{12,12}^{ci}) * c_{7,7}^{inv} \\
c_{43,8,12}^{mdl} &= (-c_{12,12}^{ci}) * c_{7,8}^{inv} \\
\hat{1}_\alpha^- \hat{1}_\beta^- |P_{13}\rangle &= c_{43,9,13}^{mdl} P_9 + c_{43,10,13}^{mdl} P_{10} \\
c_{43,9,13}^{mdl} &= (-c_{13,14}^{ci}) * c_{9,9}^{inv} \\
c_{43,10,13}^{mdl} &= (-c_{13,14}^{ci}) * c_{9,10}^{inv} \\
\hat{1}_\alpha^- \hat{1}_\beta^- |P_{14}\rangle &= c_{43,9,14}^{mdl} P_9 + c_{43,10,14}^{mdl} P_{10} \\
c_{43,9,14}^{mdl} &= (-c_{14,14}^{ci}) * c_{9,9}^{inv} \\
c_{43,10,14}^{mdl} &= (-c_{14,14}^{ci}) * c_{9,10}^{inv} \\
\hat{1}_\alpha^- \hat{1}_\beta^- |P_{15}\rangle &= c_{43,0,15}^{mdl} P_0 + c_{43,1,15}^{mdl} P_1 + c_{43,2,15}^{mdl} P_2 + c_{43,3,15}^{mdl} P_3 \\
c_{43,0,15}^{mdl} &= (-c_{15,15}^{ci}) * c_{0,0}^{inv} \\
c_{43,1,15}^{mdl} &= (-c_{15,15}^{ci}) * c_{0,1}^{inv} \\
c_{43,2,15}^{mdl} &= (-c_{15,15}^{ci}) * c_{0,2}^{inv} \\
c_{43,3,15}^{mdl} &= (-c_{15,15}^{ci}) * c_{0,3}^{inv}
\end{aligned}$$

$$\hat{O}_{44} : \langle P_p | \hat{1}_\beta^+ \hat{0}_\alpha^+ | P_q \rangle = >$$

$$\begin{aligned}
\hat{1}_\beta^+ \hat{0}_\alpha^+ |P_0\rangle &= c_{44,15,0}^{mdl} P_{15} \\
c_{44,15,0}^{mdl} &= (-c_{0,2}^{ci}) * c_{15,15}^{inv} \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ |P_1\rangle &= c_{44,15,1}^{mdl} P_{15} \\
c_{44,15,1}^{mdl} &= (-c_{1,2}^{ci}) * c_{15,15}^{inv} \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ |P_2\rangle &= c_{44,15,2}^{mdl} P_{15} \\
c_{44,15,2}^{mdl} &= (-c_{2,2}^{ci}) * c_{15,15}^{inv} \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ |P_3\rangle &= c_{44,15,3}^{mdl} P_{15}
\end{aligned}$$

$$c_{44,15,3}^{mdl} = (-c_{3,2}^{ci}) * c_{15,15}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ |P_4\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ |P_5\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ |P_6\rangle = c_{44,0,6}^{mdl} P_0 + c_{44,1,6}^{mdl} P_1 + c_{44,2,6}^{mdl} P_2 + c_{44,3,6}^{mdl} P_3$$

$$c_{44,0,6}^{mdl} = (-c_{6,6}^{ci}) * c_{1,0}^{inv}$$

$$c_{44,1,6}^{mdl} = (-c_{6,6}^{ci}) * c_{1,1}^{inv}$$

$$c_{44,2,6}^{mdl} = (-c_{6,6}^{ci}) * c_{1,2}^{inv}$$

$$c_{44,3,6}^{mdl} = (-c_{6,6}^{ci}) * c_{1,3}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ |P_7\rangle = c_{44,11,7}^{mdl} P_{11} + c_{44,12,7}^{mdl} P_{12}$$

$$c_{44,11,7}^{mdl} = c_{7,8}^{ci} * c_{12,11}^{inv}$$

$$c_{44,12,7}^{mdl} = c_{7,8}^{ci} * c_{12,12}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ |P_8\rangle = c_{44,11,8}^{mdl} P_{11} + c_{44,12,8}^{mdl} P_{12}$$

$$c_{44,11,8}^{mdl} = c_{8,8}^{ci} * c_{12,11}^{inv}$$

$$c_{44,12,8}^{mdl} = c_{8,8}^{ci} * c_{12,12}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ |P_9\rangle = c_{44,13,9}^{mdl} P_{13} + c_{44,14,9}^{mdl} P_{14}$$

$$c_{44,13,9}^{mdl} = c_{9,9}^{ci} * c_{13,13}^{inv}$$

$$c_{44,14,9}^{mdl} = c_{9,9}^{ci} * c_{13,14}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ |P_{10}\rangle = c_{44,13,10}^{mdl} P_{13} + c_{44,14,10}^{mdl} P_{14}$$

$$c_{44,13,10}^{mdl} = c_{10,9}^{ci} * c_{13,13}^{inv}$$

$$c_{44,14,10}^{mdl} = c_{10,9}^{ci} * c_{13,14}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ |P_{11}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ |P_{12}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ |P_{13}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ |P_{14}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ |P_{15}\rangle =$$

$$\hat{O}_{45} : \langle P_p | \hat{1}_\beta^+ \hat{0}_\alpha^- | P_q \rangle = >$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^- |P_0\rangle = c_{45,5,0}^{mdl} P_5$$

$$c_{45,5,0}^{mdl} = (-c_{0,0}^{ci}) * c_{5,5}^{inv}$$

$$\begin{aligned}
\hat{1}_\beta^+ \hat{0}_\alpha^- |P_1\rangle &= c_{45,5,1}^{mdl} P_5 \\
c_{45,5,1}^{mdl} &= (-c_{1,0}^{ci}) * c_{5,5}^{inv} \\
\hat{1}_\beta^+ \hat{0}_\alpha^- |P_2\rangle &= c_{45,5,2}^{mdl} P_5 \\
c_{45,5,2}^{mdl} &= (-c_{2,0}^{ci}) * c_{5,5}^{inv} \\
\hat{1}_\beta^+ \hat{0}_\alpha^- |P_3\rangle &= c_{45,5,3}^{mdl} P_5 \\
c_{45,5,3}^{mdl} &= (-c_{3,0}^{ci}) * c_{5,5}^{inv} \\
\hat{1}_\beta^+ \hat{0}_\alpha^- |P_4\rangle &= c_{45,0,4}^{mdl} P_0 + c_{45,1,4}^{mdl} P_1 + c_{45,2,4}^{mdl} P_2 + c_{45,3,4}^{mdl} P_3 \\
c_{45,0,4}^{mdl} &= (-c_{4,4}^{ci}) * c_{3,0}^{inv} \\
c_{45,1,4}^{mdl} &= (-c_{4,4}^{ci}) * c_{3,1}^{inv} \\
c_{45,2,4}^{mdl} &= (-c_{4,4}^{ci}) * c_{3,2}^{inv} \\
c_{45,3,4}^{mdl} &= (-c_{4,4}^{ci}) * c_{3,3}^{inv} \\
\hat{1}_\beta^+ \hat{0}_\alpha^- |P_5\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\alpha^- |P_6\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\alpha^- |P_7\rangle &= c_{45,9,7}^{mdl} P_9 + c_{45,10,7}^{mdl} P_{10} \\
c_{45,9,7}^{mdl} &= c_{7,7}^{ci} * c_{10,9}^{inv} \\
c_{45,10,7}^{mdl} &= c_{7,7}^{ci} * c_{10,10}^{inv} \\
\hat{1}_\beta^+ \hat{0}_\alpha^- |P_8\rangle &= c_{45,9,8}^{mdl} P_9 + c_{45,10,8}^{mdl} P_{10} \\
c_{45,9,8}^{mdl} &= c_{8,7}^{ci} * c_{10,9}^{inv} \\
c_{45,10,8}^{mdl} &= c_{8,7}^{ci} * c_{10,10}^{inv} \\
\hat{1}_\beta^+ \hat{0}_\alpha^- |P_9\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\alpha^- |P_{10}\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\alpha^- |P_{11}\rangle &= c_{45,13,11}^{mdl} P_{13} + c_{45,14,11}^{mdl} P_{14} \\
c_{45,13,11}^{mdl} &= c_{11,11}^{ci} * c_{14,13}^{inv} \\
c_{45,14,11}^{mdl} &= c_{11,11}^{ci} * c_{14,14}^{inv} \\
\hat{1}_\beta^+ \hat{0}_\alpha^- |P_{12}\rangle &= c_{45,13,12}^{mdl} P_{13} + c_{45,14,12}^{mdl} P_{14} \\
c_{45,13,12}^{mdl} &= c_{12,11}^{ci} * c_{14,13}^{inv} \\
c_{45,14,12}^{mdl} &= c_{12,11}^{ci} * c_{14,14}^{inv} \\
\hat{1}_\beta^+ \hat{0}_\alpha^- |P_{13}\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\alpha^- |P_{14}\rangle &=
\end{aligned}$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{46} : \langle P_p | \hat{1}_\beta^- \hat{0}_\alpha^- | P_q \rangle =>$$

$$\hat{1}_\beta^- \hat{0}_\alpha^- |P_0\rangle = c_{46,6,0}^{mdl} P_6$$

$$c_{46,6,0}^{mdl} = c_{0,1}^{ci} * c_{6,6}^{inv}$$

$$\hat{1}_\beta^- \hat{0}_\alpha^- |P_1\rangle = c_{46,6,1}^{mdl} P_6$$

$$c_{46,6,1}^{mdl} = c_{1,1}^{ci} * c_{6,6}^{inv}$$

$$\hat{1}_\beta^- \hat{0}_\alpha^- |P_2\rangle = c_{46,6,2}^{mdl} P_6$$

$$c_{46,6,2}^{mdl} = c_{2,1}^{ci} * c_{6,6}^{inv}$$

$$\hat{1}_\beta^- \hat{0}_\alpha^- |P_3\rangle = c_{46,6,3}^{mdl} P_6$$

$$c_{46,6,3}^{mdl} = c_{3,1}^{ci} * c_{6,6}^{inv}$$

$$\hat{1}_\beta^- \hat{0}_\alpha^- |P_4\rangle =$$

$$\hat{1}_\beta^- \hat{0}_\alpha^- |P_5\rangle =$$

$$\hat{1}_\beta^- \hat{0}_\alpha^- |P_6\rangle =$$

$$\hat{1}_\beta^- \hat{0}_\alpha^- |P_7\rangle =$$

$$\hat{1}_\beta^- \hat{0}_\alpha^- |P_8\rangle =$$

$$\hat{1}_\beta^- \hat{0}_\alpha^- |P_9\rangle =$$

$$\hat{1}_\beta^- \hat{0}_\alpha^- |P_{10}\rangle =$$

$$\hat{1}_\beta^- \hat{0}_\alpha^- |P_{11}\rangle = c_{46,7,11}^{mdl} P_7 + c_{46,8,11}^{mdl} P_8$$

$$c_{46,7,11}^{mdl} = (-c_{11,12}^{ci}) * c_{8,7}^{inv}$$

$$c_{46,8,11}^{mdl} = (-c_{11,12}^{ci}) * c_{8,8}^{inv}$$

$$\hat{1}_\beta^- \hat{0}_\alpha^- |P_{12}\rangle = c_{46,7,12}^{mdl} P_7 + c_{46,8,12}^{mdl} P_8$$

$$c_{46,7,12}^{mdl} = (-c_{12,12}^{ci}) * c_{8,7}^{inv}$$

$$c_{46,8,12}^{mdl} = (-c_{12,12}^{ci}) * c_{8,8}^{inv}$$

$$\hat{1}_\beta^- \hat{0}_\alpha^- |P_{13}\rangle = c_{46,9,13}^{mdl} P_9 + c_{46,10,13}^{mdl} P_{10}$$

$$c_{46,9,13}^{mdl} = (-c_{13,13}^{ci}) * c_{9,9}^{inv}$$

$$c_{46,10,13}^{mdl} = (-c_{13,13}^{ci}) * c_{9,10}^{inv}$$

$$\hat{1}_\beta^- \hat{0}_\alpha^- |P_{14}\rangle = c_{46,9,14}^{mdl} P_9 + c_{46,10,14}^{mdl} P_{10}$$

$$c_{46,9,14}^{mdl} = (-c_{14,13}^{ci}) * c_{9,9}^{inv}$$

$$c_{46,10,14}^{mdl} = (-c_{14,13}^{ci}) * c_{9,10}^{inv}$$

$$\hat{1}_{\beta}^{-}\hat{0}_{\alpha}^{-}|P_{15}\rangle = c_{46,0,15}^{mdl}P_0 + c_{46,1,15}^{mdl}P_1 + c_{46,2,15}^{mdl}P_2 + c_{46,3,15}^{mdl}P_3$$

$$c_{46,0,15}^{mdl} = c_{15,15}^{ci} * c_{2,0}^{inv}$$

$$c_{46,1,15}^{mdl} = c_{15,15}^{ci} * c_{2,1}^{inv}$$

$$c_{46,2,15}^{mdl} = c_{15,15}^{ci} * c_{2,2}^{inv}$$

$$c_{46,3,15}^{mdl} = c_{15,15}^{ci} * c_{2,3}^{inv}$$

$$\hat{O}_{47} : \langle P_p | \hat{1}_{\beta}^{+}\hat{0}_{\beta}^{+} | P_q \rangle =$$

$$\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{+} | P_0 \rangle =$$

$$\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{+} | P_1 \rangle =$$

$$\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{+} | P_2 \rangle =$$

$$\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{+} | P_3 \rangle =$$

$$\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{+} | P_4 \rangle = c_{47,15,4}^{mdl}P_{15}$$

$$c_{47,15,4}^{mdl} = c_{4,4}^{ci} * c_{15,15}^{inv}$$

$$\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{+} | P_5 \rangle =$$

$$\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{+} | P_6 \rangle = c_{47,5,6}^{mdl}P_5$$

$$c_{47,5,6}^{mdl} = (-c_{6,6}^{ci}) * c_{5,5}^{inv}$$

$$\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{+} | P_7 \rangle = c_{47,13,7}^{mdl}P_{13} + c_{47,14,7}^{mdl}P_{14}$$

$$c_{47,13,7}^{mdl} = (-c_{7,7}^{ci}) * c_{13,13}^{inv} + c_{7,8}^{ci} * c_{14,13}^{inv}$$

$$c_{47,14,7}^{mdl} = (-c_{7,7}^{ci}) * c_{13,14}^{inv} + c_{7,8}^{ci} * c_{14,14}^{inv}$$

$$\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{+} | P_8 \rangle = c_{47,13,8}^{mdl}P_{13} + c_{47,14,8}^{mdl}P_{14}$$

$$c_{47,13,8}^{mdl} = (-c_{8,7}^{ci}) * c_{13,13}^{inv} + c_{8,8}^{ci} * c_{14,13}^{inv}$$

$$c_{47,14,8}^{mdl} = (-c_{8,7}^{ci}) * c_{13,14}^{inv} + c_{8,8}^{ci} * c_{14,14}^{inv}$$

$$\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{+} | P_9 \rangle =$$

$$\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{+} | P_{10} \rangle =$$

$$\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{+} | P_{11} \rangle =$$

$$\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{+} | P_{12} \rangle =$$

$$\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{+} | P_{13} \rangle =$$

$$\hat{1}_{\beta}^{+}\hat{0}_{\beta}^{+} | P_{14} \rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ |P_{15}\rangle =$$

$$\hat{O}_{48} : \langle P_p | \hat{1}_\beta^+ \hat{0}_\beta^- | P_q \rangle =>$$

$$\hat{1}_\beta^+ \hat{0}_\beta^- |P_0\rangle = c_{48,0,0}^{mdl} P_0 + c_{48,1,0}^{mdl} P_1 + c_{48,2,0}^{mdl} P_2 + c_{48,3,0}^{mdl} P_3$$

$$c_{48,0,0}^{mdl} = (-(-c_{0,0}^{ci})) * c_{1,0}^{inv} + (-c_{0,2}^{ci}) * c_{3,0}^{inv}$$

$$c_{48,1,0}^{mdl} = (-(-c_{0,0}^{ci})) * c_{1,1}^{inv} + (-c_{0,2}^{ci}) * c_{3,1}^{inv}$$

$$c_{48,2,0}^{mdl} = (-(-c_{0,0}^{ci})) * c_{1,2}^{inv} + (-c_{0,2}^{ci}) * c_{3,2}^{inv}$$

$$c_{48,3,0}^{mdl} = (-(-c_{0,0}^{ci})) * c_{1,3}^{inv} + (-c_{0,2}^{ci}) * c_{3,3}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\beta^- |P_1\rangle = c_{48,0,1}^{mdl} P_0 + c_{48,1,1}^{mdl} P_1 + c_{48,2,1}^{mdl} P_2 + c_{48,3,1}^{mdl} P_3$$

$$c_{48,0,1}^{mdl} = (-(-c_{1,0}^{ci})) * c_{1,0}^{inv} + (-c_{1,2}^{ci}) * c_{3,0}^{inv}$$

$$c_{48,1,1}^{mdl} = (-(-c_{1,0}^{ci})) * c_{1,1}^{inv} + (-c_{1,2}^{ci}) * c_{3,1}^{inv}$$

$$c_{48,2,1}^{mdl} = (-(-c_{1,0}^{ci})) * c_{1,2}^{inv} + (-c_{1,2}^{ci}) * c_{3,2}^{inv}$$

$$c_{48,3,1}^{mdl} = (-(-c_{1,0}^{ci})) * c_{1,3}^{inv} + (-c_{1,2}^{ci}) * c_{3,3}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\beta^- |P_2\rangle = c_{48,0,2}^{mdl} P_0 + c_{48,1,2}^{mdl} P_1 + c_{48,2,2}^{mdl} P_2 + c_{48,3,2}^{mdl} P_3$$

$$c_{48,0,2}^{mdl} = (-(-c_{2,0}^{ci})) * c_{1,0}^{inv} + (-c_{2,2}^{ci}) * c_{3,0}^{inv}$$

$$c_{48,1,2}^{mdl} = (-(-c_{2,0}^{ci})) * c_{1,1}^{inv} + (-c_{2,2}^{ci}) * c_{3,1}^{inv}$$

$$c_{48,2,2}^{mdl} = (-(-c_{2,0}^{ci})) * c_{1,2}^{inv} + (-c_{2,2}^{ci}) * c_{3,2}^{inv}$$

$$c_{48,3,2}^{mdl} = (-(-c_{2,0}^{ci})) * c_{1,3}^{inv} + (-c_{2,2}^{ci}) * c_{3,3}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\beta^- |P_3\rangle = c_{48,0,3}^{mdl} P_0 + c_{48,1,3}^{mdl} P_1 + c_{48,2,3}^{mdl} P_2 + c_{48,3,3}^{mdl} P_3$$

$$c_{48,0,3}^{mdl} = (-(-c_{3,0}^{ci})) * c_{1,0}^{inv} + (-c_{3,2}^{ci}) * c_{3,0}^{inv}$$

$$c_{48,1,3}^{mdl} = (-(-c_{3,0}^{ci})) * c_{1,1}^{inv} + (-c_{3,2}^{ci}) * c_{3,1}^{inv}$$

$$c_{48,2,3}^{mdl} = (-(-c_{3,0}^{ci})) * c_{1,2}^{inv} + (-c_{3,2}^{ci}) * c_{3,2}^{inv}$$

$$c_{48,3,3}^{mdl} = (-(-c_{3,0}^{ci})) * c_{1,3}^{inv} + (-c_{3,2}^{ci}) * c_{3,3}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\beta^- |P_4\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^- |P_5\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^- |P_6\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^- |P_7\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^- |P_8\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^- |P_9\rangle = c_{48,9,9}^{mdl} P_9 + c_{48,10,9}^{mdl} P_{10}$$

$$c_{48,9,9}^{mdl} = c_{9,9}^{ci} * c_{10,9}^{inv}$$

$$c_{48,10,9}^{mdl} = c_{9,9}^{ci} * c_{10,10}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\beta^- |P_{10}\rangle = c_{48,9,10}^{mdl} P_9 + c_{48,10,10}^{mdl} P_{10}$$

$$c_{48,9,10}^{mdl} = c_{10,9}^{ci} * c_{10,9}^{inv}$$

$$c_{48,10,10}^{mdl} = c_{10,9}^{ci} * c_{10,10}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\beta^- |P_{11}\rangle = c_{48,11,11}^{mdl} P_{11} + c_{48,12,11}^{mdl} P_{12}$$

$$c_{48,11,11}^{mdl} = (-c_{11,11}^{ci}) * c_{12,11}^{inv}$$

$$c_{48,12,11}^{mdl} = (-c_{11,11}^{ci}) * c_{12,12}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\beta^- |P_{12}\rangle = c_{48,11,12}^{mdl} P_{11} + c_{48,12,12}^{mdl} P_{12}$$

$$c_{48,11,12}^{mdl} = (-c_{12,11}^{ci}) * c_{12,11}^{inv}$$

$$c_{48,12,12}^{mdl} = (-c_{12,11}^{ci}) * c_{12,12}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\beta^- |P_{13}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^- |P_{14}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{49} : \langle P_p | \hat{1}_\beta^- \hat{0}_\beta^- | P_q \rangle =>$$

$$\hat{1}_\beta^- \hat{0}_\beta^- |P_0\rangle =$$

$$\hat{1}_\beta^- \hat{0}_\beta^- |P_1\rangle =$$

$$\hat{1}_\beta^- \hat{0}_\beta^- |P_2\rangle =$$

$$\hat{1}_\beta^- \hat{0}_\beta^- |P_3\rangle =$$

$$\hat{1}_\beta^- \hat{0}_\beta^- |P_4\rangle =$$

$$\hat{1}_\beta^- \hat{0}_\beta^- |P_5\rangle = c_{49,6,5}^{mdl} P_6$$

$$c_{49,6,5}^{mdl} = c_{5,5}^{ci} * c_{6,6}^{inv}$$

$$\hat{1}_\beta^- \hat{0}_\beta^- |P_6\rangle =$$

$$\hat{1}_\beta^- \hat{0}_\beta^- |P_7\rangle =$$

$$\hat{1}_\beta^- \hat{0}_\beta^- |P_8\rangle =$$

$$\hat{1}_\beta^- \hat{0}_\beta^- |P_9\rangle =$$

$$\hat{1}_\beta^- \hat{0}_\beta^- |P_{10}\rangle =$$

$$\hat{1}_\beta^- \hat{0}_\beta^- |P_{11}\rangle =$$

$$\begin{aligned}
\hat{1}_\beta^- \hat{0}_\beta^- |P_{12}\rangle &= \\
\hat{1}_\beta^- \hat{0}_\beta^- |P_{13}\rangle &= c_{49,7,13}^{mdl} P_7 + c_{49,8,13}^{mdl} P_8 \\
c_{49,7,13}^{mdl} &= c_{13,13}^{ci} * c_{7,7}^{inv} + (-c_{13,14}^{ci}) * c_{8,7}^{inv} \\
c_{49,8,13}^{mdl} &= c_{13,13}^{ci} * c_{7,8}^{inv} + (-c_{13,14}^{ci}) * c_{8,8}^{inv} \\
\hat{1}_\beta^- \hat{0}_\beta^- |P_{14}\rangle &= c_{49,7,14}^{mdl} P_7 + c_{49,8,14}^{mdl} P_8 \\
c_{49,7,14}^{mdl} &= c_{14,13}^{ci} * c_{7,7}^{inv} + (-c_{14,14}^{ci}) * c_{8,7}^{inv} \\
c_{49,8,14}^{mdl} &= c_{14,13}^{ci} * c_{7,8}^{inv} + (-c_{14,14}^{ci}) * c_{8,8}^{inv} \\
\hat{1}_\beta^- \hat{0}_\beta^- |P_{15}\rangle &= c_{49,4,15}^{mdl} P_4 \\
c_{49,4,15}^{mdl} &= (-c_{15,15}^{ci}) * c_{4,4}^{inv}
\end{aligned}$$

$$\begin{aligned}
\hat{O}_{50} : \langle P_p | \hat{1}_\beta^+ \hat{1}_\alpha^+ | P_q \rangle &=> \\
\hat{1}_\beta^+ \hat{1}_\alpha^+ | P_0 \rangle &= c_{50,15,0}^{mdl} P_{15} \\
c_{50,15,0}^{mdl} &= (-c_{0,0}^{ci}) * c_{15,15}^{inv} \\
\hat{1}_\beta^+ \hat{1}_\alpha^+ | P_1 \rangle &= c_{50,15,1}^{mdl} P_{15} \\
c_{50,15,1}^{mdl} &= (-c_{1,0}^{ci}) * c_{15,15}^{inv} \\
\hat{1}_\beta^+ \hat{1}_\alpha^+ | P_2 \rangle &= c_{50,15,2}^{mdl} P_{15} \\
c_{50,15,2}^{mdl} &= (-c_{2,0}^{ci}) * c_{15,15}^{inv} \\
\hat{1}_\beta^+ \hat{1}_\alpha^+ | P_3 \rangle &= c_{50,15,3}^{mdl} P_{15} \\
c_{50,15,3}^{mdl} &= (-c_{3,0}^{ci}) * c_{15,15}^{inv} \\
\hat{1}_\beta^+ \hat{1}_\alpha^+ | P_4 \rangle &= \\
\hat{1}_\beta^+ \hat{1}_\alpha^+ | P_5 \rangle &= \\
\hat{1}_\beta^+ \hat{1}_\alpha^+ | P_6 \rangle &= c_{50,0,6}^{mdl} P_0 + c_{50,1,6}^{mdl} P_1 + c_{50,2,6}^{mdl} P_2 + c_{50,3,6}^{mdl} P_3 \\
c_{50,0,6}^{mdl} &= (-c_{6,6}^{ci}) * c_{3,0}^{inv} \\
c_{50,1,6}^{mdl} &= (-c_{6,6}^{ci}) * c_{3,1}^{inv} \\
c_{50,2,6}^{mdl} &= (-c_{6,6}^{ci}) * c_{3,2}^{inv} \\
c_{50,3,6}^{mdl} &= (-c_{6,6}^{ci}) * c_{3,3}^{inv} \\
\hat{1}_\beta^+ \hat{1}_\alpha^+ | P_7 \rangle &= c_{50,11,7}^{mdl} P_{11} + c_{50,12,7}^{mdl} P_{12} \\
c_{50,11,7}^{mdl} &= (-c_{7,7}^{ci}) * c_{12,11}^{inv} \\
c_{50,12,7}^{mdl} &= (-c_{7,7}^{ci}) * c_{12,12}^{inv}
\end{aligned}$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ |P_8\rangle = c_{50,11,8}^{mdl} P_{11} + c_{50,12,8}^{mdl} P_{12}$$

$$c_{50,11,8}^{mdl} = (-c_{8,7}^{ci}) * c_{12,11}^{inv}$$

$$c_{50,12,8}^{mdl} = (-c_{8,7}^{ci}) * c_{12,12}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ |P_9\rangle = c_{50,13,9}^{mdl} P_{13} + c_{50,14,9}^{mdl} P_{14}$$

$$c_{50,13,9}^{mdl} = (-c_{9,9}^{ci}) * c_{14,13}^{inv}$$

$$c_{50,14,9}^{mdl} = (-c_{9,9}^{ci}) * c_{14,14}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ |P_{10}\rangle = c_{50,13,10}^{mdl} P_{13} + c_{50,14,10}^{mdl} P_{14}$$

$$c_{50,13,10}^{mdl} = (-c_{10,9}^{ci}) * c_{14,13}^{inv}$$

$$c_{50,14,10}^{mdl} = (-c_{10,9}^{ci}) * c_{14,14}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ |P_{11}\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ |P_{12}\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ |P_{13}\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ |P_{14}\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ |P_{15}\rangle =$$

$$\hat{O}_{51} : \langle P_p | \hat{1}_\beta^+ \hat{1}_\alpha^- | P_q \rangle =>$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^- |P_0\rangle = c_{51,5,0}^{mdl} P_5$$

$$c_{51,5,0}^{mdl} = (-(-c_{0,2}^{ci})) * c_{5,5}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^- |P_1\rangle = c_{51,5,1}^{mdl} P_5$$

$$c_{51,5,1}^{mdl} = (-(-c_{1,2}^{ci})) * c_{5,5}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^- |P_2\rangle = c_{51,5,2}^{mdl} P_5$$

$$c_{51,5,2}^{mdl} = (-(-c_{2,2}^{ci})) * c_{5,5}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^- |P_3\rangle = c_{51,5,3}^{mdl} P_5$$

$$c_{51,5,3}^{mdl} = (-(-c_{3,2}^{ci})) * c_{5,5}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^- |P_4\rangle = c_{51,0,4}^{mdl} P_0 + c_{51,1,4}^{mdl} P_1 + c_{51,2,4}^{mdl} P_2 + c_{51,3,4}^{mdl} P_3$$

$$c_{51,0,4}^{mdl} = (-(-c_{4,4}^{ci})) * c_{1,0}^{inv}$$

$$c_{51,1,4}^{mdl} = (-(-c_{4,4}^{ci})) * c_{1,1}^{inv}$$

$$c_{51,2,4}^{mdl} = (-(-c_{4,4}^{ci})) * c_{1,2}^{inv}$$

$$c_{51,3,4}^{mdl} = (-(-c_{4,4}^{ci})) * c_{1,3}^{inv}$$

$$\begin{aligned}
\hat{1}_\beta^+ \hat{1}_\alpha^- |P_5\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\alpha^- |P_6\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\alpha^- |P_7\rangle &= c_{51,9,7}^{mdl} P_9 + c_{51,10,7}^{mdl} P_{10} \\
c_{51,9,7}^{mdl} &= c_{7,8}^{ci} * c_{10,9}^{inv} \\
c_{51,10,7}^{mdl} &= c_{7,8}^{ci} * c_{10,10}^{inv} \\
\hat{1}_\beta^+ \hat{1}_\alpha^- |P_8\rangle &= c_{51,9,8}^{mdl} P_9 + c_{51,10,8}^{mdl} P_{10} \\
c_{51,9,8}^{mdl} &= c_{8,8}^{ci} * c_{10,9}^{inv} \\
c_{51,10,8}^{mdl} &= c_{8,8}^{ci} * c_{10,10}^{inv} \\
\hat{1}_\beta^+ \hat{1}_\alpha^- |P_9\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\alpha^- |P_{10}\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\alpha^- |P_{11}\rangle &= c_{51,13,11}^{mdl} P_{13} + c_{51,14,11}^{mdl} P_{14} \\
c_{51,13,11}^{mdl} &= c_{11,11}^{ci} * c_{13,13}^{inv} \\
c_{51,14,11}^{mdl} &= c_{11,11}^{ci} * c_{13,14}^{inv} \\
\hat{1}_\beta^+ \hat{1}_\alpha^- |P_{12}\rangle &= c_{51,13,12}^{mdl} P_{13} + c_{51,14,12}^{mdl} P_{14} \\
c_{51,13,12}^{mdl} &= c_{12,11}^{ci} * c_{13,13}^{inv} \\
c_{51,14,12}^{mdl} &= c_{12,11}^{ci} * c_{13,14}^{inv} \\
\hat{1}_\beta^+ \hat{1}_\alpha^- |P_{13}\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\alpha^- |P_{14}\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\alpha^- |P_{15}\rangle &=
\end{aligned}$$

$$\hat{O}_{52} : \langle P_p | \hat{1}_\beta^- \hat{1}_\alpha^- | P_q \rangle =$$

$$\begin{aligned}
\hat{1}_\beta^- \hat{1}_\alpha^- |P_0\rangle &= c_{52,6,0}^{mdl} P_6 \\
c_{52,6,0}^{mdl} &= c_{0,3}^{ci} * c_{6,6}^{inv} \\
\hat{1}_\beta^- \hat{1}_\alpha^- |P_1\rangle &= c_{52,6,1}^{mdl} P_6 \\
c_{52,6,1}^{mdl} &= c_{1,3}^{ci} * c_{6,6}^{inv} \\
\hat{1}_\beta^- \hat{1}_\alpha^- |P_2\rangle &= c_{52,6,2}^{mdl} P_6 \\
c_{52,6,2}^{mdl} &= c_{2,3}^{ci} * c_{6,6}^{inv} \\
\hat{1}_\beta^- \hat{1}_\alpha^- |P_3\rangle &= c_{52,6,3}^{mdl} P_6 \\
c_{52,6,3}^{mdl} &= c_{3,3}^{ci} * c_{6,6}^{inv}
\end{aligned}$$

$$\begin{aligned}
\hat{1}_\beta^- \hat{1}_\alpha^- |P_4\rangle &= \\
\hat{1}_\beta^- \hat{1}_\alpha^- |P_5\rangle &= \\
\hat{1}_\beta^- \hat{1}_\alpha^- |P_6\rangle &= \\
\hat{1}_\beta^- \hat{1}_\alpha^- |P_7\rangle &= \\
\hat{1}_\beta^- \hat{1}_\alpha^- |P_8\rangle &= \\
\hat{1}_\beta^- \hat{1}_\alpha^- |P_9\rangle &= \\
\hat{1}_\beta^- \hat{1}_\alpha^- |P_{10}\rangle &= \\
\hat{1}_\beta^- \hat{1}_\alpha^- |P_{11}\rangle &= c_{52,7,11}^{mdl} P_7 + c_{52,8,11}^{mdl} P_8 \\
c_{52,7,11}^{mdl} &= c_{11,12}^{ci} * c_{7,7}^{inv} \\
c_{52,8,11}^{mdl} &= c_{11,12}^{ci} * c_{7,8}^{inv} \\
\hat{1}_\beta^- \hat{1}_\alpha^- |P_{12}\rangle &= c_{52,7,12}^{mdl} P_7 + c_{52,8,12}^{mdl} P_8 \\
c_{52,7,12}^{mdl} &= c_{12,12}^{ci} * c_{7,7}^{inv} \\
c_{52,8,12}^{mdl} &= c_{12,12}^{ci} * c_{7,8}^{inv} \\
\hat{1}_\beta^- \hat{1}_\alpha^- |P_{13}\rangle &= c_{52,9,13}^{mdl} P_9 + c_{52,10,13}^{mdl} P_{10} \\
c_{52,9,13}^{mdl} &= c_{13,14}^{ci} * c_{9,9}^{inv} \\
c_{52,10,13}^{mdl} &= c_{13,14}^{ci} * c_{9,10}^{inv} \\
\hat{1}_\beta^- \hat{1}_\alpha^- |P_{14}\rangle &= c_{52,9,14}^{mdl} P_9 + c_{52,10,14}^{mdl} P_{10} \\
c_{52,9,14}^{mdl} &= c_{14,14}^{ci} * c_{9,9}^{inv} \\
c_{52,10,14}^{mdl} &= c_{14,14}^{ci} * c_{9,10}^{inv} \\
\hat{1}_\beta^- \hat{1}_\alpha^- |P_{15}\rangle &= c_{52,0,15}^{mdl} P_0 + c_{52,1,15}^{mdl} P_1 + c_{52,2,15}^{mdl} P_2 + c_{52,3,15}^{mdl} P_3 \\
c_{52,0,15}^{mdl} &= c_{15,15}^{ci} * c_{0,0}^{inv} \\
c_{52,1,15}^{mdl} &= c_{15,15}^{ci} * c_{0,1}^{inv} \\
c_{52,2,15}^{mdl} &= c_{15,15}^{ci} * c_{0,2}^{inv} \\
c_{52,3,15}^{mdl} &= c_{15,15}^{ci} * c_{0,3}^{inv}
\end{aligned}$$

$$\hat{O}_{53} : \langle P_p | \hat{1}_\beta^+ \hat{1}_\beta^+ | P_q \rangle = >$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ |P_0\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ |P_1\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ |P_2\rangle =$$

$$\begin{aligned}
\hat{1}_\beta^+ \hat{1}_\beta^+ |P_3\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ |P_4\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ |P_5\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ |P_6\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ |P_7\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ |P_8\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ |P_9\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ |P_{10}\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ |P_{11}\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ |P_{12}\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ |P_{13}\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ |P_{14}\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ |P_{15}\rangle &=
\end{aligned}$$

$$\hat{O}_{54} : \langle P_p | \hat{1}_\beta^+ \hat{1}_\beta^- | P_q \rangle =>$$

$$\hat{1}_\beta^+ \hat{1}_\beta^- |P_0\rangle = c_{54,0,0}^{mdl} P_0 + c_{54,1,0}^{mdl} P_1 + c_{54,2,0}^{mdl} P_2 + c_{54,3,0}^{mdl} P_3$$

$$c_{54,0,0}^{mdl} = (-(-c_{0,1}^{ci})) * c_{1,0}^{inv} + (-(-c_{0,3}^{ci})) * c_{3,0}^{inv}$$

$$c_{54,1,0}^{mdl} = (-(-c_{0,1}^{ci})) * c_{1,1}^{inv} + (-(-c_{0,3}^{ci})) * c_{3,1}^{inv}$$

$$c_{54,2,0}^{mdl} = (-(-c_{0,1}^{ci})) * c_{1,2}^{inv} + (-(-c_{0,3}^{ci})) * c_{3,2}^{inv}$$

$$c_{54,3,0}^{mdl} = (-(-c_{0,1}^{ci})) * c_{1,3}^{inv} + (-(-c_{0,3}^{ci})) * c_{3,3}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\beta^- |P_1\rangle = c_{54,0,1}^{mdl} P_0 + c_{54,1,1}^{mdl} P_1 + c_{54,2,1}^{mdl} P_2 + c_{54,3,1}^{mdl} P_3$$

$$c_{54,0,1}^{mdl} = (-(-c_{1,1}^{ci})) * c_{1,0}^{inv} + (-(-c_{1,3}^{ci})) * c_{3,0}^{inv}$$

$$c_{54,1,1}^{mdl} = (-(-c_{1,1}^{ci})) * c_{1,1}^{inv} + (-(-c_{1,3}^{ci})) * c_{3,1}^{inv}$$

$$c_{54,2,1}^{mdl} = (-(-c_{1,1}^{ci})) * c_{1,2}^{inv} + (-(-c_{1,3}^{ci})) * c_{3,2}^{inv}$$

$$c_{54,3,1}^{mdl} = (-(-c_{1,1}^{ci})) * c_{1,3}^{inv} + (-(-c_{1,3}^{ci})) * c_{3,3}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\beta^- |P_2\rangle = c_{54,0,2}^{mdl} P_0 + c_{54,1,2}^{mdl} P_1 + c_{54,2,2}^{mdl} P_2 + c_{54,3,2}^{mdl} P_3$$

$$c_{54,0,2}^{mdl} = (-(-c_{2,1}^{ci})) * c_{1,0}^{inv} + (-(-c_{2,3}^{ci})) * c_{3,0}^{inv}$$

$$c_{54,1,2}^{mdl} = (-(-c_{2,1}^{ci})) * c_{1,1}^{inv} + (-(-c_{2,3}^{ci})) * c_{3,1}^{inv}$$

$$c_{54,2,2}^{mdl} = (-(-c_{2,1}^{ci})) * c_{1,2}^{inv} + (-(-c_{2,3}^{ci})) * c_{3,2}^{inv}$$

$$\begin{aligned}
c_{54,3,2}^{mdl} &= (-(-c_{2,1}^{ci})) * c_{1,3}^{inv} + (-(-c_{2,3}^{ci})) * c_{3,3}^{inv} \\
\hat{1}_\beta^+ \hat{1}_\beta^- |P_3\rangle &= c_{54,0,3}^{mdl} P_0 + c_{54,1,3}^{mdl} P_1 + c_{54,2,3}^{mdl} P_2 + c_{54,3,3}^{mdl} P_3 \\
c_{54,0,3}^{mdl} &= (-(-c_{3,1}^{ci})) * c_{1,0}^{inv} + (-(-c_{3,3}^{ci})) * c_{3,0}^{inv} \\
c_{54,1,3}^{mdl} &= (-(-c_{3,1}^{ci})) * c_{1,1}^{inv} + (-(-c_{3,3}^{ci})) * c_{3,1}^{inv} \\
c_{54,2,3}^{mdl} &= (-(-c_{3,1}^{ci})) * c_{1,2}^{inv} + (-(-c_{3,3}^{ci})) * c_{3,2}^{inv} \\
c_{54,3,3}^{mdl} &= (-(-c_{3,1}^{ci})) * c_{1,3}^{inv} + (-(-c_{3,3}^{ci})) * c_{3,3}^{inv} \\
\hat{1}_\beta^+ \hat{1}_\beta^- |P_4\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^- |P_5\rangle &= c_{54,5,5}^{mdl} P_5 \\
c_{54,5,5}^{mdl} &= (-(-c_{5,5}^{ci})) * c_{5,5}^{inv} \\
\hat{1}_\beta^+ \hat{1}_\beta^- |P_6\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^- |P_7\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^- |P_8\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^- |P_9\rangle &= c_{54,9,9}^{mdl} P_9 + c_{54,10,9}^{mdl} P_{10} \\
c_{54,9,9}^{mdl} &= c_{9,10}^{ci} * c_{10,9}^{inv} \\
c_{54,10,9}^{mdl} &= c_{9,10}^{ci} * c_{10,10}^{inv} \\
\hat{1}_\beta^+ \hat{1}_\beta^- |P_{10}\rangle &= c_{54,9,10}^{mdl} P_9 + c_{54,10,10}^{mdl} P_{10} \\
c_{54,9,10}^{mdl} &= c_{10,10}^{ci} * c_{10,9}^{inv} \\
c_{54,10,10}^{mdl} &= c_{10,10}^{ci} * c_{10,10}^{inv} \\
\hat{1}_\beta^+ \hat{1}_\beta^- |P_{11}\rangle &= c_{54,11,11}^{mdl} P_{11} + c_{54,12,11}^{mdl} P_{12} \\
c_{54,11,11}^{mdl} &= c_{11,12}^{ci} * c_{12,11}^{inv} \\
c_{54,12,11}^{mdl} &= c_{11,12}^{ci} * c_{12,12}^{inv} \\
\hat{1}_\beta^+ \hat{1}_\beta^- |P_{12}\rangle &= c_{54,11,12}^{mdl} P_{11} + c_{54,12,12}^{mdl} P_{12} \\
c_{54,11,12}^{mdl} &= c_{12,12}^{ci} * c_{12,11}^{inv} \\
c_{54,12,12}^{mdl} &= c_{12,12}^{ci} * c_{12,12}^{inv} \\
\hat{1}_\beta^+ \hat{1}_\beta^- |P_{13}\rangle &= c_{54,13,13}^{mdl} P_{13} + c_{54,14,13}^{mdl} P_{14} \\
c_{54,13,13}^{mdl} &= c_{13,13}^{ci} * c_{13,13}^{inv} + c_{13,14}^{ci} * c_{14,13}^{inv} \\
c_{54,14,13}^{mdl} &= c_{13,13}^{ci} * c_{13,14}^{inv} + c_{13,14}^{ci} * c_{14,14}^{inv} \\
\hat{1}_\beta^+ \hat{1}_\beta^- |P_{14}\rangle &= c_{54,13,14}^{mdl} P_{13} + c_{54,14,14}^{mdl} P_{14} \\
c_{54,13,14}^{mdl} &= c_{14,13}^{ci} * c_{13,13}^{inv} + c_{14,14}^{ci} * c_{14,13}^{inv}
\end{aligned}$$

$$c_{54,14,14}^{mdl} = c_{14,13}^{ci} * c_{13,14}^{inv} + c_{14,14}^{ci} * c_{14,14}^{inv}$$

$$\hat{1}_{\beta}^{+} \hat{1}_{\beta}^{-} |P_{15}\rangle = c_{54,15,15}^{mdl} P_{15}$$

$$c_{54,15,15}^{mdl} = (-(-c_{15,15}^{ci})) * c_{15,15}^{inv}$$

$$\hat{O}_{55} : \langle P_p | \hat{1}_{\beta}^{-} \hat{1}_{\beta}^{-} | P_q \rangle = >$$

$$\hat{1}_{\beta}^{-} \hat{1}_{\beta}^{-} | P_0 \rangle =$$

$$\hat{1}_{\beta}^{-} \hat{1}_{\beta}^{-} | P_1 \rangle =$$

$$\hat{1}_{\beta}^{-} \hat{1}_{\beta}^{-} | P_2 \rangle =$$

$$\hat{1}_{\beta}^{-} \hat{1}_{\beta}^{-} | P_3 \rangle =$$

$$\hat{1}_{\beta}^{-} \hat{1}_{\beta}^{-} | P_4 \rangle =$$

$$\hat{1}_{\beta}^{-} \hat{1}_{\beta}^{-} | P_5 \rangle =$$

$$\hat{1}_{\beta}^{-} \hat{1}_{\beta}^{-} | P_6 \rangle =$$

$$\hat{1}_{\beta}^{-} \hat{1}_{\beta}^{-} | P_7 \rangle =$$

$$\hat{1}_{\beta}^{-} \hat{1}_{\beta}^{-} | P_8 \rangle =$$

$$\hat{1}_{\beta}^{-} \hat{1}_{\beta}^{-} | P_9 \rangle =$$

$$\hat{1}_{\beta}^{-} \hat{1}_{\beta}^{-} | P_{10} \rangle =$$

$$\hat{1}_{\beta}^{-} \hat{1}_{\beta}^{-} | P_{11} \rangle =$$

$$\hat{1}_{\beta}^{-} \hat{1}_{\beta}^{-} | P_{12} \rangle =$$

$$\hat{1}_{\beta}^{-} \hat{1}_{\beta}^{-} | P_{13} \rangle =$$

$$\hat{1}_{\beta}^{-} \hat{1}_{\beta}^{-} | P_{14} \rangle =$$

$$\hat{1}_{\beta}^{-} \hat{1}_{\beta}^{-} | P_{15} \rangle =$$

$$\hat{O}_{56} : \langle P_p | \hat{0}_{\alpha}^{+} \hat{0}_{\alpha}^{+} \hat{0}_{\alpha}^{-} | P_q \rangle = >$$

$$\hat{0}_{\alpha}^{+} \hat{0}_{\alpha}^{+} \hat{0}_{\alpha}^{-} | P_0 \rangle =$$

$$\hat{0}_{\alpha}^{+} \hat{0}_{\alpha}^{+} \hat{0}_{\alpha}^{-} | P_1 \rangle =$$

$$\hat{0}_{\alpha}^{+} \hat{0}_{\alpha}^{+} \hat{0}_{\alpha}^{-} | P_2 \rangle =$$

$$\hat{0}_{\alpha}^{+} \hat{0}_{\alpha}^{+} \hat{0}_{\alpha}^{-} | P_3 \rangle =$$

$$\hat{0}_{\alpha}^{+} \hat{0}_{\alpha}^{+} \hat{0}_{\alpha}^{-} | P_4 \rangle =$$

$$\hat{0}_{\alpha}^{+} \hat{0}_{\alpha}^{+} \hat{0}_{\alpha}^{-} | P_5 \rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_6\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_7\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_8\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_9\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_{10}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_{11}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_{12}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_{13}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_{14}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{57} : \langle P_p | \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- | P_q \rangle =>$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_0\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_1\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_2\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_3\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_4\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_5\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_6\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_7\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_8\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_9\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_{10}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_{11}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_{12}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_{13}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_{14}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{58} : \langle P_p | \hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- | P_q \rangle = >$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- | P_0 \rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- | P_1 \rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- | P_2 \rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- | P_3 \rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- | P_4 \rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- | P_5 \rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- | P_6 \rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- | P_7 \rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- | P_8 \rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- | P_9 \rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- | P_{10} \rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- | P_{11} \rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- | P_{12} \rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- | P_{13} \rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- | P_{14} \rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- | P_{15} \rangle =$$

$$\hat{O}_{59} : \langle P_p | \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- | P_q \rangle = >$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- | P_0 \rangle = c_{59,7,0}^{mdl} P_7 + c_{59,8,0}^{mdl} P_8$$

$$c_{59,7,0}^{mdl} = (-c_{0,0}^{ci}) * c_{7,7}^{inv}$$

$$c_{59,8,0}^{mdl} = (-c_{0,0}^{ci}) * c_{7,8}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- | P_1 \rangle = c_{59,7,1}^{mdl} P_7 + c_{59,8,1}^{mdl} P_8$$

$$c_{59,7,1}^{mdl} = (-c_{1,0}^{ci}) * c_{7,7}^{inv}$$

$$c_{59,8,1}^{mdl} = (-c_{1,0}^{ci}) * c_{7,8}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- | P_2 \rangle = c_{59,7,2}^{mdl} P_7 + c_{59,8,2}^{mdl} P_8$$

$$c_{59,7,2}^{mdl} = (-c_{2,0}^{ci}) * c_{7,7}^{inv}$$

$$c_{59,8,2}^{mdl} = (-c_{2,0}^{ci}) * c_{7,8}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- | P_3 \rangle = c_{59,7,3}^{mdl} P_7 + c_{59,8,3}^{mdl} P_8$$

$$c_{59,7,3}^{mdl} = (-c_{3,0}^{ci}) * c_{7,7}^{inv}$$

$$c_{59,8,3}^{mdl} = (-c_{3,0}^{ci}) * c_{7,8}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_4\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_5\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_6\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_7\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_8\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_9\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_{10}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_{11}\rangle = c_{59,4,11}^{mdl} P_4$$

$$c_{59,4,11}^{mdl} = (-c_{11,11}^{ci}) * c_{4,4}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_{12}\rangle = c_{59,4,12}^{mdl} P_4$$

$$c_{59,4,12}^{mdl} = (-c_{12,11}^{ci}) * c_{4,4}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_{13}\rangle = c_{59,0,13}^{mdl} P_0 + c_{59,1,13}^{mdl} P_1 + c_{59,2,13}^{mdl} P_2 + c_{59,3,13}^{mdl} P_3$$

$$c_{59,0,13}^{mdl} = (-c_{13,13}^{ci}) * c_{1,0}^{inv}$$

$$c_{59,1,13}^{mdl} = (-c_{13,13}^{ci}) * c_{1,1}^{inv}$$

$$c_{59,2,13}^{mdl} = (-c_{13,13}^{ci}) * c_{1,2}^{inv}$$

$$c_{59,3,13}^{mdl} = (-c_{13,13}^{ci}) * c_{1,3}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_{14}\rangle = c_{59,0,14}^{mdl} P_0 + c_{59,1,14}^{mdl} P_1 + c_{59,2,14}^{mdl} P_2 + c_{59,3,14}^{mdl} P_3$$

$$c_{59,0,14}^{mdl} = (-c_{14,13}^{ci}) * c_{1,0}^{inv}$$

$$c_{59,1,14}^{mdl} = (-c_{14,13}^{ci}) * c_{1,1}^{inv}$$

$$c_{59,2,14}^{mdl} = (-c_{14,13}^{ci}) * c_{1,2}^{inv}$$

$$c_{59,3,14}^{mdl} = (-c_{14,13}^{ci}) * c_{1,3}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_{15}\rangle = c_{59,11,15}^{mdl} P_{11} + c_{59,12,15}^{mdl} P_{12}$$

$$c_{59,11,15}^{mdl} = (-c_{15,15}^{ci}) * c_{12,11}^{inv}$$

$$c_{59,12,15}^{mdl} = (-c_{15,15}^{ci}) * c_{12,12}^{inv}$$

$$\hat{O}_{60} : \langle P_p | \hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- | P_q \rangle = >$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- | P_0 \rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- |P_1\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- |P_2\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- |P_3\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- |P_4\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- |P_5\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- |P_6\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- |P_7\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- |P_8\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- |P_9\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- |P_{10}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- |P_{11}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- |P_{12}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- |P_{13}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- |P_{14}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{61} : \langle P_p | \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- | P_q \rangle = >$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_0\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_1\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_2\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_3\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_4\rangle = c_{61,7,4}^{mdl} P_7 + c_{61,8,4}^{mdl} P_8$$

$$c_{61,7,4}^{mdl} = (-c_{4,4}^{ci}) * c_{7,7}^{inv}$$

$$c_{61,8,4}^{mdl} = (-c_{4,4}^{ci}) * c_{7,8}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_5\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_6\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_7\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_8\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_9\rangle =$$

$$\begin{aligned}
& \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_{10}\rangle = \\
& \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_{11}\rangle = c_{61,0,11}^{mdl} P_0 + c_{61,1,11}^{mdl} P_1 + c_{61,2,11}^{mdl} P_2 + c_{61,3,11}^{mdl} P_3 \\
& c_{61,0,11}^{mdl} = c_{11,11}^{ci} * c_{0,0}^{inv} + (-c_{11,12}^{ci}) * c_{1,0}^{inv} \\
& c_{61,1,11}^{mdl} = c_{11,11}^{ci} * c_{0,1}^{inv} + (-c_{11,12}^{ci}) * c_{1,1}^{inv} \\
& c_{61,2,11}^{mdl} = c_{11,11}^{ci} * c_{0,2}^{inv} + (-c_{11,12}^{ci}) * c_{1,2}^{inv} \\
& c_{61,3,11}^{mdl} = c_{11,11}^{ci} * c_{0,3}^{inv} + (-c_{11,12}^{ci}) * c_{1,3}^{inv} \\
& \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_{12}\rangle = c_{61,0,12}^{mdl} P_0 + c_{61,1,12}^{mdl} P_1 + c_{61,2,12}^{mdl} P_2 + c_{61,3,12}^{mdl} P_3 \\
& c_{61,0,12}^{mdl} = c_{12,11}^{ci} * c_{0,0}^{inv} + (-c_{12,12}^{ci}) * c_{1,0}^{inv} \\
& c_{61,1,12}^{mdl} = c_{12,11}^{ci} * c_{0,1}^{inv} + (-c_{12,12}^{ci}) * c_{1,1}^{inv} \\
& c_{61,2,12}^{mdl} = c_{12,11}^{ci} * c_{0,2}^{inv} + (-c_{12,12}^{ci}) * c_{1,2}^{inv} \\
& c_{61,3,12}^{mdl} = c_{12,11}^{ci} * c_{0,3}^{inv} + (-c_{12,12}^{ci}) * c_{1,3}^{inv} \\
& \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_{13}\rangle = \\
& \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_{14}\rangle = \\
& \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_{15}\rangle = c_{61,13,15}^{mdl} P_{13} + c_{61,14,15}^{mdl} P_{14} \\
& c_{61,13,15}^{mdl} = c_{15,15}^{ci} * c_{13,13}^{inv} \\
& c_{61,14,15}^{mdl} = c_{15,15}^{ci} * c_{13,14}^{inv}
\end{aligned}$$

$$\hat{O}_{62} : \langle P_p | \hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- | P_q \rangle = >$$

$$\begin{aligned}
& \hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- |P_0\rangle = \\
& \hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- |P_1\rangle = \\
& \hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- |P_2\rangle = \\
& \hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- |P_3\rangle = \\
& \hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- |P_4\rangle = \\
& \hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- |P_5\rangle = \\
& \hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- |P_6\rangle = \\
& \hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- |P_7\rangle = \\
& \hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- |P_8\rangle = \\
& \hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- |P_9\rangle = \\
& \hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- |P_{10}\rangle =
\end{aligned}$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- |P_{11}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- |P_{12}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- |P_{13}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- |P_{14}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{63} : \langle P_p | \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- | P_q \rangle =>$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_0\rangle = c_{63,7,0}^{mdl} P_7 + c_{63,8,0}^{mdl} P_8$$

$$c_{63,7,0}^{mdl} = (-c_{0,1}^{ci}) * c_{7,7}^{inv}$$

$$c_{63,8,0}^{mdl} = (-c_{0,1}^{ci}) * c_{7,8}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_1\rangle = c_{63,7,1}^{mdl} P_7 + c_{63,8,1}^{mdl} P_8$$

$$c_{63,7,1}^{mdl} = (-c_{1,1}^{ci}) * c_{7,7}^{inv}$$

$$c_{63,8,1}^{mdl} = (-c_{1,1}^{ci}) * c_{7,8}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_2\rangle = c_{63,7,2}^{mdl} P_7 + c_{63,8,2}^{mdl} P_8$$

$$c_{63,7,2}^{mdl} = (-c_{2,1}^{ci}) * c_{7,7}^{inv}$$

$$c_{63,8,2}^{mdl} = (-c_{2,1}^{ci}) * c_{7,8}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_3\rangle = c_{63,7,3}^{mdl} P_7 + c_{63,8,3}^{mdl} P_8$$

$$c_{63,7,3}^{mdl} = (-c_{3,1}^{ci}) * c_{7,7}^{inv}$$

$$c_{63,8,3}^{mdl} = (-c_{3,1}^{ci}) * c_{7,8}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_4\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_5\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_6\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_7\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_8\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_9\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{10}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{11}\rangle = c_{63,4,11}^{mdl} P_4$$

$$c_{63,4,11}^{mdl} = c_{11,12}^{ci} * c_{4,4}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{12}\rangle = c_{63,4,12}^{mdl} P_4$$

$$c_{63,4,12}^{mdl} = c_{12,12}^{ci} * c_{4,4}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{13}\rangle = c_{63,0,13}^{mdl} P_0 + c_{63,1,13}^{mdl} P_1 + c_{63,2,13}^{mdl} P_2 + c_{63,3,13}^{mdl} P_3$$

$$c_{63,0,13}^{mdl} = c_{13,13}^{ci} * c_{0,0}^{inv}$$

$$c_{63,1,13}^{mdl} = c_{13,13}^{ci} * c_{0,1}^{inv}$$

$$c_{63,2,13}^{mdl} = c_{13,13}^{ci} * c_{0,2}^{inv}$$

$$c_{63,3,13}^{mdl} = c_{13,13}^{ci} * c_{0,3}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{14}\rangle = c_{63,0,14}^{mdl} P_0 + c_{63,1,14}^{mdl} P_1 + c_{63,2,14}^{mdl} P_2 + c_{63,3,14}^{mdl} P_3$$

$$c_{63,0,14}^{mdl} = c_{14,13}^{ci} * c_{0,0}^{inv}$$

$$c_{63,1,14}^{mdl} = c_{14,13}^{ci} * c_{0,1}^{inv}$$

$$c_{63,2,14}^{mdl} = c_{14,13}^{ci} * c_{0,2}^{inv}$$

$$c_{63,3,14}^{mdl} = c_{14,13}^{ci} * c_{0,3}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{15}\rangle = c_{63,11,15}^{mdl} P_{11} + c_{63,12,15}^{mdl} P_{12}$$

$$c_{63,11,15}^{mdl} = (-c_{15,15}^{ci}) * c_{11,11}^{inv}$$

$$c_{63,12,15}^{mdl} = (-c_{15,15}^{ci}) * c_{11,12}^{inv}$$

$$\hat{O}_{64} : \langle P_p | \hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- | P_q \rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- |P_0\rangle = c_{64,13,0}^{mdl} P_{13} + c_{64,14,0}^{mdl} P_{14}$$

$$c_{64,13,0}^{mdl} = c_{0,1}^{ci} * c_{13,13}^{inv}$$

$$c_{64,14,0}^{mdl} = c_{0,1}^{ci} * c_{13,14}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- |P_1\rangle = c_{64,13,1}^{mdl} P_{13} + c_{64,14,1}^{mdl} P_{14}$$

$$c_{64,13,1}^{mdl} = c_{1,1}^{ci} * c_{13,13}^{inv}$$

$$c_{64,14,1}^{mdl} = c_{1,1}^{ci} * c_{13,14}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- |P_2\rangle = c_{64,13,2}^{mdl} P_{13} + c_{64,14,2}^{mdl} P_{14}$$

$$c_{64,13,2}^{mdl} = c_{2,1}^{ci} * c_{13,13}^{inv}$$

$$c_{64,14,2}^{mdl} = c_{2,1}^{ci} * c_{13,14}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- |P_3\rangle = c_{64,13,3}^{mdl} P_{13} + c_{64,14,3}^{mdl} P_{14}$$

$$c_{64,13,3}^{mdl} = c_{3,1}^{ci} * c_{13,13}^{inv}$$

$$c_{64,14,3}^{mdl} = c_{3,1}^{ci} * c_{13,14}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- |P_4\rangle = c_{64,11,4}^{mdl} P_{11} + c_{64,12,4}^{mdl} P_{12}$$

$$c_{64,11,4}^{mdl} = c_{4,4}^{ci} * c_{11,11}^{inv}$$

$$c_{64,12,4}^{mdl} = c_{4,4}^{ci} * c_{11,12}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- |P_5\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- |P_6\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- |P_7\rangle = c_{64,0,7}^{mdl} P_0 + c_{64,1,7}^{mdl} P_1 + c_{64,2,7}^{mdl} P_2 + c_{64,3,7}^{mdl} P_3$$

$$c_{64,0,7}^{mdl} = c_{7,7}^{ci} * c_{0,0}^{inv}$$

$$c_{64,1,7}^{mdl} = c_{7,7}^{ci} * c_{0,1}^{inv}$$

$$c_{64,2,7}^{mdl} = c_{7,7}^{ci} * c_{0,2}^{inv}$$

$$c_{64,3,7}^{mdl} = c_{7,7}^{ci} * c_{0,3}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- |P_8\rangle = c_{64,0,8}^{mdl} P_0 + c_{64,1,8}^{mdl} P_1 + c_{64,2,8}^{mdl} P_2 + c_{64,3,8}^{mdl} P_3$$

$$c_{64,0,8}^{mdl} = c_{8,7}^{ci} * c_{0,0}^{inv}$$

$$c_{64,1,8}^{mdl} = c_{8,7}^{ci} * c_{0,1}^{inv}$$

$$c_{64,2,8}^{mdl} = c_{8,7}^{ci} * c_{0,2}^{inv}$$

$$c_{64,3,8}^{mdl} = c_{8,7}^{ci} * c_{0,3}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- |P_9\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- |P_{10}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- |P_{11}\rangle = c_{64,15,11}^{mdl} P_{15}$$

$$c_{64,15,11}^{mdl} = c_{11,12}^{ci} * c_{15,15}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- |P_{12}\rangle = c_{64,15,12}^{mdl} P_{15}$$

$$c_{64,15,12}^{mdl} = c_{12,12}^{ci} * c_{15,15}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- |P_{13}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- |P_{14}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{65} : \langle P_p | \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- | P_q \rangle = >$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_0\rangle = c_{65,7,0}^{mdl} P_7 + c_{65,8,0}^{mdl} P_8$$

$$c_{65,7,0}^{mdl} = c_{0,0}^{ci} * c_{7,7}^{inv}$$

$$c_{65,8,0}^{mdl} = c_{0,0}^{ci} * c_{7,8}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_1\rangle = c_{65,7,1}^{mdl} P_7 + c_{65,8,1}^{mdl} P_8$$

$$\begin{aligned}
c_{65,7,1}^{mdl} &= c_{1,0}^{ci} * c_{7,7}^{inv} \\
c_{65,8,1}^{mdl} &= c_{1,0}^{ci} * c_{7,8}^{inv} \\
\hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_2\rangle &= c_{65,7,2}^{mdl} P_7 + c_{65,8,2}^{mdl} P_8 \\
c_{65,7,2}^{mdl} &= c_{2,0}^{ci} * c_{7,7}^{inv} \\
c_{65,8,2}^{mdl} &= c_{2,0}^{ci} * c_{7,8}^{inv} \\
\hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_3\rangle &= c_{65,7,3}^{mdl} P_7 + c_{65,8,3}^{mdl} P_8 \\
c_{65,7,3}^{mdl} &= c_{3,0}^{ci} * c_{7,7}^{inv} \\
c_{65,8,3}^{mdl} &= c_{3,0}^{ci} * c_{7,8}^{inv} \\
\hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_4\rangle &= \\
\hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_5\rangle &= \\
\hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_6\rangle &= \\
\hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_7\rangle &= \\
\hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_8\rangle &= \\
\hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_9\rangle &= \\
\hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{10}\rangle &= \\
\hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{11}\rangle &= c_{65,4,11}^{mdl} P_4 \\
c_{65,4,11}^{mdl} &= c_{11,11}^{ci} * c_{4,4}^{inv} \\
\hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{12}\rangle &= c_{65,4,12}^{mdl} P_4 \\
c_{65,4,12}^{mdl} &= c_{12,11}^{ci} * c_{4,4}^{inv} \\
\hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{13}\rangle &= c_{65,0,13}^{mdl} P_0 + c_{65,1,13}^{mdl} P_1 + c_{65,2,13}^{mdl} P_2 + c_{65,3,13}^{mdl} P_3 \\
c_{65,0,13}^{mdl} &= c_{13,13}^{ci} * c_{1,0}^{inv} \\
c_{65,1,13}^{mdl} &= c_{13,13}^{ci} * c_{1,1}^{inv} \\
c_{65,2,13}^{mdl} &= c_{13,13}^{ci} * c_{1,2}^{inv} \\
c_{65,3,13}^{mdl} &= c_{13,13}^{ci} * c_{1,3}^{inv} \\
\hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{14}\rangle &= c_{65,0,14}^{mdl} P_0 + c_{65,1,14}^{mdl} P_1 + c_{65,2,14}^{mdl} P_2 + c_{65,3,14}^{mdl} P_3 \\
c_{65,0,14}^{mdl} &= c_{14,13}^{ci} * c_{1,0}^{inv} \\
c_{65,1,14}^{mdl} &= c_{14,13}^{ci} * c_{1,1}^{inv} \\
c_{65,2,14}^{mdl} &= c_{14,13}^{ci} * c_{1,2}^{inv} \\
c_{65,3,14}^{mdl} &= c_{14,13}^{ci} * c_{1,3}^{inv}
\end{aligned}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{15}\rangle = c_{65,11,15}^{mdl} P_{11} + c_{65,12,15}^{mdl} P_{12}$$

$$c_{65,11,15}^{mdl} = c_{15,15}^{ci} * c_{12,11}^{inv}$$

$$c_{65,12,15}^{mdl} = c_{15,15}^{ci} * c_{12,12}^{inv}$$

$$\hat{O}_{66} : \langle P_p | \hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- | P_q \rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- | P_0 \rangle = c_{66,11,0}^{mdl} P_{11} + c_{66,12,0}^{mdl} P_{12}$$

$$c_{66,11,0}^{mdl} = c_{0,2}^{ci} * c_{11,11}^{inv}$$

$$c_{66,12,0}^{mdl} = c_{0,2}^{ci} * c_{11,12}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- | P_1 \rangle = c_{66,11,1}^{mdl} P_{11} + c_{66,12,1}^{mdl} P_{12}$$

$$c_{66,11,1}^{mdl} = c_{1,2}^{ci} * c_{11,11}^{inv}$$

$$c_{66,12,1}^{mdl} = c_{1,2}^{ci} * c_{11,12}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- | P_2 \rangle = c_{66,11,2}^{mdl} P_{11} + c_{66,12,2}^{mdl} P_{12}$$

$$c_{66,11,2}^{mdl} = c_{2,2}^{ci} * c_{11,11}^{inv}$$

$$c_{66,12,2}^{mdl} = c_{2,2}^{ci} * c_{11,12}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- | P_3 \rangle = c_{66,11,3}^{mdl} P_{11} + c_{66,12,3}^{mdl} P_{12}$$

$$c_{66,11,3}^{mdl} = c_{3,2}^{ci} * c_{11,11}^{inv}$$

$$c_{66,12,3}^{mdl} = c_{3,2}^{ci} * c_{11,12}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- | P_4 \rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- | P_5 \rangle = c_{66,13,5}^{mdl} P_{13} + c_{66,14,5}^{mdl} P_{14}$$

$$c_{66,13,5}^{mdl} = c_{5,5}^{ci} * c_{13,13}^{inv}$$

$$c_{66,14,5}^{mdl} = c_{5,5}^{ci} * c_{13,14}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- | P_6 \rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- | P_7 \rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- | P_8 \rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- | P_9 \rangle = c_{66,0,9}^{mdl} P_0 + c_{66,1,9}^{mdl} P_1 + c_{66,2,9}^{mdl} P_2 + c_{66,3,9}^{mdl} P_3$$

$$c_{66,0,9}^{mdl} = c_{9,9}^{ci} * c_{0,0}^{inv}$$

$$c_{66,1,9}^{mdl} = c_{9,9}^{ci} * c_{0,1}^{inv}$$

$$c_{66,2,9}^{mdl} = c_{9,9}^{ci} * c_{0,2}^{inv}$$

$$c_{66,3,9}^{mdl} = c_{9,9}^{ci} * c_{0,3}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- |P_{10}\rangle = c_{66,0,10}^{mdl} P_0 + c_{66,1,10}^{mdl} P_1 + c_{66,2,10}^{mdl} P_2 + c_{66,3,10}^{mdl} P_3$$

$$c_{66,0,10}^{mdl} = c_{10,9}^{ci} * c_{0,0}^{inv}$$

$$c_{66,1,10}^{mdl} = c_{10,9}^{ci} * c_{0,1}^{inv}$$

$$c_{66,2,10}^{mdl} = c_{10,9}^{ci} * c_{0,2}^{inv}$$

$$c_{66,3,10}^{mdl} = c_{10,9}^{ci} * c_{0,3}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- |P_{11}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- |P_{12}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- |P_{13}\rangle = c_{66,15,13}^{mdl} P_{15}$$

$$c_{66,15,13}^{mdl} = c_{13,14}^{ci} * c_{15,15}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- |P_{14}\rangle = c_{66,15,14}^{mdl} P_{15}$$

$$c_{66,15,14}^{mdl} = c_{14,14}^{ci} * c_{15,15}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{67} : \langle P_p | \hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- | P_q \rangle = >$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- |P_0\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- |P_1\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- |P_2\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- |P_3\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- |P_4\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- |P_5\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- |P_6\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- |P_7\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- |P_8\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- |P_9\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- |P_{10}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- |P_{11}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- |P_{12}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- |P_{13}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- |P_{14}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{68} : \langle P_p | \hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- | P_q \rangle =>$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- |P_0\rangle = c_{68,13,0}^{mdl} P_{13} + c_{68,14,0}^{mdl} P_{14}$$

$$c_{68,13,0}^{mdl} = c_{0,3}^{ci} * c_{13,13}^{inv}$$

$$c_{68,14,0}^{mdl} = c_{0,3}^{ci} * c_{13,14}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- |P_1\rangle = c_{68,13,1}^{mdl} P_{13} + c_{68,14,1}^{mdl} P_{14}$$

$$c_{68,13,1}^{mdl} = c_{1,3}^{ci} * c_{13,13}^{inv}$$

$$c_{68,14,1}^{mdl} = c_{1,3}^{ci} * c_{13,14}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- |P_2\rangle = c_{68,13,2}^{mdl} P_{13} + c_{68,14,2}^{mdl} P_{14}$$

$$c_{68,13,2}^{mdl} = c_{2,3}^{ci} * c_{13,13}^{inv}$$

$$c_{68,14,2}^{mdl} = c_{2,3}^{ci} * c_{13,14}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- |P_3\rangle = c_{68,13,3}^{mdl} P_{13} + c_{68,14,3}^{mdl} P_{14}$$

$$c_{68,13,3}^{mdl} = c_{3,3}^{ci} * c_{13,13}^{inv}$$

$$c_{68,14,3}^{mdl} = c_{3,3}^{ci} * c_{13,14}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- |P_4\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- |P_5\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- |P_6\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- |P_7\rangle = c_{68,0,7}^{mdl} P_0 + c_{68,1,7}^{mdl} P_1 + c_{68,2,7}^{mdl} P_2 + c_{68,3,7}^{mdl} P_3$$

$$c_{68,0,7}^{mdl} = c_{7,8}^{ci} * c_{0,0}^{inv}$$

$$c_{68,1,7}^{mdl} = c_{7,8}^{ci} * c_{0,1}^{inv}$$

$$c_{68,2,7}^{mdl} = c_{7,8}^{ci} * c_{0,2}^{inv}$$

$$c_{68,3,7}^{mdl} = c_{7,8}^{ci} * c_{0,3}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- |P_8\rangle = c_{68,0,8}^{mdl} P_0 + c_{68,1,8}^{mdl} P_1 + c_{68,2,8}^{mdl} P_2 + c_{68,3,8}^{mdl} P_3$$

$$c_{68,0,8}^{mdl} = c_{8,8}^{ci} * c_{0,0}^{inv}$$

$$c_{68,1,8}^{mdl} = c_{8,8}^{ci} * c_{0,1}^{inv}$$

$$c_{68,2,8}^{mdl} = c_{8,8}^{ci} * c_{0,2}^{inv}$$

$$c_{68,3,8}^{mdl} = c_{8,8}^{ci} * c_{0,3}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- |P_9\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- |P_{10}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- |P_{11}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- |P_{12}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- |P_{13}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- |P_{14}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{69} : \langle P_p | \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- | P_q \rangle =>$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_0\rangle = c_{69,7,0}^{mdl} P_7 + c_{69,8,0}^{mdl} P_8$$

$$c_{69,7,0}^{mdl} = (-c_{0,2}^{ci}) * c_{7,7}^{inv}$$

$$c_{69,8,0}^{mdl} = (-c_{0,2}^{ci}) * c_{7,8}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_1\rangle = c_{69,7,1}^{mdl} P_7 + c_{69,8,1}^{mdl} P_8$$

$$c_{69,7,1}^{mdl} = (-c_{1,2}^{ci}) * c_{7,7}^{inv}$$

$$c_{69,8,1}^{mdl} = (-c_{1,2}^{ci}) * c_{7,8}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_2\rangle = c_{69,7,2}^{mdl} P_7 + c_{69,8,2}^{mdl} P_8$$

$$c_{69,7,2}^{mdl} = (-c_{2,2}^{ci}) * c_{7,7}^{inv}$$

$$c_{69,8,2}^{mdl} = (-c_{2,2}^{ci}) * c_{7,8}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_3\rangle = c_{69,7,3}^{mdl} P_7 + c_{69,8,3}^{mdl} P_8$$

$$c_{69,7,3}^{mdl} = (-c_{3,2}^{ci}) * c_{7,7}^{inv}$$

$$c_{69,8,3}^{mdl} = (-c_{3,2}^{ci}) * c_{7,8}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_4\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_5\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_6\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_7\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_8\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_9\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_{10}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_{11}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_{12}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_{13}\rangle = c_{69,0,13}^{mdl} P_0 + c_{69,1,13}^{mdl} P_1 + c_{69,2,13}^{mdl} P_2 + c_{69,3,13}^{mdl} P_3$$

$$c_{69,0,13}^{mdl} = (-c_{13,14}^{ci}) * c_{1,0}^{inv}$$

$$c_{69,1,13}^{mdl} = (-c_{13,14}^{ci}) * c_{1,1}^{inv}$$

$$c_{69,2,13}^{mdl} = (-c_{13,14}^{ci}) * c_{1,2}^{inv}$$

$$c_{69,3,13}^{mdl} = (-c_{13,14}^{ci}) * c_{1,3}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_{14}\rangle = c_{69,0,14}^{mdl} P_0 + c_{69,1,14}^{mdl} P_1 + c_{69,2,14}^{mdl} P_2 + c_{69,3,14}^{mdl} P_3$$

$$c_{69,0,14}^{mdl} = (-c_{14,14}^{ci}) * c_{1,0}^{inv}$$

$$c_{69,1,14}^{mdl} = (-c_{14,14}^{ci}) * c_{1,1}^{inv}$$

$$c_{69,2,14}^{mdl} = (-c_{14,14}^{ci}) * c_{1,2}^{inv}$$

$$c_{69,3,14}^{mdl} = (-c_{14,14}^{ci}) * c_{1,3}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{70} : \langle P_p | \hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- | P_q \rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_0\rangle = c_{70,11,0}^{mdl} P_{11} + c_{70,12,0}^{mdl} P_{12}$$

$$c_{70,11,0}^{mdl} = (-c_{0,3}^{ci}) * c_{11,11}^{inv}$$

$$c_{70,12,0}^{mdl} = (-c_{0,3}^{ci}) * c_{11,12}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_1\rangle = c_{70,11,1}^{mdl} P_{11} + c_{70,12,1}^{mdl} P_{12}$$

$$c_{70,11,1}^{mdl} = (-c_{1,3}^{ci}) * c_{11,11}^{inv}$$

$$c_{70,12,1}^{mdl} = (-c_{1,3}^{ci}) * c_{11,12}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_2\rangle = c_{70,11,2}^{mdl} P_{11} + c_{70,12,2}^{mdl} P_{12}$$

$$c_{70,11,2}^{mdl} = (-c_{2,3}^{ci}) * c_{11,11}^{inv}$$

$$c_{70,12,2}^{mdl} = (-c_{2,3}^{ci}) * c_{11,12}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_3\rangle = c_{70,11,3}^{mdl} P_{11} + c_{70,12,3}^{mdl} P_{12}$$

$$c_{70,11,3}^{mdl} = (-c_{3,3}^{ci}) * c_{11,11}^{inv}$$

$$c_{70,12,3}^{mdl} = (-c_{3,3}^{ci}) * c_{11,12}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_4\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_5\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_6\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_7\rangle =$$

$$\begin{aligned}
& \hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_8\rangle = \\
& \hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_9\rangle = c_{70,0,9}^{mdl} P_0 + c_{70,1,9}^{mdl} P_1 + c_{70,2,9}^{mdl} P_2 + c_{70,3,9}^{mdl} P_3 \\
& c_{70,0,9}^{mdl} = c_{9,10}^{ci} * c_{0,0}^{inv} \\
& c_{70,1,9}^{mdl} = c_{9,10}^{ci} * c_{0,1}^{inv} \\
& c_{70,2,9}^{mdl} = c_{9,10}^{ci} * c_{0,2}^{inv} \\
& c_{70,3,9}^{mdl} = c_{9,10}^{ci} * c_{0,3}^{inv} \\
& \hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_{10}\rangle = c_{70,0,10}^{mdl} P_0 + c_{70,1,10}^{mdl} P_1 + c_{70,2,10}^{mdl} P_2 + c_{70,3,10}^{mdl} P_3 \\
& c_{70,0,10}^{mdl} = c_{10,10}^{ci} * c_{0,0}^{inv} \\
& c_{70,1,10}^{mdl} = c_{10,10}^{ci} * c_{0,1}^{inv} \\
& c_{70,2,10}^{mdl} = c_{10,10}^{ci} * c_{0,2}^{inv} \\
& c_{70,3,10}^{mdl} = c_{10,10}^{ci} * c_{0,3}^{inv} \\
& \hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_{11}\rangle = \\
& \hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_{12}\rangle = \\
& \hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_{13}\rangle = \\
& \hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_{14}\rangle = \\
& \hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_{15}\rangle = \\
& \hat{O}_{71} : \langle P_p | \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- | P_q \rangle = > \\
& \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_0\rangle = \\
& \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_1\rangle = \\
& \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_2\rangle = \\
& \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_3\rangle = \\
& \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_4\rangle = \\
& \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_5\rangle = c_{71,7,5}^{mdl} P_7 + c_{71,8,5}^{mdl} P_8 \\
& c_{71,7,5}^{mdl} = (-c_{5,5}^{ci}) * c_{7,7}^{inv} \\
& c_{71,8,5}^{mdl} = (-c_{5,5}^{ci}) * c_{7,8}^{inv} \\
& \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_6\rangle = \\
& \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_7\rangle = \\
& \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_8\rangle =
\end{aligned}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_9\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_{10}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_{11}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_{12}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_{13}\rangle = c_{71,4,13}^{mdl} P_4$$

$$c_{71,4,13}^{mdl} = c_{13,14}^{ci} * c_{4,4}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_{14}\rangle = c_{71,4,14}^{mdl} P_4$$

$$c_{71,4,14}^{mdl} = c_{14,14}^{ci} * c_{4,4}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{72} : \langle P_p | \hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- | P_q \rangle =>$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- |P_0\rangle = c_{72,11,0}^{mdl} P_{11} + c_{72,12,0}^{mdl} P_{12}$$

$$c_{72,11,0}^{mdl} = (-c_{0,0}^{ci}) * c_{11,11}^{inv} + c_{0,1}^{ci} * c_{12,11}^{inv}$$

$$c_{72,12,0}^{mdl} = (-c_{0,0}^{ci}) * c_{11,12}^{inv} + c_{0,1}^{ci} * c_{12,12}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- |P_1\rangle = c_{72,11,1}^{mdl} P_{11} + c_{72,12,1}^{mdl} P_{12}$$

$$c_{72,11,1}^{mdl} = (-c_{1,0}^{ci}) * c_{11,11}^{inv} + c_{1,1}^{ci} * c_{12,11}^{inv}$$

$$c_{72,12,1}^{mdl} = (-c_{1,0}^{ci}) * c_{11,12}^{inv} + c_{1,1}^{ci} * c_{12,12}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- |P_2\rangle = c_{72,11,2}^{mdl} P_{11} + c_{72,12,2}^{mdl} P_{12}$$

$$c_{72,11,2}^{mdl} = (-c_{2,0}^{ci}) * c_{11,11}^{inv} + c_{2,1}^{ci} * c_{12,11}^{inv}$$

$$c_{72,12,2}^{mdl} = (-c_{2,0}^{ci}) * c_{11,12}^{inv} + c_{2,1}^{ci} * c_{12,12}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- |P_3\rangle = c_{72,11,3}^{mdl} P_{11} + c_{72,12,3}^{mdl} P_{12}$$

$$c_{72,11,3}^{mdl} = (-c_{3,0}^{ci}) * c_{11,11}^{inv} + c_{3,1}^{ci} * c_{12,11}^{inv}$$

$$c_{72,12,3}^{mdl} = (-c_{3,0}^{ci}) * c_{11,12}^{inv} + c_{3,1}^{ci} * c_{12,12}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- |P_4\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- |P_5\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- |P_6\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- |P_7\rangle = c_{72,4,7}^{mdl} P_4$$

$$c_{72,4,7}^{mdl} = c_{7,7}^{ci} * c_{4,4}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- |P_8\rangle = c_{72,4,8}^{mdl} P_4$$

$$c_{72,4,8}^{mdl} = c_{8,7}^{ci} * c_{4,4}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- |P_9\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- |P_{10}\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- |P_{11}\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- |P_{12}\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- |P_{13}\rangle = c_{72,15,13}^{mdl} P_{15}$$

$$c_{72,15,13}^{mdl} = (-c_{13,13}^{ci}) * c_{15,15}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- |P_{14}\rangle = c_{72,15,14}^{mdl} P_{15}$$

$$c_{72,15,14}^{mdl} = (-c_{14,13}^{ci}) * c_{15,15}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{73} : \langle P_p | \hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- | P_q \rangle = >$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_0\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_1\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_2\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_3\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_4\rangle = c_{73,7,4}^{mdl} P_7 + c_{73,8,4}^{mdl} P_8$$

$$c_{73,7,4}^{mdl} = c_{4,4}^{ci} * c_{7,7}^{inv}$$

$$c_{73,8,4}^{mdl} = c_{4,4}^{ci} * c_{7,8}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_5\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_6\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_7\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_8\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_9\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_{10}\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_{11}\rangle = c_{73,0,11}^{mdl} P_0 + c_{73,1,11}^{mdl} P_1 + c_{73,2,11}^{mdl} P_2 + c_{73,3,11}^{mdl} P_3$$

$$c_{73,0,11}^{mdl} = (-c_{11,11}^{ci}) * c_{0,0}^{inv} + c_{11,12}^{ci} * c_{1,0}^{inv}$$

$$c_{73,1,11}^{mdl} = (-c_{11,11}^{ci}) * c_{0,1}^{inv} + c_{11,12}^{ci} * c_{1,1}^{inv}$$

$$c_{73,2,11}^{mdl} = (-c_{11,11}^{ci}) * c_{0,2}^{inv} + c_{11,12}^{ci} * c_{1,2}^{inv}$$

$$\begin{aligned}
c_{73,3,11}^{mdl} &= (-c_{11,11}^{ci}) * c_{0,3}^{inv} + c_{11,12}^{ci} * c_{1,3}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_{12}\rangle &= c_{73,0,12}^{mdl} P_0 + c_{73,1,12}^{mdl} P_1 + c_{73,2,12}^{mdl} P_2 + c_{73,3,12}^{mdl} P_3 \\
c_{73,0,12}^{mdl} &= (-c_{12,11}^{ci}) * c_{0,0}^{inv} + c_{12,12}^{ci} * c_{1,0}^{inv} \\
c_{73,1,12}^{mdl} &= (-c_{12,11}^{ci}) * c_{0,1}^{inv} + c_{12,12}^{ci} * c_{1,1}^{inv} \\
c_{73,2,12}^{mdl} &= (-c_{12,11}^{ci}) * c_{0,2}^{inv} + c_{12,12}^{ci} * c_{1,2}^{inv} \\
c_{73,3,12}^{mdl} &= (-c_{12,11}^{ci}) * c_{0,3}^{inv} + c_{12,12}^{ci} * c_{1,3}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_{13}\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_{14}\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_{15}\rangle &= c_{73,13,15}^{mdl} P_{13} + c_{73,14,15}^{mdl} P_{14} \\
c_{73,13,15}^{mdl} &= (-c_{15,15}^{ci}) * c_{13,13}^{inv} \\
c_{73,14,15}^{mdl} &= (-c_{15,15}^{ci}) * c_{13,14}^{inv}
\end{aligned}$$

$$\begin{aligned}
\hat{O}_{74} : \langle P_p | \hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- | P_q \rangle &=> \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- | P_0 \rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- | P_1 \rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- | P_2 \rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- | P_3 \rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- | P_4 \rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- | P_5 \rangle &= c_{74,11,5}^{mdl} P_{11} + c_{74,12,5}^{mdl} P_{12} \\
c_{74,11,5}^{mdl} &= c_{5,5}^{ci} * c_{12,11}^{inv} \\
c_{74,12,5}^{mdl} &= c_{5,5}^{ci} * c_{12,12}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- | P_6 \rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- | P_7 \rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- | P_8 \rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- | P_9 \rangle &= c_{74,4,9}^{mdl} P_4 \\
c_{74,4,9}^{mdl} &= c_{9,9}^{ci} * c_{4,4}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- | P_{10} \rangle &= c_{74,4,10}^{mdl} P_4 \\
c_{74,4,10}^{mdl} &= c_{10,9}^{ci} * c_{4,4}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- | P_{11} \rangle &=
\end{aligned}$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- |P_{12}\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- |P_{13}\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- |P_{14}\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{75} : \langle P_p | \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- | P_q \rangle = >$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_0\rangle = c_{75,7,0}^{mdl} P_7 + c_{75,8,0}^{mdl} P_8$$

$$c_{75,7,0}^{mdl} = c_{0,2}^{ci} * c_{7,7}^{inv}$$

$$c_{75,8,0}^{mdl} = c_{0,2}^{ci} * c_{7,8}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_1\rangle = c_{75,7,1}^{mdl} P_7 + c_{75,8,1}^{mdl} P_8$$

$$c_{75,7,1}^{mdl} = c_{1,2}^{ci} * c_{7,7}^{inv}$$

$$c_{75,8,1}^{mdl} = c_{1,2}^{ci} * c_{7,8}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_2\rangle = c_{75,7,2}^{mdl} P_7 + c_{75,8,2}^{mdl} P_8$$

$$c_{75,7,2}^{mdl} = c_{2,2}^{ci} * c_{7,7}^{inv}$$

$$c_{75,8,2}^{mdl} = c_{2,2}^{ci} * c_{7,8}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_3\rangle = c_{75,7,3}^{mdl} P_7 + c_{75,8,3}^{mdl} P_8$$

$$c_{75,7,3}^{mdl} = c_{3,2}^{ci} * c_{7,7}^{inv}$$

$$c_{75,8,3}^{mdl} = c_{3,2}^{ci} * c_{7,8}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_4\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_5\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_6\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_7\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_8\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_9\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_{10}\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_{11}\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_{12}\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_{13}\rangle = c_{75,0,13}^{mdl} P_0 + c_{75,1,13}^{mdl} P_1 + c_{75,2,13}^{mdl} P_2 + c_{75,3,13}^{mdl} P_3$$

$$c_{75,0,13}^{mdl} = c_{13,14}^{ci} * c_{1,0}^{inv}$$

$$c_{75,1,13}^{mdl} = c_{13,14}^{ci} * c_{1,1}^{inv}$$

$$c_{75,2,13}^{mdl} = c_{13,14}^{ci} * c_{1,2}^{inv}$$

$$c_{75,3,13}^{mdl} = c_{13,14}^{ci} * c_{1,3}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_{14}\rangle = c_{75,0,14}^{mdl} P_0 + c_{75,1,14}^{mdl} P_1 + c_{75,2,14}^{mdl} P_2 + c_{75,3,14}^{mdl} P_3$$

$$c_{75,0,14}^{mdl} = c_{14,14}^{ci} * c_{1,0}^{inv}$$

$$c_{75,1,14}^{mdl} = c_{14,14}^{ci} * c_{1,1}^{inv}$$

$$c_{75,2,14}^{mdl} = c_{14,14}^{ci} * c_{1,2}^{inv}$$

$$c_{75,3,14}^{mdl} = c_{14,14}^{ci} * c_{1,3}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{76} : \langle P_p | \hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- | P_q \rangle = >$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- |P_0\rangle = c_{76,11,0}^{mdl} P_{11} + c_{76,12,0}^{mdl} P_{12}$$

$$c_{76,11,0}^{mdl} = (-(-c_{0,2}^{ci})) * c_{11,11}^{inv} + c_{0,3}^{ci} * c_{12,11}^{inv}$$

$$c_{76,12,0}^{mdl} = (-(-c_{0,2}^{ci})) * c_{11,12}^{inv} + c_{0,3}^{ci} * c_{12,12}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- |P_1\rangle = c_{76,11,1}^{mdl} P_{11} + c_{76,12,1}^{mdl} P_{12}$$

$$c_{76,11,1}^{mdl} = (-(-c_{1,2}^{ci})) * c_{11,11}^{inv} + c_{1,3}^{ci} * c_{12,11}^{inv}$$

$$c_{76,12,1}^{mdl} = (-(-c_{1,2}^{ci})) * c_{11,12}^{inv} + c_{1,3}^{ci} * c_{12,12}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- |P_2\rangle = c_{76,11,2}^{mdl} P_{11} + c_{76,12,2}^{mdl} P_{12}$$

$$c_{76,11,2}^{mdl} = (-(-c_{2,2}^{ci})) * c_{11,11}^{inv} + c_{2,3}^{ci} * c_{12,11}^{inv}$$

$$c_{76,12,2}^{mdl} = (-(-c_{2,2}^{ci})) * c_{11,12}^{inv} + c_{2,3}^{ci} * c_{12,12}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- |P_3\rangle = c_{76,11,3}^{mdl} P_{11} + c_{76,12,3}^{mdl} P_{12}$$

$$c_{76,11,3}^{mdl} = (-(-c_{3,2}^{ci})) * c_{11,11}^{inv} + c_{3,3}^{ci} * c_{12,11}^{inv}$$

$$c_{76,12,3}^{mdl} = (-(-c_{3,2}^{ci})) * c_{11,12}^{inv} + c_{3,3}^{ci} * c_{12,12}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- |P_4\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- |P_5\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- |P_6\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- |P_7\rangle = c_{76,4,7}^{mdl} P_4$$

$$c_{76,4,7}^{mdl} = c_{7,8}^{ci} * c_{4,4}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- |P_8\rangle = c_{76,4,8}^{mdl} P_4$$

$$c_{76,4,8}^{mdl} = c_{8,8}^{ci} * c_{4,4}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- |P_9\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- |P_{10}\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- |P_{11}\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- |P_{12}\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- |P_{13}\rangle = c_{76,15,13}^{mdl} P_{15}$$

$$c_{76,15,13}^{mdl} = (-(-c_{13,14}^{ci})) * c_{15,15}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- |P_{14}\rangle = c_{76,15,14}^{mdl} P_{15}$$

$$c_{76,15,14}^{mdl} = (-(-c_{14,14}^{ci})) * c_{15,15}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{77} : \langle P_p | \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- | P_q \rangle = >$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_0\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_1\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_2\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_3\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_4\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_5\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_6\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_7\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_8\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_9\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{10}\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{11}\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{12}\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{13}\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{14}\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{15}\rangle =$$

$$\begin{aligned}
\hat{O}_{78} : \langle P_p | \hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- | P_q \rangle &=> \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- | P_0 \rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- | P_1 \rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- | P_2 \rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- | P_3 \rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- | P_4 \rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- | P_5 \rangle &= c_{78,11,5}^{mdl} P_{11} + c_{78,12,5}^{mdl} P_{12} \\
c_{78,11,5}^{mdl} &= (-(-c_{5,5}^{ci})) * c_{11,11}^{inv} \\
c_{78,12,5}^{mdl} &= (-(-c_{5,5}^{ci})) * c_{11,12}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- | P_6 \rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- | P_7 \rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- | P_8 \rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- | P_9 \rangle &= c_{78,4,9}^{mdl} P_4 \\
c_{78,4,9}^{mdl} &= c_{9,10}^{ci} * c_{4,4}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- | P_{10} \rangle &= c_{78,4,10}^{mdl} P_4 \\
c_{78,4,10}^{mdl} &= c_{10,10}^{ci} * c_{4,4}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- | P_{11} \rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- | P_{12} \rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- | P_{13} \rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- | P_{14} \rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- | P_{15} \rangle &=
\end{aligned}$$

$$\begin{aligned}
\hat{O}_{79} : \langle P_p | \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- | P_q \rangle &=> \\
\hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- | P_0 \rangle &= c_{79,7,0}^{mdl} P_7 + c_{79,8,0}^{mdl} P_8 \\
c_{79,7,0}^{mdl} &= (-c_{0,3}^{ci}) * c_{7,7}^{inv} \\
c_{79,8,0}^{mdl} &= (-c_{0,3}^{ci}) * c_{7,8}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- | P_1 \rangle &= c_{79,7,1}^{mdl} P_7 + c_{79,8,1}^{mdl} P_8 \\
c_{79,7,1}^{mdl} &= (-c_{1,3}^{ci}) * c_{7,7}^{inv} \\
c_{79,8,1}^{mdl} &= (-c_{1,3}^{ci}) * c_{7,8}^{inv}
\end{aligned}$$

$$\begin{aligned}
\hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_2\rangle &= c_{79,7,2}^{mdl} P_7 + c_{79,8,2}^{mdl} P_8 \\
c_{79,7,2}^{mdl} &= (-c_{2,3}^{ci}) * c_{7,7}^{inv} \\
c_{79,8,2}^{mdl} &= (-c_{2,3}^{ci}) * c_{7,8}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_3\rangle &= c_{79,7,3}^{mdl} P_7 + c_{79,8,3}^{mdl} P_8 \\
c_{79,7,3}^{mdl} &= (-c_{3,3}^{ci}) * c_{7,7}^{inv} \\
c_{79,8,3}^{mdl} &= (-c_{3,3}^{ci}) * c_{7,8}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_4\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_5\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_6\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_7\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_8\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_9\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_{10}\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_{11}\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_{12}\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_{13}\rangle &= c_{79,0,13}^{mdl} P_0 + c_{79,1,13}^{mdl} P_1 + c_{79,2,13}^{mdl} P_2 + c_{79,3,13}^{mdl} P_3 \\
c_{79,0,13}^{mdl} &= (-c_{13,14}^{ci}) * c_{0,0}^{inv} \\
c_{79,1,13}^{mdl} &= (-c_{13,14}^{ci}) * c_{0,1}^{inv} \\
c_{79,2,13}^{mdl} &= (-c_{13,14}^{ci}) * c_{0,2}^{inv} \\
c_{79,3,13}^{mdl} &= (-c_{13,14}^{ci}) * c_{0,3}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_{14}\rangle &= c_{79,0,14}^{mdl} P_0 + c_{79,1,14}^{mdl} P_1 + c_{79,2,14}^{mdl} P_2 + c_{79,3,14}^{mdl} P_3 \\
c_{79,0,14}^{mdl} &= (-c_{14,14}^{ci}) * c_{0,0}^{inv} \\
c_{79,1,14}^{mdl} &= (-c_{14,14}^{ci}) * c_{0,1}^{inv} \\
c_{79,2,14}^{mdl} &= (-c_{14,14}^{ci}) * c_{0,2}^{inv} \\
c_{79,3,14}^{mdl} &= (-c_{14,14}^{ci}) * c_{0,3}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_{15}\rangle &= \\
\hat{O}_{80} : \langle P_p | \hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- | P_q \rangle &= > \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- | P_0 \rangle &= c_{80,13,0}^{mdl} P_{13} + c_{80,14,0}^{mdl} P_{14}
\end{aligned}$$

$$\begin{aligned}
c_{80,13,0}^{mdl} &= (-c_{0,0}^{ci}) * c_{13,13}^{inv} \\
c_{80,14,0}^{mdl} &= (-c_{0,0}^{ci}) * c_{13,14}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- |P_1\rangle &= c_{80,13,1}^{mdl} P_{13} + c_{80,14,1}^{mdl} P_{14} \\
c_{80,13,1}^{mdl} &= (-c_{1,0}^{ci}) * c_{13,13}^{inv} \\
c_{80,14,1}^{mdl} &= (-c_{1,0}^{ci}) * c_{13,14}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- |P_2\rangle &= c_{80,13,2}^{mdl} P_{13} + c_{80,14,2}^{mdl} P_{14} \\
c_{80,13,2}^{mdl} &= (-c_{2,0}^{ci}) * c_{13,13}^{inv} \\
c_{80,14,2}^{mdl} &= (-c_{2,0}^{ci}) * c_{13,14}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- |P_3\rangle &= c_{80,13,3}^{mdl} P_{13} + c_{80,14,3}^{mdl} P_{14} \\
c_{80,13,3}^{mdl} &= (-c_{3,0}^{ci}) * c_{13,13}^{inv} \\
c_{80,14,3}^{mdl} &= (-c_{3,0}^{ci}) * c_{13,14}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- |P_4\rangle &= c_{80,11,4}^{mdl} P_{11} + c_{80,12,4}^{mdl} P_{12} \\
c_{80,11,4}^{mdl} &= (-c_{4,4}^{ci}) * c_{12,11}^{inv} \\
c_{80,12,4}^{mdl} &= (-c_{4,4}^{ci}) * c_{12,12}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- |P_5\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- |P_6\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- |P_7\rangle &= c_{80,0,7}^{mdl} P_0 + c_{80,1,7}^{mdl} P_1 + c_{80,2,7}^{mdl} P_2 + c_{80,3,7}^{mdl} P_3 \\
c_{80,0,7}^{mdl} &= c_{7,7}^{ci} * c_{1,0}^{inv} \\
c_{80,1,7}^{mdl} &= c_{7,7}^{ci} * c_{1,1}^{inv} \\
c_{80,2,7}^{mdl} &= c_{7,7}^{ci} * c_{1,2}^{inv} \\
c_{80,3,7}^{mdl} &= c_{7,7}^{ci} * c_{1,3}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- |P_8\rangle &= c_{80,0,8}^{mdl} P_0 + c_{80,1,8}^{mdl} P_1 + c_{80,2,8}^{mdl} P_2 + c_{80,3,8}^{mdl} P_3 \\
c_{80,0,8}^{mdl} &= c_{8,7}^{ci} * c_{1,0}^{inv} \\
c_{80,1,8}^{mdl} &= c_{8,7}^{ci} * c_{1,1}^{inv} \\
c_{80,2,8}^{mdl} &= c_{8,7}^{ci} * c_{1,2}^{inv} \\
c_{80,3,8}^{mdl} &= c_{8,7}^{ci} * c_{1,3}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- |P_9\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- |P_{10}\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- |P_{11}\rangle &= c_{80,15,11}^{mdl} P_{15}
\end{aligned}$$

$$c_{80,15,11}^{mdl} = c_{11,11}^{ci} * c_{15,15}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- |P_{12}\rangle = c_{80,15,12}^{mdl} P_{15}$$

$$c_{80,15,12}^{mdl} = c_{12,11}^{ci} * c_{15,15}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- |P_{13}\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- |P_{14}\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{81} : \langle P_p | \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- | P_q \rangle =>$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_0\rangle = c_{81,7,0}^{mdl} P_7 + c_{81,8,0}^{mdl} P_8$$

$$c_{81,7,0}^{mdl} = c_{0,1}^{ci} * c_{7,7}^{inv}$$

$$c_{81,8,0}^{mdl} = c_{0,1}^{ci} * c_{7,8}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_1\rangle = c_{81,7,1}^{mdl} P_7 + c_{81,8,1}^{mdl} P_8$$

$$c_{81,7,1}^{mdl} = c_{1,1}^{ci} * c_{7,7}^{inv}$$

$$c_{81,8,1}^{mdl} = c_{1,1}^{ci} * c_{7,8}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_2\rangle = c_{81,7,2}^{mdl} P_7 + c_{81,8,2}^{mdl} P_8$$

$$c_{81,7,2}^{mdl} = c_{2,1}^{ci} * c_{7,7}^{inv}$$

$$c_{81,8,2}^{mdl} = c_{2,1}^{ci} * c_{7,8}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_3\rangle = c_{81,7,3}^{mdl} P_7 + c_{81,8,3}^{mdl} P_8$$

$$c_{81,7,3}^{mdl} = c_{3,1}^{ci} * c_{7,7}^{inv}$$

$$c_{81,8,3}^{mdl} = c_{3,1}^{ci} * c_{7,8}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_4\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_5\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_6\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_7\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_8\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_9\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{10}\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{11}\rangle = c_{81,4,11}^{mdl} P_4$$

$$c_{81,4,11}^{mdl} = (-c_{11,12}^{ci}) * c_{4,4}^{inv}$$

$$\begin{aligned}
\hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{12}\rangle &= c_{81,4,12}^{mdl} P_4 \\
c_{81,4,12}^{mdl} &= (-c_{12,12}^{ci}) * c_{4,4}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{13}\rangle &= c_{81,0,13}^{mdl} P_0 + c_{81,1,13}^{mdl} P_1 + c_{81,2,13}^{mdl} P_2 + c_{81,3,13}^{mdl} P_3 \\
c_{81,0,13}^{mdl} &= (-c_{13,13}^{ci}) * c_{0,0}^{inv} \\
c_{81,1,13}^{mdl} &= (-c_{13,13}^{ci}) * c_{0,1}^{inv} \\
c_{81,2,13}^{mdl} &= (-c_{13,13}^{ci}) * c_{0,2}^{inv} \\
c_{81,3,13}^{mdl} &= (-c_{13,13}^{ci}) * c_{0,3}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{14}\rangle &= c_{81,0,14}^{mdl} P_0 + c_{81,1,14}^{mdl} P_1 + c_{81,2,14}^{mdl} P_2 + c_{81,3,14}^{mdl} P_3 \\
c_{81,0,14}^{mdl} &= (-c_{14,13}^{ci}) * c_{0,0}^{inv} \\
c_{81,1,14}^{mdl} &= (-c_{14,13}^{ci}) * c_{0,1}^{inv} \\
c_{81,2,14}^{mdl} &= (-c_{14,13}^{ci}) * c_{0,2}^{inv} \\
c_{81,3,14}^{mdl} &= (-c_{14,13}^{ci}) * c_{0,3}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{15}\rangle &= c_{81,11,15}^{mdl} P_{11} + c_{81,12,15}^{mdl} P_{12} \\
c_{81,11,15}^{mdl} &= c_{15,15}^{ci} * c_{11,11}^{inv} \\
c_{81,12,15}^{mdl} &= c_{15,15}^{ci} * c_{11,12}^{inv} \\
\\
\hat{O}_{82} : \langle P_p | \hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- | P_q \rangle &=> \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- |P_0\rangle &= c_{82,11,0}^{mdl} P_{11} + c_{82,12,0}^{mdl} P_{12} \\
c_{82,11,0}^{mdl} &= (-c_{0,2}^{ci}) * c_{12,11}^{inv} \\
c_{82,12,0}^{mdl} &= (-c_{0,2}^{ci}) * c_{12,12}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- |P_1\rangle &= c_{82,11,1}^{mdl} P_{11} + c_{82,12,1}^{mdl} P_{12} \\
c_{82,11,1}^{mdl} &= (-c_{1,2}^{ci}) * c_{12,11}^{inv} \\
c_{82,12,1}^{mdl} &= (-c_{1,2}^{ci}) * c_{12,12}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- |P_2\rangle &= c_{82,11,2}^{mdl} P_{11} + c_{82,12,2}^{mdl} P_{12} \\
c_{82,11,2}^{mdl} &= (-c_{2,2}^{ci}) * c_{12,11}^{inv} \\
c_{82,12,2}^{mdl} &= (-c_{2,2}^{ci}) * c_{12,12}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- |P_3\rangle &= c_{82,11,3}^{mdl} P_{11} + c_{82,12,3}^{mdl} P_{12} \\
c_{82,11,3}^{mdl} &= (-c_{3,2}^{ci}) * c_{12,11}^{inv} \\
c_{82,12,3}^{mdl} &= (-c_{3,2}^{ci}) * c_{12,12}^{inv}
\end{aligned}$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- |P_4\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- |P_5\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- |P_6\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- |P_7\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- |P_8\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- |P_9\rangle = c_{82,0,9}^{mdl} P_0 + c_{82,1,9}^{mdl} P_1 + c_{82,2,9}^{mdl} P_2 + c_{82,3,9}^{mdl} P_3$$

$$c_{82,0,9}^{mdl} = c_{9,9}^{ci} * c_{1,0}^{inv}$$

$$c_{82,1,9}^{mdl} = c_{9,9}^{ci} * c_{1,1}^{inv}$$

$$c_{82,2,9}^{mdl} = c_{9,9}^{ci} * c_{1,2}^{inv}$$

$$c_{82,3,9}^{mdl} = c_{9,9}^{ci} * c_{1,3}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- |P_{10}\rangle = c_{82,0,10}^{mdl} P_0 + c_{82,1,10}^{mdl} P_1 + c_{82,2,10}^{mdl} P_2 + c_{82,3,10}^{mdl} P_3$$

$$c_{82,0,10}^{mdl} = c_{10,9}^{ci} * c_{1,0}^{inv}$$

$$c_{82,1,10}^{mdl} = c_{10,9}^{ci} * c_{1,1}^{inv}$$

$$c_{82,2,10}^{mdl} = c_{10,9}^{ci} * c_{1,2}^{inv}$$

$$c_{82,3,10}^{mdl} = c_{10,9}^{ci} * c_{1,3}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- |P_{11}\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- |P_{12}\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- |P_{13}\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- |P_{14}\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{83} : \langle P_p | \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- | P_q \rangle =>$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_0\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_1\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_2\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_3\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_4\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_5\rangle = c_{83,7,5}^{mdl} P_7 + c_{83,8,5}^{mdl} P_8$$

$$c_{83,7,5}^{mdl} = c_{5,5}^{ci} * c_{7,7}^{inv}$$

$$c_{83,8,5}^{mdl} = c_{5,5}^{ci} * c_{7,8}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_6\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_7\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_8\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_9\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{10}\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{11}\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{12}\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{13}\rangle = c_{83,4,13}^{mdl} P_4$$

$$c_{83,4,13}^{mdl} = (-c_{13,14}^{ci}) * c_{4,4}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{14}\rangle = c_{83,4,14}^{mdl} P_4$$

$$c_{83,4,14}^{mdl} = (-c_{14,14}^{ci}) * c_{4,4}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{84} : \langle P_p | \hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- | P_q \rangle = >$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- |P_0\rangle = c_{84,13,0}^{mdl} P_{13} + c_{84,14,0}^{mdl} P_{14}$$

$$c_{84,13,0}^{mdl} = (-(-c_{0,2}^{ci})) * c_{13,13}^{inv}$$

$$c_{84,14,0}^{mdl} = (-(-c_{0,2}^{ci})) * c_{13,14}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- |P_1\rangle = c_{84,13,1}^{mdl} P_{13} + c_{84,14,1}^{mdl} P_{14}$$

$$c_{84,13,1}^{mdl} = (-(-c_{1,2}^{ci})) * c_{13,13}^{inv}$$

$$c_{84,14,1}^{mdl} = (-(-c_{1,2}^{ci})) * c_{13,14}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- |P_2\rangle = c_{84,13,2}^{mdl} P_{13} + c_{84,14,2}^{mdl} P_{14}$$

$$c_{84,13,2}^{mdl} = (-(-c_{2,2}^{ci})) * c_{13,13}^{inv}$$

$$c_{84,14,2}^{mdl} = (-(-c_{2,2}^{ci})) * c_{13,14}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- |P_3\rangle = c_{84,13,3}^{mdl} P_{13} + c_{84,14,3}^{mdl} P_{14}$$

$$c_{84,13,3}^{mdl} = (-(-c_{3,2}^{ci})) * c_{13,13}^{inv}$$

$$c_{84,14,3}^{mdl} = (-(-c_{3,2}^{ci})) * c_{13,14}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- |P_4\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- |P_5\rangle =$$

$$\begin{aligned}
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- |P_6\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- |P_7\rangle &= c_{84,0,7}^{mdl} P_0 + c_{84,1,7}^{mdl} P_1 + c_{84,2,7}^{mdl} P_2 + c_{84,3,7}^{mdl} P_3 \\
c_{84,0,7}^{mdl} &= c_{7,8}^{ci} * c_{1,0}^{inv} \\
c_{84,1,7}^{mdl} &= c_{7,8}^{ci} * c_{1,1}^{inv} \\
c_{84,2,7}^{mdl} &= c_{7,8}^{ci} * c_{1,2}^{inv} \\
c_{84,3,7}^{mdl} &= c_{7,8}^{ci} * c_{1,3}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- |P_8\rangle &= c_{84,0,8}^{mdl} P_0 + c_{84,1,8}^{mdl} P_1 + c_{84,2,8}^{mdl} P_2 + c_{84,3,8}^{mdl} P_3 \\
c_{84,0,8}^{mdl} &= c_{8,8}^{ci} * c_{1,0}^{inv} \\
c_{84,1,8}^{mdl} &= c_{8,8}^{ci} * c_{1,1}^{inv} \\
c_{84,2,8}^{mdl} &= c_{8,8}^{ci} * c_{1,2}^{inv} \\
c_{84,3,8}^{mdl} &= c_{8,8}^{ci} * c_{1,3}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- |P_9\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- |P_{10}\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- |P_{11}\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- |P_{12}\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- |P_{13}\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- |P_{14}\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- |P_{15}\rangle &=
\end{aligned}$$

$$\begin{aligned}
\hat{O}_{85} : \langle P_p | \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- | P_q \rangle &=> \\
\hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_0\rangle &= c_{85,7,0}^{mdl} P_7 + c_{85,8,0}^{mdl} P_8 \\
c_{85,7,0}^{mdl} &= c_{0,3}^{ci} * c_{7,7}^{inv} \\
c_{85,8,0}^{mdl} &= c_{0,3}^{ci} * c_{7,8}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_1\rangle &= c_{85,7,1}^{mdl} P_7 + c_{85,8,1}^{mdl} P_8 \\
c_{85,7,1}^{mdl} &= c_{1,3}^{ci} * c_{7,7}^{inv} \\
c_{85,8,1}^{mdl} &= c_{1,3}^{ci} * c_{7,8}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_2\rangle &= c_{85,7,2}^{mdl} P_7 + c_{85,8,2}^{mdl} P_8 \\
c_{85,7,2}^{mdl} &= c_{2,3}^{ci} * c_{7,7}^{inv} \\
c_{85,8,2}^{mdl} &= c_{2,3}^{ci} * c_{7,8}^{inv}
\end{aligned}$$

$$\begin{aligned}
\hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_3\rangle &= c_{85,7,3}^{mdl} P_7 + c_{85,8,3}^{mdl} P_8 \\
c_{85,7,3}^{mdl} &= c_{3,3}^{ci} * c_{7,7}^{inv} \\
c_{85,8,3}^{mdl} &= c_{3,3}^{ci} * c_{7,8}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_4\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_5\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_6\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_7\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_8\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_9\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{10}\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{11}\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{12}\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{13}\rangle &= c_{85,0,13}^{mdl} P_0 + c_{85,1,13}^{mdl} P_1 + c_{85,2,13}^{mdl} P_2 + c_{85,3,13}^{mdl} P_3 \\
c_{85,0,13}^{mdl} &= c_{13,14}^{ci} * c_{0,0}^{inv} \\
c_{85,1,13}^{mdl} &= c_{13,14}^{ci} * c_{0,1}^{inv} \\
c_{85,2,13}^{mdl} &= c_{13,14}^{ci} * c_{0,2}^{inv} \\
c_{85,3,13}^{mdl} &= c_{13,14}^{ci} * c_{0,3}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{14}\rangle &= c_{85,0,14}^{mdl} P_0 + c_{85,1,14}^{mdl} P_1 + c_{85,2,14}^{mdl} P_2 + c_{85,3,14}^{mdl} P_3 \\
c_{85,0,14}^{mdl} &= c_{14,14}^{ci} * c_{0,0}^{inv} \\
c_{85,1,14}^{mdl} &= c_{14,14}^{ci} * c_{0,1}^{inv} \\
c_{85,2,14}^{mdl} &= c_{14,14}^{ci} * c_{0,2}^{inv} \\
c_{85,3,14}^{mdl} &= c_{14,14}^{ci} * c_{0,3}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{15}\rangle &= \\
\\
\hat{O}_{86} : \langle P_p | \hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- | P_q \rangle &=> \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- |P_0\rangle &= c_{86,11,0}^{mdl} P_{11} + c_{86,12,0}^{mdl} P_{12} \\
c_{86,11,0}^{mdl} &= (-(-c_{0,3}^{ci})) * c_{12,11}^{inv} \\
c_{86,12,0}^{mdl} &= (-(-c_{0,3}^{ci})) * c_{12,12}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- |P_1\rangle &= c_{86,11,1}^{mdl} P_{11} + c_{86,12,1}^{mdl} P_{12}
\end{aligned}$$

$$\begin{aligned}
c_{86,11,1}^{mdl} &= (-(-c_{1,3}^{ci})) * c_{12,11}^{inv} \\
c_{86,12,1}^{mdl} &= (-(-c_{1,3}^{ci})) * c_{12,12}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- |P_2\rangle &= c_{86,11,2}^{mdl} P_{11} + c_{86,12,2}^{mdl} P_{12} \\
c_{86,11,2}^{mdl} &= (-(-c_{2,3}^{ci})) * c_{12,11}^{inv} \\
c_{86,12,2}^{mdl} &= (-(-c_{2,3}^{ci})) * c_{12,12}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- |P_3\rangle &= c_{86,11,3}^{mdl} P_{11} + c_{86,12,3}^{mdl} P_{12} \\
c_{86,11,3}^{mdl} &= (-(-c_{3,3}^{ci})) * c_{12,11}^{inv} \\
c_{86,12,3}^{mdl} &= (-(-c_{3,3}^{ci})) * c_{12,12}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- |P_4\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- |P_5\rangle &= c_{86,13,5}^{mdl} P_{13} + c_{86,14,5}^{mdl} P_{14} \\
c_{86,13,5}^{mdl} &= (-(-c_{5,5}^{ci})) * c_{13,13}^{inv} \\
c_{86,14,5}^{mdl} &= (-(-c_{5,5}^{ci})) * c_{13,14}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- |P_6\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- |P_7\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- |P_8\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- |P_9\rangle &= c_{86,0,9}^{mdl} P_0 + c_{86,1,9}^{mdl} P_1 + c_{86,2,9}^{mdl} P_2 + c_{86,3,9}^{mdl} P_3 \\
c_{86,0,9}^{mdl} &= c_{9,10}^{ci} * c_{1,0}^{inv} \\
c_{86,1,9}^{mdl} &= c_{9,10}^{ci} * c_{1,1}^{inv} \\
c_{86,2,9}^{mdl} &= c_{9,10}^{ci} * c_{1,2}^{inv} \\
c_{86,3,9}^{mdl} &= c_{9,10}^{ci} * c_{1,3}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- |P_{10}\rangle &= c_{86,0,10}^{mdl} P_0 + c_{86,1,10}^{mdl} P_1 + c_{86,2,10}^{mdl} P_2 + c_{86,3,10}^{mdl} P_3 \\
c_{86,0,10}^{mdl} &= c_{10,10}^{ci} * c_{1,0}^{inv} \\
c_{86,1,10}^{mdl} &= c_{10,10}^{ci} * c_{1,1}^{inv} \\
c_{86,2,10}^{mdl} &= c_{10,10}^{ci} * c_{1,2}^{inv} \\
c_{86,3,10}^{mdl} &= c_{10,10}^{ci} * c_{1,3}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- |P_{11}\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- |P_{12}\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- |P_{13}\rangle &= c_{86,15,13}^{mdl} P_{15} \\
c_{86,15,13}^{mdl} &= c_{13,14}^{ci} * c_{15,15}^{inv}
\end{aligned}$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- |P_{14}\rangle = c_{86,15,14}^{mdl} P_{15}$$

$$c_{86,15,14}^{mdl} = c_{14,14}^{ci} * c_{15,15}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{87} : \langle P_p | \hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- | P_q \rangle =>$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- |P_0\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- |P_1\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- |P_2\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- |P_3\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- |P_4\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- |P_5\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- |P_6\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- |P_7\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- |P_8\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- |P_9\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- |P_{10}\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- |P_{11}\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- |P_{12}\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- |P_{13}\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- |P_{14}\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{88} : \langle P_p | \hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- | P_q \rangle =>$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_0\rangle = c_{88,13,0}^{mdl} P_{13} + c_{88,14,0}^{mdl} P_{14}$$

$$c_{88,13,0}^{mdl} = (-c_{0,1}^{ci}) * c_{13,13}^{inv}$$

$$c_{88,14,0}^{mdl} = (-c_{0,1}^{ci}) * c_{13,14}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_1\rangle = c_{88,13,1}^{mdl} P_{13} + c_{88,14,1}^{mdl} P_{14}$$

$$c_{88,13,1}^{mdl} = (-c_{1,1}^{ci}) * c_{13,13}^{inv}$$

$$c_{88,14,1}^{mdl} = (-c_{1,1}^{ci}) * c_{13,14}^{inv}$$

$$\begin{aligned}
\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_2\rangle &= c_{88,13,2}^{mdl} P_{13} + c_{88,14,2}^{mdl} P_{14} \\
c_{88,13,2}^{mdl} &= (-c_{2,1}^{ci}) * c_{13,13}^{inv} \\
c_{88,14,2}^{mdl} &= (-c_{2,1}^{ci}) * c_{13,14}^{inv} \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_3\rangle &= c_{88,13,3}^{mdl} P_{13} + c_{88,14,3}^{mdl} P_{14} \\
c_{88,13,3}^{mdl} &= (-c_{3,1}^{ci}) * c_{13,13}^{inv} \\
c_{88,14,3}^{mdl} &= (-c_{3,1}^{ci}) * c_{13,14}^{inv} \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_4\rangle &= c_{88,11,4}^{mdl} P_{11} + c_{88,12,4}^{mdl} P_{12} \\
c_{88,11,4}^{mdl} &= (-c_{4,4}^{ci}) * c_{11,11}^{inv} \\
c_{88,12,4}^{mdl} &= (-c_{4,4}^{ci}) * c_{11,12}^{inv} \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_5\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_6\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_7\rangle &= c_{88,0,7}^{mdl} P_0 + c_{88,1,7}^{mdl} P_1 + c_{88,2,7}^{mdl} P_2 + c_{88,3,7}^{mdl} P_3 \\
c_{88,0,7}^{mdl} &= (-c_{7,7}^{ci}) * c_{0,0}^{inv} \\
c_{88,1,7}^{mdl} &= (-c_{7,7}^{ci}) * c_{0,1}^{inv} \\
c_{88,2,7}^{mdl} &= (-c_{7,7}^{ci}) * c_{0,2}^{inv} \\
c_{88,3,7}^{mdl} &= (-c_{7,7}^{ci}) * c_{0,3}^{inv} \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_8\rangle &= c_{88,0,8}^{mdl} P_0 + c_{88,1,8}^{mdl} P_1 + c_{88,2,8}^{mdl} P_2 + c_{88,3,8}^{mdl} P_3 \\
c_{88,0,8}^{mdl} &= (-c_{8,7}^{ci}) * c_{0,0}^{inv} \\
c_{88,1,8}^{mdl} &= (-c_{8,7}^{ci}) * c_{0,1}^{inv} \\
c_{88,2,8}^{mdl} &= (-c_{8,7}^{ci}) * c_{0,2}^{inv} \\
c_{88,3,8}^{mdl} &= (-c_{8,7}^{ci}) * c_{0,3}^{inv} \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_9\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_{10}\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_{11}\rangle &= c_{88,15,11}^{mdl} P_{15} \\
c_{88,15,11}^{mdl} &= (-c_{11,12}^{ci}) * c_{15,15}^{inv} \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_{12}\rangle &= c_{88,15,12}^{mdl} P_{15} \\
c_{88,15,12}^{mdl} &= (-c_{12,12}^{ci}) * c_{15,15}^{inv} \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_{13}\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_{14}\rangle &=
\end{aligned}$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{89} : \langle P_p | \hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- | P_q \rangle =>$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_0\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_1\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_2\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_3\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_4\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_5\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_6\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_7\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_8\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_9\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_{10}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_{11}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_{12}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_{13}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_{14}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{90} : \langle P_p | \hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- | P_q \rangle =>$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- |P_0\rangle = c_{90,11,0}^{mdl} P_{11} + c_{90,12,0}^{mdl} P_{12}$$

$$c_{90,11,0}^{mdl} = (-c_{0,2}^{ci}) * c_{11,11}^{inv}$$

$$c_{90,12,0}^{mdl} = (-c_{0,2}^{ci}) * c_{11,12}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- |P_1\rangle = c_{90,11,1}^{mdl} P_{11} + c_{90,12,1}^{mdl} P_{12}$$

$$c_{90,11,1}^{mdl} = (-c_{1,2}^{ci}) * c_{11,11}^{inv}$$

$$c_{90,12,1}^{mdl} = (-c_{1,2}^{ci}) * c_{11,12}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- |P_2\rangle = c_{90,11,2}^{mdl} P_{11} + c_{90,12,2}^{mdl} P_{12}$$

$$c_{90,11,2}^{mdl} = (-c_{2,2}^{ci}) * c_{11,11}^{inv}$$

$$\begin{aligned}
c_{90,12,2}^{mdl} &= (-c_{2,2}^{ci}) * c_{11,12}^{inv} \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- |P_3\rangle &= c_{90,11,3}^{mdl} P_{11} + c_{90,12,3}^{mdl} P_{12} \\
c_{90,11,3}^{mdl} &= (-c_{3,2}^{ci}) * c_{11,11}^{inv} \\
c_{90,12,3}^{mdl} &= (-c_{3,2}^{ci}) * c_{11,12}^{inv} \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- |P_4\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- |P_5\rangle &= c_{90,13,5}^{mdl} P_{13} + c_{90,14,5}^{mdl} P_{14} \\
c_{90,13,5}^{mdl} &= (-c_{5,5}^{ci}) * c_{13,13}^{inv} \\
c_{90,14,5}^{mdl} &= (-c_{5,5}^{ci}) * c_{13,14}^{inv} \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- |P_6\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- |P_7\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- |P_8\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- |P_9\rangle &= c_{90,0,9}^{mdl} P_0 + c_{90,1,9}^{mdl} P_1 + c_{90,2,9}^{mdl} P_2 + c_{90,3,9}^{mdl} P_3 \\
c_{90,0,9}^{mdl} &= (-c_{9,9}^{ci}) * c_{0,0}^{inv} \\
c_{90,1,9}^{mdl} &= (-c_{9,9}^{ci}) * c_{0,1}^{inv} \\
c_{90,2,9}^{mdl} &= (-c_{9,9}^{ci}) * c_{0,2}^{inv} \\
c_{90,3,9}^{mdl} &= (-c_{9,9}^{ci}) * c_{0,3}^{inv} \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- |P_{10}\rangle &= c_{90,0,10}^{mdl} P_0 + c_{90,1,10}^{mdl} P_1 + c_{90,2,10}^{mdl} P_2 + c_{90,3,10}^{mdl} P_3 \\
c_{90,0,10}^{mdl} &= (-c_{10,9}^{ci}) * c_{0,0}^{inv} \\
c_{90,1,10}^{mdl} &= (-c_{10,9}^{ci}) * c_{0,1}^{inv} \\
c_{90,2,10}^{mdl} &= (-c_{10,9}^{ci}) * c_{0,2}^{inv} \\
c_{90,3,10}^{mdl} &= (-c_{10,9}^{ci}) * c_{0,3}^{inv} \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- |P_{11}\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- |P_{12}\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- |P_{13}\rangle &= c_{90,15,13}^{mdl} P_{15} \\
c_{90,15,13}^{mdl} &= (-c_{13,14}^{ci}) * c_{15,15}^{inv} \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- |P_{14}\rangle &= c_{90,15,14}^{mdl} P_{15} \\
c_{90,15,14}^{mdl} &= (-c_{14,14}^{ci}) * c_{15,15}^{inv} \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- |P_{15}\rangle &=
\end{aligned}$$

$$\begin{aligned}
\hat{O}_{91} : \langle P_p | \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- | P_q \rangle &=> \\
\hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- | P_0 \rangle &= c_{91,9,0}^{mdl} P_9 + c_{91,10,0}^{mdl} P_{10} \\
c_{91,9,0}^{mdl} &= (-c_{0,0}^{ci}) * c_{9,9}^{inv} \\
c_{91,10,0}^{mdl} &= (-c_{0,0}^{ci}) * c_{9,10}^{inv} \\
\hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- | P_1 \rangle &= c_{91,9,1}^{mdl} P_9 + c_{91,10,1}^{mdl} P_{10} \\
c_{91,9,1}^{mdl} &= (-c_{1,0}^{ci}) * c_{9,9}^{inv} \\
c_{91,10,1}^{mdl} &= (-c_{1,0}^{ci}) * c_{9,10}^{inv} \\
\hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- | P_2 \rangle &= c_{91,9,2}^{mdl} P_9 + c_{91,10,2}^{mdl} P_{10} \\
c_{91,9,2}^{mdl} &= (-c_{2,0}^{ci}) * c_{9,9}^{inv} \\
c_{91,10,2}^{mdl} &= (-c_{2,0}^{ci}) * c_{9,10}^{inv} \\
\hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- | P_3 \rangle &= c_{91,9,3}^{mdl} P_9 + c_{91,10,3}^{mdl} P_{10} \\
c_{91,9,3}^{mdl} &= (-c_{3,0}^{ci}) * c_{9,9}^{inv} \\
c_{91,10,3}^{mdl} &= (-c_{3,0}^{ci}) * c_{9,10}^{inv} \\
\hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- | P_4 \rangle &= \\
\hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- | P_5 \rangle &= \\
\hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- | P_6 \rangle &= \\
\hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- | P_7 \rangle &= \\
\hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- | P_8 \rangle &= \\
\hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- | P_9 \rangle &= \\
\hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- | P_{10} \rangle &= \\
\hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- | P_{11} \rangle &= c_{91,0,11}^{mdl} P_0 + c_{91,1,11}^{mdl} P_1 + c_{91,2,11}^{mdl} P_2 + c_{91,3,11}^{mdl} P_3 \\
c_{91,0,11}^{mdl} &= (-c_{11,11}^{ci}) * c_{2,0}^{inv} \\
c_{91,1,11}^{mdl} &= (-c_{11,11}^{ci}) * c_{2,1}^{inv} \\
c_{91,2,11}^{mdl} &= (-c_{11,11}^{ci}) * c_{2,2}^{inv} \\
c_{91,3,11}^{mdl} &= (-c_{11,11}^{ci}) * c_{2,3}^{inv} \\
\hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- | P_{12} \rangle &= c_{91,0,12}^{mdl} P_0 + c_{91,1,12}^{mdl} P_1 + c_{91,2,12}^{mdl} P_2 + c_{91,3,12}^{mdl} P_3 \\
c_{91,0,12}^{mdl} &= (-c_{12,11}^{ci}) * c_{2,0}^{inv} \\
c_{91,1,12}^{mdl} &= (-c_{12,11}^{ci}) * c_{2,1}^{inv} \\
c_{91,2,12}^{mdl} &= (-c_{12,11}^{ci}) * c_{2,2}^{inv}
\end{aligned}$$

$$c_{91,3,12}^{mdl} = (-c_{12,11}^{ci}) * c_{2,3}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_{13}\rangle = c_{91,5,13}^{mdl} P_5$$

$$c_{91,5,13}^{mdl} = (-c_{13,13}^{ci}) * c_{5,5}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_{14}\rangle = c_{91,5,14}^{mdl} P_5$$

$$c_{91,5,14}^{mdl} = (-c_{14,13}^{ci}) * c_{5,5}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_{15}\rangle = c_{91,13,15}^{mdl} P_{13} + c_{91,14,15}^{mdl} P_{14}$$

$$c_{91,13,15}^{mdl} = (-c_{15,15}^{ci}) * c_{14,13}^{inv}$$

$$c_{91,14,15}^{mdl} = (-c_{15,15}^{ci}) * c_{14,14}^{inv}$$

$$\hat{O}_{92} : \langle P_p | \hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- | P_q \rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- |P_0\rangle = c_{92,13,0}^{mdl} P_{13} + c_{92,14,0}^{mdl} P_{14}$$

$$c_{92,13,0}^{mdl} = (-c_{0,3}^{ci}) * c_{13,13}^{inv}$$

$$c_{92,14,0}^{mdl} = (-c_{0,3}^{ci}) * c_{13,14}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- |P_1\rangle = c_{92,13,1}^{mdl} P_{13} + c_{92,14,1}^{mdl} P_{14}$$

$$c_{92,13,1}^{mdl} = (-c_{1,3}^{ci}) * c_{13,13}^{inv}$$

$$c_{92,14,1}^{mdl} = (-c_{1,3}^{ci}) * c_{13,14}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- |P_2\rangle = c_{92,13,2}^{mdl} P_{13} + c_{92,14,2}^{mdl} P_{14}$$

$$c_{92,13,2}^{mdl} = (-c_{2,3}^{ci}) * c_{13,13}^{inv}$$

$$c_{92,14,2}^{mdl} = (-c_{2,3}^{ci}) * c_{13,14}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- |P_3\rangle = c_{92,13,3}^{mdl} P_{13} + c_{92,14,3}^{mdl} P_{14}$$

$$c_{92,13,3}^{mdl} = (-c_{3,3}^{ci}) * c_{13,13}^{inv}$$

$$c_{92,14,3}^{mdl} = (-c_{3,3}^{ci}) * c_{13,14}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- |P_4\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- |P_5\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- |P_6\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- |P_7\rangle = c_{92,0,7}^{mdl} P_0 + c_{92,1,7}^{mdl} P_1 + c_{92,2,7}^{mdl} P_2 + c_{92,3,7}^{mdl} P_3$$

$$c_{92,0,7}^{mdl} = (-c_{7,8}^{ci}) * c_{0,0}^{inv}$$

$$c_{92,1,7}^{mdl} = (-c_{7,8}^{ci}) * c_{0,1}^{inv}$$

$$c_{92,2,7}^{mdl} = (-c_{7,8}^{ci}) * c_{0,2}^{inv}$$

$$c_{92,3,7}^{mdl} = (-c_{7,8}^{ci}) * c_{0,3}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- |P_8\rangle = c_{92,0,8}^{mdl} P_0 + c_{92,1,8}^{mdl} P_1 + c_{92,2,8}^{mdl} P_2 + c_{92,3,8}^{mdl} P_3$$

$$c_{92,0,8}^{mdl} = (-c_{8,8}^{ci}) * c_{0,0}^{inv}$$

$$c_{92,1,8}^{mdl} = (-c_{8,8}^{ci}) * c_{0,1}^{inv}$$

$$c_{92,2,8}^{mdl} = (-c_{8,8}^{ci}) * c_{0,2}^{inv}$$

$$c_{92,3,8}^{mdl} = (-c_{8,8}^{ci}) * c_{0,3}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- |P_9\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- |P_{10}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- |P_{11}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- |P_{12}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- |P_{13}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- |P_{14}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{93} : \langle P_p | \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- | P_q \rangle =>$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_0\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_1\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_2\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_3\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_4\rangle = c_{93,9,4}^{mdl} P_9 + c_{93,10,4}^{mdl} P_{10}$$

$$c_{93,9,4}^{mdl} = (-c_{4,4}^{ci}) * c_{9,9}^{inv}$$

$$c_{93,10,4}^{mdl} = (-c_{4,4}^{ci}) * c_{9,10}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_5\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_6\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_7\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_8\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_9\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_{10}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_{11}\rangle = c_{93,5,11}^{mdl} P_5$$

$$c_{93,5,11}^{mdl} = (-c_{11,12}^{ci}) * c_{5,5}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_{12}\rangle = c_{93,5,12}^{mdl} P_5$$

$$c_{93,5,12}^{mdl} = (-c_{12,12}^{ci}) * c_{5,5}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_{13}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_{14}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{94} : \langle P_p | \hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- | P_q \rangle =>$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- |P_0\rangle = c_{94,11,0}^{mdl} P_{11} + c_{94,12,0}^{mdl} P_{12}$$

$$c_{94,11,0}^{mdl} = (-(-c_{0,3}^{ci})) * c_{11,11}^{inv}$$

$$c_{94,12,0}^{mdl} = (-(-c_{0,3}^{ci})) * c_{11,12}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- |P_1\rangle = c_{94,11,1}^{mdl} P_{11} + c_{94,12,1}^{mdl} P_{12}$$

$$c_{94,11,1}^{mdl} = (-(-c_{1,3}^{ci})) * c_{11,11}^{inv}$$

$$c_{94,12,1}^{mdl} = (-(-c_{1,3}^{ci})) * c_{11,12}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- |P_2\rangle = c_{94,11,2}^{mdl} P_{11} + c_{94,12,2}^{mdl} P_{12}$$

$$c_{94,11,2}^{mdl} = (-(-c_{2,3}^{ci})) * c_{11,11}^{inv}$$

$$c_{94,12,2}^{mdl} = (-(-c_{2,3}^{ci})) * c_{11,12}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- |P_3\rangle = c_{94,11,3}^{mdl} P_{11} + c_{94,12,3}^{mdl} P_{12}$$

$$c_{94,11,3}^{mdl} = (-(-c_{3,3}^{ci})) * c_{11,11}^{inv}$$

$$c_{94,12,3}^{mdl} = (-(-c_{3,3}^{ci})) * c_{11,12}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- |P_4\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- |P_5\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- |P_6\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- |P_7\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- |P_8\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- |P_9\rangle = c_{94,0,9}^{mdl} P_0 + c_{94,1,9}^{mdl} P_1 + c_{94,2,9}^{mdl} P_2 + c_{94,3,9}^{mdl} P_3$$

$$c_{94,0,9}^{mdl} = (-c_{9,10}^{ci}) * c_{0,0}^{inv}$$

$$c_{94,1,9}^{mdl} = (-c_{9,10}^{ci}) * c_{0,1}^{inv}$$

$$c_{94,2,9}^{mdl} = (-c_{9,10}^{ci}) * c_{0,2}^{inv}$$

$$c_{94,3,9}^{mdl} = (-c_{9,10}^{ci}) * c_{0,3}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- |P_{10}\rangle = c_{94,0,10}^{mdl} P_0 + c_{94,1,10}^{mdl} P_1 + c_{94,2,10}^{mdl} P_2 + c_{94,3,10}^{mdl} P_3$$

$$c_{94,0,10}^{mdl} = (-c_{10,10}^{ci}) * c_{0,0}^{inv}$$

$$c_{94,1,10}^{mdl} = (-c_{10,10}^{ci}) * c_{0,1}^{inv}$$

$$c_{94,2,10}^{mdl} = (-c_{10,10}^{ci}) * c_{0,2}^{inv}$$

$$c_{94,3,10}^{mdl} = (-c_{10,10}^{ci}) * c_{0,3}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- |P_{11}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- |P_{12}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- |P_{13}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- |P_{14}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{95} : \langle P_p | \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- | P_q \rangle = >$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_0\rangle = c_{95,9,0}^{mdl} P_9 + c_{95,10,0}^{mdl} P_{10}$$

$$c_{95,9,0}^{mdl} = (-c_{0,1}^{ci}) * c_{9,9}^{inv}$$

$$c_{95,10,0}^{mdl} = (-c_{0,1}^{ci}) * c_{9,10}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_1\rangle = c_{95,9,1}^{mdl} P_9 + c_{95,10,1}^{mdl} P_{10}$$

$$c_{95,9,1}^{mdl} = (-c_{1,1}^{ci}) * c_{9,9}^{inv}$$

$$c_{95,10,1}^{mdl} = (-c_{1,1}^{ci}) * c_{9,10}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_2\rangle = c_{95,9,2}^{mdl} P_9 + c_{95,10,2}^{mdl} P_{10}$$

$$c_{95,9,2}^{mdl} = (-c_{2,1}^{ci}) * c_{9,9}^{inv}$$

$$c_{95,10,2}^{mdl} = (-c_{2,1}^{ci}) * c_{9,10}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_3\rangle = c_{95,9,3}^{mdl} P_9 + c_{95,10,3}^{mdl} P_{10}$$

$$c_{95,9,3}^{mdl} = (-c_{3,1}^{ci}) * c_{9,9}^{inv}$$

$$c_{95,10,3}^{mdl} = (-c_{3,1}^{ci}) * c_{9,10}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_4\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_5\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_6\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_7\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_8\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_9\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{10}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{11}\rangle = c_{95,0,11}^{mdl} P_0 + c_{95,1,11}^{mdl} P_1 + c_{95,2,11}^{mdl} P_2 + c_{95,3,11}^{mdl} P_3$$

$$c_{95,0,11}^{mdl} = c_{11,12}^{ci} * c_{2,0}^{inv}$$

$$c_{95,1,11}^{mdl} = c_{11,12}^{ci} * c_{2,1}^{inv}$$

$$c_{95,2,11}^{mdl} = c_{11,12}^{ci} * c_{2,2}^{inv}$$

$$c_{95,3,11}^{mdl} = c_{11,12}^{ci} * c_{2,3}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{12}\rangle = c_{95,0,12}^{mdl} P_0 + c_{95,1,12}^{mdl} P_1 + c_{95,2,12}^{mdl} P_2 + c_{95,3,12}^{mdl} P_3$$

$$c_{95,0,12}^{mdl} = c_{12,12}^{ci} * c_{2,0}^{inv}$$

$$c_{95,1,12}^{mdl} = c_{12,12}^{ci} * c_{2,1}^{inv}$$

$$c_{95,2,12}^{mdl} = c_{12,12}^{ci} * c_{2,2}^{inv}$$

$$c_{95,3,12}^{mdl} = c_{12,12}^{ci} * c_{2,3}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{13}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{14}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{96} : \langle P_p | \hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- | P_q \rangle = >$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- |P_0\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- |P_1\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- |P_2\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- |P_3\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- |P_4\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- |P_5\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- |P_6\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- |P_7\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- |P_8\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- |P_9\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- |P_{10}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- |P_{11}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- |P_{12}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- |P_{13}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- |P_{14}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{97} : \langle P_p | \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- | P_q \rangle =>$$

$$\hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_0\rangle = c_{97,9,0}^{mdl} P_9 + c_{97,10,0}^{mdl} P_{10}$$

$$c_{97,9,0}^{mdl} = c_{0,0}^{ci} * c_{9,9}^{inv}$$

$$c_{97,10,0}^{mdl} = c_{0,0}^{ci} * c_{9,10}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_1\rangle = c_{97,9,1}^{mdl} P_9 + c_{97,10,1}^{mdl} P_{10}$$

$$c_{97,9,1}^{mdl} = c_{1,0}^{ci} * c_{9,9}^{inv}$$

$$c_{97,10,1}^{mdl} = c_{1,0}^{ci} * c_{9,10}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_2\rangle = c_{97,9,2}^{mdl} P_9 + c_{97,10,2}^{mdl} P_{10}$$

$$c_{97,9,2}^{mdl} = c_{2,0}^{ci} * c_{9,9}^{inv}$$

$$c_{97,10,2}^{mdl} = c_{2,0}^{ci} * c_{9,10}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_3\rangle = c_{97,9,3}^{mdl} P_9 + c_{97,10,3}^{mdl} P_{10}$$

$$c_{97,9,3}^{mdl} = c_{3,0}^{ci} * c_{9,9}^{inv}$$

$$c_{97,10,3}^{mdl} = c_{3,0}^{ci} * c_{9,10}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_4\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_5\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_6\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_7\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_8\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_9\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{10}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{11}\rangle = c_{97,0,11}^{mdl} P_0 + c_{97,1,11}^{mdl} P_1 + c_{97,2,11}^{mdl} P_2 + c_{97,3,11}^{mdl} P_3$$

$$c_{97,0,11}^{mdl} = c_{11,11}^{ci} * c_{2,0}^{inv}$$

$$c_{97,1,11}^{mdl} = c_{11,11}^{ci} * c_{2,1}^{inv}$$

$$c_{97,2,11}^{mdl} = c_{11,11}^{ci} * c_{2,2}^{inv}$$

$$c_{97,3,11}^{mdl} = c_{11,11}^{ci} * c_{2,3}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{12}\rangle = c_{97,0,12}^{mdl} P_0 + c_{97,1,12}^{mdl} P_1 + c_{97,2,12}^{mdl} P_2 + c_{97,3,12}^{mdl} P_3$$

$$c_{97,0,12}^{mdl} = c_{12,11}^{ci} * c_{2,0}^{inv}$$

$$c_{97,1,12}^{mdl} = c_{12,11}^{ci} * c_{2,1}^{inv}$$

$$c_{97,2,12}^{mdl} = c_{12,11}^{ci} * c_{2,2}^{inv}$$

$$c_{97,3,12}^{mdl} = c_{12,11}^{ci} * c_{2,3}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{13}\rangle = c_{97,5,13}^{mdl} P_5$$

$$c_{97,5,13}^{mdl} = c_{13,13}^{ci} * c_{5,5}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{14}\rangle = c_{97,5,14}^{mdl} P_5$$

$$c_{97,5,14}^{mdl} = c_{14,13}^{ci} * c_{5,5}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{15}\rangle = c_{97,13,15}^{mdl} P_{13} + c_{97,14,15}^{mdl} P_{14}$$

$$c_{97,13,15}^{mdl} = c_{15,15}^{ci} * c_{14,13}^{inv}$$

$$c_{97,14,15}^{mdl} = c_{15,15}^{ci} * c_{14,14}^{inv}$$

$$\hat{O}_{98} : \langle P_p | \hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- | P_q \rangle = >$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- |P_0\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- |P_1\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- |P_2\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- |P_3\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- |P_4\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- |P_5\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- |P_6\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- |P_7\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- |P_8\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- |P_9\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- |P_{10}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- |P_{11}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- |P_{12}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- |P_{13}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- |P_{14}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{99} : \langle P_p | \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- | P_q \rangle =>$$

$$\hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_0\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_1\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_2\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_3\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_4\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_5\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_6\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_7\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_8\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_9\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_{10}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_{11}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_{12}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_{13}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_{14}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{100} : \langle P_p | \hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- | P_q \rangle =>$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- |P_0\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- |P_1\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- |P_2\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- |P_3\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- |P_4\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- |P_5\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- |P_6\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- |P_7\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- |P_8\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- |P_9\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- |P_{10}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- |P_{11}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- |P_{12}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- |P_{13}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- |P_{14}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{101} : \langle P_p | \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- | P_q \rangle = >$$

$$\hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_0\rangle = c_{101,9,0}^{mdl} P_9 + c_{101,10,0}^{mdl} P_{10}$$

$$c_{101,9,0}^{mdl} = (-c_{0,2}^{ci}) * c_{9,9}^{inv}$$

$$c_{101,10,0}^{mdl} = (-c_{0,2}^{ci}) * c_{9,10}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_1\rangle = c_{101,9,1}^{mdl} P_9 + c_{101,10,1}^{mdl} P_{10}$$

$$c_{101,9,1}^{mdl} = (-c_{1,2}^{ci}) * c_{9,9}^{inv}$$

$$c_{101,10,1}^{mdl} = (-c_{1,2}^{ci}) * c_{9,10}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_2\rangle = c_{101,9,2}^{mdl} P_9 + c_{101,10,2}^{mdl} P_{10}$$

$$c_{101,9,2}^{mdl} = (-c_{2,2}^{ci}) * c_{9,9}^{inv}$$

$$c_{101,10,2}^{mdl} = (-c_{2,2}^{ci}) * c_{9,10}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_3\rangle = c_{101,9,3}^{mdl} P_9 + c_{101,10,3}^{mdl} P_{10}$$

$$c_{101,9,3}^{mdl} = (-c_{3,2}^{ci}) * c_{9,9}^{inv}$$

$$c_{101,10,3}^{mdl} = (-c_{3,2}^{ci}) * c_{9,10}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_4\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_5\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_6\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_7\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_8\rangle =$$

$$\begin{aligned}
\hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_9\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_{10}\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_{11}\rangle &= c_{101,0,11}^{mdl} P_0 + c_{101,1,11}^{mdl} P_1 + c_{101,2,11}^{mdl} P_2 + c_{101,3,11}^{mdl} P_3 \\
c_{101,0,11}^{mdl} &= (-(-c_{11,11}^{ci})) * c_{0,0}^{inv} \\
c_{101,1,11}^{mdl} &= (-(-c_{11,11}^{ci})) * c_{0,1}^{inv} \\
c_{101,2,11}^{mdl} &= (-(-c_{11,11}^{ci})) * c_{0,2}^{inv} \\
c_{101,3,11}^{mdl} &= (-(-c_{11,11}^{ci})) * c_{0,3}^{inv} \\
\hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_{12}\rangle &= c_{101,0,12}^{mdl} P_0 + c_{101,1,12}^{mdl} P_1 + c_{101,2,12}^{mdl} P_2 + c_{101,3,12}^{mdl} P_3 \\
c_{101,0,12}^{mdl} &= (-(-c_{12,11}^{ci})) * c_{0,0}^{inv} \\
c_{101,1,12}^{mdl} &= (-(-c_{12,11}^{ci})) * c_{0,1}^{inv} \\
c_{101,2,12}^{mdl} &= (-(-c_{12,11}^{ci})) * c_{0,2}^{inv} \\
c_{101,3,12}^{mdl} &= (-(-c_{12,11}^{ci})) * c_{0,3}^{inv} \\
\hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_{13}\rangle &= c_{101,5,13}^{mdl} P_5 \\
c_{101,5,13}^{mdl} &= (-c_{13,14}^{ci}) * c_{5,5}^{inv} \\
\hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_{14}\rangle &= c_{101,5,14}^{mdl} P_5 \\
c_{101,5,14}^{mdl} &= (-c_{14,14}^{ci}) * c_{5,5}^{inv} \\
\hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_{15}\rangle &= c_{101,13,15}^{mdl} P_{13} + c_{101,14,15}^{mdl} P_{14} \\
c_{101,13,15}^{mdl} &= (-(-c_{15,15}^{ci})) * c_{13,13}^{inv} \\
c_{101,14,15}^{mdl} &= (-(-c_{15,15}^{ci})) * c_{13,14}^{inv}
\end{aligned}$$

$$\hat{O}_{102} : \langle P_p | \hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- | P_q \rangle = >$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_0\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_1\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_2\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_3\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_4\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_5\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_6\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_7\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_8\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_9\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_{10}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_{11}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_{12}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_{13}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_{14}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{103} : \langle P_p | \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- | P_q \rangle = >$$

$$\hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_0\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_1\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_2\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_3\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_4\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_5\rangle = c_{103,9,5}^{mdl} P_9 + c_{103,10,5}^{mdl} P_{10}$$

$$c_{103,9,5}^{mdl} = (-c_{5,5}^{ci}) * c_{9,9}^{inv}$$

$$c_{103,10,5}^{mdl} = (-c_{5,5}^{ci}) * c_{9,10}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_6\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_7\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_8\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_9\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_{10}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_{11}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_{12}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_{13}\rangle = c_{103,0,13}^{mdl} P_0 + c_{103,1,13}^{mdl} P_1 + c_{103,2,13}^{mdl} P_2 + c_{103,3,13}^{mdl} P_3$$

$$c_{103,0,13}^{mdl} = (-(-c_{13,13}^{ci})) * c_{0,0}^{inv} + c_{13,14}^{ci} * c_{2,0}^{inv}$$

$$c_{103,1,13}^{mdl} = (-(-c_{13,13}^{ci})) * c_{0,1}^{inv} + c_{13,14}^{ci} * c_{2,1}^{inv}$$

$$c_{103,2,13}^{mdl} = (-(-c_{13,13}^{ci})) * c_{0,2}^{inv} + c_{13,14}^{ci} * c_{2,2}^{inv}$$

$$c_{103,3,13}^{mdl} = (-(-c_{13,13}^{ci})) * c_{0,3}^{inv} + c_{13,14}^{ci} * c_{2,3}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_{14}\rangle = c_{103,0,14}^{mdl} P_0 + c_{103,1,14}^{mdl} P_1 + c_{103,2,14}^{mdl} P_2 + c_{103,3,14}^{mdl} P_3$$

$$c_{103,0,14}^{mdl} = (-(-c_{14,13}^{ci})) * c_{0,0}^{inv} + c_{14,14}^{ci} * c_{2,0}^{inv}$$

$$c_{103,1,14}^{mdl} = (-(-c_{14,13}^{ci})) * c_{0,1}^{inv} + c_{14,14}^{ci} * c_{2,1}^{inv}$$

$$c_{103,2,14}^{mdl} = (-(-c_{14,13}^{ci})) * c_{0,2}^{inv} + c_{14,14}^{ci} * c_{2,2}^{inv}$$

$$c_{103,3,14}^{mdl} = (-(-c_{14,13}^{ci})) * c_{0,3}^{inv} + c_{14,14}^{ci} * c_{2,3}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_{15}\rangle = c_{103,11,15}^{mdl} P_{11} + c_{103,12,15}^{mdl} P_{12}$$

$$c_{103,11,15}^{mdl} = (-c_{15,15}^{ci}) * c_{11,11}^{inv}$$

$$c_{103,12,15}^{mdl} = (-c_{15,15}^{ci}) * c_{11,12}^{inv}$$

$$\hat{O}_{104} : \langle P_p | \hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- | P_q \rangle = >$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- |P_0\rangle = c_{104,13,0}^{mdl} P_{13} + c_{104,14,0}^{mdl} P_{14}$$

$$c_{104,13,0}^{mdl} = c_{0,1}^{ci} * c_{14,13}^{inv}$$

$$c_{104,14,0}^{mdl} = c_{0,1}^{ci} * c_{14,14}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- |P_1\rangle = c_{104,13,1}^{mdl} P_{13} + c_{104,14,1}^{mdl} P_{14}$$

$$c_{104,13,1}^{mdl} = c_{1,1}^{ci} * c_{14,13}^{inv}$$

$$c_{104,14,1}^{mdl} = c_{1,1}^{ci} * c_{14,14}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- |P_2\rangle = c_{104,13,2}^{mdl} P_{13} + c_{104,14,2}^{mdl} P_{14}$$

$$c_{104,13,2}^{mdl} = c_{2,1}^{ci} * c_{14,13}^{inv}$$

$$c_{104,14,2}^{mdl} = c_{2,1}^{ci} * c_{14,14}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- |P_3\rangle = c_{104,13,3}^{mdl} P_{13} + c_{104,14,3}^{mdl} P_{14}$$

$$c_{104,13,3}^{mdl} = c_{3,1}^{ci} * c_{14,13}^{inv}$$

$$c_{104,14,3}^{mdl} = c_{3,1}^{ci} * c_{14,14}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- |P_4\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- |P_5\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- |P_6\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- |P_7\rangle = c_{104,0,7}^{mdl} P_0 + c_{104,1,7}^{mdl} P_1 + c_{104,2,7}^{mdl} P_2 + c_{104,3,7}^{mdl} P_3$$

$$c_{104,0,7}^{mdl} = c_{7,7}^{ci} * c_{2,0}^{inv}$$

$$c_{104,1,7}^{mdl} = c_{7,7}^{ci} * c_{2,1}^{inv}$$

$$c_{104,2,7}^{mdl} = c_{7,7}^{ci} * c_{2,2}^{inv}$$

$$c_{104,3,7}^{mdl} = c_{7,7}^{ci} * c_{2,3}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- |P_8\rangle = c_{104,0,8}^{mdl} P_0 + c_{104,1,8}^{mdl} P_1 + c_{104,2,8}^{mdl} P_2 + c_{104,3,8}^{mdl} P_3$$

$$c_{104,0,8}^{mdl} = c_{8,7}^{ci} * c_{2,0}^{inv}$$

$$c_{104,1,8}^{mdl} = c_{8,7}^{ci} * c_{2,1}^{inv}$$

$$c_{104,2,8}^{mdl} = c_{8,7}^{ci} * c_{2,2}^{inv}$$

$$c_{104,3,8}^{mdl} = c_{8,7}^{ci} * c_{2,3}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- |P_9\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- |P_{10}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- |P_{11}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- |P_{12}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- |P_{13}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- |P_{14}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{105} : \langle P_p | \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- | P_q \rangle = >$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_0\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_1\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_2\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_3\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_4\rangle = c_{105,9,4}^{mdl} P_9 + c_{105,10,4}^{mdl} P_{10}$$

$$c_{105,9,4}^{mdl} = c_{4,4}^{ci} * c_{9,9}^{inv}$$

$$c_{105,10,4}^{mdl} = c_{4,4}^{ci} * c_{9,10}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_5\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_6\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_7\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_8\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_9\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_{10}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_{11}\rangle = c_{105,5,11}^{mdl} P_5$$

$$c_{105,5,11}^{mdl} = c_{11,12}^{ci} * c_{5,5}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_{12}\rangle = c_{105,5,12}^{mdl} P_5$$

$$c_{105,5,12}^{mdl} = c_{12,12}^{ci} * c_{5,5}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_{13}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_{14}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{106} : \langle P_p | \hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- | P_q \rangle =>$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- |P_0\rangle = c_{106,11,0}^{mdl} P_{11} + c_{106,12,0}^{mdl} P_{12}$$

$$c_{106,11,0}^{mdl} = (-c_{0,0}^{ci}) * c_{11,11}^{inv}$$

$$c_{106,12,0}^{mdl} = (-c_{0,0}^{ci}) * c_{11,12}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- |P_1\rangle = c_{106,11,1}^{mdl} P_{11} + c_{106,12,1}^{mdl} P_{12}$$

$$c_{106,11,1}^{mdl} = (-c_{1,0}^{ci}) * c_{11,11}^{inv}$$

$$c_{106,12,1}^{mdl} = (-c_{1,0}^{ci}) * c_{11,12}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- |P_2\rangle = c_{106,11,2}^{mdl} P_{11} + c_{106,12,2}^{mdl} P_{12}$$

$$c_{106,11,2}^{mdl} = (-c_{2,0}^{ci}) * c_{11,11}^{inv}$$

$$c_{106,12,2}^{mdl} = (-c_{2,0}^{ci}) * c_{11,12}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- |P_3\rangle = c_{106,11,3}^{mdl} P_{11} + c_{106,12,3}^{mdl} P_{12}$$

$$c_{106,11,3}^{mdl} = (-c_{3,0}^{ci}) * c_{11,11}^{inv}$$

$$c_{106,12,3}^{mdl} = (-c_{3,0}^{ci}) * c_{11,12}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- |P_4\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- |P_5\rangle = c_{106,13,5}^{mdl} P_{13} + c_{106,14,5}^{mdl} P_{14}$$

$$c_{106,13,5}^{mdl} = c_{5,5}^{ci} * c_{14,13}^{inv}$$

$$c_{106,14,5}^{mdl} = c_{5,5}^{ci} * c_{14,14}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- |P_6\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- |P_7\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- |P_8\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- |P_9\rangle = c_{106,0,9}^{mdl} P_0 + c_{106,1,9}^{mdl} P_1 + c_{106,2,9}^{mdl} P_2 + c_{106,3,9}^{mdl} P_3$$

$$\begin{aligned}
c_{106,0,9}^{mdl} &= c_{9,9}^{ci} * c_{2,0}^{inv} \\
c_{106,1,9}^{mdl} &= c_{9,9}^{ci} * c_{2,1}^{inv} \\
c_{106,2,9}^{mdl} &= c_{9,9}^{ci} * c_{2,2}^{inv} \\
c_{106,3,9}^{mdl} &= c_{9,9}^{ci} * c_{2,3}^{inv} \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- |P_{10}\rangle &= c_{106,0,10}^{mdl} P_0 + c_{106,1,10}^{mdl} P_1 + c_{106,2,10}^{mdl} P_2 + c_{106,3,10}^{mdl} P_3 \\
c_{106,0,10}^{mdl} &= c_{10,9}^{ci} * c_{2,0}^{inv} \\
c_{106,1,10}^{mdl} &= c_{10,9}^{ci} * c_{2,1}^{inv} \\
c_{106,2,10}^{mdl} &= c_{10,9}^{ci} * c_{2,2}^{inv} \\
c_{106,3,10}^{mdl} &= c_{10,9}^{ci} * c_{2,3}^{inv} \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- |P_{11}\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- |P_{12}\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- |P_{13}\rangle &= c_{106,15,13}^{mdl} P_{15} \\
c_{106,15,13}^{mdl} &= (-c_{13,13}^{ci}) * c_{15,15}^{inv} \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- |P_{14}\rangle &= c_{106,15,14}^{mdl} P_{15} \\
c_{106,15,14}^{mdl} &= (-c_{14,13}^{ci}) * c_{15,15}^{inv} \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- |P_{15}\rangle &= \\
\\
\hat{O}_{107} : \langle P_p | \hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- | P_q \rangle &=> \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- |P_0\rangle &= c_{107,9,0}^{mdl} P_9 + c_{107,10,0}^{mdl} P_{10} \\
c_{107,9,0}^{mdl} &= c_{0,2}^{ci} * c_{9,9}^{inv} \\
c_{107,10,0}^{mdl} &= c_{0,2}^{ci} * c_{9,10}^{inv} \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- |P_1\rangle &= c_{107,9,1}^{mdl} P_9 + c_{107,10,1}^{mdl} P_{10} \\
c_{107,9,1}^{mdl} &= c_{1,2}^{ci} * c_{9,9}^{inv} \\
c_{107,10,1}^{mdl} &= c_{1,2}^{ci} * c_{9,10}^{inv} \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- |P_2\rangle &= c_{107,9,2}^{mdl} P_9 + c_{107,10,2}^{mdl} P_{10} \\
c_{107,9,2}^{mdl} &= c_{2,2}^{ci} * c_{9,9}^{inv} \\
c_{107,10,2}^{mdl} &= c_{2,2}^{ci} * c_{9,10}^{inv} \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- |P_3\rangle &= c_{107,9,3}^{mdl} P_9 + c_{107,10,3}^{mdl} P_{10} \\
c_{107,9,3}^{mdl} &= c_{3,2}^{ci} * c_{9,9}^{inv}
\end{aligned}$$

$$c_{107,10,3}^{mdl} = c_{3,2}^{ci} * c_{9,10}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_4\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_5\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_6\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_7\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_8\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_9\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_{10}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_{11}\rangle = c_{107,0,11}^{mdl} P_0 + c_{107,1,11}^{mdl} P_1 + c_{107,2,11}^{mdl} P_2 + c_{107,3,11}^{mdl} P_3$$

$$c_{107,0,11}^{mdl} = (-c_{11,11}^{ci}) * c_{0,0}^{inv}$$

$$c_{107,1,11}^{mdl} = (-c_{11,11}^{ci}) * c_{0,1}^{inv}$$

$$c_{107,2,11}^{mdl} = (-c_{11,11}^{ci}) * c_{0,2}^{inv}$$

$$c_{107,3,11}^{mdl} = (-c_{11,11}^{ci}) * c_{0,3}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_{12}\rangle = c_{107,0,12}^{mdl} P_0 + c_{107,1,12}^{mdl} P_1 + c_{107,2,12}^{mdl} P_2 + c_{107,3,12}^{mdl} P_3$$

$$c_{107,0,12}^{mdl} = (-c_{12,11}^{ci}) * c_{0,0}^{inv}$$

$$c_{107,1,12}^{mdl} = (-c_{12,11}^{ci}) * c_{0,1}^{inv}$$

$$c_{107,2,12}^{mdl} = (-c_{12,11}^{ci}) * c_{0,2}^{inv}$$

$$c_{107,3,12}^{mdl} = (-c_{12,11}^{ci}) * c_{0,3}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_{13}\rangle = c_{107,5,13}^{mdl} P_5$$

$$c_{107,5,13}^{mdl} = c_{13,14}^{ci} * c_{5,5}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_{14}\rangle = c_{107,5,14}^{mdl} P_5$$

$$c_{107,5,14}^{mdl} = c_{14,14}^{ci} * c_{5,5}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_{15}\rangle = c_{107,13,15}^{mdl} P_{13} + c_{107,14,15}^{mdl} P_{14}$$

$$c_{107,13,15}^{mdl} = (-c_{15,15}^{ci}) * c_{13,13}^{inv}$$

$$c_{107,14,15}^{mdl} = (-c_{15,15}^{ci}) * c_{13,14}^{inv}$$

$$\hat{O}_{108} : \langle P_p | \hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- | P_q \rangle = >$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- |P_0\rangle = c_{108,13,0}^{mdl} P_{13} + c_{108,14,0}^{mdl} P_{14}$$

$$c_{108,13,0}^{mdl} = c_{0,3}^{ci} * c_{14,13}^{inv}$$

$$\begin{aligned}
c_{108,14,0}^{mdl} &= c_{0,3}^{ci} * c_{14,14}^{inv} \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- |P_1\rangle &= c_{108,13,1}^{mdl} P_{13} + c_{108,14,1}^{mdl} P_{14} \\
c_{108,13,1}^{mdl} &= c_{1,3}^{ci} * c_{14,13}^{inv} \\
c_{108,14,1}^{mdl} &= c_{1,3}^{ci} * c_{14,14}^{inv} \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- |P_2\rangle &= c_{108,13,2}^{mdl} P_{13} + c_{108,14,2}^{mdl} P_{14} \\
c_{108,13,2}^{mdl} &= c_{2,3}^{ci} * c_{14,13}^{inv} \\
c_{108,14,2}^{mdl} &= c_{2,3}^{ci} * c_{14,14}^{inv} \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- |P_3\rangle &= c_{108,13,3}^{mdl} P_{13} + c_{108,14,3}^{mdl} P_{14} \\
c_{108,13,3}^{mdl} &= c_{3,3}^{ci} * c_{14,13}^{inv} \\
c_{108,14,3}^{mdl} &= c_{3,3}^{ci} * c_{14,14}^{inv} \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- |P_4\rangle &= c_{108,11,4}^{mdl} P_{11} + c_{108,12,4}^{mdl} P_{12} \\
c_{108,11,4}^{mdl} &= (-c_{4,4}^{ci}) * c_{11,11}^{inv} \\
c_{108,12,4}^{mdl} &= (-c_{4,4}^{ci}) * c_{11,12}^{inv} \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- |P_5\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- |P_6\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- |P_7\rangle &= c_{108,0,7}^{mdl} P_0 + c_{108,1,7}^{mdl} P_1 + c_{108,2,7}^{mdl} P_2 + c_{108,3,7}^{mdl} P_3 \\
c_{108,0,7}^{mdl} &= c_{7,8}^{ci} * c_{2,0}^{inv} \\
c_{108,1,7}^{mdl} &= c_{7,8}^{ci} * c_{2,1}^{inv} \\
c_{108,2,7}^{mdl} &= c_{7,8}^{ci} * c_{2,2}^{inv} \\
c_{108,3,7}^{mdl} &= c_{7,8}^{ci} * c_{2,3}^{inv} \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- |P_8\rangle &= c_{108,0,8}^{mdl} P_0 + c_{108,1,8}^{mdl} P_1 + c_{108,2,8}^{mdl} P_2 + c_{108,3,8}^{mdl} P_3 \\
c_{108,0,8}^{mdl} &= c_{8,8}^{ci} * c_{2,0}^{inv} \\
c_{108,1,8}^{mdl} &= c_{8,8}^{ci} * c_{2,1}^{inv} \\
c_{108,2,8}^{mdl} &= c_{8,8}^{ci} * c_{2,2}^{inv} \\
c_{108,3,8}^{mdl} &= c_{8,8}^{ci} * c_{2,3}^{inv} \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- |P_9\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- |P_{10}\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- |P_{11}\rangle &= c_{108,15,11}^{mdl} P_{15} \\
c_{108,15,11}^{mdl} &= (-c_{11,12}^{ci}) * c_{15,15}^{inv}
\end{aligned}$$

$$\hat{O}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- |P_{12}\rangle = c_{108,15,12}^{mdl} P_{15}$$

$$c_{108,15,12}^{mdl} = (-c_{12,12}^{ci}) * c_{15,15}^{inv}$$

$$\hat{O}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- |P_{13}\rangle =$$

$$\hat{O}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- |P_{14}\rangle =$$

$$\hat{O}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{109} : \langle P_p | \hat{O}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- | P_q \rangle =>$$

$$\hat{O}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_0\rangle =$$

$$\hat{O}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_1\rangle =$$

$$\hat{O}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_2\rangle =$$

$$\hat{O}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_3\rangle =$$

$$\hat{O}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_4\rangle =$$

$$\hat{O}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_5\rangle =$$

$$\hat{O}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_6\rangle =$$

$$\hat{O}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_7\rangle =$$

$$\hat{O}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_8\rangle =$$

$$\hat{O}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_9\rangle =$$

$$\hat{O}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{10}\rangle =$$

$$\hat{O}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{11}\rangle =$$

$$\hat{O}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{12}\rangle =$$

$$\hat{O}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{13}\rangle =$$

$$\hat{O}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{14}\rangle =$$

$$\hat{O}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{110} : \langle P_p | \hat{O}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- | P_q \rangle =>$$

$$\hat{O}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- |P_0\rangle = c_{110,11,0}^{mdl} P_{11} + c_{110,12,0}^{mdl} P_{12}$$

$$c_{110,11,0}^{mdl} = (-c_{0,1}^{ci}) * c_{11,11}^{inv}$$

$$c_{110,12,0}^{mdl} = (-c_{0,1}^{ci}) * c_{11,12}^{inv}$$

$$\hat{O}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- |P_1\rangle = c_{110,11,1}^{mdl} P_{11} + c_{110,12,1}^{mdl} P_{12}$$

$$\begin{aligned}
c_{110,11,1}^{mdl} &= (-c_{1,1}^{ci}) * c_{11,11}^{inv} \\
c_{110,12,1}^{mdl} &= (-c_{1,1}^{ci}) * c_{11,12}^{inv} \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- |P_2\rangle &= c_{110,11,2}^{mdl} P_{11} + c_{110,12,2}^{mdl} P_{12} \\
c_{110,11,2}^{mdl} &= (-c_{2,1}^{ci}) * c_{11,11}^{inv} \\
c_{110,12,2}^{mdl} &= (-c_{2,1}^{ci}) * c_{11,12}^{inv} \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- |P_3\rangle &= c_{110,11,3}^{mdl} P_{11} + c_{110,12,3}^{mdl} P_{12} \\
c_{110,11,3}^{mdl} &= (-c_{3,1}^{ci}) * c_{11,11}^{inv} \\
c_{110,12,3}^{mdl} &= (-c_{3,1}^{ci}) * c_{11,12}^{inv} \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- |P_4\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- |P_5\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- |P_6\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- |P_7\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- |P_8\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- |P_9\rangle &= c_{110,0,9}^{mdl} P_0 + c_{110,1,9}^{mdl} P_1 + c_{110,2,9}^{mdl} P_2 + c_{110,3,9}^{mdl} P_3 \\
c_{110,0,9}^{mdl} &= c_{9,10}^{ci} * c_{2,0}^{inv} \\
c_{110,1,9}^{mdl} &= c_{9,10}^{ci} * c_{2,1}^{inv} \\
c_{110,2,9}^{mdl} &= c_{9,10}^{ci} * c_{2,2}^{inv} \\
c_{110,3,9}^{mdl} &= c_{9,10}^{ci} * c_{2,3}^{inv} \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- |P_{10}\rangle &= c_{110,0,10}^{mdl} P_0 + c_{110,1,10}^{mdl} P_1 + c_{110,2,10}^{mdl} P_2 + c_{110,3,10}^{mdl} P_3 \\
c_{110,0,10}^{mdl} &= c_{10,10}^{ci} * c_{2,0}^{inv} \\
c_{110,1,10}^{mdl} &= c_{10,10}^{ci} * c_{2,1}^{inv} \\
c_{110,2,10}^{mdl} &= c_{10,10}^{ci} * c_{2,2}^{inv} \\
c_{110,3,10}^{mdl} &= c_{10,10}^{ci} * c_{2,3}^{inv} \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- |P_{11}\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- |P_{12}\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- |P_{13}\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- |P_{14}\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- |P_{15}\rangle &=
\end{aligned}$$

$$\begin{aligned}
\hat{O}_{111} : \langle P_p | \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- | P_q \rangle &= > \\
\hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- | P_0 \rangle &= c_{111,9,0}^{mdl} P_9 + c_{111,10,0}^{mdl} P_{10} \\
c_{111,9,0}^{mdl} &= (-c_{0,3}^{ci}) * c_{9,9}^{inv} \\
c_{111,10,0}^{mdl} &= (-c_{0,3}^{ci}) * c_{9,10}^{inv} \\
\hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- | P_1 \rangle &= c_{111,9,1}^{mdl} P_9 + c_{111,10,1}^{mdl} P_{10} \\
c_{111,9,1}^{mdl} &= (-c_{1,3}^{ci}) * c_{9,9}^{inv} \\
c_{111,10,1}^{mdl} &= (-c_{1,3}^{ci}) * c_{9,10}^{inv} \\
\hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- | P_2 \rangle &= c_{111,9,2}^{mdl} P_9 + c_{111,10,2}^{mdl} P_{10} \\
c_{111,9,2}^{mdl} &= (-c_{2,3}^{ci}) * c_{9,9}^{inv} \\
c_{111,10,2}^{mdl} &= (-c_{2,3}^{ci}) * c_{9,10}^{inv} \\
\hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- | P_3 \rangle &= c_{111,9,3}^{mdl} P_9 + c_{111,10,3}^{mdl} P_{10} \\
c_{111,9,3}^{mdl} &= (-c_{3,3}^{ci}) * c_{9,9}^{inv} \\
c_{111,10,3}^{mdl} &= (-c_{3,3}^{ci}) * c_{9,10}^{inv} \\
\hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- | P_4 \rangle &= \\
\hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- | P_5 \rangle &= \\
\hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- | P_6 \rangle &= \\
\hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- | P_7 \rangle &= \\
\hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- | P_8 \rangle &= \\
\hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- | P_9 \rangle &= \\
\hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- | P_{10} \rangle &= \\
\hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- | P_{11} \rangle &= c_{111,0,11}^{mdl} P_0 + c_{111,1,11}^{mdl} P_1 + c_{111,2,11}^{mdl} P_2 + c_{111,3,11}^{mdl} P_3 \\
c_{111,0,11}^{mdl} &= (-(-c_{11,12}^{ci})) * c_{0,0}^{inv} \\
c_{111,1,11}^{mdl} &= (-(-c_{11,12}^{ci})) * c_{0,1}^{inv} \\
c_{111,2,11}^{mdl} &= (-(-c_{11,12}^{ci})) * c_{0,2}^{inv} \\
c_{111,3,11}^{mdl} &= (-(-c_{11,12}^{ci})) * c_{0,3}^{inv} \\
\hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- | P_{12} \rangle &= c_{111,0,12}^{mdl} P_0 + c_{111,1,12}^{mdl} P_1 + c_{111,2,12}^{mdl} P_2 + c_{111,3,12}^{mdl} P_3 \\
c_{111,0,12}^{mdl} &= (-(-c_{12,12}^{ci})) * c_{0,0}^{inv} \\
c_{111,1,12}^{mdl} &= (-(-c_{12,12}^{ci})) * c_{0,1}^{inv} \\
c_{111,2,12}^{mdl} &= (-(-c_{12,12}^{ci})) * c_{0,2}^{inv}
\end{aligned}$$

$$c_{111,3,12}^{mdl} = (-(-c_{12,12}^{ci})) * c_{0,3}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_{13}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_{14}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{112} : \langle P_p | \hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- | P_q \rangle =>$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- |P_0\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- |P_1\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- |P_2\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- |P_3\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- |P_4\rangle = c_{112,13,4}^{mdl} P_{13} + c_{112,14,4}^{mdl} P_{14}$$

$$c_{112,13,4}^{mdl} = (-c_{4,4}^{ci}) * c_{14,13}^{inv}$$

$$c_{112,14,4}^{mdl} = (-c_{4,4}^{ci}) * c_{14,14}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- |P_5\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- |P_6\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- |P_7\rangle = c_{112,5,7}^{mdl} P_5$$

$$c_{112,5,7}^{mdl} = c_{7,7}^{ci} * c_{5,5}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- |P_8\rangle = c_{112,5,8}^{mdl} P_5$$

$$c_{112,5,8}^{mdl} = c_{8,7}^{ci} * c_{5,5}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- |P_9\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- |P_{10}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- |P_{11}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- |P_{12}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- |P_{13}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- |P_{14}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{113} : \langle P_p | \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- | P_q \rangle =>$$

$$\hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_0\rangle = c_{113,9,0}^{mdl} P_9 + c_{113,10,0}^{mdl} P_{10}$$

$$\begin{aligned}
c_{113,9,0}^{mdl} &= c_{0,1}^{ci} * c_{9,9}^{inv} \\
c_{113,10,0}^{mdl} &= c_{0,1}^{ci} * c_{9,10}^{inv} \\
\hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_1\rangle &= c_{113,9,1}^{mdl} P_9 + c_{113,10,1}^{mdl} P_{10} \\
c_{113,9,1}^{mdl} &= c_{1,1}^{ci} * c_{9,9}^{inv} \\
c_{113,10,1}^{mdl} &= c_{1,1}^{ci} * c_{9,10}^{inv} \\
\hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_2\rangle &= c_{113,9,2}^{mdl} P_9 + c_{113,10,2}^{mdl} P_{10} \\
c_{113,9,2}^{mdl} &= c_{2,1}^{ci} * c_{9,9}^{inv} \\
c_{113,10,2}^{mdl} &= c_{2,1}^{ci} * c_{9,10}^{inv} \\
\hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_3\rangle &= c_{113,9,3}^{mdl} P_9 + c_{113,10,3}^{mdl} P_{10} \\
c_{113,9,3}^{mdl} &= c_{3,1}^{ci} * c_{9,9}^{inv} \\
c_{113,10,3}^{mdl} &= c_{3,1}^{ci} * c_{9,10}^{inv} \\
\hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_4\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_5\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_6\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_7\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_8\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_9\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{10}\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{11}\rangle &= c_{113,0,11}^{mdl} P_0 + c_{113,1,11}^{mdl} P_1 + c_{113,2,11}^{mdl} P_2 + c_{113,3,11}^{mdl} P_3 \\
c_{113,0,11}^{mdl} &= (-c_{11,12}^{ci}) * c_{2,0}^{inv} \\
c_{113,1,11}^{mdl} &= (-c_{11,12}^{ci}) * c_{2,1}^{inv} \\
c_{113,2,11}^{mdl} &= (-c_{11,12}^{ci}) * c_{2,2}^{inv} \\
c_{113,3,11}^{mdl} &= (-c_{11,12}^{ci}) * c_{2,3}^{inv} \\
\hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{12}\rangle &= c_{113,0,12}^{mdl} P_0 + c_{113,1,12}^{mdl} P_1 + c_{113,2,12}^{mdl} P_2 + c_{113,3,12}^{mdl} P_3 \\
c_{113,0,12}^{mdl} &= (-c_{12,12}^{ci}) * c_{2,0}^{inv} \\
c_{113,1,12}^{mdl} &= (-c_{12,12}^{ci}) * c_{2,1}^{inv} \\
c_{113,2,12}^{mdl} &= (-c_{12,12}^{ci}) * c_{2,2}^{inv} \\
c_{113,3,12}^{mdl} &= (-c_{12,12}^{ci}) * c_{2,3}^{inv} \\
\hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{13}\rangle &=
\end{aligned}$$

$$\hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{14}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{114} : \langle P_p | \hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- | P_q \rangle =>$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- |P_0\rangle = c_{114,13,0}^{mdl} P_{13} + c_{114,14,0}^{mdl} P_{14}$$

$$c_{114,13,0}^{mdl} = (-c_{0,0}^{ci}) * c_{13,13}^{inv} + (-c_{0,2}^{ci}) * c_{14,13}^{inv}$$

$$c_{114,14,0}^{mdl} = (-c_{0,0}^{ci}) * c_{13,14}^{inv} + (-c_{0,2}^{ci}) * c_{14,14}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- |P_1\rangle = c_{114,13,1}^{mdl} P_{13} + c_{114,14,1}^{mdl} P_{14}$$

$$c_{114,13,1}^{mdl} = (-c_{1,0}^{ci}) * c_{13,13}^{inv} + (-c_{1,2}^{ci}) * c_{14,13}^{inv}$$

$$c_{114,14,1}^{mdl} = (-c_{1,0}^{ci}) * c_{13,14}^{inv} + (-c_{1,2}^{ci}) * c_{14,14}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- |P_2\rangle = c_{114,13,2}^{mdl} P_{13} + c_{114,14,2}^{mdl} P_{14}$$

$$c_{114,13,2}^{mdl} = (-c_{2,0}^{ci}) * c_{13,13}^{inv} + (-c_{2,2}^{ci}) * c_{14,13}^{inv}$$

$$c_{114,14,2}^{mdl} = (-c_{2,0}^{ci}) * c_{13,14}^{inv} + (-c_{2,2}^{ci}) * c_{14,14}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- |P_3\rangle = c_{114,13,3}^{mdl} P_{13} + c_{114,14,3}^{mdl} P_{14}$$

$$c_{114,13,3}^{mdl} = (-c_{3,0}^{ci}) * c_{13,13}^{inv} + (-c_{3,2}^{ci}) * c_{14,13}^{inv}$$

$$c_{114,14,3}^{mdl} = (-c_{3,0}^{ci}) * c_{13,14}^{inv} + (-c_{3,2}^{ci}) * c_{14,14}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- |P_4\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- |P_5\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- |P_6\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- |P_7\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- |P_8\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- |P_9\rangle = c_{114,5,9}^{mdl} P_5$$

$$c_{114,5,9}^{mdl} = c_{9,9}^{ci} * c_{5,5}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- |P_{10}\rangle = c_{114,5,10}^{mdl} P_5$$

$$c_{114,5,10}^{mdl} = c_{10,9}^{ci} * c_{5,5}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- |P_{11}\rangle = c_{114,15,11}^{mdl} P_{15}$$

$$c_{114,15,11}^{mdl} = (-(-c_{11,11}^{ci})) * c_{15,15}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- |P_{12}\rangle = c_{114,15,12}^{mdl} P_{15}$$

$$c_{114,15,12}^{mdl} = (-(-c_{12,11}^{ci})) * c_{15,15}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- |P_{13}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- |P_{14}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{115} : \langle P_p | \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- | P_q \rangle =>$$

$$\hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_0\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_1\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_2\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_3\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_4\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_5\rangle = c_{115,9,5}^{mdl} P_9 + c_{115,10,5}^{mdl} P_{10}$$

$$c_{115,9,5}^{mdl} = c_{5,5}^{ci} * c_{9,9}^{inv}$$

$$c_{115,10,5}^{mdl} = c_{5,5}^{ci} * c_{9,10}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_6\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_7\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_8\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_9\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{10}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{11}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{12}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{13}\rangle = c_{115,0,13}^{mdl} P_0 + c_{115,1,13}^{mdl} P_1 + c_{115,2,13}^{mdl} P_2 + c_{115,3,13}^{mdl} P_3$$

$$c_{115,0,13}^{mdl} = (-c_{13,13}^{ci}) * c_{0,0}^{inv} + (-c_{13,14}^{ci}) * c_{2,0}^{inv}$$

$$c_{115,1,13}^{mdl} = (-c_{13,13}^{ci}) * c_{0,1}^{inv} + (-c_{13,14}^{ci}) * c_{2,1}^{inv}$$

$$c_{115,2,13}^{mdl} = (-c_{13,13}^{ci}) * c_{0,2}^{inv} + (-c_{13,14}^{ci}) * c_{2,2}^{inv}$$

$$c_{115,3,13}^{mdl} = (-c_{13,13}^{ci}) * c_{0,3}^{inv} + (-c_{13,14}^{ci}) * c_{2,3}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{14}\rangle = c_{115,0,14}^{mdl} P_0 + c_{115,1,14}^{mdl} P_1 + c_{115,2,14}^{mdl} P_2 + c_{115,3,14}^{mdl} P_3$$

$$c_{115,0,14}^{mdl} = (-c_{14,13}^{ci}) * c_{0,0}^{inv} + (-c_{14,14}^{ci}) * c_{2,0}^{inv}$$

$$c_{115,1,14}^{mdl} = (-c_{14,13}^{ci}) * c_{0,1}^{inv} + (-c_{14,14}^{ci}) * c_{2,1}^{inv}$$

$$c_{115,2,14}^{mdl} = (-c_{14,13}^{ci}) * c_{0,2}^{inv} + (-c_{14,14}^{ci}) * c_{2,2}^{inv}$$

$$c_{115,3,14}^{mdl} = (-c_{14,13}^{ci}) * c_{0,3}^{inv} + (-c_{14,14}^{ci}) * c_{2,3}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{15}\rangle = c_{115,11,15}^{mdl} P_{11} + c_{115,12,15}^{mdl} P_{12}$$

$$c_{115,11,15}^{mdl} = (-(-c_{15,15}^{ci})) * c_{11,11}^{inv}$$

$$c_{115,12,15}^{mdl} = (-(-c_{15,15}^{ci})) * c_{11,12}^{inv}$$

$$\hat{O}_{116} : \langle P_p | \hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- | P_q \rangle = >$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- |P_0\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- |P_1\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- |P_2\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- |P_3\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- |P_4\rangle = c_{116,13,4}^{mdl} P_{13} + c_{116,14,4}^{mdl} P_{14}$$

$$c_{116,13,4}^{mdl} = (-c_{4,4}^{ci}) * c_{13,13}^{inv}$$

$$c_{116,14,4}^{mdl} = (-c_{4,4}^{ci}) * c_{13,14}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- |P_5\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- |P_6\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- |P_7\rangle = c_{116,5,7}^{mdl} P_5$$

$$c_{116,5,7}^{mdl} = c_{7,8}^{ci} * c_{5,5}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- |P_8\rangle = c_{116,5,8}^{mdl} P_5$$

$$c_{116,5,8}^{mdl} = c_{8,8}^{ci} * c_{5,5}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- |P_9\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- |P_{10}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- |P_{11}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- |P_{12}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- |P_{13}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- |P_{14}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{117} : \langle P_p | \hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- | P_q \rangle = >$$

$$\hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_0\rangle = c_{117,9,0}^{mdl} P_9 + c_{117,10,0}^{mdl} P_{10}$$

$$\begin{aligned}
c_{117,9,0}^{mdl} &= c_{0,3}^{ci} * c_{9,9}^{inv} \\
c_{117,10,0}^{mdl} &= c_{0,3}^{ci} * c_{9,10}^{inv} \\
\hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_1\rangle &= c_{117,9,1}^{mdl} P_9 + c_{117,10,1}^{mdl} P_{10} \\
c_{117,9,1}^{mdl} &= c_{1,3}^{ci} * c_{9,9}^{inv} \\
c_{117,10,1}^{mdl} &= c_{1,3}^{ci} * c_{9,10}^{inv} \\
\hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_2\rangle &= c_{117,9,2}^{mdl} P_9 + c_{117,10,2}^{mdl} P_{10} \\
c_{117,9,2}^{mdl} &= c_{2,3}^{ci} * c_{9,9}^{inv} \\
c_{117,10,2}^{mdl} &= c_{2,3}^{ci} * c_{9,10}^{inv} \\
\hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_3\rangle &= c_{117,9,3}^{mdl} P_9 + c_{117,10,3}^{mdl} P_{10} \\
c_{117,9,3}^{mdl} &= c_{3,3}^{ci} * c_{9,9}^{inv} \\
c_{117,10,3}^{mdl} &= c_{3,3}^{ci} * c_{9,10}^{inv} \\
\hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_4\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_5\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_6\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_7\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_8\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_9\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{10}\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{11}\rangle &= c_{117,0,11}^{mdl} P_0 + c_{117,1,11}^{mdl} P_1 + c_{117,2,11}^{mdl} P_2 + c_{117,3,11}^{mdl} P_3 \\
c_{117,0,11}^{mdl} &= (-c_{11,12}^{ci}) * c_{0,0}^{inv} \\
c_{117,1,11}^{mdl} &= (-c_{11,12}^{ci}) * c_{0,1}^{inv} \\
c_{117,2,11}^{mdl} &= (-c_{11,12}^{ci}) * c_{0,2}^{inv} \\
c_{117,3,11}^{mdl} &= (-c_{11,12}^{ci}) * c_{0,3}^{inv} \\
\hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{12}\rangle &= c_{117,0,12}^{mdl} P_0 + c_{117,1,12}^{mdl} P_1 + c_{117,2,12}^{mdl} P_2 + c_{117,3,12}^{mdl} P_3 \\
c_{117,0,12}^{mdl} &= (-c_{12,12}^{ci}) * c_{0,0}^{inv} \\
c_{117,1,12}^{mdl} &= (-c_{12,12}^{ci}) * c_{0,1}^{inv} \\
c_{117,2,12}^{mdl} &= (-c_{12,12}^{ci}) * c_{0,2}^{inv} \\
c_{117,3,12}^{mdl} &= (-c_{12,12}^{ci}) * c_{0,3}^{inv} \\
\hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{13}\rangle &=
\end{aligned}$$

$$\hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{14}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{118} : \langle P_p | \hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- | P_q \rangle = >$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- |P_0\rangle = c_{118,13,0}^{mdl} P_{13} + c_{118,14,0}^{mdl} P_{14}$$

$$c_{118,13,0}^{mdl} = (-c_{0,1}^{ci}) * c_{13,13}^{inv} + (-(-c_{0,3}^{ci})) * c_{14,13}^{inv}$$

$$c_{118,14,0}^{mdl} = (-c_{0,1}^{ci}) * c_{13,14}^{inv} + (-(-c_{0,3}^{ci})) * c_{14,14}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- |P_1\rangle = c_{118,13,1}^{mdl} P_{13} + c_{118,14,1}^{mdl} P_{14}$$

$$c_{118,13,1}^{mdl} = (-c_{1,1}^{ci}) * c_{13,13}^{inv} + (-(-c_{1,3}^{ci})) * c_{14,13}^{inv}$$

$$c_{118,14,1}^{mdl} = (-c_{1,1}^{ci}) * c_{13,14}^{inv} + (-(-c_{1,3}^{ci})) * c_{14,14}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- |P_2\rangle = c_{118,13,2}^{mdl} P_{13} + c_{118,14,2}^{mdl} P_{14}$$

$$c_{118,13,2}^{mdl} = (-c_{2,1}^{ci}) * c_{13,13}^{inv} + (-(-c_{2,3}^{ci})) * c_{14,13}^{inv}$$

$$c_{118,14,2}^{mdl} = (-c_{2,1}^{ci}) * c_{13,14}^{inv} + (-(-c_{2,3}^{ci})) * c_{14,14}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- |P_3\rangle = c_{118,13,3}^{mdl} P_{13} + c_{118,14,3}^{mdl} P_{14}$$

$$c_{118,13,3}^{mdl} = (-c_{3,1}^{ci}) * c_{13,13}^{inv} + (-(-c_{3,3}^{ci})) * c_{14,13}^{inv}$$

$$c_{118,14,3}^{mdl} = (-c_{3,1}^{ci}) * c_{13,14}^{inv} + (-(-c_{3,3}^{ci})) * c_{14,14}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- |P_4\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- |P_5\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- |P_6\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- |P_7\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- |P_8\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- |P_9\rangle = c_{118,5,9}^{mdl} P_5$$

$$c_{118,5,9}^{mdl} = c_{9,10}^{ci} * c_{5,5}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- |P_{10}\rangle = c_{118,5,10}^{mdl} P_5$$

$$c_{118,5,10}^{mdl} = c_{10,10}^{ci} * c_{5,5}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- |P_{11}\rangle = c_{118,15,11}^{mdl} P_{15}$$

$$c_{118,15,11}^{mdl} = (-c_{11,12}^{ci}) * c_{15,15}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- |P_{12}\rangle = c_{118,15,12}^{mdl} P_{15}$$

$$c_{118,15,12}^{mdl} = (-c_{12,12}^{ci}) * c_{15,15}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- |P_{13}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- |P_{14}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{119} : \langle P_p | \hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- | P_q \rangle = >$$

$$\hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_0\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_1\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_2\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_3\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_4\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_5\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_6\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_7\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_8\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_9\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_{10}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_{11}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_{12}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_{13}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_{14}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{120} : \langle P_p | \hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- | P_q \rangle = >$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_0\rangle = c_{120,11,0}^{mdl} P_{11} + c_{120,12,0}^{mdl} P_{12}$$

$$c_{120,11,0}^{mdl} = c_{0,0}^{ci} * c_{11,11}^{inv} + (-c_{0,1}^{ci}) * c_{12,11}^{inv}$$

$$c_{120,12,0}^{mdl} = c_{0,0}^{ci} * c_{11,12}^{inv} + (-c_{0,1}^{ci}) * c_{12,12}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_1\rangle = c_{120,11,1}^{mdl} P_{11} + c_{120,12,1}^{mdl} P_{12}$$

$$c_{120,11,1}^{mdl} = c_{1,0}^{ci} * c_{11,11}^{inv} + (-c_{1,1}^{ci}) * c_{12,11}^{inv}$$

$$c_{120,12,1}^{mdl} = c_{1,0}^{ci} * c_{11,12}^{inv} + (-c_{1,1}^{ci}) * c_{12,12}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_2\rangle = c_{120,11,2}^{mdl} P_{11} + c_{120,12,2}^{mdl} P_{12}$$

$$c_{120,11,2}^{mdl} = c_{2,0}^{ci} * c_{11,11}^{inv} + (-c_{2,1}^{ci}) * c_{12,11}^{inv}$$

$$c_{120,12,2}^{mdl} = c_{2,0}^{ci} * c_{11,12}^{inv} + (-c_{2,1}^{ci}) * c_{12,12}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_3\rangle = c_{120,11,3}^{mdl} P_{11} + c_{120,12,3}^{mdl} P_{12}$$

$$c_{120,11,3}^{mdl} = c_{3,0}^{ci} * c_{11,11}^{inv} + (-c_{3,1}^{ci}) * c_{12,11}^{inv}$$

$$c_{120,12,3}^{mdl} = c_{3,0}^{ci} * c_{11,12}^{inv} + (-c_{3,1}^{ci}) * c_{12,12}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_4\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_5\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_6\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_7\rangle = c_{120,4,7}^{mdl} P_4$$

$$c_{120,4,7}^{mdl} = (-c_{7,7}^{ci}) * c_{4,4}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_8\rangle = c_{120,4,8}^{mdl} P_4$$

$$c_{120,4,8}^{mdl} = (-c_{8,7}^{ci}) * c_{4,4}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_9\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_{10}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_{11}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_{12}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_{13}\rangle = c_{120,15,13}^{mdl} P_{15}$$

$$c_{120,15,13}^{mdl} = c_{13,13}^{ci} * c_{15,15}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_{14}\rangle = c_{120,15,14}^{mdl} P_{15}$$

$$c_{120,15,14}^{mdl} = c_{14,13}^{ci} * c_{15,15}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{121} : \langle P_p | \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- | P_q \rangle = >$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_0\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_1\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_2\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_3\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_4\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_5\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_6\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_7\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_8\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_9\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_{10}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_{11}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_{12}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_{13}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_{14}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{122} : \langle P_p | \hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- | P_q \rangle = >$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- |P_0\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- |P_1\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- |P_2\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- |P_3\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- |P_4\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- |P_5\rangle = c_{122,11,5}^{mdl} P_{11} + c_{122,12,5}^{mdl} P_{12}$$

$$c_{122,11,5}^{mdl} = (-c_{5,5}^{ci}) * c_{12,11}^{inv}$$

$$c_{122,12,5}^{mdl} = (-c_{5,5}^{ci}) * c_{12,12}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- |P_6\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- |P_7\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- |P_8\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- |P_9\rangle = c_{122,4,9}^{mdl} P_4$$

$$c_{122,4,9}^{mdl} = (-c_{9,9}^{ci}) * c_{4,4}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- |P_{10}\rangle = c_{122,4,10}^{mdl} P_4$$

$$c_{122,4,10}^{mdl} = (-c_{10,9}^{ci}) * c_{4,4}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- |P_{11}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- |P_{12}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- |P_{13}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- |P_{14}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{123} : \langle P_p | \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- | P_q \rangle =>$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_0\rangle = c_{123,7,0}^{mdl} P_7 + c_{123,8,0}^{mdl} P_8$$

$$c_{123,7,0}^{mdl} = (-c_{0,0}^{ci}) * c_{8,7}^{inv}$$

$$c_{123,8,0}^{mdl} = (-c_{0,0}^{ci}) * c_{8,8}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_1\rangle = c_{123,7,1}^{mdl} P_7 + c_{123,8,1}^{mdl} P_8$$

$$c_{123,7,1}^{mdl} = (-c_{1,0}^{ci}) * c_{8,7}^{inv}$$

$$c_{123,8,1}^{mdl} = (-c_{1,0}^{ci}) * c_{8,8}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_2\rangle = c_{123,7,2}^{mdl} P_7 + c_{123,8,2}^{mdl} P_8$$

$$c_{123,7,2}^{mdl} = (-c_{2,0}^{ci}) * c_{8,7}^{inv}$$

$$c_{123,8,2}^{mdl} = (-c_{2,0}^{ci}) * c_{8,8}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_3\rangle = c_{123,7,3}^{mdl} P_7 + c_{123,8,3}^{mdl} P_8$$

$$c_{123,7,3}^{mdl} = (-c_{3,0}^{ci}) * c_{8,7}^{inv}$$

$$c_{123,8,3}^{mdl} = (-c_{3,0}^{ci}) * c_{8,8}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_4\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_5\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_6\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_7\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_8\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_9\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_{10}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_{11}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_{12}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_{13}\rangle = c_{123,0,13}^{mdl} P_0 + c_{123,1,13}^{mdl} P_1 + c_{123,2,13}^{mdl} P_2 + c_{123,3,13}^{mdl} P_3$$

$$c_{123,0,13}^{mdl} = (-c_{13,13}^{ci}) * c_{3,0}^{inv}$$

$$c_{123,1,13}^{mdl} = (-c_{13,13}^{ci}) * c_{3,1}^{inv}$$

$$c_{123,2,13}^{mdl} = (-c_{13,13}^{ci}) * c_{3,2}^{inv}$$

$$c_{123,3,13}^{mdl} = (-c_{13,13}^{ci}) * c_{3,3}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_{14}\rangle = c_{123,0,14}^{mdl} P_0 + c_{123,1,14}^{mdl} P_1 + c_{123,2,14}^{mdl} P_2 + c_{123,3,14}^{mdl} P_3$$

$$c_{123,0,14}^{mdl} = (-c_{14,13}^{ci}) * c_{3,0}^{inv}$$

$$c_{123,1,14}^{mdl} = (-c_{14,13}^{ci}) * c_{3,1}^{inv}$$

$$c_{123,2,14}^{mdl} = (-c_{14,13}^{ci}) * c_{3,2}^{inv}$$

$$c_{123,3,14}^{mdl} = (-c_{14,13}^{ci}) * c_{3,3}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{124} : \langle P_p | \hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- | P_q \rangle =>$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- |P_0\rangle = c_{124,11,0}^{mdl} P_{11} + c_{124,12,0}^{mdl} P_{12}$$

$$c_{124,11,0}^{mdl} = (-c_{0,2}^{ci}) * c_{11,11}^{inv} + (-c_{0,3}^{ci}) * c_{12,11}^{inv}$$

$$c_{124,12,0}^{mdl} = (-c_{0,2}^{ci}) * c_{11,12}^{inv} + (-c_{0,3}^{ci}) * c_{12,12}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- |P_1\rangle = c_{124,11,1}^{mdl} P_{11} + c_{124,12,1}^{mdl} P_{12}$$

$$c_{124,11,1}^{mdl} = (-c_{1,2}^{ci}) * c_{11,11}^{inv} + (-c_{1,3}^{ci}) * c_{12,11}^{inv}$$

$$c_{124,12,1}^{mdl} = (-c_{1,2}^{ci}) * c_{11,12}^{inv} + (-c_{1,3}^{ci}) * c_{12,12}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- |P_2\rangle = c_{124,11,2}^{mdl} P_{11} + c_{124,12,2}^{mdl} P_{12}$$

$$c_{124,11,2}^{mdl} = (-c_{2,2}^{ci}) * c_{11,11}^{inv} + (-c_{2,3}^{ci}) * c_{12,11}^{inv}$$

$$c_{124,12,2}^{mdl} = (-c_{2,2}^{ci}) * c_{11,12}^{inv} + (-c_{2,3}^{ci}) * c_{12,12}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- |P_3\rangle = c_{124,11,3}^{mdl} P_{11} + c_{124,12,3}^{mdl} P_{12}$$

$$c_{124,11,3}^{mdl} = (-c_{3,2}^{ci}) * c_{11,11}^{inv} + (-c_{3,3}^{ci}) * c_{12,11}^{inv}$$

$$c_{124,12,3}^{mdl} = (-c_{3,2}^{ci}) * c_{11,12}^{inv} + (-c_{3,3}^{ci}) * c_{12,12}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- |P_4\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- |P_5\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- |P_6\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- |P_7\rangle = c_{124,4,7}^{mdl} P_4$$

$$c_{124,4,7}^{mdl} = (-c_{7,8}^{ci}) * c_{4,4}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- |P_8\rangle = c_{124,4,8}^{mdl} P_4$$

$$c_{124,4,8}^{mdl} = (-c_{8,8}^{ci}) * c_{4,4}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- |P_9\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- |P_{10}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- |P_{11}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- |P_{12}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- |P_{13}\rangle = c_{124,15,13}^{mdl} P_{15}$$

$$c_{124,15,13}^{mdl} = (-c_{13,14}^{ci}) * c_{15,15}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- |P_{14}\rangle = c_{124,15,14}^{mdl} P_{15}$$

$$c_{124,15,14}^{mdl} = (-c_{14,14}^{ci}) * c_{15,15}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{125} : \langle P_p | \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- | P_q \rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_0\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_1\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_2\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_3\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_4\rangle = c_{125,7,4}^{mdl} P_7 + c_{125,8,4}^{mdl} P_8$$

$$c_{125,7,4}^{mdl} = (-c_{4,4}^{ci}) * c_{8,7}^{inv}$$

$$c_{125,8,4}^{mdl} = (-c_{4,4}^{ci}) * c_{8,8}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_5\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_6\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_7\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_8\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_9\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_{10}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_{11}\rangle = c_{125,0,11}^{mdl} P_0 + c_{125,1,11}^{mdl} P_1 + c_{125,2,11}^{mdl} P_2 + c_{125,3,11}^{mdl} P_3$$

$$c_{125,0,11}^{mdl} = (-c_{11,11}^{ci}) * c_{2,0}^{inv} + (-c_{11,12}^{ci}) * c_{3,0}^{inv}$$

$$c_{125,1,11}^{mdl} = (-c_{11,11}^{ci}) * c_{2,1}^{inv} + (-c_{11,12}^{ci}) * c_{3,1}^{inv}$$

$$c_{125,2,11}^{mdl} = (-c_{11,11}^{ci}) * c_{2,2}^{inv} + (-c_{11,12}^{ci}) * c_{3,2}^{inv}$$

$$\begin{aligned}
c_{125,3,11}^{mdl} &= (-c_{11,11}^{ci}) * c_{2,3}^{inv} + (-c_{11,12}^{ci}) * c_{3,3}^{inv} \\
\hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_{12}\rangle &= c_{125,0,12}^{mdl} P_0 + c_{125,1,12}^{mdl} P_1 + c_{125,2,12}^{mdl} P_2 + c_{125,3,12}^{mdl} P_3 \\
c_{125,0,12}^{mdl} &= (-c_{12,11}^{ci}) * c_{2,0}^{inv} + (-c_{12,12}^{ci}) * c_{3,0}^{inv} \\
c_{125,1,12}^{mdl} &= (-c_{12,11}^{ci}) * c_{2,1}^{inv} + (-c_{12,12}^{ci}) * c_{3,1}^{inv} \\
c_{125,2,12}^{mdl} &= (-c_{12,11}^{ci}) * c_{2,2}^{inv} + (-c_{12,12}^{ci}) * c_{3,2}^{inv} \\
c_{125,3,12}^{mdl} &= (-c_{12,11}^{ci}) * c_{2,3}^{inv} + (-c_{12,12}^{ci}) * c_{3,3}^{inv} \\
\hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_{13}\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_{14}\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_{15}\rangle &= c_{125,13,15}^{mdl} P_{13} + c_{125,14,15}^{mdl} P_{14} \\
c_{125,13,15}^{mdl} &= (-c_{15,15}^{ci}) * c_{14,13}^{inv} \\
c_{125,14,15}^{mdl} &= (-c_{15,15}^{ci}) * c_{14,14}^{inv}
\end{aligned}$$

$$\begin{aligned}
\hat{O}_{126} : \langle P_p | \hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- | P_q \rangle &=> \\
\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- |P_0\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- |P_1\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- |P_2\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- |P_3\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- |P_4\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- |P_5\rangle &= c_{126,11,5}^{mdl} P_{11} + c_{126,12,5}^{mdl} P_{12} \\
c_{126,11,5}^{mdl} &= (-c_{5,5}^{ci}) * c_{11,11}^{inv} \\
c_{126,12,5}^{mdl} &= (-c_{5,5}^{ci}) * c_{11,12}^{inv} \\
\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- |P_6\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- |P_7\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- |P_8\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- |P_9\rangle &= c_{126,4,9}^{mdl} P_4 \\
c_{126,4,9}^{mdl} &= (-c_{9,10}^{ci}) * c_{4,4}^{inv} \\
\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- |P_{10}\rangle &= c_{126,4,10}^{mdl} P_4 \\
c_{126,4,10}^{mdl} &= (-c_{10,10}^{ci}) * c_{4,4}^{inv} \\
\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- |P_{11}\rangle &=
\end{aligned}$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- |P_{12}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- |P_{13}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- |P_{14}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{127} : \langle P_p | \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- | P_q \rangle = >$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_0\rangle = c_{127,7,0}^{mdl} P_7 + c_{127,8,0}^{mdl} P_8$$

$$c_{127,7,0}^{mdl} = (-c_{0,1}^{ci}) * c_{8,7}^{inv}$$

$$c_{127,8,0}^{mdl} = (-c_{0,1}^{ci}) * c_{8,8}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_1\rangle = c_{127,7,1}^{mdl} P_7 + c_{127,8,1}^{mdl} P_8$$

$$c_{127,7,1}^{mdl} = (-c_{1,1}^{ci}) * c_{8,7}^{inv}$$

$$c_{127,8,1}^{mdl} = (-c_{1,1}^{ci}) * c_{8,8}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_2\rangle = c_{127,7,2}^{mdl} P_7 + c_{127,8,2}^{mdl} P_8$$

$$c_{127,7,2}^{mdl} = (-c_{2,1}^{ci}) * c_{8,7}^{inv}$$

$$c_{127,8,2}^{mdl} = (-c_{2,1}^{ci}) * c_{8,8}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_3\rangle = c_{127,7,3}^{mdl} P_7 + c_{127,8,3}^{mdl} P_8$$

$$c_{127,7,3}^{mdl} = (-c_{3,1}^{ci}) * c_{8,7}^{inv}$$

$$c_{127,8,3}^{mdl} = (-c_{3,1}^{ci}) * c_{8,8}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_4\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_5\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_6\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_7\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_8\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_9\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{10}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{11}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{12}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{13}\rangle = c_{127,0,13}^{mdl} P_0 + c_{127,1,13}^{mdl} P_1 + c_{127,2,13}^{mdl} P_2 + c_{127,3,13}^{mdl} P_3$$

$$c_{127,0,13}^{mdl} = (-c_{13,13}^{ci}) * c_{2,0}^{inv}$$

$$c_{127,1,13}^{mdl} = (-c_{13,13}^{ci}) * c_{2,1}^{inv}$$

$$c_{127,2,13}^{mdl} = (-c_{13,13}^{ci}) * c_{2,2}^{inv}$$

$$c_{127,3,13}^{mdl} = (-c_{13,13}^{ci}) * c_{2,3}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{14}\rangle = c_{127,0,14}^{mdl} P_0 + c_{127,1,14}^{mdl} P_1 + c_{127,2,14}^{mdl} P_2 + c_{127,3,14}^{mdl} P_3$$

$$c_{127,0,14}^{mdl} = (-c_{14,13}^{ci}) * c_{2,0}^{inv}$$

$$c_{127,1,14}^{mdl} = (-c_{14,13}^{ci}) * c_{2,1}^{inv}$$

$$c_{127,2,14}^{mdl} = (-c_{14,13}^{ci}) * c_{2,2}^{inv}$$

$$c_{127,3,14}^{mdl} = (-c_{14,13}^{ci}) * c_{2,3}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{128} : \langle P_p | \hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- | P_q \rangle = >$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- |P_0\rangle = c_{128,13,0}^{mdl} P_{13} + c_{128,14,0}^{mdl} P_{14}$$

$$c_{128,13,0}^{mdl} = (-c_{0,1}^{ci}) * c_{14,13}^{inv}$$

$$c_{128,14,0}^{mdl} = (-c_{0,1}^{ci}) * c_{14,14}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- |P_1\rangle = c_{128,13,1}^{mdl} P_{13} + c_{128,14,1}^{mdl} P_{14}$$

$$c_{128,13,1}^{mdl} = (-c_{1,1}^{ci}) * c_{14,13}^{inv}$$

$$c_{128,14,1}^{mdl} = (-c_{1,1}^{ci}) * c_{14,14}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- |P_2\rangle = c_{128,13,2}^{mdl} P_{13} + c_{128,14,2}^{mdl} P_{14}$$

$$c_{128,13,2}^{mdl} = (-c_{2,1}^{ci}) * c_{14,13}^{inv}$$

$$c_{128,14,2}^{mdl} = (-c_{2,1}^{ci}) * c_{14,14}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- |P_3\rangle = c_{128,13,3}^{mdl} P_{13} + c_{128,14,3}^{mdl} P_{14}$$

$$c_{128,13,3}^{mdl} = (-c_{3,1}^{ci}) * c_{14,13}^{inv}$$

$$c_{128,14,3}^{mdl} = (-c_{3,1}^{ci}) * c_{14,14}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- |P_4\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- |P_5\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- |P_6\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- |P_7\rangle = c_{128,0,7}^{mdl} P_0 + c_{128,1,7}^{mdl} P_1 + c_{128,2,7}^{mdl} P_2 + c_{128,3,7}^{mdl} P_3$$

$$c_{128,0,7}^{mdl} = (-c_{7,7}^{ci}) * c_{2,0}^{inv}$$

$$c_{128,1,7}^{mdl} = (-c_{7,7}^{ci}) * c_{2,1}^{inv}$$

$$c_{128,2,7}^{mdl} = (-c_{7,7}^{ci}) * c_{2,2}^{inv}$$

$$c_{128,3,7}^{mdl} = (-c_{7,7}^{ci}) * c_{2,3}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- |P_8\rangle = c_{128,0,8}^{mdl} P_0 + c_{128,1,8}^{mdl} P_1 + c_{128,2,8}^{mdl} P_2 + c_{128,3,8}^{mdl} P_3$$

$$c_{128,0,8}^{mdl} = (-c_{8,7}^{ci}) * c_{2,0}^{inv}$$

$$c_{128,1,8}^{mdl} = (-c_{8,7}^{ci}) * c_{2,1}^{inv}$$

$$c_{128,2,8}^{mdl} = (-c_{8,7}^{ci}) * c_{2,2}^{inv}$$

$$c_{128,3,8}^{mdl} = (-c_{8,7}^{ci}) * c_{2,3}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- |P_9\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- |P_{10}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- |P_{11}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- |P_{12}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- |P_{13}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- |P_{14}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{129} : \langle P_p | \hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- | P_q \rangle = >$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- |P_0\rangle = c_{129,7,0}^{mdl} P_7 + c_{129,8,0}^{mdl} P_8$$

$$c_{129,7,0}^{mdl} = c_{0,0}^{ci} * c_{8,7}^{inv}$$

$$c_{129,8,0}^{mdl} = c_{0,0}^{ci} * c_{8,8}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- |P_1\rangle = c_{129,7,1}^{mdl} P_7 + c_{129,8,1}^{mdl} P_8$$

$$c_{129,7,1}^{mdl} = c_{1,0}^{ci} * c_{8,7}^{inv}$$

$$c_{129,8,1}^{mdl} = c_{1,0}^{ci} * c_{8,8}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- |P_2\rangle = c_{129,7,2}^{mdl} P_7 + c_{129,8,2}^{mdl} P_8$$

$$c_{129,7,2}^{mdl} = c_{2,0}^{ci} * c_{8,7}^{inv}$$

$$c_{129,8,2}^{mdl} = c_{2,0}^{ci} * c_{8,8}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- |P_3\rangle = c_{129,7,3}^{mdl} P_7 + c_{129,8,3}^{mdl} P_8$$

$$c_{129,7,3}^{mdl} = c_{3,0}^{ci} * c_{8,7}^{inv}$$

$$c_{129,8,3}^{mdl} = c_{3,0}^{ci} * c_{8,8}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- |P_4\rangle =$$

$$\begin{aligned}
\hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_5\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_6\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_7\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_8\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_9\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{10}\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{11}\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{12}\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{13}\rangle &= c_{129,0,13}^{mdl} P_0 + c_{129,1,13}^{mdl} P_1 + c_{129,2,13}^{mdl} P_2 + c_{129,3,13}^{mdl} P_3 \\
c_{129,0,13}^{mdl} &= c_{13,13}^{ci} * c_{3,0}^{inv} \\
c_{129,1,13}^{mdl} &= c_{13,13}^{ci} * c_{3,1}^{inv} \\
c_{129,2,13}^{mdl} &= c_{13,13}^{ci} * c_{3,2}^{inv} \\
c_{129,3,13}^{mdl} &= c_{13,13}^{ci} * c_{3,3}^{inv} \\
\hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{14}\rangle &= c_{129,0,14}^{mdl} P_0 + c_{129,1,14}^{mdl} P_1 + c_{129,2,14}^{mdl} P_2 + c_{129,3,14}^{mdl} P_3 \\
c_{129,0,14}^{mdl} &= c_{14,13}^{ci} * c_{3,0}^{inv} \\
c_{129,1,14}^{mdl} &= c_{14,13}^{ci} * c_{3,1}^{inv} \\
c_{129,2,14}^{mdl} &= c_{14,13}^{ci} * c_{3,2}^{inv} \\
c_{129,3,14}^{mdl} &= c_{14,13}^{ci} * c_{3,3}^{inv} \\
\hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{15}\rangle &=
\end{aligned}$$

$$\begin{aligned}
\hat{O}_{130} : \langle P_p | \hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- | P_q \rangle &= > \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- | P_0 \rangle &= c_{130,11,0}^{mdl} P_{11} + c_{130,12,0}^{mdl} P_{12} \\
c_{130,11,0}^{mdl} &= (-(-c_{0,0}^{ci})) * c_{11,11}^{inv} \\
c_{130,12,0}^{mdl} &= (-(-c_{0,0}^{ci})) * c_{11,12}^{inv} \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- | P_1 \rangle &= c_{130,11,1}^{mdl} P_{11} + c_{130,12,1}^{mdl} P_{12} \\
c_{130,11,1}^{mdl} &= (-(-c_{1,0}^{ci})) * c_{11,11}^{inv} \\
c_{130,12,1}^{mdl} &= (-(-c_{1,0}^{ci})) * c_{11,12}^{inv} \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- | P_2 \rangle &= c_{130,11,2}^{mdl} P_{11} + c_{130,12,2}^{mdl} P_{12} \\
c_{130,11,2}^{mdl} &= (-(-c_{2,0}^{ci})) * c_{11,11}^{inv}
\end{aligned}$$

$$\begin{aligned}
c_{130,12,2}^{mdl} &= (-(-c_{2,0}^{ci})) * c_{11,12}^{inv} \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- |P_3\rangle &= c_{130,11,3}^{mdl} P_{11} + c_{130,12,3}^{mdl} P_{12} \\
c_{130,11,3}^{mdl} &= (-(-c_{3,0}^{ci})) * c_{11,11}^{inv} \\
c_{130,12,3}^{mdl} &= (-(-c_{3,0}^{ci})) * c_{11,12}^{inv} \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- |P_4\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- |P_5\rangle &= c_{130,13,5}^{mdl} P_{13} + c_{130,14,5}^{mdl} P_{14} \\
c_{130,13,5}^{mdl} &= (-c_{5,5}^{ci}) * c_{14,13}^{inv} \\
c_{130,14,5}^{mdl} &= (-c_{5,5}^{ci}) * c_{14,14}^{inv} \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- |P_6\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- |P_7\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- |P_8\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- |P_9\rangle &= c_{130,0,9}^{mdl} P_0 + c_{130,1,9}^{mdl} P_1 + c_{130,2,9}^{mdl} P_2 + c_{130,3,9}^{mdl} P_3 \\
c_{130,0,9}^{mdl} &= (-c_{9,9}^{ci}) * c_{2,0}^{inv} \\
c_{130,1,9}^{mdl} &= (-c_{9,9}^{ci}) * c_{2,1}^{inv} \\
c_{130,2,9}^{mdl} &= (-c_{9,9}^{ci}) * c_{2,2}^{inv} \\
c_{130,3,9}^{mdl} &= (-c_{9,9}^{ci}) * c_{2,3}^{inv} \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- |P_{10}\rangle &= c_{130,0,10}^{mdl} P_0 + c_{130,1,10}^{mdl} P_1 + c_{130,2,10}^{mdl} P_2 + c_{130,3,10}^{mdl} P_3 \\
c_{130,0,10}^{mdl} &= (-c_{10,9}^{ci}) * c_{2,0}^{inv} \\
c_{130,1,10}^{mdl} &= (-c_{10,9}^{ci}) * c_{2,1}^{inv} \\
c_{130,2,10}^{mdl} &= (-c_{10,9}^{ci}) * c_{2,2}^{inv} \\
c_{130,3,10}^{mdl} &= (-c_{10,9}^{ci}) * c_{2,3}^{inv} \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- |P_{11}\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- |P_{12}\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- |P_{13}\rangle &= c_{130,15,13}^{mdl} P_{15} \\
c_{130,15,13}^{mdl} &= (-(-c_{13,13}^{ci})) * c_{15,15}^{inv} \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- |P_{14}\rangle &= c_{130,15,14}^{mdl} P_{15} \\
c_{130,15,14}^{mdl} &= (-(-c_{14,13}^{ci})) * c_{15,15}^{inv} \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- |P_{15}\rangle &=
\end{aligned}$$

$$\hat{O}_{131} : \langle P_p | \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\beta^- | P_q \rangle = >$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\beta^- | P_0 \rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\beta^- | P_1 \rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\beta^- | P_2 \rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\beta^- | P_3 \rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\beta^- | P_4 \rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\beta^- | P_5 \rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\beta^- | P_6 \rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\beta^- | P_7 \rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\beta^- | P_8 \rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\beta^- | P_9 \rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\beta^- | P_{10} \rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\beta^- | P_{11} \rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\beta^- | P_{12} \rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\beta^- | P_{13} \rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\beta^- | P_{14} \rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\beta^- | P_{15} \rangle =$$

$$\hat{O}_{132} : \langle P_p | \hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- | P_q \rangle = >$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- | P_0 \rangle = c_{132,13,0}^{mdl} P_{13} + c_{132,14,0}^{mdl} P_{14}$$

$$c_{132,13,0}^{mdl} = (-c_{0,3}^{ci}) * c_{14,13}^{inv}$$

$$c_{132,14,0}^{mdl} = (-c_{0,3}^{ci}) * c_{14,14}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- | P_1 \rangle = c_{132,13,1}^{mdl} P_{13} + c_{132,14,1}^{mdl} P_{14}$$

$$c_{132,13,1}^{mdl} = (-c_{1,3}^{ci}) * c_{14,13}^{inv}$$

$$c_{132,14,1}^{mdl} = (-c_{1,3}^{ci}) * c_{14,14}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- | P_2 \rangle = c_{132,13,2}^{mdl} P_{13} + c_{132,14,2}^{mdl} P_{14}$$

$$c_{132,13,2}^{mdl} = (-c_{2,3}^{ci}) * c_{14,13}^{inv}$$

$$c_{132,14,2}^{mdl} = (-c_{2,3}^{ci}) * c_{14,14}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- | P_3 \rangle = c_{132,13,3}^{mdl} P_{13} + c_{132,14,3}^{mdl} P_{14}$$

$$c_{132,13,3}^{mdl} = (-c_{3,3}^{ci}) * c_{14,13}^{inv}$$

$$c_{132,14,3}^{mdl} = (-c_{3,3}^{ci}) * c_{14,14}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- |P_4\rangle = c_{132,11,4}^{mdl} P_{11} + c_{132,12,4}^{mdl} P_{12}$$

$$c_{132,11,4}^{mdl} = (-(-c_{4,4}^{ci})) * c_{11,11}^{inv}$$

$$c_{132,12,4}^{mdl} = (-(-c_{4,4}^{ci})) * c_{11,12}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- |P_5\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- |P_6\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- |P_7\rangle = c_{132,0,7}^{mdl} P_0 + c_{132,1,7}^{mdl} P_1 + c_{132,2,7}^{mdl} P_2 + c_{132,3,7}^{mdl} P_3$$

$$c_{132,0,7}^{mdl} = (-c_{7,8}^{ci}) * c_{2,0}^{inv}$$

$$c_{132,1,7}^{mdl} = (-c_{7,8}^{ci}) * c_{2,1}^{inv}$$

$$c_{132,2,7}^{mdl} = (-c_{7,8}^{ci}) * c_{2,2}^{inv}$$

$$c_{132,3,7}^{mdl} = (-c_{7,8}^{ci}) * c_{2,3}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- |P_8\rangle = c_{132,0,8}^{mdl} P_0 + c_{132,1,8}^{mdl} P_1 + c_{132,2,8}^{mdl} P_2 + c_{132,3,8}^{mdl} P_3$$

$$c_{132,0,8}^{mdl} = (-c_{8,8}^{ci}) * c_{2,0}^{inv}$$

$$c_{132,1,8}^{mdl} = (-c_{8,8}^{ci}) * c_{2,1}^{inv}$$

$$c_{132,2,8}^{mdl} = (-c_{8,8}^{ci}) * c_{2,2}^{inv}$$

$$c_{132,3,8}^{mdl} = (-c_{8,8}^{ci}) * c_{2,3}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- |P_9\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- |P_{10}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- |P_{11}\rangle = c_{132,15,11}^{mdl} P_{15}$$

$$c_{132,15,11}^{mdl} = (-(-c_{11,12}^{ci})) * c_{15,15}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- |P_{12}\rangle = c_{132,15,12}^{mdl} P_{15}$$

$$c_{132,15,12}^{mdl} = (-(-c_{12,12}^{ci})) * c_{15,15}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- |P_{13}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- |P_{14}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{133} : \langle P_p | \hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- | P_q \rangle = \rangle$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- |P_0\rangle = c_{133,7,0}^{mdl} P_7 + c_{133,8,0}^{mdl} P_8$$

$$\begin{aligned}
c_{133,7,0}^{mdl} &= (-c_{0,2}^{ci}) * c_{8,7}^{inv} \\
c_{133,8,0}^{mdl} &= (-c_{0,2}^{ci}) * c_{8,8}^{inv} \\
\hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_1\rangle &= c_{133,7,1}^{mdl} P_7 + c_{133,8,1}^{mdl} P_8 \\
c_{133,7,1}^{mdl} &= (-c_{1,2}^{ci}) * c_{8,7}^{inv} \\
c_{133,8,1}^{mdl} &= (-c_{1,2}^{ci}) * c_{8,8}^{inv} \\
\hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_2\rangle &= c_{133,7,2}^{mdl} P_7 + c_{133,8,2}^{mdl} P_8 \\
c_{133,7,2}^{mdl} &= (-c_{2,2}^{ci}) * c_{8,7}^{inv} \\
c_{133,8,2}^{mdl} &= (-c_{2,2}^{ci}) * c_{8,8}^{inv} \\
\hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_3\rangle &= c_{133,7,3}^{mdl} P_7 + c_{133,8,3}^{mdl} P_8 \\
c_{133,7,3}^{mdl} &= (-c_{3,2}^{ci}) * c_{8,7}^{inv} \\
c_{133,8,3}^{mdl} &= (-c_{3,2}^{ci}) * c_{8,8}^{inv} \\
\hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_4\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_5\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_6\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_7\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_8\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_9\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_{10}\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_{11}\rangle &= c_{133,4,11}^{mdl} P_4 \\
c_{133,4,11}^{mdl} &= (-(-c_{11,11}^{ci})) * c_{4,4}^{inv} \\
\hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_{12}\rangle &= c_{133,4,12}^{mdl} P_4 \\
c_{133,4,12}^{mdl} &= (-(-c_{12,11}^{ci})) * c_{4,4}^{inv} \\
\hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_{13}\rangle &= c_{133,0,13}^{mdl} P_0 + c_{133,1,13}^{mdl} P_1 + c_{133,2,13}^{mdl} P_2 + c_{133,3,13}^{mdl} P_3 \\
c_{133,0,13}^{mdl} &= (-c_{13,14}^{ci}) * c_{3,0}^{inv} \\
c_{133,1,13}^{mdl} &= (-c_{13,14}^{ci}) * c_{3,1}^{inv} \\
c_{133,2,13}^{mdl} &= (-c_{13,14}^{ci}) * c_{3,2}^{inv} \\
c_{133,3,13}^{mdl} &= (-c_{13,14}^{ci}) * c_{3,3}^{inv} \\
\hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_{14}\rangle &= c_{133,0,14}^{mdl} P_0 + c_{133,1,14}^{mdl} P_1 + c_{133,2,14}^{mdl} P_2 + c_{133,3,14}^{mdl} P_3 \\
c_{133,0,14}^{mdl} &= (-c_{14,14}^{ci}) * c_{3,0}^{inv}
\end{aligned}$$

$$c_{133,1,14}^{mdl} = (-c_{14,14}^{ci}) * c_{3,1}^{inv}$$

$$c_{133,2,14}^{mdl} = (-c_{14,14}^{ci}) * c_{3,2}^{inv}$$

$$c_{133,3,14}^{mdl} = (-c_{14,14}^{ci}) * c_{3,3}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_{15}\rangle = c_{133,11,15}^{mdl} P_{11} + c_{133,12,15}^{mdl} P_{12}$$

$$c_{133,11,15}^{mdl} = (-(-c_{15,15}^{ci})) * c_{12,11}^{inv}$$

$$c_{133,12,15}^{mdl} = (-(-c_{15,15}^{ci})) * c_{12,12}^{inv}$$

$$\hat{O}_{134} : \langle P_p | \hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- | P_q \rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_0\rangle = c_{134,11,0}^{mdl} P_{11} + c_{134,12,0}^{mdl} P_{12}$$

$$c_{134,11,0}^{mdl} = (-(-c_{0,1}^{ci})) * c_{11,11}^{inv}$$

$$c_{134,12,0}^{mdl} = (-(-c_{0,1}^{ci})) * c_{11,12}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_1\rangle = c_{134,11,1}^{mdl} P_{11} + c_{134,12,1}^{mdl} P_{12}$$

$$c_{134,11,1}^{mdl} = (-(-c_{1,1}^{ci})) * c_{11,11}^{inv}$$

$$c_{134,12,1}^{mdl} = (-(-c_{1,1}^{ci})) * c_{11,12}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_2\rangle = c_{134,11,2}^{mdl} P_{11} + c_{134,12,2}^{mdl} P_{12}$$

$$c_{134,11,2}^{mdl} = (-(-c_{2,1}^{ci})) * c_{11,11}^{inv}$$

$$c_{134,12,2}^{mdl} = (-(-c_{2,1}^{ci})) * c_{11,12}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_3\rangle = c_{134,11,3}^{mdl} P_{11} + c_{134,12,3}^{mdl} P_{12}$$

$$c_{134,11,3}^{mdl} = (-(-c_{3,1}^{ci})) * c_{11,11}^{inv}$$

$$c_{134,12,3}^{mdl} = (-(-c_{3,1}^{ci})) * c_{11,12}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_4\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_5\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_6\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_7\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_8\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_9\rangle = c_{134,0,9}^{mdl} P_0 + c_{134,1,9}^{mdl} P_1 + c_{134,2,9}^{mdl} P_2 + c_{134,3,9}^{mdl} P_3$$

$$c_{134,0,9}^{mdl} = (-c_{9,10}^{ci}) * c_{2,0}^{inv}$$

$$c_{134,1,9}^{mdl} = (-c_{9,10}^{ci}) * c_{2,1}^{inv}$$

$$c_{134,2,9}^{mdl} = (-c_{9,10}^{ci}) * c_{2,2}^{inv}$$

$$c_{134,3,9}^{mdl} = (-c_{9,10}^{ci}) * c_{2,3}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_{10}\rangle = c_{134,0,10}^{mdl} P_0 + c_{134,1,10}^{mdl} P_1 + c_{134,2,10}^{mdl} P_2 + c_{134,3,10}^{mdl} P_3$$

$$c_{134,0,10}^{mdl} = (-c_{10,10}^{ci}) * c_{2,0}^{inv}$$

$$c_{134,1,10}^{mdl} = (-c_{10,10}^{ci}) * c_{2,1}^{inv}$$

$$c_{134,2,10}^{mdl} = (-c_{10,10}^{ci}) * c_{2,2}^{inv}$$

$$c_{134,3,10}^{mdl} = (-c_{10,10}^{ci}) * c_{2,3}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_{11}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_{12}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_{13}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_{14}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{135} : \langle P_p | \hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- | P_q \rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_0\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_1\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_2\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_3\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_4\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_5\rangle = c_{135,7,5}^{mdl} P_7 + c_{135,8,5}^{mdl} P_8$$

$$c_{135,7,5}^{mdl} = (-c_{5,5}^{ci}) * c_{8,7}^{inv}$$

$$c_{135,8,5}^{mdl} = (-c_{5,5}^{ci}) * c_{8,8}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_6\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_7\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_8\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_9\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_{10}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_{11}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_{12}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_{13}\rangle = c_{135,4,13}^{mdl} P_4$$

$$c_{135,4,13}^{mdl} = (-(-c_{13,13}^{ci})) * c_{4,4}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_{14}\rangle = c_{135,4,14}^{mdl} P_4$$

$$c_{135,4,14}^{mdl} = (-(-c_{14,13}^{ci})) * c_{4,4}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{136} : \langle P_p | \hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- | P_q \rangle =>$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- |P_0\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- |P_1\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- |P_2\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- |P_3\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- |P_4\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- |P_5\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- |P_6\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- |P_7\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- |P_8\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- |P_9\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- |P_{10}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- |P_{11}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- |P_{12}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- |P_{13}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- |P_{14}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{137} : \langle P_p | \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- | P_q \rangle =>$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_0\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_1\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_2\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_3\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_4\rangle = c_{137,7,4}^{mdl} P_7 + c_{137,8,4}^{mdl} P_8$$

$$c_{137,7,4}^{mdl} = c_{4,4}^{ci} * c_{8,7}^{inv}$$

$$c_{137,8,4}^{mdl} = c_{4,4}^{ci} * c_{8,8}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_5\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_6\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_7\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_8\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_9\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_{10}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_{11}\rangle = c_{137,0,11}^{mdl} P_0 + c_{137,1,11}^{mdl} P_1 + c_{137,2,11}^{mdl} P_2 + c_{137,3,11}^{mdl} P_3$$

$$c_{137,0,11}^{mdl} = (-(-c_{11,11}^{ci})) * c_{2,0}^{inv} + c_{11,12}^{ci} * c_{3,0}^{inv}$$

$$c_{137,1,11}^{mdl} = (-(-c_{11,11}^{ci})) * c_{2,1}^{inv} + c_{11,12}^{ci} * c_{3,1}^{inv}$$

$$c_{137,2,11}^{mdl} = (-(-c_{11,11}^{ci})) * c_{2,2}^{inv} + c_{11,12}^{ci} * c_{3,2}^{inv}$$

$$c_{137,3,11}^{mdl} = (-(-c_{11,11}^{ci})) * c_{2,3}^{inv} + c_{11,12}^{ci} * c_{3,3}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_{12}\rangle = c_{137,0,12}^{mdl} P_0 + c_{137,1,12}^{mdl} P_1 + c_{137,2,12}^{mdl} P_2 + c_{137,3,12}^{mdl} P_3$$

$$c_{137,0,12}^{mdl} = (-(-c_{12,11}^{ci})) * c_{2,0}^{inv} + c_{12,12}^{ci} * c_{3,0}^{inv}$$

$$c_{137,1,12}^{mdl} = (-(-c_{12,11}^{ci})) * c_{2,1}^{inv} + c_{12,12}^{ci} * c_{3,1}^{inv}$$

$$c_{137,2,12}^{mdl} = (-(-c_{12,11}^{ci})) * c_{2,2}^{inv} + c_{12,12}^{ci} * c_{3,2}^{inv}$$

$$c_{137,3,12}^{mdl} = (-(-c_{12,11}^{ci})) * c_{2,3}^{inv} + c_{12,12}^{ci} * c_{3,3}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_{13}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_{14}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_{15}\rangle = c_{137,13,15}^{mdl} P_{13} + c_{137,14,15}^{mdl} P_{14}$$

$$c_{137,13,15}^{mdl} = (-(-c_{15,15}^{ci})) * c_{14,13}^{inv}$$

$$c_{137,14,15}^{mdl} = (-(-c_{15,15}^{ci})) * c_{14,14}^{inv}$$

$$\hat{O}_{138} : \langle P_p | \hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- | P_q \rangle = >$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- | P_0 \rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- | P_1 \rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- | P_2 \rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- | P_3 \rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- |P_4\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- |P_5\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- |P_6\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- |P_7\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- |P_8\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- |P_9\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- |P_{10}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- |P_{11}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- |P_{12}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- |P_{13}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- |P_{14}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{139} : \langle P_p | \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- | P_q \rangle = >$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_0\rangle = c_{139,7,0}^{mdl} P_7 + c_{139,8,0}^{mdl} P_8$$

$$c_{139,7,0}^{mdl} = c_{0,2}^{ci} * c_{8,7}^{inv}$$

$$c_{139,8,0}^{mdl} = c_{0,2}^{ci} * c_{8,8}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_1\rangle = c_{139,7,1}^{mdl} P_7 + c_{139,8,1}^{mdl} P_8$$

$$c_{139,7,1}^{mdl} = c_{1,2}^{ci} * c_{8,7}^{inv}$$

$$c_{139,8,1}^{mdl} = c_{1,2}^{ci} * c_{8,8}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_2\rangle = c_{139,7,2}^{mdl} P_7 + c_{139,8,2}^{mdl} P_8$$

$$c_{139,7,2}^{mdl} = c_{2,2}^{ci} * c_{8,7}^{inv}$$

$$c_{139,8,2}^{mdl} = c_{2,2}^{ci} * c_{8,8}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_3\rangle = c_{139,7,3}^{mdl} P_7 + c_{139,8,3}^{mdl} P_8$$

$$c_{139,7,3}^{mdl} = c_{3,2}^{ci} * c_{8,7}^{inv}$$

$$c_{139,8,3}^{mdl} = c_{3,2}^{ci} * c_{8,8}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_4\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_5\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_6\rangle =$$

$$\begin{aligned}
\hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_7\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_8\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_9\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_{10}\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_{11}\rangle &= c_{139,4,11}^{mdl} P_4 \\
c_{139,4,11}^{mdl} &= (-c_{11,11}^{ci}) * c_{4,4}^{inv} \\
\hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_{12}\rangle &= c_{139,4,12}^{mdl} P_4 \\
c_{139,4,12}^{mdl} &= (-c_{12,11}^{ci}) * c_{4,4}^{inv} \\
\hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_{13}\rangle &= c_{139,0,13}^{mdl} P_0 + c_{139,1,13}^{mdl} P_1 + c_{139,2,13}^{mdl} P_2 + c_{139,3,13}^{mdl} P_3 \\
c_{139,0,13}^{mdl} &= c_{13,14}^{ci} * c_{3,0}^{inv} \\
c_{139,1,13}^{mdl} &= c_{13,14}^{ci} * c_{3,1}^{inv} \\
c_{139,2,13}^{mdl} &= c_{13,14}^{ci} * c_{3,2}^{inv} \\
c_{139,3,13}^{mdl} &= c_{13,14}^{ci} * c_{3,3}^{inv} \\
\hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_{14}\rangle &= c_{139,0,14}^{mdl} P_0 + c_{139,1,14}^{mdl} P_1 + c_{139,2,14}^{mdl} P_2 + c_{139,3,14}^{mdl} P_3 \\
c_{139,0,14}^{mdl} &= c_{14,14}^{ci} * c_{3,0}^{inv} \\
c_{139,1,14}^{mdl} &= c_{14,14}^{ci} * c_{3,1}^{inv} \\
c_{139,2,14}^{mdl} &= c_{14,14}^{ci} * c_{3,2}^{inv} \\
c_{139,3,14}^{mdl} &= c_{14,14}^{ci} * c_{3,3}^{inv} \\
\hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_{15}\rangle &= c_{139,11,15}^{mdl} P_{11} + c_{139,12,15}^{mdl} P_{12} \\
c_{139,11,15}^{mdl} &= (-c_{15,15}^{ci}) * c_{12,11}^{inv} \\
c_{139,12,15}^{mdl} &= (-c_{15,15}^{ci}) * c_{12,12}^{inv}
\end{aligned}$$

$$\hat{O}_{140} : \langle P_p | \hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- | P_q \rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- | P_0 \rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- | P_1 \rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- | P_2 \rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- | P_3 \rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- | P_4 \rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- | P_5 \rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- |P_6\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- |P_7\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- |P_8\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- |P_9\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- |P_{10}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- |P_{11}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- |P_{12}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- |P_{13}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- |P_{14}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{141} : \langle P_p | \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- | P_q \rangle = >$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_0\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_1\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_2\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_3\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_4\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_5\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_6\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_7\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_8\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_9\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{10}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{11}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{12}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{13}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{14}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{142} : \langle P_p | \hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- | P_q \rangle =>$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- | P_0 \rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- | P_1 \rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- | P_2 \rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- | P_3 \rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- | P_4 \rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- | P_5 \rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- | P_6 \rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- | P_7 \rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- | P_8 \rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- | P_9 \rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- | P_{10} \rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- | P_{11} \rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- | P_{12} \rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- | P_{13} \rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- | P_{14} \rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- | P_{15} \rangle =$$

$$\hat{O}_{143} : \langle P_p | \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- | P_q \rangle =>$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- | P_0 \rangle = c_{143,7,0}^{mdl} P_7 + c_{143,8,0}^{mdl} P_8$$

$$c_{143,7,0}^{mdl} = (-c_{0,3}^{ci}) * c_{8,7}^{inv}$$

$$c_{143,8,0}^{mdl} = (-c_{0,3}^{ci}) * c_{8,8}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- | P_1 \rangle = c_{143,7,1}^{mdl} P_7 + c_{143,8,1}^{mdl} P_8$$

$$c_{143,7,1}^{mdl} = (-c_{1,3}^{ci}) * c_{8,7}^{inv}$$

$$c_{143,8,1}^{mdl} = (-c_{1,3}^{ci}) * c_{8,8}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- | P_2 \rangle = c_{143,7,2}^{mdl} P_7 + c_{143,8,2}^{mdl} P_8$$

$$c_{143,7,2}^{mdl} = (-c_{2,3}^{ci}) * c_{8,7}^{inv}$$

$$c_{143,8,2}^{mdl} = (-c_{2,3}^{ci}) * c_{8,8}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- | P_3 \rangle = c_{143,7,3}^{mdl} P_7 + c_{143,8,3}^{mdl} P_8$$

$$c_{143,7,3}^{mdl} = (-c_{3,3}^{ci}) * c_{8,7}^{inv}$$

$$c_{143,8,3}^{mdl} = (-c_{3,3}^{ci}) * c_{8,8}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_4\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_5\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_6\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_7\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_8\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_9\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_{10}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_{11}\rangle = c_{143,4,11}^{mdl} P_4$$

$$c_{143,4,11}^{mdl} = (-(-c_{11,12}^{ci})) * c_{4,4}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_{12}\rangle = c_{143,4,12}^{mdl} P_4$$

$$c_{143,4,12}^{mdl} = (-(-c_{12,12}^{ci})) * c_{4,4}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_{13}\rangle = c_{143,0,13}^{mdl} P_0 + c_{143,1,13}^{mdl} P_1 + c_{143,2,13}^{mdl} P_2 + c_{143,3,13}^{mdl} P_3$$

$$c_{143,0,13}^{mdl} = (-(-c_{13,14}^{ci})) * c_{2,0}^{inv}$$

$$c_{143,1,13}^{mdl} = (-(-c_{13,14}^{ci})) * c_{2,1}^{inv}$$

$$c_{143,2,13}^{mdl} = (-(-c_{13,14}^{ci})) * c_{2,2}^{inv}$$

$$c_{143,3,13}^{mdl} = (-(-c_{13,14}^{ci})) * c_{2,3}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_{14}\rangle = c_{143,0,14}^{mdl} P_0 + c_{143,1,14}^{mdl} P_1 + c_{143,2,14}^{mdl} P_2 + c_{143,3,14}^{mdl} P_3$$

$$c_{143,0,14}^{mdl} = (-(-c_{14,14}^{ci})) * c_{2,0}^{inv}$$

$$c_{143,1,14}^{mdl} = (-(-c_{14,14}^{ci})) * c_{2,1}^{inv}$$

$$c_{143,2,14}^{mdl} = (-(-c_{14,14}^{ci})) * c_{2,2}^{inv}$$

$$c_{143,3,14}^{mdl} = (-(-c_{14,14}^{ci})) * c_{2,3}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_{15}\rangle = c_{143,11,15}^{mdl} P_{11} + c_{143,12,15}^{mdl} P_{12}$$

$$c_{143,11,15}^{mdl} = (-c_{15,15}^{ci}) * c_{11,11}^{inv}$$

$$c_{143,12,15}^{mdl} = (-c_{15,15}^{ci}) * c_{11,12}^{inv}$$

$$\hat{O}_{144} : \langle P_p | \hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- | P_q \rangle = \rangle$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- | P_0 \rangle = c_{144,13,0}^{mdl} P_{13} + c_{144,14,0}^{mdl} P_{14}$$

$$\begin{aligned}
c_{144,13,0}^{mdl} &= c_{0,0}^{ci} * c_{14,13}^{inv} \\
c_{144,14,0}^{mdl} &= c_{0,0}^{ci} * c_{14,14}^{inv} \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- |P_1\rangle &= c_{144,13,1}^{mdl} P_{13} + c_{144,14,1}^{mdl} P_{14} \\
c_{144,13,1}^{mdl} &= c_{1,0}^{ci} * c_{14,13}^{inv} \\
c_{144,14,1}^{mdl} &= c_{1,0}^{ci} * c_{14,14}^{inv} \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- |P_2\rangle &= c_{144,13,2}^{mdl} P_{13} + c_{144,14,2}^{mdl} P_{14} \\
c_{144,13,2}^{mdl} &= c_{2,0}^{ci} * c_{14,13}^{inv} \\
c_{144,14,2}^{mdl} &= c_{2,0}^{ci} * c_{14,14}^{inv} \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- |P_3\rangle &= c_{144,13,3}^{mdl} P_{13} + c_{144,14,3}^{mdl} P_{14} \\
c_{144,13,3}^{mdl} &= c_{3,0}^{ci} * c_{14,13}^{inv} \\
c_{144,14,3}^{mdl} &= c_{3,0}^{ci} * c_{14,14}^{inv} \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- |P_4\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- |P_5\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- |P_6\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- |P_7\rangle &= c_{144,0,7}^{mdl} P_0 + c_{144,1,7}^{mdl} P_1 + c_{144,2,7}^{mdl} P_2 + c_{144,3,7}^{mdl} P_3 \\
c_{144,0,7}^{mdl} &= c_{7,7}^{ci} * c_{3,0}^{inv} \\
c_{144,1,7}^{mdl} &= c_{7,7}^{ci} * c_{3,1}^{inv} \\
c_{144,2,7}^{mdl} &= c_{7,7}^{ci} * c_{3,2}^{inv} \\
c_{144,3,7}^{mdl} &= c_{7,7}^{ci} * c_{3,3}^{inv} \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- |P_8\rangle &= c_{144,0,8}^{mdl} P_0 + c_{144,1,8}^{mdl} P_1 + c_{144,2,8}^{mdl} P_2 + c_{144,3,8}^{mdl} P_3 \\
c_{144,0,8}^{mdl} &= c_{8,7}^{ci} * c_{3,0}^{inv} \\
c_{144,1,8}^{mdl} &= c_{8,7}^{ci} * c_{3,1}^{inv} \\
c_{144,2,8}^{mdl} &= c_{8,7}^{ci} * c_{3,2}^{inv} \\
c_{144,3,8}^{mdl} &= c_{8,7}^{ci} * c_{3,3}^{inv} \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- |P_9\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- |P_{10}\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- |P_{11}\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- |P_{12}\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- |P_{13}\rangle &=
\end{aligned}$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- |P_{14}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{145} : \langle P_p | \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- | P_q \rangle = >$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_0\rangle = c_{145,7,0}^{mdl} P_7 + c_{145,8,0}^{mdl} P_8$$

$$c_{145,7,0}^{mdl} = c_{0,1}^{ci} * c_{8,7}^{inv}$$

$$c_{145,8,0}^{mdl} = c_{0,1}^{ci} * c_{8,8}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_1\rangle = c_{145,7,1}^{mdl} P_7 + c_{145,8,1}^{mdl} P_8$$

$$c_{145,7,1}^{mdl} = c_{1,1}^{ci} * c_{8,7}^{inv}$$

$$c_{145,8,1}^{mdl} = c_{1,1}^{ci} * c_{8,8}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_2\rangle = c_{145,7,2}^{mdl} P_7 + c_{145,8,2}^{mdl} P_8$$

$$c_{145,7,2}^{mdl} = c_{2,1}^{ci} * c_{8,7}^{inv}$$

$$c_{145,8,2}^{mdl} = c_{2,1}^{ci} * c_{8,8}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_3\rangle = c_{145,7,3}^{mdl} P_7 + c_{145,8,3}^{mdl} P_8$$

$$c_{145,7,3}^{mdl} = c_{3,1}^{ci} * c_{8,7}^{inv}$$

$$c_{145,8,3}^{mdl} = c_{3,1}^{ci} * c_{8,8}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_4\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_5\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_6\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_7\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_8\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_9\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{10}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{11}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{12}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{13}\rangle = c_{145,0,13}^{mdl} P_0 + c_{145,1,13}^{mdl} P_1 + c_{145,2,13}^{mdl} P_2 + c_{145,3,13}^{mdl} P_3$$

$$c_{145,0,13}^{mdl} = (-(-c_{13,13}^{ci})) * c_{2,0}^{inv}$$

$$c_{145,1,13}^{mdl} = (-(-c_{13,13}^{ci})) * c_{2,1}^{inv}$$

$$c_{145,2,13}^{mdl} = (-(-c_{13,13}^{ci})) * c_{2,2}^{inv}$$

$$\begin{aligned}
c_{145,3,13}^{mdl} &= (-(-c_{13,13}^{ci})) * c_{2,3}^{inv} \\
\hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{14}\rangle &= c_{145,0,14}^{mdl} P_0 + c_{145,1,14}^{mdl} P_1 + c_{145,2,14}^{mdl} P_2 + c_{145,3,14}^{mdl} P_3 \\
c_{145,0,14}^{mdl} &= (-(-c_{14,13}^{ci})) * c_{2,0}^{inv} \\
c_{145,1,14}^{mdl} &= (-(-c_{14,13}^{ci})) * c_{2,1}^{inv} \\
c_{145,2,14}^{mdl} &= (-(-c_{14,13}^{ci})) * c_{2,2}^{inv} \\
c_{145,3,14}^{mdl} &= (-(-c_{14,13}^{ci})) * c_{2,3}^{inv} \\
\hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{15}\rangle &= \\
\hat{O}_{146} : \langle P_p | \hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- | P_q \rangle &=> \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- |P_0\rangle &= c_{146,11,0}^{mdl} P_{11} + c_{146,12,0}^{mdl} P_{12} \\
c_{146,11,0}^{mdl} &= (-c_{0,0}^{ci}) * c_{12,11}^{inv} \\
c_{146,12,0}^{mdl} &= (-c_{0,0}^{ci}) * c_{12,12}^{inv} \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- |P_1\rangle &= c_{146,11,1}^{mdl} P_{11} + c_{146,12,1}^{mdl} P_{12} \\
c_{146,11,1}^{mdl} &= (-c_{1,0}^{ci}) * c_{12,11}^{inv} \\
c_{146,12,1}^{mdl} &= (-c_{1,0}^{ci}) * c_{12,12}^{inv} \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- |P_2\rangle &= c_{146,11,2}^{mdl} P_{11} + c_{146,12,2}^{mdl} P_{12} \\
c_{146,11,2}^{mdl} &= (-c_{2,0}^{ci}) * c_{12,11}^{inv} \\
c_{146,12,2}^{mdl} &= (-c_{2,0}^{ci}) * c_{12,12}^{inv} \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- |P_3\rangle &= c_{146,11,3}^{mdl} P_{11} + c_{146,12,3}^{mdl} P_{12} \\
c_{146,11,3}^{mdl} &= (-c_{3,0}^{ci}) * c_{12,11}^{inv} \\
c_{146,12,3}^{mdl} &= (-c_{3,0}^{ci}) * c_{12,12}^{inv} \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- |P_4\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- |P_5\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- |P_6\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- |P_7\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- |P_8\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- |P_9\rangle &= c_{146,0,9}^{mdl} P_0 + c_{146,1,9}^{mdl} P_1 + c_{146,2,9}^{mdl} P_2 + c_{146,3,9}^{mdl} P_3 \\
c_{146,0,9}^{mdl} &= c_{9,9}^{ci} * c_{3,0}^{inv} \\
c_{146,1,9}^{mdl} &= c_{9,9}^{ci} * c_{3,1}^{inv}
\end{aligned}$$

$$c_{146,2,9}^{mdl} = c_{9,9}^{ci} * c_{3,2}^{inv}$$

$$c_{146,3,9}^{mdl} = c_{9,9}^{ci} * c_{3,3}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- |P_{10}\rangle = c_{146,0,10}^{mdl} P_0 + c_{146,1,10}^{mdl} P_1 + c_{146,2,10}^{mdl} P_2 + c_{146,3,10}^{mdl} P_3$$

$$c_{146,0,10}^{mdl} = c_{10,9}^{ci} * c_{3,0}^{inv}$$

$$c_{146,1,10}^{mdl} = c_{10,9}^{ci} * c_{3,1}^{inv}$$

$$c_{146,2,10}^{mdl} = c_{10,9}^{ci} * c_{3,2}^{inv}$$

$$c_{146,3,10}^{mdl} = c_{10,9}^{ci} * c_{3,3}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- |P_{11}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- |P_{12}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- |P_{13}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- |P_{14}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{147} : \langle P_p | \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- | P_q \rangle = >$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_0\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_1\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_2\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_3\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_4\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_5\rangle = c_{147,7,5}^{mdl} P_7 + c_{147,8,5}^{mdl} P_8$$

$$c_{147,7,5}^{mdl} = c_{5,5}^{ci} * c_{8,7}^{inv}$$

$$c_{147,8,5}^{mdl} = c_{5,5}^{ci} * c_{8,8}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_6\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_7\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_8\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_9\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{10}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{11}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{12}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{13}\rangle = c_{147,4,13}^{mdl} P_4$$

$$c_{147,4,13}^{mdl} = (-c_{13,13}^{ci}) * c_{4,4}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{14}\rangle = c_{147,4,14}^{mdl} P_4$$

$$c_{147,4,14}^{mdl} = (-c_{14,13}^{ci}) * c_{4,4}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{148} : \langle P_p | \hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- | P_q \rangle =>$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- |P_0\rangle = c_{148,13,0}^{mdl} P_{13} + c_{148,14,0}^{mdl} P_{14}$$

$$c_{148,13,0}^{mdl} = (-c_{0,2}^{ci}) * c_{14,13}^{inv}$$

$$c_{148,14,0}^{mdl} = (-c_{0,2}^{ci}) * c_{14,14}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- |P_1\rangle = c_{148,13,1}^{mdl} P_{13} + c_{148,14,1}^{mdl} P_{14}$$

$$c_{148,13,1}^{mdl} = (-c_{1,2}^{ci}) * c_{14,13}^{inv}$$

$$c_{148,14,1}^{mdl} = (-c_{1,2}^{ci}) * c_{14,14}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- |P_2\rangle = c_{148,13,2}^{mdl} P_{13} + c_{148,14,2}^{mdl} P_{14}$$

$$c_{148,13,2}^{mdl} = (-c_{2,2}^{ci}) * c_{14,13}^{inv}$$

$$c_{148,14,2}^{mdl} = (-c_{2,2}^{ci}) * c_{14,14}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- |P_3\rangle = c_{148,13,3}^{mdl} P_{13} + c_{148,14,3}^{mdl} P_{14}$$

$$c_{148,13,3}^{mdl} = (-c_{3,2}^{ci}) * c_{14,13}^{inv}$$

$$c_{148,14,3}^{mdl} = (-c_{3,2}^{ci}) * c_{14,14}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- |P_4\rangle = c_{148,11,4}^{mdl} P_{11} + c_{148,12,4}^{mdl} P_{12}$$

$$c_{148,11,4}^{mdl} = (-c_{4,4}^{ci}) * c_{12,11}^{inv}$$

$$c_{148,12,4}^{mdl} = (-c_{4,4}^{ci}) * c_{12,12}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- |P_5\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- |P_6\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- |P_7\rangle = c_{148,0,7}^{mdl} P_0 + c_{148,1,7}^{mdl} P_1 + c_{148,2,7}^{mdl} P_2 + c_{148,3,7}^{mdl} P_3$$

$$c_{148,0,7}^{mdl} = c_{7,8}^{ci} * c_{3,0}^{inv}$$

$$c_{148,1,7}^{mdl} = c_{7,8}^{ci} * c_{3,1}^{inv}$$

$$c_{148,2,7}^{mdl} = c_{7,8}^{ci} * c_{3,2}^{inv}$$

$$c_{148,3,7}^{mdl} = c_{7,8}^{ci} * c_{3,3}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- |P_8\rangle = c_{148,0,8}^{mdl} P_0 + c_{148,1,8}^{mdl} P_1 + c_{148,2,8}^{mdl} P_2 + c_{148,3,8}^{mdl} P_3$$

$$c_{148,0,8}^{mdl} = c_{8,8}^{ci} * c_{3,0}^{inv}$$

$$c_{148,1,8}^{mdl} = c_{8,8}^{ci} * c_{3,1}^{inv}$$

$$c_{148,2,8}^{mdl} = c_{8,8}^{ci} * c_{3,2}^{inv}$$

$$c_{148,3,8}^{mdl} = c_{8,8}^{ci} * c_{3,3}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- |P_9\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- |P_{10}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- |P_{11}\rangle = c_{148,15,11}^{mdl} P_{15}$$

$$c_{148,15,11}^{mdl} = c_{11,11}^{ci} * c_{15,15}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- |P_{12}\rangle = c_{148,15,12}^{mdl} P_{15}$$

$$c_{148,15,12}^{mdl} = c_{12,11}^{ci} * c_{15,15}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- |P_{13}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- |P_{14}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{149} : \langle P_p | \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- | P_q \rangle = >$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_0\rangle = c_{149,7,0}^{mdl} P_7 + c_{149,8,0}^{mdl} P_8$$

$$c_{149,7,0}^{mdl} = c_{0,3}^{ci} * c_{8,7}^{inv}$$

$$c_{149,8,0}^{mdl} = c_{0,3}^{ci} * c_{8,8}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_1\rangle = c_{149,7,1}^{mdl} P_7 + c_{149,8,1}^{mdl} P_8$$

$$c_{149,7,1}^{mdl} = c_{1,3}^{ci} * c_{8,7}^{inv}$$

$$c_{149,8,1}^{mdl} = c_{1,3}^{ci} * c_{8,8}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_2\rangle = c_{149,7,2}^{mdl} P_7 + c_{149,8,2}^{mdl} P_8$$

$$c_{149,7,2}^{mdl} = c_{2,3}^{ci} * c_{8,7}^{inv}$$

$$c_{149,8,2}^{mdl} = c_{2,3}^{ci} * c_{8,8}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_3\rangle = c_{149,7,3}^{mdl} P_7 + c_{149,8,3}^{mdl} P_8$$

$$c_{149,7,3}^{mdl} = c_{3,3}^{ci} * c_{8,7}^{inv}$$

$$c_{149,8,3}^{mdl} = c_{3,3}^{ci} * c_{8,8}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_4\rangle =$$

$$\begin{aligned}
\hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_5\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_6\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_7\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_8\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_9\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{10}\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{11}\rangle &= c_{149,4,11}^{mdl} P_4 \\
c_{149,4,11}^{mdl} &= (-c_{11,12}^{ci}) * c_{4,4}^{inv} \\
\hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{12}\rangle &= c_{149,4,12}^{mdl} P_4 \\
c_{149,4,12}^{mdl} &= (-c_{12,12}^{ci}) * c_{4,4}^{inv} \\
\hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{13}\rangle &= c_{149,0,13}^{mdl} P_0 + c_{149,1,13}^{mdl} P_1 + c_{149,2,13}^{mdl} P_2 + c_{149,3,13}^{mdl} P_3 \\
c_{149,0,13}^{mdl} &= (-c_{13,14}^{ci}) * c_{2,0}^{inv} \\
c_{149,1,13}^{mdl} &= (-c_{13,14}^{ci}) * c_{2,1}^{inv} \\
c_{149,2,13}^{mdl} &= (-c_{13,14}^{ci}) * c_{2,2}^{inv} \\
c_{149,3,13}^{mdl} &= (-c_{13,14}^{ci}) * c_{2,3}^{inv} \\
\hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{14}\rangle &= c_{149,0,14}^{mdl} P_0 + c_{149,1,14}^{mdl} P_1 + c_{149,2,14}^{mdl} P_2 + c_{149,3,14}^{mdl} P_3 \\
c_{149,0,14}^{mdl} &= (-c_{14,14}^{ci}) * c_{2,0}^{inv} \\
c_{149,1,14}^{mdl} &= (-c_{14,14}^{ci}) * c_{2,1}^{inv} \\
c_{149,2,14}^{mdl} &= (-c_{14,14}^{ci}) * c_{2,2}^{inv} \\
c_{149,3,14}^{mdl} &= (-c_{14,14}^{ci}) * c_{2,3}^{inv} \\
\hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{15}\rangle &= c_{149,11,15}^{mdl} P_{11} + c_{149,12,15}^{mdl} P_{12} \\
c_{149,11,15}^{mdl} &= c_{15,15}^{ci} * c_{11,11}^{inv} \\
c_{149,12,15}^{mdl} &= c_{15,15}^{ci} * c_{11,12}^{inv} \\
\hat{O}_{150} : \langle P_p | \hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- | P_q \rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- |P_0\rangle &= c_{150,11,0}^{mdl} P_{11} + c_{150,12,0}^{mdl} P_{12} \\
c_{150,11,0}^{mdl} &= (-c_{0,1}^{ci}) * c_{12,11}^{inv} \\
c_{150,12,0}^{mdl} &= (-c_{0,1}^{ci}) * c_{12,12}^{inv} \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- |P_1\rangle &= c_{150,11,1}^{mdl} P_{11} + c_{150,12,1}^{mdl} P_{12}
\end{aligned}$$

$$\begin{aligned}
c_{150,11,1}^{mdl} &= (-c_{1,1}^{ci}) * c_{12,11}^{inv} \\
c_{150,12,1}^{mdl} &= (-c_{1,1}^{ci}) * c_{12,12}^{inv} \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- |P_2\rangle &= c_{150,11,2}^{mdl} P_{11} + c_{150,12,2}^{mdl} P_{12} \\
c_{150,11,2}^{mdl} &= (-c_{2,1}^{ci}) * c_{12,11}^{inv} \\
c_{150,12,2}^{mdl} &= (-c_{2,1}^{ci}) * c_{12,12}^{inv} \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- |P_3\rangle &= c_{150,11,3}^{mdl} P_{11} + c_{150,12,3}^{mdl} P_{12} \\
c_{150,11,3}^{mdl} &= (-c_{3,1}^{ci}) * c_{12,11}^{inv} \\
c_{150,12,3}^{mdl} &= (-c_{3,1}^{ci}) * c_{12,12}^{inv} \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- |P_4\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- |P_5\rangle &= c_{150,13,5}^{mdl} P_{13} + c_{150,14,5}^{mdl} P_{14} \\
c_{150,13,5}^{mdl} &= (-c_{5,5}^{ci}) * c_{14,13}^{inv} \\
c_{150,14,5}^{mdl} &= (-c_{5,5}^{ci}) * c_{14,14}^{inv} \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- |P_6\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- |P_7\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- |P_8\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- |P_9\rangle &= c_{150,0,9}^{mdl} P_0 + c_{150,1,9}^{mdl} P_1 + c_{150,2,9}^{mdl} P_2 + c_{150,3,9}^{mdl} P_3 \\
c_{150,0,9}^{mdl} &= c_{9,10}^{ci} * c_{3,0}^{inv} \\
c_{150,1,9}^{mdl} &= c_{9,10}^{ci} * c_{3,1}^{inv} \\
c_{150,2,9}^{mdl} &= c_{9,10}^{ci} * c_{3,2}^{inv} \\
c_{150,3,9}^{mdl} &= c_{9,10}^{ci} * c_{3,3}^{inv} \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- |P_{10}\rangle &= c_{150,0,10}^{mdl} P_0 + c_{150,1,10}^{mdl} P_1 + c_{150,2,10}^{mdl} P_2 + c_{150,3,10}^{mdl} P_3 \\
c_{150,0,10}^{mdl} &= c_{10,10}^{ci} * c_{3,0}^{inv} \\
c_{150,1,10}^{mdl} &= c_{10,10}^{ci} * c_{3,1}^{inv} \\
c_{150,2,10}^{mdl} &= c_{10,10}^{ci} * c_{3,2}^{inv} \\
c_{150,3,10}^{mdl} &= c_{10,10}^{ci} * c_{3,3}^{inv} \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- |P_{11}\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- |P_{12}\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- |P_{13}\rangle &= c_{150,15,13}^{mdl} P_{15} \\
c_{150,15,13}^{mdl} &= c_{13,13}^{ci} * c_{15,15}^{inv}
\end{aligned}$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- |P_{14}\rangle = c_{150,15,14}^{mdl} P_{15}$$

$$c_{150,15,14}^{mdl} = c_{14,13}^{ci} * c_{15,15}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{151} : \langle P_p | \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- | P_q \rangle =>$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_0\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_1\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_2\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_3\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_4\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_5\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_6\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_7\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_8\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_9\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_{10}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_{11}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_{12}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_{13}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_{14}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{152} : \langle P_p | \hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- | P_q \rangle =>$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_0\rangle = c_{152,13,0}^{mdl} P_{13} + c_{152,14,0}^{mdl} P_{14}$$

$$c_{152,13,0}^{mdl} = c_{0,0}^{ci} * c_{13,13}^{inv}$$

$$c_{152,14,0}^{mdl} = c_{0,0}^{ci} * c_{13,14}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_1\rangle = c_{152,13,1}^{mdl} P_{13} + c_{152,14,1}^{mdl} P_{14}$$

$$c_{152,13,1}^{mdl} = c_{1,0}^{ci} * c_{13,13}^{inv}$$

$$c_{152,14,1}^{mdl} = c_{1,0}^{ci} * c_{13,14}^{inv}$$

$$\begin{aligned}
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_2\rangle &= c_{152,13,2}^{mdl} P_{13} + c_{152,14,2}^{mdl} P_{14} \\
c_{152,13,2}^{mdl} &= c_{2,0}^{ci} * c_{13,13}^{inv} \\
c_{152,14,2}^{mdl} &= c_{2,0}^{ci} * c_{13,14}^{inv} \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_3\rangle &= c_{152,13,3}^{mdl} P_{13} + c_{152,14,3}^{mdl} P_{14} \\
c_{152,13,3}^{mdl} &= c_{3,0}^{ci} * c_{13,13}^{inv} \\
c_{152,14,3}^{mdl} &= c_{3,0}^{ci} * c_{13,14}^{inv} \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_4\rangle &= c_{152,11,4}^{mdl} P_{11} + c_{152,12,4}^{mdl} P_{12} \\
c_{152,11,4}^{mdl} &= c_{4,4}^{ci} * c_{12,11}^{inv} \\
c_{152,12,4}^{mdl} &= c_{4,4}^{ci} * c_{12,12}^{inv} \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_5\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_6\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_7\rangle &= c_{152,0,7}^{mdl} P_0 + c_{152,1,7}^{mdl} P_1 + c_{152,2,7}^{mdl} P_2 + c_{152,3,7}^{mdl} P_3 \\
c_{152,0,7}^{mdl} &= (-c_{7,7}^{ci}) * c_{1,0}^{inv} \\
c_{152,1,7}^{mdl} &= (-c_{7,7}^{ci}) * c_{1,1}^{inv} \\
c_{152,2,7}^{mdl} &= (-c_{7,7}^{ci}) * c_{1,2}^{inv} \\
c_{152,3,7}^{mdl} &= (-c_{7,7}^{ci}) * c_{1,3}^{inv} \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_8\rangle &= c_{152,0,8}^{mdl} P_0 + c_{152,1,8}^{mdl} P_1 + c_{152,2,8}^{mdl} P_2 + c_{152,3,8}^{mdl} P_3 \\
c_{152,0,8}^{mdl} &= (-c_{8,7}^{ci}) * c_{1,0}^{inv} \\
c_{152,1,8}^{mdl} &= (-c_{8,7}^{ci}) * c_{1,1}^{inv} \\
c_{152,2,8}^{mdl} &= (-c_{8,7}^{ci}) * c_{1,2}^{inv} \\
c_{152,3,8}^{mdl} &= (-c_{8,7}^{ci}) * c_{1,3}^{inv} \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_9\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_{10}\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_{11}\rangle &= c_{152,15,11}^{mdl} P_{15} \\
c_{152,15,11}^{mdl} &= (-c_{11,11}^{ci}) * c_{15,15}^{inv} \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_{12}\rangle &= c_{152,15,12}^{mdl} P_{15} \\
c_{152,15,12}^{mdl} &= (-c_{12,11}^{ci}) * c_{15,15}^{inv} \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_{13}\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_{14}\rangle &=
\end{aligned}$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{153} : \langle P_p | \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- | P_q \rangle =>$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_0\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_1\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_2\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_3\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_4\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_5\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_6\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_7\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_8\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_9\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_{10}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_{11}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_{12}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_{13}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_{14}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{154} : \langle P_p | \hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- | P_q \rangle =>$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- |P_0\rangle = c_{154,11,0}^{mdl} P_{11} + c_{154,12,0}^{mdl} P_{12}$$

$$c_{154,11,0}^{mdl} = c_{0,2}^{ci} * c_{12,11}^{inv}$$

$$c_{154,12,0}^{mdl} = c_{0,2}^{ci} * c_{12,12}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- |P_1\rangle = c_{154,11,1}^{mdl} P_{11} + c_{154,12,1}^{mdl} P_{12}$$

$$c_{154,11,1}^{mdl} = c_{1,2}^{ci} * c_{12,11}^{inv}$$

$$c_{154,12,1}^{mdl} = c_{1,2}^{ci} * c_{12,12}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- |P_2\rangle = c_{154,11,2}^{mdl} P_{11} + c_{154,12,2}^{mdl} P_{12}$$

$$c_{154,11,2}^{mdl} = c_{2,2}^{ci} * c_{12,11}^{inv}$$

$$\begin{aligned}
c_{154,12,2}^{mdl} &= c_{2,2}^{ci} * c_{12,12}^{inv} \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- |P_3\rangle &= c_{154,11,3}^{mdl} P_{11} + c_{154,12,3}^{mdl} P_{12} \\
c_{154,11,3}^{mdl} &= c_{3,2}^{ci} * c_{12,11}^{inv} \\
c_{154,12,3}^{mdl} &= c_{3,2}^{ci} * c_{12,12}^{inv} \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- |P_4\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- |P_5\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- |P_6\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- |P_7\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- |P_8\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- |P_9\rangle &= c_{154,0,9}^{mdl} P_0 + c_{154,1,9}^{mdl} P_1 + c_{154,2,9}^{mdl} P_2 + c_{154,3,9}^{mdl} P_3 \\
c_{154,0,9}^{mdl} &= (-c_{9,9}^{ci}) * c_{1,0}^{inv} \\
c_{154,1,9}^{mdl} &= (-c_{9,9}^{ci}) * c_{1,1}^{inv} \\
c_{154,2,9}^{mdl} &= (-c_{9,9}^{ci}) * c_{1,2}^{inv} \\
c_{154,3,9}^{mdl} &= (-c_{9,9}^{ci}) * c_{1,3}^{inv} \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- |P_{10}\rangle &= c_{154,0,10}^{mdl} P_0 + c_{154,1,10}^{mdl} P_1 + c_{154,2,10}^{mdl} P_2 + c_{154,3,10}^{mdl} P_3 \\
c_{154,0,10}^{mdl} &= (-c_{10,9}^{ci}) * c_{1,0}^{inv} \\
c_{154,1,10}^{mdl} &= (-c_{10,9}^{ci}) * c_{1,1}^{inv} \\
c_{154,2,10}^{mdl} &= (-c_{10,9}^{ci}) * c_{1,2}^{inv} \\
c_{154,3,10}^{mdl} &= (-c_{10,9}^{ci}) * c_{1,3}^{inv} \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- |P_{11}\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- |P_{12}\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- |P_{13}\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- |P_{14}\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- |P_{15}\rangle &= \\
\hat{O}_{155} : \langle P_p | \hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- | P_q \rangle &= > \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- |P_0\rangle &= c_{155,9,0}^{mdl} P_9 + c_{155,10,0}^{mdl} P_{10} \\
c_{155,9,0}^{mdl} &= (-c_{0,0}^{ci}) * c_{10,9}^{inv} \\
c_{155,10,0}^{mdl} &= (-c_{0,0}^{ci}) * c_{10,10}^{inv}
\end{aligned}$$

$$\begin{aligned}
\hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_1\rangle &= c_{155,9,1}^{mdl} P_9 + c_{155,10,1}^{mdl} P_{10} \\
c_{155,9,1}^{mdl} &= (-c_{1,0}^{ci}) * c_{10,9}^{inv} \\
c_{155,10,1}^{mdl} &= (-c_{1,0}^{ci}) * c_{10,10}^{inv} \\
\hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_2\rangle &= c_{155,9,2}^{mdl} P_9 + c_{155,10,2}^{mdl} P_{10} \\
c_{155,9,2}^{mdl} &= (-c_{2,0}^{ci}) * c_{10,9}^{inv} \\
c_{155,10,2}^{mdl} &= (-c_{2,0}^{ci}) * c_{10,10}^{inv} \\
\hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_3\rangle &= c_{155,9,3}^{mdl} P_9 + c_{155,10,3}^{mdl} P_{10} \\
c_{155,9,3}^{mdl} &= (-c_{3,0}^{ci}) * c_{10,9}^{inv} \\
c_{155,10,3}^{mdl} &= (-c_{3,0}^{ci}) * c_{10,10}^{inv} \\
\hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_4\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_5\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_6\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_7\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_8\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_9\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_{10}\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_{11}\rangle &= c_{155,0,11}^{mdl} P_0 + c_{155,1,11}^{mdl} P_1 + c_{155,2,11}^{mdl} P_2 + c_{155,3,11}^{mdl} P_3 \\
c_{155,0,11}^{mdl} &= (-(-c_{11,11}^{ci})) * c_{3,0}^{inv} \\
c_{155,1,11}^{mdl} &= (-(-c_{11,11}^{ci})) * c_{3,1}^{inv} \\
c_{155,2,11}^{mdl} &= (-(-c_{11,11}^{ci})) * c_{3,2}^{inv} \\
c_{155,3,11}^{mdl} &= (-(-c_{11,11}^{ci})) * c_{3,3}^{inv} \\
\hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_{12}\rangle &= c_{155,0,12}^{mdl} P_0 + c_{155,1,12}^{mdl} P_1 + c_{155,2,12}^{mdl} P_2 + c_{155,3,12}^{mdl} P_3 \\
c_{155,0,12}^{mdl} &= (-(-c_{12,11}^{ci})) * c_{3,0}^{inv} \\
c_{155,1,12}^{mdl} &= (-(-c_{12,11}^{ci})) * c_{3,1}^{inv} \\
c_{155,2,12}^{mdl} &= (-(-c_{12,11}^{ci})) * c_{3,2}^{inv} \\
c_{155,3,12}^{mdl} &= (-(-c_{12,11}^{ci})) * c_{3,3}^{inv} \\
\hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_{13}\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_{14}\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_{15}\rangle &=
\end{aligned}$$

$$\begin{aligned}
\hat{O}_{156} : \langle P_p | \hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- | P_q \rangle &= > \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- | P_0 \rangle &= c_{156,13,0}^{mdl} P_{13} + c_{156,14,0}^{mdl} P_{14} \\
c_{156,13,0}^{mdl} &= (-c_{0,2}^{ci}) * c_{13,13}^{inv} \\
c_{156,14,0}^{mdl} &= (-c_{0,2}^{ci}) * c_{13,14}^{inv} \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- | P_1 \rangle &= c_{156,13,1}^{mdl} P_{13} + c_{156,14,1}^{mdl} P_{14} \\
c_{156,13,1}^{mdl} &= (-c_{1,2}^{ci}) * c_{13,13}^{inv} \\
c_{156,14,1}^{mdl} &= (-c_{1,2}^{ci}) * c_{13,14}^{inv} \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- | P_2 \rangle &= c_{156,13,2}^{mdl} P_{13} + c_{156,14,2}^{mdl} P_{14} \\
c_{156,13,2}^{mdl} &= (-c_{2,2}^{ci}) * c_{13,13}^{inv} \\
c_{156,14,2}^{mdl} &= (-c_{2,2}^{ci}) * c_{13,14}^{inv} \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- | P_3 \rangle &= c_{156,13,3}^{mdl} P_{13} + c_{156,14,3}^{mdl} P_{14} \\
c_{156,13,3}^{mdl} &= (-c_{3,2}^{ci}) * c_{13,13}^{inv} \\
c_{156,14,3}^{mdl} &= (-c_{3,2}^{ci}) * c_{13,14}^{inv} \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- | P_4 \rangle &= \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- | P_5 \rangle &= \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- | P_6 \rangle &= \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- | P_7 \rangle &= c_{156,0,7}^{mdl} P_0 + c_{156,1,7}^{mdl} P_1 + c_{156,2,7}^{mdl} P_2 + c_{156,3,7}^{mdl} P_3 \\
c_{156,0,7}^{mdl} &= (-c_{7,8}^{ci}) * c_{1,0}^{inv} \\
c_{156,1,7}^{mdl} &= (-c_{7,8}^{ci}) * c_{1,1}^{inv} \\
c_{156,2,7}^{mdl} &= (-c_{7,8}^{ci}) * c_{1,2}^{inv} \\
c_{156,3,7}^{mdl} &= (-c_{7,8}^{ci}) * c_{1,3}^{inv} \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- | P_8 \rangle &= c_{156,0,8}^{mdl} P_0 + c_{156,1,8}^{mdl} P_1 + c_{156,2,8}^{mdl} P_2 + c_{156,3,8}^{mdl} P_3 \\
c_{156,0,8}^{mdl} &= (-c_{8,8}^{ci}) * c_{1,0}^{inv} \\
c_{156,1,8}^{mdl} &= (-c_{8,8}^{ci}) * c_{1,1}^{inv} \\
c_{156,2,8}^{mdl} &= (-c_{8,8}^{ci}) * c_{1,2}^{inv} \\
c_{156,3,8}^{mdl} &= (-c_{8,8}^{ci}) * c_{1,3}^{inv} \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- | P_9 \rangle &= \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- | P_{10} \rangle &=
\end{aligned}$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- |P_{11}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- |P_{12}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- |P_{13}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- |P_{14}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{157} : \langle P_p | \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- | P_q \rangle = >$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_0\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_1\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_2\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_3\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_4\rangle = c_{157,9,4}^{mdl} P_9 + c_{157,10,4}^{mdl} P_{10}$$

$$c_{157,9,4}^{mdl} = (-c_{4,4}^{ci}) * c_{10,9}^{inv}$$

$$c_{157,10,4}^{mdl} = (-c_{4,4}^{ci}) * c_{10,10}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_5\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_6\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_7\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_8\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_9\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_{10}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_{11}\rangle = c_{157,5,11}^{mdl} P_5$$

$$c_{157,5,11}^{mdl} = (-c_{11,11}^{ci}) * c_{5,5}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_{12}\rangle = c_{157,5,12}^{mdl} P_5$$

$$c_{157,5,12}^{mdl} = (-c_{12,11}^{ci}) * c_{5,5}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_{13}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_{14}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{158} : \langle P_p | \hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- | P_q \rangle = >$$

$$\begin{aligned}
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- |P_0\rangle &= c_{158,11,0}^{mdl} P_{11} + c_{158,12,0}^{mdl} P_{12} \\
c_{158,11,0}^{mdl} &= (-c_{0,3}^{ci}) * c_{12,11}^{inv} \\
c_{158,12,0}^{mdl} &= (-c_{0,3}^{ci}) * c_{12,12}^{inv} \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- |P_1\rangle &= c_{158,11,1}^{mdl} P_{11} + c_{158,12,1}^{mdl} P_{12} \\
c_{158,11,1}^{mdl} &= (-c_{1,3}^{ci}) * c_{12,11}^{inv} \\
c_{158,12,1}^{mdl} &= (-c_{1,3}^{ci}) * c_{12,12}^{inv} \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- |P_2\rangle &= c_{158,11,2}^{mdl} P_{11} + c_{158,12,2}^{mdl} P_{12} \\
c_{158,11,2}^{mdl} &= (-c_{2,3}^{ci}) * c_{12,11}^{inv} \\
c_{158,12,2}^{mdl} &= (-c_{2,3}^{ci}) * c_{12,12}^{inv} \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- |P_3\rangle &= c_{158,11,3}^{mdl} P_{11} + c_{158,12,3}^{mdl} P_{12} \\
c_{158,11,3}^{mdl} &= (-c_{3,3}^{ci}) * c_{12,11}^{inv} \\
c_{158,12,3}^{mdl} &= (-c_{3,3}^{ci}) * c_{12,12}^{inv} \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- |P_4\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- |P_5\rangle &= c_{158,13,5}^{mdl} P_{13} + c_{158,14,5}^{mdl} P_{14} \\
c_{158,13,5}^{mdl} &= (-c_{5,5}^{ci}) * c_{13,13}^{inv} \\
c_{158,14,5}^{mdl} &= (-c_{5,5}^{ci}) * c_{13,14}^{inv} \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- |P_6\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- |P_7\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- |P_8\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- |P_9\rangle &= c_{158,0,9}^{mdl} P_0 + c_{158,1,9}^{mdl} P_1 + c_{158,2,9}^{mdl} P_2 + c_{158,3,9}^{mdl} P_3 \\
c_{158,0,9}^{mdl} &= (-c_{9,10}^{ci}) * c_{1,0}^{inv} \\
c_{158,1,9}^{mdl} &= (-c_{9,10}^{ci}) * c_{1,1}^{inv} \\
c_{158,2,9}^{mdl} &= (-c_{9,10}^{ci}) * c_{1,2}^{inv} \\
c_{158,3,9}^{mdl} &= (-c_{9,10}^{ci}) * c_{1,3}^{inv} \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- |P_{10}\rangle &= c_{158,0,10}^{mdl} P_0 + c_{158,1,10}^{mdl} P_1 + c_{158,2,10}^{mdl} P_2 + c_{158,3,10}^{mdl} P_3 \\
c_{158,0,10}^{mdl} &= (-c_{10,10}^{ci}) * c_{1,0}^{inv} \\
c_{158,1,10}^{mdl} &= (-c_{10,10}^{ci}) * c_{1,1}^{inv} \\
c_{158,2,10}^{mdl} &= (-c_{10,10}^{ci}) * c_{1,2}^{inv} \\
c_{158,3,10}^{mdl} &= (-c_{10,10}^{ci}) * c_{1,3}^{inv}
\end{aligned}$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- |P_{11}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- |P_{12}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- |P_{13}\rangle = c_{158,15,13}^{mdl} P_{15}$$

$$c_{158,15,13}^{mdl} = (-c_{13,14}^{ci}) * c_{15,15}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- |P_{14}\rangle = c_{158,15,14}^{mdl} P_{15}$$

$$c_{158,15,14}^{mdl} = (-c_{14,14}^{ci}) * c_{15,15}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{159} : \langle P_p | \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- | P_q \rangle =>$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_0\rangle = c_{159,9,0}^{mdl} P_9 + c_{159,10,0}^{mdl} P_{10}$$

$$c_{159,9,0}^{mdl} = (-c_{0,1}^{ci}) * c_{10,9}^{inv}$$

$$c_{159,10,0}^{mdl} = (-c_{0,1}^{ci}) * c_{10,10}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_1\rangle = c_{159,9,1}^{mdl} P_9 + c_{159,10,1}^{mdl} P_{10}$$

$$c_{159,9,1}^{mdl} = (-c_{1,1}^{ci}) * c_{10,9}^{inv}$$

$$c_{159,10,1}^{mdl} = (-c_{1,1}^{ci}) * c_{10,10}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_2\rangle = c_{159,9,2}^{mdl} P_9 + c_{159,10,2}^{mdl} P_{10}$$

$$c_{159,9,2}^{mdl} = (-c_{2,1}^{ci}) * c_{10,9}^{inv}$$

$$c_{159,10,2}^{mdl} = (-c_{2,1}^{ci}) * c_{10,10}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_3\rangle = c_{159,9,3}^{mdl} P_9 + c_{159,10,3}^{mdl} P_{10}$$

$$c_{159,9,3}^{mdl} = (-c_{3,1}^{ci}) * c_{10,9}^{inv}$$

$$c_{159,10,3}^{mdl} = (-c_{3,1}^{ci}) * c_{10,10}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_4\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_5\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_6\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_7\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_8\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_9\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{10}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{11}\rangle = c_{159,0,11}^{mdl} P_0 + c_{159,1,11}^{mdl} P_1 + c_{159,2,11}^{mdl} P_2 + c_{159,3,11}^{mdl} P_3$$

$$\begin{aligned}
c_{159,0,11}^{mdl} &= (-c_{11,12}^{ci}) * c_{3,0}^{inv} \\
c_{159,1,11}^{mdl} &= (-c_{11,12}^{ci}) * c_{3,1}^{inv} \\
c_{159,2,11}^{mdl} &= (-c_{11,12}^{ci}) * c_{3,2}^{inv} \\
c_{159,3,11}^{mdl} &= (-c_{11,12}^{ci}) * c_{3,3}^{inv} \\
\hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{12}\rangle &= c_{159,0,12}^{mdl} P_0 + c_{159,1,12}^{mdl} P_1 + c_{159,2,12}^{mdl} P_2 + c_{159,3,12}^{mdl} P_3 \\
c_{159,0,12}^{mdl} &= (-c_{12,12}^{ci}) * c_{3,0}^{inv} \\
c_{159,1,12}^{mdl} &= (-c_{12,12}^{ci}) * c_{3,1}^{inv} \\
c_{159,2,12}^{mdl} &= (-c_{12,12}^{ci}) * c_{3,2}^{inv} \\
c_{159,3,12}^{mdl} &= (-c_{12,12}^{ci}) * c_{3,3}^{inv} \\
\hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{13}\rangle &= c_{159,5,13}^{mdl} P_5 \\
c_{159,5,13}^{mdl} &= (-c_{13,13}^{ci}) * c_{5,5}^{inv} \\
\hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{14}\rangle &= c_{159,5,14}^{mdl} P_5 \\
c_{159,5,14}^{mdl} &= (-c_{14,13}^{ci}) * c_{5,5}^{inv} \\
\hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{15}\rangle &= c_{159,13,15}^{mdl} P_{13} + c_{159,14,15}^{mdl} P_{14} \\
c_{159,13,15}^{mdl} &= (-c_{15,15}^{ci}) * c_{14,13}^{inv} \\
c_{159,14,15}^{mdl} &= (-c_{15,15}^{ci}) * c_{14,14}^{inv}
\end{aligned}$$

$$\begin{aligned}
\hat{O}_{160} : \langle P_p | \hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- | P_q \rangle &= > \\
\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- | P_0 \rangle &= \\
\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- | P_1 \rangle &= \\
\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- | P_2 \rangle &= \\
\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- | P_3 \rangle &= \\
\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- | P_4 \rangle &= c_{160,13,4}^{mdl} P_{13} + c_{160,14,4}^{mdl} P_{14} \\
c_{160,13,4}^{mdl} &= c_{4,4}^{ci} * c_{14,13}^{inv} \\
c_{160,14,4}^{mdl} &= c_{4,4}^{ci} * c_{14,14}^{inv} \\
\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- | P_5 \rangle &= \\
\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- | P_6 \rangle &= \\
\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- | P_7 \rangle &= c_{160,5,7}^{mdl} P_5 \\
c_{160,5,7}^{mdl} &= (-c_{7,7}^{ci}) * c_{5,5}^{inv}
\end{aligned}$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- |P_8\rangle = c_{160,5,8}^{mdl} P_5$$

$$c_{160,5,8}^{mdl} = (-c_{8,7}^{ci}) * c_{5,5}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- |P_9\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- |P_{10}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- |P_{11}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- |P_{12}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- |P_{13}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- |P_{14}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{161} : \langle P_p | \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- | P_q \rangle =>$$

$$\hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_0\rangle = c_{161,9,0}^{mdl} P_9 + c_{161,10,0}^{mdl} P_{10}$$

$$c_{161,9,0}^{mdl} = c_{0,0}^{ci} * c_{10,9}^{inv}$$

$$c_{161,10,0}^{mdl} = c_{0,0}^{ci} * c_{10,10}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_1\rangle = c_{161,9,1}^{mdl} P_9 + c_{161,10,1}^{mdl} P_{10}$$

$$c_{161,9,1}^{mdl} = c_{1,0}^{ci} * c_{10,9}^{inv}$$

$$c_{161,10,1}^{mdl} = c_{1,0}^{ci} * c_{10,10}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_2\rangle = c_{161,9,2}^{mdl} P_9 + c_{161,10,2}^{mdl} P_{10}$$

$$c_{161,9,2}^{mdl} = c_{2,0}^{ci} * c_{10,9}^{inv}$$

$$c_{161,10,2}^{mdl} = c_{2,0}^{ci} * c_{10,10}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_3\rangle = c_{161,9,3}^{mdl} P_9 + c_{161,10,3}^{mdl} P_{10}$$

$$c_{161,9,3}^{mdl} = c_{3,0}^{ci} * c_{10,9}^{inv}$$

$$c_{161,10,3}^{mdl} = c_{3,0}^{ci} * c_{10,10}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_4\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_5\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_6\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_7\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_8\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_9\rangle =$$

$$\begin{aligned}
& \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{10}\rangle = \\
& \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{11}\rangle = c_{161,0,11}^{mdl} P_0 + c_{161,1,11}^{mdl} P_1 + c_{161,2,11}^{mdl} P_2 + c_{161,3,11}^{mdl} P_3 \\
& c_{161,0,11}^{mdl} = (-c_{11,11}^{ci}) * c_{3,0}^{inv} \\
& c_{161,1,11}^{mdl} = (-c_{11,11}^{ci}) * c_{3,1}^{inv} \\
& c_{161,2,11}^{mdl} = (-c_{11,11}^{ci}) * c_{3,2}^{inv} \\
& c_{161,3,11}^{mdl} = (-c_{11,11}^{ci}) * c_{3,3}^{inv} \\
& \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{12}\rangle = c_{161,0,12}^{mdl} P_0 + c_{161,1,12}^{mdl} P_1 + c_{161,2,12}^{mdl} P_2 + c_{161,3,12}^{mdl} P_3 \\
& c_{161,0,12}^{mdl} = (-c_{12,11}^{ci}) * c_{3,0}^{inv} \\
& c_{161,1,12}^{mdl} = (-c_{12,11}^{ci}) * c_{3,1}^{inv} \\
& c_{161,2,12}^{mdl} = (-c_{12,11}^{ci}) * c_{3,2}^{inv} \\
& c_{161,3,12}^{mdl} = (-c_{12,11}^{ci}) * c_{3,3}^{inv} \\
& \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{13}\rangle = \\
& \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{14}\rangle = \\
& \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{15}\rangle =
\end{aligned}$$

$$\begin{aligned}
& \hat{O}_{162} : \langle P_p | \hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- | P_q \rangle = > \\
& \hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- |P_0\rangle = c_{162,13,0}^{mdl} P_{13} + c_{162,14,0}^{mdl} P_{14} \\
& c_{162,13,0}^{mdl} = (-(-c_{0,0}^{ci})) * c_{13,13}^{inv} + c_{0,2}^{ci} * c_{14,13}^{inv} \\
& c_{162,14,0}^{mdl} = (-(-c_{0,0}^{ci})) * c_{13,14}^{inv} + c_{0,2}^{ci} * c_{14,14}^{inv} \\
& \hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- |P_1\rangle = c_{162,13,1}^{mdl} P_{13} + c_{162,14,1}^{mdl} P_{14} \\
& c_{162,13,1}^{mdl} = (-(-c_{1,0}^{ci})) * c_{13,13}^{inv} + c_{1,2}^{ci} * c_{14,13}^{inv} \\
& c_{162,14,1}^{mdl} = (-(-c_{1,0}^{ci})) * c_{13,14}^{inv} + c_{1,2}^{ci} * c_{14,14}^{inv} \\
& \hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- |P_2\rangle = c_{162,13,2}^{mdl} P_{13} + c_{162,14,2}^{mdl} P_{14} \\
& c_{162,13,2}^{mdl} = (-(-c_{2,0}^{ci})) * c_{13,13}^{inv} + c_{2,2}^{ci} * c_{14,13}^{inv} \\
& c_{162,14,2}^{mdl} = (-(-c_{2,0}^{ci})) * c_{13,14}^{inv} + c_{2,2}^{ci} * c_{14,14}^{inv} \\
& \hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- |P_3\rangle = c_{162,13,3}^{mdl} P_{13} + c_{162,14,3}^{mdl} P_{14} \\
& c_{162,13,3}^{mdl} = (-(-c_{3,0}^{ci})) * c_{13,13}^{inv} + c_{3,2}^{ci} * c_{14,13}^{inv} \\
& c_{162,14,3}^{mdl} = (-(-c_{3,0}^{ci})) * c_{13,14}^{inv} + c_{3,2}^{ci} * c_{14,14}^{inv} \\
& \hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- |P_4\rangle =
\end{aligned}$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- |P_5\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- |P_6\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- |P_7\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- |P_8\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- |P_9\rangle = c_{162,5,9}^{mdl} P_5$$

$$c_{162,5,9}^{mdl} = (-c_{9,9}^{ci}) * c_{5,5}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- |P_{10}\rangle = c_{162,5,10}^{mdl} P_5$$

$$c_{162,5,10}^{mdl} = (-c_{10,9}^{ci}) * c_{5,5}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- |P_{11}\rangle = c_{162,15,11}^{mdl} P_{15}$$

$$c_{162,15,11}^{mdl} = (-c_{11,11}^{ci}) * c_{15,15}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- |P_{12}\rangle = c_{162,15,12}^{mdl} P_{15}$$

$$c_{162,15,12}^{mdl} = (-c_{12,11}^{ci}) * c_{15,15}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- |P_{13}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- |P_{14}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{163} : \langle P_p | \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- | P_q \rangle = >$$

$$\hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_0\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_1\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_2\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_3\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_4\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_5\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_6\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_7\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_8\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_9\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_{10}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_{11}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_{12}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_{13}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_{14}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{164} : \langle P_p | \hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- | P_q \rangle = >$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- |P_0\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- |P_1\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- |P_2\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- |P_3\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- |P_4\rangle = c_{164,13,4}^{mdl} P_{13} + c_{164,14,4}^{mdl} P_{14}$$

$$c_{164,13,4}^{mdl} = (-(-c_{4,4}^{ci})) * c_{13,13}^{inv}$$

$$c_{164,14,4}^{mdl} = (-(-c_{4,4}^{ci})) * c_{13,14}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- |P_5\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- |P_6\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- |P_7\rangle = c_{164,5,7}^{mdl} P_5$$

$$c_{164,5,7}^{mdl} = (-c_{7,8}^{ci}) * c_{5,5}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- |P_8\rangle = c_{164,5,8}^{mdl} P_5$$

$$c_{164,5,8}^{mdl} = (-c_{8,8}^{ci}) * c_{5,5}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- |P_9\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- |P_{10}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- |P_{11}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- |P_{12}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- |P_{13}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- |P_{14}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{165} : \langle P_p | \hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- | P_q \rangle = >$$

$$\hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_0\rangle = c_{165,9,0}^{mdl} P_9 + c_{165,10,0}^{mdl} P_{10}$$

$$\begin{aligned}
c_{165,9,0}^{mdl} &= (-c_{0,2}^{ci}) * c_{10,9}^{inv} \\
c_{165,10,0}^{mdl} &= (-c_{0,2}^{ci}) * c_{10,10}^{inv} \\
\hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_1\rangle &= c_{165,9,1}^{mdl} P_9 + c_{165,10,1}^{mdl} P_{10} \\
c_{165,9,1}^{mdl} &= (-c_{1,2}^{ci}) * c_{10,9}^{inv} \\
c_{165,10,1}^{mdl} &= (-c_{1,2}^{ci}) * c_{10,10}^{inv} \\
\hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_2\rangle &= c_{165,9,2}^{mdl} P_9 + c_{165,10,2}^{mdl} P_{10} \\
c_{165,9,2}^{mdl} &= (-c_{2,2}^{ci}) * c_{10,9}^{inv} \\
c_{165,10,2}^{mdl} &= (-c_{2,2}^{ci}) * c_{10,10}^{inv} \\
\hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_3\rangle &= c_{165,9,3}^{mdl} P_9 + c_{165,10,3}^{mdl} P_{10} \\
c_{165,9,3}^{mdl} &= (-c_{3,2}^{ci}) * c_{10,9}^{inv} \\
c_{165,10,3}^{mdl} &= (-c_{3,2}^{ci}) * c_{10,10}^{inv} \\
\hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_4\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_5\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_6\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_7\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_8\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_9\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_{10}\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_{11}\rangle &= c_{165,0,11}^{mdl} P_0 + c_{165,1,11}^{mdl} P_1 + c_{165,2,11}^{mdl} P_2 + c_{165,3,11}^{mdl} P_3 \\
c_{165,0,11}^{mdl} &= (-(-c_{11,11}^{ci})) * c_{1,0}^{inv} \\
c_{165,1,11}^{mdl} &= (-(-c_{11,11}^{ci})) * c_{1,1}^{inv} \\
c_{165,2,11}^{mdl} &= (-(-c_{11,11}^{ci})) * c_{1,2}^{inv} \\
c_{165,3,11}^{mdl} &= (-(-c_{11,11}^{ci})) * c_{1,3}^{inv} \\
\hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_{12}\rangle &= c_{165,0,12}^{mdl} P_0 + c_{165,1,12}^{mdl} P_1 + c_{165,2,12}^{mdl} P_2 + c_{165,3,12}^{mdl} P_3 \\
c_{165,0,12}^{mdl} &= (-(-c_{12,11}^{ci})) * c_{1,0}^{inv} \\
c_{165,1,12}^{mdl} &= (-(-c_{12,11}^{ci})) * c_{1,1}^{inv} \\
c_{165,2,12}^{mdl} &= (-(-c_{12,11}^{ci})) * c_{1,2}^{inv} \\
c_{165,3,12}^{mdl} &= (-(-c_{12,11}^{ci})) * c_{1,3}^{inv} \\
\hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_{13}\rangle &=
\end{aligned}$$

$$\hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_{14}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{166} : \langle P_p | \hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- | P_q \rangle = >$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_0\rangle = c_{166,13,0}^{mdl} P_{13} + c_{166,14,0}^{mdl} P_{14}$$

$$c_{166,13,0}^{mdl} = (-(-c_{0,1}^{ci})) * c_{13,13}^{inv} + (-c_{0,3}^{ci}) * c_{14,13}^{inv}$$

$$c_{166,14,0}^{mdl} = (-(-c_{0,1}^{ci})) * c_{13,14}^{inv} + (-c_{0,3}^{ci}) * c_{14,14}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_1\rangle = c_{166,13,1}^{mdl} P_{13} + c_{166,14,1}^{mdl} P_{14}$$

$$c_{166,13,1}^{mdl} = (-(-c_{1,1}^{ci})) * c_{13,13}^{inv} + (-c_{1,3}^{ci}) * c_{14,13}^{inv}$$

$$c_{166,14,1}^{mdl} = (-(-c_{1,1}^{ci})) * c_{13,14}^{inv} + (-c_{1,3}^{ci}) * c_{14,14}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_2\rangle = c_{166,13,2}^{mdl} P_{13} + c_{166,14,2}^{mdl} P_{14}$$

$$c_{166,13,2}^{mdl} = (-(-c_{2,1}^{ci})) * c_{13,13}^{inv} + (-c_{2,3}^{ci}) * c_{14,13}^{inv}$$

$$c_{166,14,2}^{mdl} = (-(-c_{2,1}^{ci})) * c_{13,14}^{inv} + (-c_{2,3}^{ci}) * c_{14,14}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_3\rangle = c_{166,13,3}^{mdl} P_{13} + c_{166,14,3}^{mdl} P_{14}$$

$$c_{166,13,3}^{mdl} = (-(-c_{3,1}^{ci})) * c_{13,13}^{inv} + (-c_{3,3}^{ci}) * c_{14,13}^{inv}$$

$$c_{166,14,3}^{mdl} = (-(-c_{3,1}^{ci})) * c_{13,14}^{inv} + (-c_{3,3}^{ci}) * c_{14,14}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_4\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_5\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_6\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_7\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_8\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_9\rangle = c_{166,5,9}^{mdl} P_5$$

$$c_{166,5,9}^{mdl} = (-c_{9,10}^{ci}) * c_{5,5}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_{10}\rangle = c_{166,5,10}^{mdl} P_5$$

$$c_{166,5,10}^{mdl} = (-c_{10,10}^{ci}) * c_{5,5}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_{11}\rangle = c_{166,15,11}^{mdl} P_{15}$$

$$c_{166,15,11}^{mdl} = c_{11,12}^{ci} * c_{15,15}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_{12}\rangle = c_{166,15,12}^{mdl} P_{15}$$

$$c_{166,15,12}^{mdl} = c_{12,12}^{ci} * c_{15,15}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_{13}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_{14}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{167} : \langle P_p | \hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- | P_q \rangle =>$$

$$\hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_0\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_1\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_2\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_3\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_4\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_5\rangle = c_{167,9,5}^{mdl} P_9 + c_{167,10,5}^{mdl} P_{10}$$

$$c_{167,9,5}^{mdl} = (-c_{5,5}^{ci}) * c_{10,9}^{inv}$$

$$c_{167,10,5}^{mdl} = (-c_{5,5}^{ci}) * c_{10,10}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_6\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_7\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_8\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_9\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_{10}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_{11}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_{12}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_{13}\rangle = c_{167,0,13}^{mdl} P_0 + c_{167,1,13}^{mdl} P_1 + c_{167,2,13}^{mdl} P_2 + c_{167,3,13}^{mdl} P_3$$

$$c_{167,0,13}^{mdl} = (-(-c_{13,13}^{ci})) * c_{1,0}^{inv} + (-c_{13,14}^{ci}) * c_{3,0}^{inv}$$

$$c_{167,1,13}^{mdl} = (-(-c_{13,13}^{ci})) * c_{1,1}^{inv} + (-c_{13,14}^{ci}) * c_{3,1}^{inv}$$

$$c_{167,2,13}^{mdl} = (-(-c_{13,13}^{ci})) * c_{1,2}^{inv} + (-c_{13,14}^{ci}) * c_{3,2}^{inv}$$

$$c_{167,3,13}^{mdl} = (-(-c_{13,13}^{ci})) * c_{1,3}^{inv} + (-c_{13,14}^{ci}) * c_{3,3}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_{14}\rangle = c_{167,0,14}^{mdl} P_0 + c_{167,1,14}^{mdl} P_1 + c_{167,2,14}^{mdl} P_2 + c_{167,3,14}^{mdl} P_3$$

$$c_{167,0,14}^{mdl} = (-(-c_{14,13}^{ci})) * c_{1,0}^{inv} + (-c_{14,14}^{ci}) * c_{3,0}^{inv}$$

$$c_{167,1,14}^{mdl} = (-(-c_{14,13}^{ci})) * c_{1,1}^{inv} + (-c_{14,14}^{ci}) * c_{3,1}^{inv}$$

$$c_{167,2,14}^{mdl} = (-(-c_{14,13}^{ci})) * c_{1,2}^{inv} + (-c_{14,14}^{ci}) * c_{3,2}^{inv}$$

$$c_{167,3,14}^{mdl} = (-(-c_{14,13}^{ci})) * c_{1,3}^{inv} + (-c_{14,14}^{ci}) * c_{3,3}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_{15}\rangle = c_{167,11,15}^{mdl} P_{11} + c_{167,12,15}^{mdl} P_{12}$$

$$c_{167,11,15}^{mdl} = c_{15,15}^{ci} * c_{12,11}^{inv}$$

$$c_{167,12,15}^{mdl} = c_{15,15}^{ci} * c_{12,12}^{inv}$$

$$\hat{O}_{168} : \langle P_p | \hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- | P_q \rangle = >$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- |P_0\rangle = c_{168,13,0}^{mdl} P_{13} + c_{168,14,0}^{mdl} P_{14}$$

$$c_{168,13,0}^{mdl} = (-c_{0,0}^{ci}) * c_{14,13}^{inv}$$

$$c_{168,14,0}^{mdl} = (-c_{0,0}^{ci}) * c_{14,14}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- |P_1\rangle = c_{168,13,1}^{mdl} P_{13} + c_{168,14,1}^{mdl} P_{14}$$

$$c_{168,13,1}^{mdl} = (-c_{1,0}^{ci}) * c_{14,13}^{inv}$$

$$c_{168,14,1}^{mdl} = (-c_{1,0}^{ci}) * c_{14,14}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- |P_2\rangle = c_{168,13,2}^{mdl} P_{13} + c_{168,14,2}^{mdl} P_{14}$$

$$c_{168,13,2}^{mdl} = (-c_{2,0}^{ci}) * c_{14,13}^{inv}$$

$$c_{168,14,2}^{mdl} = (-c_{2,0}^{ci}) * c_{14,14}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- |P_3\rangle = c_{168,13,3}^{mdl} P_{13} + c_{168,14,3}^{mdl} P_{14}$$

$$c_{168,13,3}^{mdl} = (-c_{3,0}^{ci}) * c_{14,13}^{inv}$$

$$c_{168,14,3}^{mdl} = (-c_{3,0}^{ci}) * c_{14,14}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- |P_4\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- |P_5\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- |P_6\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- |P_7\rangle = c_{168,0,7}^{mdl} P_0 + c_{168,1,7}^{mdl} P_1 + c_{168,2,7}^{mdl} P_2 + c_{168,3,7}^{mdl} P_3$$

$$c_{168,0,7}^{mdl} = (-c_{7,7}^{ci}) * c_{3,0}^{inv}$$

$$c_{168,1,7}^{mdl} = (-c_{7,7}^{ci}) * c_{3,1}^{inv}$$

$$c_{168,2,7}^{mdl} = (-c_{7,7}^{ci}) * c_{3,2}^{inv}$$

$$c_{168,3,7}^{mdl} = (-c_{7,7}^{ci}) * c_{3,3}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- |P_8\rangle = c_{168,0,8}^{mdl} P_0 + c_{168,1,8}^{mdl} P_1 + c_{168,2,8}^{mdl} P_2 + c_{168,3,8}^{mdl} P_3$$

$$c_{168,0,8}^{mdl} = (-c_{8,7}^{ci}) * c_{3,0}^{inv}$$

$$c_{168,1,8}^{mdl} = (-c_{8,7}^{ci}) * c_{3,1}^{inv}$$

$$c_{168,2,8}^{mdl} = (-c_{8,7}^{ci}) * c_{3,2}^{inv}$$

$$c_{168,3,8}^{mdl} = (-c_{8,7}^{ci}) * c_{3,3}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- |P_9\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- |P_{10}\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- |P_{11}\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- |P_{12}\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- |P_{13}\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- |P_{14}\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{169} : \langle P_p | \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- | P_q \rangle = >$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_0\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_1\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_2\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_3\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_4\rangle = c_{169,9,4}^{mdl} P_9 + c_{169,10,4}^{mdl} P_{10}$$

$$c_{169,9,4}^{mdl} = c_{4,4}^{ci} * c_{10,9}^{inv}$$

$$c_{169,10,4}^{mdl} = c_{4,4}^{ci} * c_{10,10}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_5\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_6\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_7\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_8\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_9\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_{10}\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_{11}\rangle = c_{169,5,11}^{mdl} P_5$$

$$c_{169,5,11}^{mdl} = (-(-c_{11,11}^{ci})) * c_{5,5}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_{12}\rangle = c_{169,5,12}^{mdl} P_5$$

$$c_{169,5,12}^{mdl} = (-(-c_{12,11}^{ci})) * c_{5,5}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_{13}\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_{14}\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{170} : \langle P_p | \hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- | P_q \rangle =>$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- |P_0\rangle = c_{170,11,0}^{mdl} P_{11} + c_{170,12,0}^{mdl} P_{12}$$

$$c_{170,11,0}^{mdl} = (-(-c_{0,0}^{ci})) * c_{12,11}^{inv}$$

$$c_{170,12,0}^{mdl} = (-(-c_{0,0}^{ci})) * c_{12,12}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- |P_1\rangle = c_{170,11,1}^{mdl} P_{11} + c_{170,12,1}^{mdl} P_{12}$$

$$c_{170,11,1}^{mdl} = (-(-c_{1,0}^{ci})) * c_{12,11}^{inv}$$

$$c_{170,12,1}^{mdl} = (-(-c_{1,0}^{ci})) * c_{12,12}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- |P_2\rangle = c_{170,11,2}^{mdl} P_{11} + c_{170,12,2}^{mdl} P_{12}$$

$$c_{170,11,2}^{mdl} = (-(-c_{2,0}^{ci})) * c_{12,11}^{inv}$$

$$c_{170,12,2}^{mdl} = (-(-c_{2,0}^{ci})) * c_{12,12}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- |P_3\rangle = c_{170,11,3}^{mdl} P_{11} + c_{170,12,3}^{mdl} P_{12}$$

$$c_{170,11,3}^{mdl} = (-(-c_{3,0}^{ci})) * c_{12,11}^{inv}$$

$$c_{170,12,3}^{mdl} = (-(-c_{3,0}^{ci})) * c_{12,12}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- |P_4\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- |P_5\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- |P_6\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- |P_7\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- |P_8\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- |P_9\rangle = c_{170,0,9}^{mdl} P_0 + c_{170,1,9}^{mdl} P_1 + c_{170,2,9}^{mdl} P_2 + c_{170,3,9}^{mdl} P_3$$

$$c_{170,0,9}^{mdl} = (-c_{9,9}^{ci}) * c_{3,0}^{inv}$$

$$c_{170,1,9}^{mdl} = (-c_{9,9}^{ci}) * c_{3,1}^{inv}$$

$$c_{170,2,9}^{mdl} = (-c_{9,9}^{ci}) * c_{3,2}^{inv}$$

$$c_{170,3,9}^{mdl} = (-c_{9,9}^{ci}) * c_{3,3}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- |P_{10}\rangle = c_{170,0,10}^{mdl} P_0 + c_{170,1,10}^{mdl} P_1 + c_{170,2,10}^{mdl} P_2 + c_{170,3,10}^{mdl} P_3$$

$$c_{170,0,10}^{mdl} = (-c_{10,9}^{ci}) * c_{3,0}^{inv}$$

$$c_{170,1,10}^{mdl} = (-c_{10,9}^{ci}) * c_{3,1}^{inv}$$

$$c_{170,2,10}^{mdl} = (-c_{10,9}^{ci}) * c_{3,2}^{inv}$$

$$c_{170,3,10}^{mdl} = (-c_{10,9}^{ci}) * c_{3,3}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- |P_{11}\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- |P_{12}\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- |P_{13}\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- |P_{14}\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{171} : \langle P_p | \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- | P_q \rangle =>$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_0\rangle = c_{171,9,0}^{mdl} P_9 + c_{171,10,0}^{mdl} P_{10}$$

$$c_{171,9,0}^{mdl} = c_{0,2}^{ci} * c_{10,9}^{inv}$$

$$c_{171,10,0}^{mdl} = c_{0,2}^{ci} * c_{10,10}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_1\rangle = c_{171,9,1}^{mdl} P_9 + c_{171,10,1}^{mdl} P_{10}$$

$$c_{171,9,1}^{mdl} = c_{1,2}^{ci} * c_{10,9}^{inv}$$

$$c_{171,10,1}^{mdl} = c_{1,2}^{ci} * c_{10,10}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_2\rangle = c_{171,9,2}^{mdl} P_9 + c_{171,10,2}^{mdl} P_{10}$$

$$c_{171,9,2}^{mdl} = c_{2,2}^{ci} * c_{10,9}^{inv}$$

$$c_{171,10,2}^{mdl} = c_{2,2}^{ci} * c_{10,10}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_3\rangle = c_{171,9,3}^{mdl} P_9 + c_{171,10,3}^{mdl} P_{10}$$

$$c_{171,9,3}^{mdl} = c_{3,2}^{ci} * c_{10,9}^{inv}$$

$$c_{171,10,3}^{mdl} = c_{3,2}^{ci} * c_{10,10}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_4\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_5\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_6\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_7\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_8\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_9\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_{10}\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_{11}\rangle = c_{171,0,11}^{mdl} P_0 + c_{171,1,11}^{mdl} P_1 + c_{171,2,11}^{mdl} P_2 + c_{171,3,11}^{mdl} P_3$$

$$\begin{aligned}
c_{171,0,11}^{mdl} &= (-c_{11,11}^{ci}) * c_{1,0}^{inv} \\
c_{171,1,11}^{mdl} &= (-c_{11,11}^{ci}) * c_{1,1}^{inv} \\
c_{171,2,11}^{mdl} &= (-c_{11,11}^{ci}) * c_{1,2}^{inv} \\
c_{171,3,11}^{mdl} &= (-c_{11,11}^{ci}) * c_{1,3}^{inv} \\
\hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_{12}\rangle &= c_{171,0,12}^{mdl} P_0 + c_{171,1,12}^{mdl} P_1 + c_{171,2,12}^{mdl} P_2 + c_{171,3,12}^{mdl} P_3 \\
c_{171,0,12}^{mdl} &= (-c_{12,11}^{ci}) * c_{1,0}^{inv} \\
c_{171,1,12}^{mdl} &= (-c_{12,11}^{ci}) * c_{1,1}^{inv} \\
c_{171,2,12}^{mdl} &= (-c_{12,11}^{ci}) * c_{1,2}^{inv} \\
c_{171,3,12}^{mdl} &= (-c_{12,11}^{ci}) * c_{1,3}^{inv} \\
\hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_{13}\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_{14}\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_{15}\rangle &=
\end{aligned}$$

$$\begin{aligned}
\hat{O}_{172} : \langle P_p | \hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- | P_q \rangle &=> \\
\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- |P_0\rangle &= c_{172,13,0}^{mdl} P_{13} + c_{172,14,0}^{mdl} P_{14} \\
c_{172,13,0}^{mdl} &= (-(-c_{0,2}^{ci})) * c_{14,13}^{inv} \\
c_{172,14,0}^{mdl} &= (-(-c_{0,2}^{ci})) * c_{14,14}^{inv} \\
\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- |P_1\rangle &= c_{172,13,1}^{mdl} P_{13} + c_{172,14,1}^{mdl} P_{14} \\
c_{172,13,1}^{mdl} &= (-(-c_{1,2}^{ci})) * c_{14,13}^{inv} \\
c_{172,14,1}^{mdl} &= (-(-c_{1,2}^{ci})) * c_{14,14}^{inv} \\
\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- |P_2\rangle &= c_{172,13,2}^{mdl} P_{13} + c_{172,14,2}^{mdl} P_{14} \\
c_{172,13,2}^{mdl} &= (-(-c_{2,2}^{ci})) * c_{14,13}^{inv} \\
c_{172,14,2}^{mdl} &= (-(-c_{2,2}^{ci})) * c_{14,14}^{inv} \\
\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- |P_3\rangle &= c_{172,13,3}^{mdl} P_{13} + c_{172,14,3}^{mdl} P_{14} \\
c_{172,13,3}^{mdl} &= (-(-c_{3,2}^{ci})) * c_{14,13}^{inv} \\
c_{172,14,3}^{mdl} &= (-(-c_{3,2}^{ci})) * c_{14,14}^{inv} \\
\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- |P_4\rangle &= c_{172,11,4}^{mdl} P_{11} + c_{172,12,4}^{mdl} P_{12} \\
c_{172,11,4}^{mdl} &= (-(-c_{4,4}^{ci})) * c_{12,11}^{inv} \\
c_{172,12,4}^{mdl} &= (-(-c_{4,4}^{ci})) * c_{12,12}^{inv}
\end{aligned}$$

$$\begin{aligned}
& \hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- |P_5\rangle = \\
& \hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- |P_6\rangle = \\
& \hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- |P_7\rangle = c_{172,0,7}^{mdl} P_0 + c_{172,1,7}^{mdl} P_1 + c_{172,2,7}^{mdl} P_2 + c_{172,3,7}^{mdl} P_3 \\
& c_{172,0,7}^{mdl} = (-c_{7,8}^{ci}) * c_{3,0}^{inv} \\
& c_{172,1,7}^{mdl} = (-c_{7,8}^{ci}) * c_{3,1}^{inv} \\
& c_{172,2,7}^{mdl} = (-c_{7,8}^{ci}) * c_{3,2}^{inv} \\
& c_{172,3,7}^{mdl} = (-c_{7,8}^{ci}) * c_{3,3}^{inv} \\
& \hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- |P_8\rangle = c_{172,0,8}^{mdl} P_0 + c_{172,1,8}^{mdl} P_1 + c_{172,2,8}^{mdl} P_2 + c_{172,3,8}^{mdl} P_3 \\
& c_{172,0,8}^{mdl} = (-c_{8,8}^{ci}) * c_{3,0}^{inv} \\
& c_{172,1,8}^{mdl} = (-c_{8,8}^{ci}) * c_{3,1}^{inv} \\
& c_{172,2,8}^{mdl} = (-c_{8,8}^{ci}) * c_{3,2}^{inv} \\
& c_{172,3,8}^{mdl} = (-c_{8,8}^{ci}) * c_{3,3}^{inv} \\
& \hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- |P_9\rangle = \\
& \hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- |P_{10}\rangle = \\
& \hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- |P_{11}\rangle = c_{172,15,11}^{mdl} P_{15} \\
& c_{172,15,11}^{mdl} = (-c_{11,11}^{ci}) * c_{15,15}^{inv} \\
& \hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- |P_{12}\rangle = c_{172,15,12}^{mdl} P_{15} \\
& c_{172,15,12}^{mdl} = (-c_{12,11}^{ci}) * c_{15,15}^{inv} \\
& \hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- |P_{13}\rangle = \\
& \hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- |P_{14}\rangle = \\
& \hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- |P_{15}\rangle =
\end{aligned}$$

$$\hat{O}_{173} : \langle P_p | \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- | P_q \rangle = >$$

$$\begin{aligned}
& \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_0\rangle = \\
& \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_1\rangle = \\
& \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_2\rangle = \\
& \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_3\rangle = \\
& \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_4\rangle = \\
& \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_5\rangle =
\end{aligned}$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_6\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_7\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_8\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_9\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{10}\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{11}\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{12}\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{13}\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{14}\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{174} : \langle P_p | \hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- | P_q \rangle = >$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- |P_0\rangle = c_{174,11,0}^{mdl} P_{11} + c_{174,12,0}^{mdl} P_{12}$$

$$c_{174,11,0}^{mdl} = (-(-c_{0,1}^{ci})) * c_{12,11}^{inv}$$

$$c_{174,12,0}^{mdl} = (-(-c_{0,1}^{ci})) * c_{12,12}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- |P_1\rangle = c_{174,11,1}^{mdl} P_{11} + c_{174,12,1}^{mdl} P_{12}$$

$$c_{174,11,1}^{mdl} = (-(-c_{1,1}^{ci})) * c_{12,11}^{inv}$$

$$c_{174,12,1}^{mdl} = (-(-c_{1,1}^{ci})) * c_{12,12}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- |P_2\rangle = c_{174,11,2}^{mdl} P_{11} + c_{174,12,2}^{mdl} P_{12}$$

$$c_{174,11,2}^{mdl} = (-(-c_{2,1}^{ci})) * c_{12,11}^{inv}$$

$$c_{174,12,2}^{mdl} = (-(-c_{2,1}^{ci})) * c_{12,12}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- |P_3\rangle = c_{174,11,3}^{mdl} P_{11} + c_{174,12,3}^{mdl} P_{12}$$

$$c_{174,11,3}^{mdl} = (-(-c_{3,1}^{ci})) * c_{12,11}^{inv}$$

$$c_{174,12,3}^{mdl} = (-(-c_{3,1}^{ci})) * c_{12,12}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- |P_4\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- |P_5\rangle = c_{174,13,5}^{mdl} P_{13} + c_{174,14,5}^{mdl} P_{14}$$

$$c_{174,13,5}^{mdl} = (-(-c_{5,5}^{ci})) * c_{14,13}^{inv}$$

$$c_{174,14,5}^{mdl} = (-(-c_{5,5}^{ci})) * c_{14,14}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- |P_6\rangle =$$

$$\begin{aligned}
& \hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- |P_7\rangle = \\
& \hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- |P_8\rangle = \\
& \hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- |P_9\rangle = c_{174,0,9}^{mdl} P_0 + c_{174,1,9}^{mdl} P_1 + c_{174,2,9}^{mdl} P_2 + c_{174,3,9}^{mdl} P_3 \\
& c_{174,0,9}^{mdl} = (-c_{9,10}^{ci}) * c_{3,0}^{inv} \\
& c_{174,1,9}^{mdl} = (-c_{9,10}^{ci}) * c_{3,1}^{inv} \\
& c_{174,2,9}^{mdl} = (-c_{9,10}^{ci}) * c_{3,2}^{inv} \\
& c_{174,3,9}^{mdl} = (-c_{9,10}^{ci}) * c_{3,3}^{inv} \\
& \hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- |P_{10}\rangle = c_{174,0,10}^{mdl} P_0 + c_{174,1,10}^{mdl} P_1 + c_{174,2,10}^{mdl} P_2 + c_{174,3,10}^{mdl} P_3 \\
& c_{174,0,10}^{mdl} = (-c_{10,10}^{ci}) * c_{3,0}^{inv} \\
& c_{174,1,10}^{mdl} = (-c_{10,10}^{ci}) * c_{3,1}^{inv} \\
& c_{174,2,10}^{mdl} = (-c_{10,10}^{ci}) * c_{3,2}^{inv} \\
& c_{174,3,10}^{mdl} = (-c_{10,10}^{ci}) * c_{3,3}^{inv} \\
& \hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- |P_{11}\rangle = \\
& \hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- |P_{12}\rangle = \\
& \hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- |P_{13}\rangle = c_{174,15,13}^{mdl} P_{15} \\
& c_{174,15,13}^{mdl} = (-c_{13,13}^{ci}) * c_{15,15}^{inv} \\
& \hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- |P_{14}\rangle = c_{174,15,14}^{mdl} P_{15} \\
& c_{174,15,14}^{mdl} = (-c_{14,13}^{ci}) * c_{15,15}^{inv} \\
& \hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- |P_{15}\rangle =
\end{aligned}$$

$$\begin{aligned}
& \hat{O}_{175} : \langle P_p | \hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- | P_q \rangle = > \\
& \hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- |P_0\rangle = c_{175,9,0}^{mdl} P_9 + c_{175,10,0}^{mdl} P_{10} \\
& c_{175,9,0}^{mdl} = (-c_{0,3}^{ci}) * c_{10,9}^{inv} \\
& c_{175,10,0}^{mdl} = (-c_{0,3}^{ci}) * c_{10,10}^{inv} \\
& \hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- |P_1\rangle = c_{175,9,1}^{mdl} P_9 + c_{175,10,1}^{mdl} P_{10} \\
& c_{175,9,1}^{mdl} = (-c_{1,3}^{ci}) * c_{10,9}^{inv} \\
& c_{175,10,1}^{mdl} = (-c_{1,3}^{ci}) * c_{10,10}^{inv} \\
& \hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- |P_2\rangle = c_{175,9,2}^{mdl} P_9 + c_{175,10,2}^{mdl} P_{10} \\
& c_{175,9,2}^{mdl} = (-c_{2,3}^{ci}) * c_{10,9}^{inv}
\end{aligned}$$

$$\begin{aligned}
c_{175,10,2}^{mdl} &= (-c_{2,3}^{ci}) * c_{10,10}^{inv} \\
\hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_3\rangle &= c_{175,9,3}^{mdl} P_9 + c_{175,10,3}^{mdl} P_{10} \\
c_{175,9,3}^{mdl} &= (-c_{3,3}^{ci}) * c_{10,9}^{inv} \\
c_{175,10,3}^{mdl} &= (-c_{3,3}^{ci}) * c_{10,10}^{inv} \\
\hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_4\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_5\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_6\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_7\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_8\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_9\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_{10}\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_{11}\rangle &= c_{175,0,11}^{mdl} P_0 + c_{175,1,11}^{mdl} P_1 + c_{175,2,11}^{mdl} P_2 + c_{175,3,11}^{mdl} P_3 \\
c_{175,0,11}^{mdl} &= (-(-c_{11,12}^{ci})) * c_{1,0}^{inv} \\
c_{175,1,11}^{mdl} &= (-(-c_{11,12}^{ci})) * c_{1,1}^{inv} \\
c_{175,2,11}^{mdl} &= (-(-c_{11,12}^{ci})) * c_{1,2}^{inv} \\
c_{175,3,11}^{mdl} &= (-(-c_{11,12}^{ci})) * c_{1,3}^{inv} \\
\hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_{12}\rangle &= c_{175,0,12}^{mdl} P_0 + c_{175,1,12}^{mdl} P_1 + c_{175,2,12}^{mdl} P_2 + c_{175,3,12}^{mdl} P_3 \\
c_{175,0,12}^{mdl} &= (-(-c_{12,12}^{ci})) * c_{1,0}^{inv} \\
c_{175,1,12}^{mdl} &= (-(-c_{12,12}^{ci})) * c_{1,1}^{inv} \\
c_{175,2,12}^{mdl} &= (-(-c_{12,12}^{ci})) * c_{1,2}^{inv} \\
c_{175,3,12}^{mdl} &= (-(-c_{12,12}^{ci})) * c_{1,3}^{inv} \\
\hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_{13}\rangle &= c_{175,5,13}^{mdl} P_5 \\
c_{175,5,13}^{mdl} &= (-(-c_{13,14}^{ci})) * c_{5,5}^{inv} \\
\hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_{14}\rangle &= c_{175,5,14}^{mdl} P_5 \\
c_{175,5,14}^{mdl} &= (-(-c_{14,14}^{ci})) * c_{5,5}^{inv} \\
\hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_{15}\rangle &= c_{175,13,15}^{mdl} P_{13} + c_{175,14,15}^{mdl} P_{14} \\
c_{175,13,15}^{mdl} &= (-c_{15,15}^{ci}) * c_{13,13}^{inv} \\
c_{175,14,15}^{mdl} &= (-c_{15,15}^{ci}) * c_{13,14}^{inv}
\end{aligned}$$

$$\hat{O}_{176} : \langle P_p | \hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- | P_q \rangle =>$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- | P_0 \rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- | P_1 \rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- | P_2 \rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- | P_3 \rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- | P_4 \rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- | P_5 \rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- | P_6 \rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- | P_7 \rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- | P_8 \rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- | P_9 \rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- | P_{10} \rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- | P_{11} \rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- | P_{12} \rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- | P_{13} \rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- | P_{14} \rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- | P_{15} \rangle =$$

$$\hat{O}_{177} : \langle P_p | \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- | P_q \rangle =>$$

$$\hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- | P_0 \rangle = c_{177,9,0}^{mdl} P_9 + c_{177,10,0}^{mdl} P_{10}$$

$$c_{177,9,0}^{mdl} = c_{0,1}^{ci} * c_{10,9}^{inv}$$

$$c_{177,10,0}^{mdl} = c_{0,1}^{ci} * c_{10,10}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- | P_1 \rangle = c_{177,9,1}^{mdl} P_9 + c_{177,10,1}^{mdl} P_{10}$$

$$c_{177,9,1}^{mdl} = c_{1,1}^{ci} * c_{10,9}^{inv}$$

$$c_{177,10,1}^{mdl} = c_{1,1}^{ci} * c_{10,10}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- | P_2 \rangle = c_{177,9,2}^{mdl} P_9 + c_{177,10,2}^{mdl} P_{10}$$

$$c_{177,9,2}^{mdl} = c_{2,1}^{ci} * c_{10,9}^{inv}$$

$$c_{177,10,2}^{mdl} = c_{2,1}^{ci} * c_{10,10}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- | P_3 \rangle = c_{177,9,3}^{mdl} P_9 + c_{177,10,3}^{mdl} P_{10}$$

$$c_{177,9,3}^{mdl} = c_{3,1}^{ci} * c_{10,9}^{inv}$$

$$c_{177,10,3}^{mdl} = c_{3,1}^{ci} * c_{10,10}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_4\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_5\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_6\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_7\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_8\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_9\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{10}\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{11}\rangle = c_{177,0,11}^{mdl} P_0 + c_{177,1,11}^{mdl} P_1 + c_{177,2,11}^{mdl} P_2 + c_{177,3,11}^{mdl} P_3$$

$$c_{177,0,11}^{mdl} = (-(-c_{11,12}^{ci})) * c_{3,0}^{inv}$$

$$c_{177,1,11}^{mdl} = (-(-c_{11,12}^{ci})) * c_{3,1}^{inv}$$

$$c_{177,2,11}^{mdl} = (-(-c_{11,12}^{ci})) * c_{3,2}^{inv}$$

$$c_{177,3,11}^{mdl} = (-(-c_{11,12}^{ci})) * c_{3,3}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{12}\rangle = c_{177,0,12}^{mdl} P_0 + c_{177,1,12}^{mdl} P_1 + c_{177,2,12}^{mdl} P_2 + c_{177,3,12}^{mdl} P_3$$

$$c_{177,0,12}^{mdl} = (-(-c_{12,12}^{ci})) * c_{3,0}^{inv}$$

$$c_{177,1,12}^{mdl} = (-(-c_{12,12}^{ci})) * c_{3,1}^{inv}$$

$$c_{177,2,12}^{mdl} = (-(-c_{12,12}^{ci})) * c_{3,2}^{inv}$$

$$c_{177,3,12}^{mdl} = (-(-c_{12,12}^{ci})) * c_{3,3}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{13}\rangle = c_{177,5,13}^{mdl} P_5$$

$$c_{177,5,13}^{mdl} = (-(-c_{13,13}^{ci})) * c_{5,5}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{14}\rangle = c_{177,5,14}^{mdl} P_5$$

$$c_{177,5,14}^{mdl} = (-(-c_{14,13}^{ci})) * c_{5,5}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{15}\rangle = c_{177,13,15}^{mdl} P_{13} + c_{177,14,15}^{mdl} P_{14}$$

$$c_{177,13,15}^{mdl} = c_{15,15}^{ci} * c_{14,13}^{inv}$$

$$c_{177,14,15}^{mdl} = c_{15,15}^{ci} * c_{14,14}^{inv}$$

$$\hat{O}_{178} : \langle P_p | \hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- | P_q \rangle = >$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- | P_0 \rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- |P_1\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- |P_2\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- |P_3\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- |P_4\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- |P_5\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- |P_6\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- |P_7\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- |P_8\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- |P_9\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- |P_{10}\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- |P_{11}\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- |P_{12}\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- |P_{13}\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- |P_{14}\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{179} : \langle P_p | \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- | P_q \rangle = >$$

$$\hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_0\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_1\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_2\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_3\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_4\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_5\rangle = c_{179,9,5}^{mdl} P_9 + c_{179,10,5}^{mdl} P_{10}$$

$$c_{179,9,5}^{mdl} = c_{5,5}^{ci} * c_{10,9}^{inv}$$

$$c_{179,10,5}^{mdl} = c_{5,5}^{ci} * c_{10,10}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_6\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_7\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_8\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_9\rangle =$$

$$\begin{aligned}
& \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{10}\rangle = \\
& \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{11}\rangle = \\
& \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{12}\rangle = \\
& \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{13}\rangle = c_{179,0,13}^{mdl} P_0 + c_{179,1,13}^{mdl} P_1 + c_{179,2,13}^{mdl} P_2 + c_{179,3,13}^{mdl} P_3 \\
& c_{179,0,13}^{mdl} = (-c_{13,13}^{ci}) * c_{1,0}^{inv} + (-(-c_{13,14}^{ci})) * c_{3,0}^{inv} \\
& c_{179,1,13}^{mdl} = (-c_{13,13}^{ci}) * c_{1,1}^{inv} + (-(-c_{13,14}^{ci})) * c_{3,1}^{inv} \\
& c_{179,2,13}^{mdl} = (-c_{13,13}^{ci}) * c_{1,2}^{inv} + (-(-c_{13,14}^{ci})) * c_{3,2}^{inv} \\
& c_{179,3,13}^{mdl} = (-c_{13,13}^{ci}) * c_{1,3}^{inv} + (-(-c_{13,14}^{ci})) * c_{3,3}^{inv} \\
& \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{14}\rangle = c_{179,0,14}^{mdl} P_0 + c_{179,1,14}^{mdl} P_1 + c_{179,2,14}^{mdl} P_2 + c_{179,3,14}^{mdl} P_3 \\
& c_{179,0,14}^{mdl} = (-c_{14,13}^{ci}) * c_{1,0}^{inv} + (-(-c_{14,14}^{ci})) * c_{3,0}^{inv} \\
& c_{179,1,14}^{mdl} = (-c_{14,13}^{ci}) * c_{1,1}^{inv} + (-(-c_{14,14}^{ci})) * c_{3,1}^{inv} \\
& c_{179,2,14}^{mdl} = (-c_{14,13}^{ci}) * c_{1,2}^{inv} + (-(-c_{14,14}^{ci})) * c_{3,2}^{inv} \\
& c_{179,3,14}^{mdl} = (-c_{14,13}^{ci}) * c_{1,3}^{inv} + (-(-c_{14,14}^{ci})) * c_{3,3}^{inv} \\
& \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{15}\rangle = c_{179,11,15}^{mdl} P_{11} + c_{179,12,15}^{mdl} P_{12} \\
& c_{179,11,15}^{mdl} = (-c_{15,15}^{ci}) * c_{12,11}^{inv} \\
& c_{179,12,15}^{mdl} = (-c_{15,15}^{ci}) * c_{12,12}^{inv}
\end{aligned}$$

$$\hat{O}_{180} : \langle P_p | \hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- | P_q \rangle =$$

$$\begin{aligned}
& \hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- |P_0\rangle = \\
& \hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- |P_1\rangle = \\
& \hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- |P_2\rangle = \\
& \hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- |P_3\rangle = \\
& \hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- |P_4\rangle = \\
& \hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- |P_5\rangle = \\
& \hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- |P_6\rangle = \\
& \hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- |P_7\rangle = \\
& \hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- |P_8\rangle = \\
& \hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- |P_9\rangle = \\
& \hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- |P_{10}\rangle =
\end{aligned}$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- |P_{11}\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- |P_{12}\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- |P_{13}\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- |P_{14}\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{181} : \langle P_p | \hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- | P_q \rangle =>$$

$$\hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_0\rangle = c_{181,9,0}^{mdl} P_9 + c_{181,10,0}^{mdl} P_{10}$$

$$c_{181,9,0}^{mdl} = c_{0,3}^{ci} * c_{10,9}^{inv}$$

$$c_{181,10,0}^{mdl} = c_{0,3}^{ci} * c_{10,10}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_1\rangle = c_{181,9,1}^{mdl} P_9 + c_{181,10,1}^{mdl} P_{10}$$

$$c_{181,9,1}^{mdl} = c_{1,3}^{ci} * c_{10,9}^{inv}$$

$$c_{181,10,1}^{mdl} = c_{1,3}^{ci} * c_{10,10}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_2\rangle = c_{181,9,2}^{mdl} P_9 + c_{181,10,2}^{mdl} P_{10}$$

$$c_{181,9,2}^{mdl} = c_{2,3}^{ci} * c_{10,9}^{inv}$$

$$c_{181,10,2}^{mdl} = c_{2,3}^{ci} * c_{10,10}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_3\rangle = c_{181,9,3}^{mdl} P_9 + c_{181,10,3}^{mdl} P_{10}$$

$$c_{181,9,3}^{mdl} = c_{3,3}^{ci} * c_{10,9}^{inv}$$

$$c_{181,10,3}^{mdl} = c_{3,3}^{ci} * c_{10,10}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_4\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_5\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_6\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_7\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_8\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_9\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{10}\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{11}\rangle = c_{181,0,11}^{mdl} P_0 + c_{181,1,11}^{mdl} P_1 + c_{181,2,11}^{mdl} P_2 + c_{181,3,11}^{mdl} P_3$$

$$c_{181,0,11}^{mdl} = (-c_{11,12}^{ci}) * c_{1,0}^{inv}$$

$$c_{181,1,11}^{mdl} = (-c_{11,12}^{ci}) * c_{1,1}^{inv}$$

$$c_{181,2,11}^{mdl} = (-c_{11,12}^{ci}) * c_{1,2}^{inv}$$

$$c_{181,3,11}^{mdl} = (-c_{11,12}^{ci}) * c_{1,3}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{12}\rangle = c_{181,0,12}^{mdl} P_0 + c_{181,1,12}^{mdl} P_1 + c_{181,2,12}^{mdl} P_2 + c_{181,3,12}^{mdl} P_3$$

$$c_{181,0,12}^{mdl} = (-c_{12,12}^{ci}) * c_{1,0}^{inv}$$

$$c_{181,1,12}^{mdl} = (-c_{12,12}^{ci}) * c_{1,1}^{inv}$$

$$c_{181,2,12}^{mdl} = (-c_{12,12}^{ci}) * c_{1,2}^{inv}$$

$$c_{181,3,12}^{mdl} = (-c_{12,12}^{ci}) * c_{1,3}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{13}\rangle = c_{181,5,13}^{mdl} P_5$$

$$c_{181,5,13}^{mdl} = (-c_{13,14}^{ci}) * c_{5,5}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{14}\rangle = c_{181,5,14}^{mdl} P_5$$

$$c_{181,5,14}^{mdl} = (-c_{14,14}^{ci}) * c_{5,5}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{15}\rangle = c_{181,13,15}^{mdl} P_{13} + c_{181,14,15}^{mdl} P_{14}$$

$$c_{181,13,15}^{mdl} = c_{15,15}^{ci} * c_{13,13}^{inv}$$

$$c_{181,14,15}^{mdl} = c_{15,15}^{ci} * c_{13,14}^{inv}$$

$$\hat{O}_{182} : \langle P_p | \hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- | P_q \rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- | P_0 \rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- | P_1 \rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- | P_2 \rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- | P_3 \rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- | P_4 \rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- | P_5 \rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- | P_6 \rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- | P_7 \rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- | P_8 \rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- | P_9 \rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- | P_{10} \rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- | P_{11} \rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- | P_{12} \rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- |P_{13}\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- |P_{14}\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{183} : \langle P_p | \hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- | P_q \rangle =>$$

$$\hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_0\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_1\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_2\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_3\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_4\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_5\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_6\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_7\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_8\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_9\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_{10}\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_{11}\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_{12}\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_{13}\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_{14}\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{184} : \langle P_p | \hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- | P_q \rangle =>$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_0\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_1\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_2\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_3\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_4\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_5\rangle =$$

$$\hat{O}_{186} : \langle P_p | \hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\beta^- | P_q \rangle =$$

$$\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{+}\hat{0}_{\beta}^{-}\hat{0}_{\beta}^{-}|P_0\rangle =$$

$$\hat{0}_{\alpha}^{+}\hat{0}_{\alpha}^{+}\hat{0}_{\beta}^{-}\hat{0}_{\beta}^{-}|P_1\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_2\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_3\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_4\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_5\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_6\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_7\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_8\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_9\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_{10}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_{11}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_{12}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_{13}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_{14}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{187} : \langle P_p | \hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- | P_q \rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_0\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_1\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_2\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_3\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_4\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_5\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_6\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_7\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_8\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_9\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_{10}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_{11}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_{12}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_{13}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_{14}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{188} : \langle P_p | \hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- | P_q \rangle = >$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_0\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_1\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_2\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_3\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_4\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_5\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_6\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_7\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_8\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_9\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_{10}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_{11}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_{12}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_{13}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_{14}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{189} : \langle P_p | \hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- | P_q \rangle = >$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_0\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_1\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_2\rangle =$$

$$\begin{aligned}
\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_3\rangle &= \\
\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_4\rangle &= \\
\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_5\rangle &= \\
\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_6\rangle &= \\
\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_7\rangle &= \\
\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_8\rangle &= \\
\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_9\rangle &= \\
\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{10}\rangle &= \\
\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{11}\rangle &= \\
\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{12}\rangle &= \\
\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{13}\rangle &= \\
\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{14}\rangle &= \\
\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{15}\rangle &=
\end{aligned}$$

$$\hat{O}_{190} : \langle P_p | \hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- | P_q \rangle = >$$

$$\begin{aligned}
\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_0\rangle &= \\
\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_1\rangle &= \\
\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_2\rangle &= \\
\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_3\rangle &= \\
\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_4\rangle &= \\
\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_5\rangle &= \\
\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_6\rangle &= \\
\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_7\rangle &= \\
\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_8\rangle &= \\
\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_9\rangle &= \\
\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{10}\rangle &= \\
\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{11}\rangle &= \\
\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{12}\rangle &= \\
\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{13}\rangle &=
\end{aligned}$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{14}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{191} : \langle P_p | \hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- | P_q \rangle =>$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_0\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_1\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_2\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_3\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_4\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_5\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_6\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_7\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_8\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_9\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_{10}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_{11}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_{12}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_{13}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_{14}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{192} : \langle P_p | \hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- | P_q \rangle =>$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_0\rangle = c_{192,0,0}^{mdl} P_0 + c_{192,1,0}^{mdl} P_1 + c_{192,2,0}^{mdl} P_2 + c_{192,3,0}^{mdl} P_3$$

$$c_{192,0,0}^{mdl} = (-c_{0,0}^{ci}) * c_{0,0}^{inv}$$

$$c_{192,1,0}^{mdl} = (-c_{0,0}^{ci}) * c_{0,1}^{inv}$$

$$c_{192,2,0}^{mdl} = (-c_{0,0}^{ci}) * c_{0,2}^{inv}$$

$$c_{192,3,0}^{mdl} = (-c_{0,0}^{ci}) * c_{0,3}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_1\rangle = c_{192,0,1}^{mdl} P_0 + c_{192,1,1}^{mdl} P_1 + c_{192,2,1}^{mdl} P_2 + c_{192,3,1}^{mdl} P_3$$

$$c_{192,0,1}^{mdl} = (-c_{1,0}^{ci}) * c_{0,0}^{inv}$$

$$\begin{aligned}
c_{192,1,1}^{mdl} &= (-c_{1,0}^{ci}) * c_{0,1}^{inv} \\
c_{192,2,1}^{mdl} &= (-c_{1,0}^{ci}) * c_{0,2}^{inv} \\
c_{192,3,1}^{mdl} &= (-c_{1,0}^{ci}) * c_{0,3}^{inv} \\
\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_2\rangle &= c_{192,0,2}^{mdl} P_0 + c_{192,1,2}^{mdl} P_1 + c_{192,2,2}^{mdl} P_2 + c_{192,3,2}^{mdl} P_3 \\
c_{192,0,2}^{mdl} &= (-c_{2,0}^{ci}) * c_{0,0}^{inv} \\
c_{192,1,2}^{mdl} &= (-c_{2,0}^{ci}) * c_{0,1}^{inv} \\
c_{192,2,2}^{mdl} &= (-c_{2,0}^{ci}) * c_{0,2}^{inv} \\
c_{192,3,2}^{mdl} &= (-c_{2,0}^{ci}) * c_{0,3}^{inv} \\
\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_3\rangle &= c_{192,0,3}^{mdl} P_0 + c_{192,1,3}^{mdl} P_1 + c_{192,2,3}^{mdl} P_2 + c_{192,3,3}^{mdl} P_3 \\
c_{192,0,3}^{mdl} &= (-c_{3,0}^{ci}) * c_{0,0}^{inv} \\
c_{192,1,3}^{mdl} &= (-c_{3,0}^{ci}) * c_{0,1}^{inv} \\
c_{192,2,3}^{mdl} &= (-c_{3,0}^{ci}) * c_{0,2}^{inv} \\
c_{192,3,3}^{mdl} &= (-c_{3,0}^{ci}) * c_{0,3}^{inv} \\
\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_4\rangle &= \\
\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_5\rangle &= \\
\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_6\rangle &= \\
\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_7\rangle &= \\
\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_8\rangle &= \\
\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_9\rangle &= \\
\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_{10}\rangle &= \\
\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_{11}\rangle &= c_{192,11,11}^{mdl} P_{11} + c_{192,12,11}^{mdl} P_{12} \\
c_{192,11,11}^{mdl} &= (-c_{11,11}^{ci}) * c_{11,11}^{inv} \\
c_{192,12,11}^{mdl} &= (-c_{11,11}^{ci}) * c_{11,12}^{inv} \\
\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_{12}\rangle &= c_{192,11,12}^{mdl} P_{11} + c_{192,12,12}^{mdl} P_{12} \\
c_{192,11,12}^{mdl} &= (-c_{12,11}^{ci}) * c_{11,11}^{inv} \\
c_{192,12,12}^{mdl} &= (-c_{12,11}^{ci}) * c_{11,12}^{inv} \\
\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_{13}\rangle &= c_{192,13,13}^{mdl} P_{13} + c_{192,14,13}^{mdl} P_{14} \\
c_{192,13,13}^{mdl} &= (-c_{13,13}^{ci}) * c_{13,13}^{inv} \\
c_{192,14,13}^{mdl} &= (-c_{13,13}^{ci}) * c_{13,14}^{inv}
\end{aligned}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_{14}\rangle = c_{192,13,14}^{mdl} P_{13} + c_{192,14,14}^{mdl} P_{14}$$

$$c_{192,13,14}^{mdl} = (-c_{14,13}^{ci}) * c_{13,13}^{inv}$$

$$c_{192,14,14}^{mdl} = (-c_{14,13}^{ci}) * c_{13,14}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_{15}\rangle = c_{192,15,15}^{mdl} P_{15}$$

$$c_{192,15,15}^{mdl} = (-c_{15,15}^{ci}) * c_{15,15}^{inv}$$

$$\hat{O}_{193} : \langle P_p | \hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- | P_q \rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_0\rangle = c_{193,0,0}^{mdl} P_0 + c_{193,1,0}^{mdl} P_1 + c_{193,2,0}^{mdl} P_2 + c_{193,3,0}^{mdl} P_3$$

$$c_{193,0,0}^{mdl} = (-c_{0,1}^{ci}) * c_{0,0}^{inv}$$

$$c_{193,1,0}^{mdl} = (-c_{0,1}^{ci}) * c_{0,1}^{inv}$$

$$c_{193,2,0}^{mdl} = (-c_{0,1}^{ci}) * c_{0,2}^{inv}$$

$$c_{193,3,0}^{mdl} = (-c_{0,1}^{ci}) * c_{0,3}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_1\rangle = c_{193,0,1}^{mdl} P_0 + c_{193,1,1}^{mdl} P_1 + c_{193,2,1}^{mdl} P_2 + c_{193,3,1}^{mdl} P_3$$

$$c_{193,0,1}^{mdl} = (-c_{1,1}^{ci}) * c_{0,0}^{inv}$$

$$c_{193,1,1}^{mdl} = (-c_{1,1}^{ci}) * c_{0,1}^{inv}$$

$$c_{193,2,1}^{mdl} = (-c_{1,1}^{ci}) * c_{0,2}^{inv}$$

$$c_{193,3,1}^{mdl} = (-c_{1,1}^{ci}) * c_{0,3}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_2\rangle = c_{193,0,2}^{mdl} P_0 + c_{193,1,2}^{mdl} P_1 + c_{193,2,2}^{mdl} P_2 + c_{193,3,2}^{mdl} P_3$$

$$c_{193,0,2}^{mdl} = (-c_{2,1}^{ci}) * c_{0,0}^{inv}$$

$$c_{193,1,2}^{mdl} = (-c_{2,1}^{ci}) * c_{0,1}^{inv}$$

$$c_{193,2,2}^{mdl} = (-c_{2,1}^{ci}) * c_{0,2}^{inv}$$

$$c_{193,3,2}^{mdl} = (-c_{2,1}^{ci}) * c_{0,3}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_3\rangle = c_{193,0,3}^{mdl} P_0 + c_{193,1,3}^{mdl} P_1 + c_{193,2,3}^{mdl} P_2 + c_{193,3,3}^{mdl} P_3$$

$$c_{193,0,3}^{mdl} = (-c_{3,1}^{ci}) * c_{0,0}^{inv}$$

$$c_{193,1,3}^{mdl} = (-c_{3,1}^{ci}) * c_{0,1}^{inv}$$

$$c_{193,2,3}^{mdl} = (-c_{3,1}^{ci}) * c_{0,2}^{inv}$$

$$c_{193,3,3}^{mdl} = (-c_{3,1}^{ci}) * c_{0,3}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_4\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_5\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_6\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_7\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_8\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_9\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{10}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{11}\rangle = c_{193,11,11}^{mdl} P_{11} + c_{193,12,11}^{mdl} P_{12}$$

$$c_{193,11,11}^{mdl} = c_{11,12}^{ci} * c_{11,11}^{inv}$$

$$c_{193,12,11}^{mdl} = c_{11,12}^{ci} * c_{11,12}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{12}\rangle = c_{193,11,12}^{mdl} P_{11} + c_{193,12,12}^{mdl} P_{12}$$

$$c_{193,11,12}^{mdl} = c_{12,12}^{ci} * c_{11,11}^{inv}$$

$$c_{193,12,12}^{mdl} = c_{12,12}^{ci} * c_{11,12}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{13}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{14}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{194} : \langle P_p | \hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- | P_q \rangle = >$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_0\rangle = c_{194,0,0}^{mdl} P_0 + c_{194,1,0}^{mdl} P_1 + c_{194,2,0}^{mdl} P_2 + c_{194,3,0}^{mdl} P_3$$

$$c_{194,0,0}^{mdl} = c_{0,0}^{ci} * c_{0,0}^{inv}$$

$$c_{194,1,0}^{mdl} = c_{0,0}^{ci} * c_{0,1}^{inv}$$

$$c_{194,2,0}^{mdl} = c_{0,0}^{ci} * c_{0,2}^{inv}$$

$$c_{194,3,0}^{mdl} = c_{0,0}^{ci} * c_{0,3}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_1\rangle = c_{194,0,1}^{mdl} P_0 + c_{194,1,1}^{mdl} P_1 + c_{194,2,1}^{mdl} P_2 + c_{194,3,1}^{mdl} P_3$$

$$c_{194,0,1}^{mdl} = c_{1,0}^{ci} * c_{0,0}^{inv}$$

$$c_{194,1,1}^{mdl} = c_{1,0}^{ci} * c_{0,1}^{inv}$$

$$c_{194,2,1}^{mdl} = c_{1,0}^{ci} * c_{0,2}^{inv}$$

$$c_{194,3,1}^{mdl} = c_{1,0}^{ci} * c_{0,3}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_2\rangle = c_{194,0,2}^{mdl} P_0 + c_{194,1,2}^{mdl} P_1 + c_{194,2,2}^{mdl} P_2 + c_{194,3,2}^{mdl} P_3$$

$$c_{194,0,2}^{mdl} = c_{2,0}^{ci} * c_{0,0}^{inv}$$

$$c_{194,1,2}^{mdl} = c_{2,0}^{ci} * c_{0,1}^{inv}$$

$$\begin{aligned}
c_{194,2,2}^{mdl} &= c_{2,0}^{ci} * c_{0,2}^{inv} \\
c_{194,3,2}^{mdl} &= c_{2,0}^{ci} * c_{0,3}^{inv} \\
\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_3\rangle &= c_{194,0,3}^{mdl} P_0 + c_{194,1,3}^{mdl} P_1 + c_{194,2,3}^{mdl} P_2 + c_{194,3,3}^{mdl} P_3 \\
c_{194,0,3}^{mdl} &= c_{3,0}^{ci} * c_{0,0}^{inv} \\
c_{194,1,3}^{mdl} &= c_{3,0}^{ci} * c_{0,1}^{inv} \\
c_{194,2,3}^{mdl} &= c_{3,0}^{ci} * c_{0,2}^{inv} \\
c_{194,3,3}^{mdl} &= c_{3,0}^{ci} * c_{0,3}^{inv} \\
\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_4\rangle &= \\
\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_5\rangle &= \\
\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_6\rangle &= \\
\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_7\rangle &= \\
\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_8\rangle &= \\
\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_9\rangle &= \\
\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{10}\rangle &= \\
\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{11}\rangle &= c_{194,11,11}^{mdl} P_{11} + c_{194,12,11}^{mdl} P_{12} \\
c_{194,11,11}^{mdl} &= c_{11,11}^{ci} * c_{11,11}^{inv} \\
c_{194,12,11}^{mdl} &= c_{11,11}^{ci} * c_{11,12}^{inv} \\
\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{12}\rangle &= c_{194,11,12}^{mdl} P_{11} + c_{194,12,12}^{mdl} P_{12} \\
c_{194,11,12}^{mdl} &= c_{12,11}^{ci} * c_{11,11}^{inv} \\
c_{194,12,12}^{mdl} &= c_{12,11}^{ci} * c_{11,12}^{inv} \\
\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{13}\rangle &= c_{194,13,13}^{mdl} P_{13} + c_{194,14,13}^{mdl} P_{14} \\
c_{194,13,13}^{mdl} &= c_{13,13}^{ci} * c_{13,13}^{inv} \\
c_{194,14,13}^{mdl} &= c_{13,13}^{ci} * c_{13,14}^{inv} \\
\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{14}\rangle &= c_{194,13,14}^{mdl} P_{13} + c_{194,14,14}^{mdl} P_{14} \\
c_{194,13,14}^{mdl} &= c_{14,13}^{ci} * c_{13,13}^{inv} \\
c_{194,14,14}^{mdl} &= c_{14,13}^{ci} * c_{13,14}^{inv} \\
\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{15}\rangle &= c_{194,15,15}^{mdl} P_{15} \\
c_{194,15,15}^{mdl} &= c_{15,15}^{ci} * c_{15,15}^{inv}
\end{aligned}$$

$$\begin{aligned}
\hat{O}_{195} : \langle P_p | \hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- | P_q \rangle = & \\
\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- | P_0 \rangle = c_{195,0,0}^{mdl} P_0 + c_{195,1,0}^{mdl} P_1 + c_{195,2,0}^{mdl} P_2 + c_{195,3,0}^{mdl} P_3 \\
c_{195,0,0}^{mdl} = (-c_{0,2}^{ci}) * c_{0,0}^{inv} \\
c_{195,1,0}^{mdl} = (-c_{0,2}^{ci}) * c_{0,1}^{inv} \\
c_{195,2,0}^{mdl} = (-c_{0,2}^{ci}) * c_{0,2}^{inv} \\
c_{195,3,0}^{mdl} = (-c_{0,2}^{ci}) * c_{0,3}^{inv} \\
\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- | P_1 \rangle = c_{195,0,1}^{mdl} P_0 + c_{195,1,1}^{mdl} P_1 + c_{195,2,1}^{mdl} P_2 + c_{195,3,1}^{mdl} P_3 \\
c_{195,0,1}^{mdl} = (-c_{1,2}^{ci}) * c_{0,0}^{inv} \\
c_{195,1,1}^{mdl} = (-c_{1,2}^{ci}) * c_{0,1}^{inv} \\
c_{195,2,1}^{mdl} = (-c_{1,2}^{ci}) * c_{0,2}^{inv} \\
c_{195,3,1}^{mdl} = (-c_{1,2}^{ci}) * c_{0,3}^{inv} \\
\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- | P_2 \rangle = c_{195,0,2}^{mdl} P_0 + c_{195,1,2}^{mdl} P_1 + c_{195,2,2}^{mdl} P_2 + c_{195,3,2}^{mdl} P_3 \\
c_{195,0,2}^{mdl} = (-c_{2,2}^{ci}) * c_{0,0}^{inv} \\
c_{195,1,2}^{mdl} = (-c_{2,2}^{ci}) * c_{0,1}^{inv} \\
c_{195,2,2}^{mdl} = (-c_{2,2}^{ci}) * c_{0,2}^{inv} \\
c_{195,3,2}^{mdl} = (-c_{2,2}^{ci}) * c_{0,3}^{inv} \\
\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- | P_3 \rangle = c_{195,0,3}^{mdl} P_0 + c_{195,1,3}^{mdl} P_1 + c_{195,2,3}^{mdl} P_2 + c_{195,3,3}^{mdl} P_3 \\
c_{195,0,3}^{mdl} = (-c_{3,2}^{ci}) * c_{0,0}^{inv} \\
c_{195,1,3}^{mdl} = (-c_{3,2}^{ci}) * c_{0,1}^{inv} \\
c_{195,2,3}^{mdl} = (-c_{3,2}^{ci}) * c_{0,2}^{inv} \\
c_{195,3,3}^{mdl} = (-c_{3,2}^{ci}) * c_{0,3}^{inv} \\
\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- | P_4 \rangle = \\
\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- | P_5 \rangle = \\
\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- | P_6 \rangle = \\
\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- | P_7 \rangle = \\
\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- | P_8 \rangle = \\
\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- | P_9 \rangle = \\
\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- | P_{10} \rangle = \\
\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- | P_{11} \rangle =
\end{aligned}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_{12}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_{13}\rangle = c_{195,13,13}^{mdl} P_{13} + c_{195,14,13}^{mdl} P_{14}$$

$$c_{195,13,13}^{mdl} = (-c_{13,14}^{ci}) * c_{13,13}^{inv}$$

$$c_{195,14,13}^{mdl} = (-c_{13,14}^{ci}) * c_{13,14}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_{14}\rangle = c_{195,13,14}^{mdl} P_{13} + c_{195,14,14}^{mdl} P_{14}$$

$$c_{195,13,14}^{mdl} = (-c_{14,14}^{ci}) * c_{13,13}^{inv}$$

$$c_{195,14,14}^{mdl} = (-c_{14,14}^{ci}) * c_{13,14}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{196} : \langle P_p | \hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- | P_q \rangle = >$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_0\rangle = c_{196,0,0}^{mdl} P_0 + c_{196,1,0}^{mdl} P_1 + c_{196,2,0}^{mdl} P_2 + c_{196,3,0}^{mdl} P_3$$

$$c_{196,0,0}^{mdl} = c_{0,2}^{ci} * c_{0,0}^{inv}$$

$$c_{196,1,0}^{mdl} = c_{0,2}^{ci} * c_{0,1}^{inv}$$

$$c_{196,2,0}^{mdl} = c_{0,2}^{ci} * c_{0,2}^{inv}$$

$$c_{196,3,0}^{mdl} = c_{0,2}^{ci} * c_{0,3}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_1\rangle = c_{196,0,1}^{mdl} P_0 + c_{196,1,1}^{mdl} P_1 + c_{196,2,1}^{mdl} P_2 + c_{196,3,1}^{mdl} P_3$$

$$c_{196,0,1}^{mdl} = c_{1,2}^{ci} * c_{0,0}^{inv}$$

$$c_{196,1,1}^{mdl} = c_{1,2}^{ci} * c_{0,1}^{inv}$$

$$c_{196,2,1}^{mdl} = c_{1,2}^{ci} * c_{0,2}^{inv}$$

$$c_{196,3,1}^{mdl} = c_{1,2}^{ci} * c_{0,3}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_2\rangle = c_{196,0,2}^{mdl} P_0 + c_{196,1,2}^{mdl} P_1 + c_{196,2,2}^{mdl} P_2 + c_{196,3,2}^{mdl} P_3$$

$$c_{196,0,2}^{mdl} = c_{2,2}^{ci} * c_{0,0}^{inv}$$

$$c_{196,1,2}^{mdl} = c_{2,2}^{ci} * c_{0,1}^{inv}$$

$$c_{196,2,2}^{mdl} = c_{2,2}^{ci} * c_{0,2}^{inv}$$

$$c_{196,3,2}^{mdl} = c_{2,2}^{ci} * c_{0,3}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_3\rangle = c_{196,0,3}^{mdl} P_0 + c_{196,1,3}^{mdl} P_1 + c_{196,2,3}^{mdl} P_2 + c_{196,3,3}^{mdl} P_3$$

$$c_{196,0,3}^{mdl} = c_{3,2}^{ci} * c_{0,0}^{inv}$$

$$c_{196,1,3}^{mdl} = c_{3,2}^{ci} * c_{0,1}^{inv}$$

$$c_{196,2,3}^{mdl} = c_{3,2}^{ci} * c_{0,2}^{inv}$$

$$c_{196,3,3}^{mdl} = c_{3,2}^{ci} * c_{0,3}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_4\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_5\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_6\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_7\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_8\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_9\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_{10}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_{11}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_{12}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_{13}\rangle = c_{196,13,13}^{mdl} P_{13} + c_{196,14,13}^{mdl} P_{14}$$

$$c_{196,13,13}^{mdl} = c_{13,14}^{ci} * c_{13,13}^{inv}$$

$$c_{196,14,13}^{mdl} = c_{13,14}^{ci} * c_{13,14}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_{14}\rangle = c_{196,13,14}^{mdl} P_{13} + c_{196,14,14}^{mdl} P_{14}$$

$$c_{196,13,14}^{mdl} = c_{14,14}^{ci} * c_{13,13}^{inv}$$

$$c_{196,14,14}^{mdl} = c_{14,14}^{ci} * c_{13,14}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{197} : \langle P_p | \hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- | P_q \rangle = >$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_0\rangle = c_{197,0,0}^{mdl} P_0 + c_{197,1,0}^{mdl} P_1 + c_{197,2,0}^{mdl} P_2 + c_{197,3,0}^{mdl} P_3$$

$$c_{197,0,0}^{mdl} = (-c_{0,3}^{ci}) * c_{0,0}^{inv}$$

$$c_{197,1,0}^{mdl} = (-c_{0,3}^{ci}) * c_{0,1}^{inv}$$

$$c_{197,2,0}^{mdl} = (-c_{0,3}^{ci}) * c_{0,2}^{inv}$$

$$c_{197,3,0}^{mdl} = (-c_{0,3}^{ci}) * c_{0,3}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_1\rangle = c_{197,0,1}^{mdl} P_0 + c_{197,1,1}^{mdl} P_1 + c_{197,2,1}^{mdl} P_2 + c_{197,3,1}^{mdl} P_3$$

$$c_{197,0,1}^{mdl} = (-c_{1,3}^{ci}) * c_{0,0}^{inv}$$

$$c_{197,1,1}^{mdl} = (-c_{1,3}^{ci}) * c_{0,1}^{inv}$$

$$c_{197,2,1}^{mdl} = (-c_{1,3}^{ci}) * c_{0,2}^{inv}$$

$$c_{197,3,1}^{mdl} = (-c_{1,3}^{ci}) * c_{0,3}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_2\rangle = c_{197,0,2}^{mdl} P_0 + c_{197,1,2}^{mdl} P_1 + c_{197,2,2}^{mdl} P_2 + c_{197,3,2}^{mdl} P_3$$

$$c_{197,0,2}^{mdl} = (-c_{2,3}^{ci}) * c_{0,0}^{inv}$$

$$c_{197,1,2}^{mdl} = (-c_{2,3}^{ci}) * c_{0,1}^{inv}$$

$$c_{197,2,2}^{mdl} = (-c_{2,3}^{ci}) * c_{0,2}^{inv}$$

$$c_{197,3,2}^{mdl} = (-c_{2,3}^{ci}) * c_{0,3}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_3\rangle = c_{197,0,3}^{mdl} P_0 + c_{197,1,3}^{mdl} P_1 + c_{197,2,3}^{mdl} P_2 + c_{197,3,3}^{mdl} P_3$$

$$c_{197,0,3}^{mdl} = (-c_{3,3}^{ci}) * c_{0,0}^{inv}$$

$$c_{197,1,3}^{mdl} = (-c_{3,3}^{ci}) * c_{0,1}^{inv}$$

$$c_{197,2,3}^{mdl} = (-c_{3,3}^{ci}) * c_{0,2}^{inv}$$

$$c_{197,3,3}^{mdl} = (-c_{3,3}^{ci}) * c_{0,3}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_4\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_5\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_6\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_7\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_8\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_9\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_{10}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_{11}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_{12}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_{13}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_{14}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{198} : \langle P_p | \hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- | P_q \rangle = >$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_0\rangle = c_{198,0,0}^{mdl} P_0 + c_{198,1,0}^{mdl} P_1 + c_{198,2,0}^{mdl} P_2 + c_{198,3,0}^{mdl} P_3$$

$$c_{198,0,0}^{mdl} = c_{0,1}^{ci} * c_{0,0}^{inv}$$

$$c_{198,1,0}^{mdl} = c_{0,1}^{ci} * c_{0,1}^{inv}$$

$$c_{198,2,0}^{mdl} = c_{0,1}^{ci} * c_{0,2}^{inv}$$

$$c_{198,3,0}^{mdl} = c_{0,1}^{ci} * c_{0,3}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_1\rangle = c_{198,0,1}^{mdl} P_0 + c_{198,1,1}^{mdl} P_1 + c_{198,2,1}^{mdl} P_2 + c_{198,3,1}^{mdl} P_3$$

$$c_{198,0,1}^{mdl} = c_{1,1}^{ci} * c_{0,0}^{inv}$$

$$c_{198,1,1}^{mdl} = c_{1,1}^{ci} * c_{0,1}^{inv}$$

$$c_{198,2,1}^{mdl} = c_{1,1}^{ci} * c_{0,2}^{inv}$$

$$c_{198,3,1}^{mdl} = c_{1,1}^{ci} * c_{0,3}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_2\rangle = c_{198,0,2}^{mdl} P_0 + c_{198,1,2}^{mdl} P_1 + c_{198,2,2}^{mdl} P_2 + c_{198,3,2}^{mdl} P_3$$

$$c_{198,0,2}^{mdl} = c_{2,1}^{ci} * c_{0,0}^{inv}$$

$$c_{198,1,2}^{mdl} = c_{2,1}^{ci} * c_{0,1}^{inv}$$

$$c_{198,2,2}^{mdl} = c_{2,1}^{ci} * c_{0,2}^{inv}$$

$$c_{198,3,2}^{mdl} = c_{2,1}^{ci} * c_{0,3}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_3\rangle = c_{198,0,3}^{mdl} P_0 + c_{198,1,3}^{mdl} P_1 + c_{198,2,3}^{mdl} P_2 + c_{198,3,3}^{mdl} P_3$$

$$c_{198,0,3}^{mdl} = c_{3,1}^{ci} * c_{0,0}^{inv}$$

$$c_{198,1,3}^{mdl} = c_{3,1}^{ci} * c_{0,1}^{inv}$$

$$c_{198,2,3}^{mdl} = c_{3,1}^{ci} * c_{0,2}^{inv}$$

$$c_{198,3,3}^{mdl} = c_{3,1}^{ci} * c_{0,3}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_4\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_5\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_6\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_7\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_8\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_9\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{10}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{11}\rangle = c_{198,11,11}^{mdl} P_{11} + c_{198,12,11}^{mdl} P_{12}$$

$$c_{198,11,11}^{mdl} = (-c_{11,12}^{ci}) * c_{11,11}^{inv}$$

$$c_{198,12,11}^{mdl} = (-c_{11,12}^{ci}) * c_{11,12}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{12}\rangle = c_{198,11,12}^{mdl} P_{11} + c_{198,12,12}^{mdl} P_{12}$$

$$c_{198,11,12}^{mdl} = (-c_{12,12}^{ci}) * c_{11,11}^{inv}$$

$$c_{198,12,12}^{mdl} = (-c_{12,12}^{ci}) * c_{11,12}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{13}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{14}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{199} : \langle P_p | \hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- | P_q \rangle = >$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_0\rangle = c_{199,0,0}^{mdl} P_0 + c_{199,1,0}^{mdl} P_1 + c_{199,2,0}^{mdl} P_2 + c_{199,3,0}^{mdl} P_3$$

$$c_{199,0,0}^{mdl} = c_{0,3}^{ci} * c_{0,0}^{inv}$$

$$c_{199,1,0}^{mdl} = c_{0,3}^{ci} * c_{0,1}^{inv}$$

$$c_{199,2,0}^{mdl} = c_{0,3}^{ci} * c_{0,2}^{inv}$$

$$c_{199,3,0}^{mdl} = c_{0,3}^{ci} * c_{0,3}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_1\rangle = c_{199,0,1}^{mdl} P_0 + c_{199,1,1}^{mdl} P_1 + c_{199,2,1}^{mdl} P_2 + c_{199,3,1}^{mdl} P_3$$

$$c_{199,0,1}^{mdl} = c_{1,3}^{ci} * c_{0,0}^{inv}$$

$$c_{199,1,1}^{mdl} = c_{1,3}^{ci} * c_{0,1}^{inv}$$

$$c_{199,2,1}^{mdl} = c_{1,3}^{ci} * c_{0,2}^{inv}$$

$$c_{199,3,1}^{mdl} = c_{1,3}^{ci} * c_{0,3}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_2\rangle = c_{199,0,2}^{mdl} P_0 + c_{199,1,2}^{mdl} P_1 + c_{199,2,2}^{mdl} P_2 + c_{199,3,2}^{mdl} P_3$$

$$c_{199,0,2}^{mdl} = c_{2,3}^{ci} * c_{0,0}^{inv}$$

$$c_{199,1,2}^{mdl} = c_{2,3}^{ci} * c_{0,1}^{inv}$$

$$c_{199,2,2}^{mdl} = c_{2,3}^{ci} * c_{0,2}^{inv}$$

$$c_{199,3,2}^{mdl} = c_{2,3}^{ci} * c_{0,3}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_3\rangle = c_{199,0,3}^{mdl} P_0 + c_{199,1,3}^{mdl} P_1 + c_{199,2,3}^{mdl} P_2 + c_{199,3,3}^{mdl} P_3$$

$$c_{199,0,3}^{mdl} = c_{3,3}^{ci} * c_{0,0}^{inv}$$

$$c_{199,1,3}^{mdl} = c_{3,3}^{ci} * c_{0,1}^{inv}$$

$$c_{199,2,3}^{mdl} = c_{3,3}^{ci} * c_{0,2}^{inv}$$

$$c_{199,3,3}^{mdl} = c_{3,3}^{ci} * c_{0,3}^{inv}$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_4\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_5\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_6\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_7\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_8\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_9\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{10}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{11}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{12}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{13}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{14}\rangle =$$

$$\hat{0}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{200} : \langle P_p | \hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- | P_q \rangle = >$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_0\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_1\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_2\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_3\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_4\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_5\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_6\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_7\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_8\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_9\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_{10}\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_{11}\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_{12}\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_{13}\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_{14}\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{201} : \langle P_p | \hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- | P_q \rangle = >$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_0\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_1\rangle =$$

$$\begin{aligned}
& \hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_2\rangle = \\
& \hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_3\rangle = \\
& \hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_4\rangle = c_{201,4,4}^{mdl} P_4 \\
& c_{201,4,4}^{mdl} = (-c_{4,4}^{ci}) * c_{4,4}^{inv} \\
& \hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_5\rangle = \\
& \hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_6\rangle = \\
& \hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_7\rangle = \\
& \hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_8\rangle = \\
& \hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_9\rangle = \\
& \hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_{10}\rangle = \\
& \hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_{11}\rangle = c_{201,11,11}^{mdl} P_{11} + c_{201,12,11}^{mdl} P_{12} \\
& c_{201,11,11}^{mdl} = (-c_{11,11}^{ci}) * c_{11,11}^{inv} + (-c_{11,12}^{ci}) * c_{12,11}^{inv} \\
& c_{201,12,11}^{mdl} = (-c_{11,11}^{ci}) * c_{11,12}^{inv} + (-c_{11,12}^{ci}) * c_{12,12}^{inv} \\
& \hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_{12}\rangle = c_{201,11,12}^{mdl} P_{11} + c_{201,12,12}^{mdl} P_{12} \\
& c_{201,11,12}^{mdl} = (-c_{12,11}^{ci}) * c_{11,11}^{inv} + (-c_{12,12}^{ci}) * c_{12,11}^{inv} \\
& c_{201,12,12}^{mdl} = (-c_{12,11}^{ci}) * c_{11,12}^{inv} + (-c_{12,12}^{ci}) * c_{12,12}^{inv} \\
& \hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_{13}\rangle = \\
& \hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_{14}\rangle = \\
& \hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_{15}\rangle = c_{201,15,15}^{mdl} P_{15} \\
& c_{201,15,15}^{mdl} = (-c_{15,15}^{ci}) * c_{15,15}^{inv}
\end{aligned}$$

$$\hat{O}_{202} : \langle P_p | \hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\beta^- | P_q \rangle = >$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_0\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_1\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_2\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_3\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_4\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_5\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_6\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_7\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_8\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_9\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_{10}\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_{11}\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_{12}\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_{13}\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_{14}\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{203} : \langle P_p | \hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- | P_q \rangle =>$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_0\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_1\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_2\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_3\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_4\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_5\rangle = c_{203,4,5}^{mdl} P_4$$

$$c_{203,4,5}^{mdl} = (-c_{5,5}^{ci}) * c_{4,4}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_6\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_7\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_8\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_9\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_{10}\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_{11}\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_{12}\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_{13}\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_{14}\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_{15}\rangle =$$

$$\begin{aligned}
\hat{O}_{204} : \langle P_p | \hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- | P_q \rangle = & \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- | P_0 \rangle = & \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- | P_1 \rangle = & \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- | P_2 \rangle = & \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- | P_3 \rangle = & \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- | P_4 \rangle = c_{204,4,4}^{mdl} P_4 & \\
c_{204,4,4}^{mdl} = c_{4,4}^{ci} * c_{4,4}^{inv} & \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- | P_5 \rangle = & \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- | P_6 \rangle = & \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- | P_7 \rangle = & \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- | P_8 \rangle = & \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- | P_9 \rangle = & \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- | P_{10} \rangle = & \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- | P_{11} \rangle = c_{204,11,11}^{mdl} P_{11} + c_{204,12,11}^{mdl} P_{12} & \\
c_{204,11,11}^{mdl} = (-(-c_{11,11}^{ci})) * c_{11,11}^{inv} + c_{11,12}^{ci} * c_{12,11}^{inv} & \\
c_{204,12,11}^{mdl} = (-(-c_{11,11}^{ci})) * c_{11,12}^{inv} + c_{11,12}^{ci} * c_{12,12}^{inv} & \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- | P_{12} \rangle = c_{204,11,12}^{mdl} P_{11} + c_{204,12,12}^{mdl} P_{12} & \\
c_{204,11,12}^{mdl} = (-(-c_{12,11}^{ci})) * c_{11,11}^{inv} + c_{12,12}^{ci} * c_{12,11}^{inv} & \\
c_{204,12,12}^{mdl} = (-(-c_{12,11}^{ci})) * c_{11,12}^{inv} + c_{12,12}^{ci} * c_{12,12}^{inv} & \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- | P_{13} \rangle = & \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- | P_{14} \rangle = & \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- | P_{15} \rangle = c_{204,15,15}^{mdl} P_{15} & \\
c_{204,15,15}^{mdl} = (-(-c_{15,15}^{ci})) * c_{15,15}^{inv} &
\end{aligned}$$

$$\begin{aligned}
\hat{O}_{205} : \langle P_p | \hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- | P_q \rangle = & \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- | P_0 \rangle = & \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- | P_1 \rangle = & \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- | P_2 \rangle = & \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- | P_3 \rangle = &
\end{aligned}$$

$$\begin{aligned}
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_4\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_5\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_6\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_7\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_8\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_9\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{10}\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{11}\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{12}\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{13}\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{14}\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{15}\rangle &=
\end{aligned}$$

$$\hat{O}_{206} : \langle P_p | \hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- | P_q \rangle = >$$

$$\begin{aligned}
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_0\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_1\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_2\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_3\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_4\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_5\rangle &= c_{206,4,5}^{mdl} P_4 \\
c_{206,4,5}^{mdl} &= c_{5,5}^{ci} * c_{4,4}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_6\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_7\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_8\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_9\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{10}\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{11}\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{12}\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{13}\rangle &=
\end{aligned}$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{14}\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{207} : \langle P_p | \hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- | P_q \rangle =>$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_0\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_1\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_2\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_3\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_4\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_5\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_6\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_7\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_8\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_9\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_{10}\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_{11}\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_{12}\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_{13}\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_{14}\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{208} : \langle P_p | \hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- | P_q \rangle =>$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_0\rangle = c_{208,0,0}^{mdl} P_0 + c_{208,1,0}^{mdl} P_1 + c_{208,2,0}^{mdl} P_2 + c_{208,3,0}^{mdl} P_3$$

$$c_{208,0,0}^{mdl} = (-c_{0,0}^{ci}) * c_{1,0}^{inv}$$

$$c_{208,1,0}^{mdl} = (-c_{0,0}^{ci}) * c_{1,1}^{inv}$$

$$c_{208,2,0}^{mdl} = (-c_{0,0}^{ci}) * c_{1,2}^{inv}$$

$$c_{208,3,0}^{mdl} = (-c_{0,0}^{ci}) * c_{1,3}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_1\rangle = c_{208,0,1}^{mdl} P_0 + c_{208,1,1}^{mdl} P_1 + c_{208,2,1}^{mdl} P_2 + c_{208,3,1}^{mdl} P_3$$

$$c_{208,0,1}^{mdl} = (-c_{1,0}^{ci}) * c_{1,0}^{inv}$$

$$\begin{aligned}
c_{208,1,1}^{mdl} &= (-c_{1,0}^{ci}) * c_{1,1}^{inv} \\
c_{208,2,1}^{mdl} &= (-c_{1,0}^{ci}) * c_{1,2}^{inv} \\
c_{208,3,1}^{mdl} &= (-c_{1,0}^{ci}) * c_{1,3}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_2\rangle &= c_{208,0,2}^{mdl} P_0 + c_{208,1,2}^{mdl} P_1 + c_{208,2,2}^{mdl} P_2 + c_{208,3,2}^{mdl} P_3 \\
c_{208,0,2}^{mdl} &= (-c_{2,0}^{ci}) * c_{1,0}^{inv} \\
c_{208,1,2}^{mdl} &= (-c_{2,0}^{ci}) * c_{1,1}^{inv} \\
c_{208,2,2}^{mdl} &= (-c_{2,0}^{ci}) * c_{1,2}^{inv} \\
c_{208,3,2}^{mdl} &= (-c_{2,0}^{ci}) * c_{1,3}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_3\rangle &= c_{208,0,3}^{mdl} P_0 + c_{208,1,3}^{mdl} P_1 + c_{208,2,3}^{mdl} P_2 + c_{208,3,3}^{mdl} P_3 \\
c_{208,0,3}^{mdl} &= (-c_{3,0}^{ci}) * c_{1,0}^{inv} \\
c_{208,1,3}^{mdl} &= (-c_{3,0}^{ci}) * c_{1,1}^{inv} \\
c_{208,2,3}^{mdl} &= (-c_{3,0}^{ci}) * c_{1,2}^{inv} \\
c_{208,3,3}^{mdl} &= (-c_{3,0}^{ci}) * c_{1,3}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_4\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_5\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_6\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_7\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_8\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_9\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_{10}\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_{11}\rangle &= c_{208,11,11}^{mdl} P_{11} + c_{208,12,11}^{mdl} P_{12} \\
c_{208,11,11}^{mdl} &= (-(-c_{11,11}^{ci})) * c_{12,11}^{inv} \\
c_{208,12,11}^{mdl} &= (-(-c_{11,11}^{ci})) * c_{12,12}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_{12}\rangle &= c_{208,11,12}^{mdl} P_{11} + c_{208,12,12}^{mdl} P_{12} \\
c_{208,11,12}^{mdl} &= (-(-c_{12,11}^{ci})) * c_{12,11}^{inv} \\
c_{208,12,12}^{mdl} &= (-(-c_{12,11}^{ci})) * c_{12,12}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_{13}\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_{14}\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_{15}\rangle &=
\end{aligned}$$

$$\begin{aligned}
\hat{O}_{209} : \langle P_p | \hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- | P_q \rangle = & \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- | P_0 \rangle = c_{209,0,0}^{mdl} P_0 + c_{209,1,0}^{mdl} P_1 + c_{209,2,0}^{mdl} P_2 + c_{209,3,0}^{mdl} P_3 \\
c_{209,0,0}^{mdl} = (-c_{0,1}^{ci}) * c_{1,0}^{inv} \\
c_{209,1,0}^{mdl} = (-c_{0,1}^{ci}) * c_{1,1}^{inv} \\
c_{209,2,0}^{mdl} = (-c_{0,1}^{ci}) * c_{1,2}^{inv} \\
c_{209,3,0}^{mdl} = (-c_{0,1}^{ci}) * c_{1,3}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- | P_1 \rangle = c_{209,0,1}^{mdl} P_0 + c_{209,1,1}^{mdl} P_1 + c_{209,2,1}^{mdl} P_2 + c_{209,3,1}^{mdl} P_3 \\
c_{209,0,1}^{mdl} = (-c_{1,1}^{ci}) * c_{1,0}^{inv} \\
c_{209,1,1}^{mdl} = (-c_{1,1}^{ci}) * c_{1,1}^{inv} \\
c_{209,2,1}^{mdl} = (-c_{1,1}^{ci}) * c_{1,2}^{inv} \\
c_{209,3,1}^{mdl} = (-c_{1,1}^{ci}) * c_{1,3}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- | P_2 \rangle = c_{209,0,2}^{mdl} P_0 + c_{209,1,2}^{mdl} P_1 + c_{209,2,2}^{mdl} P_2 + c_{209,3,2}^{mdl} P_3 \\
c_{209,0,2}^{mdl} = (-c_{2,1}^{ci}) * c_{1,0}^{inv} \\
c_{209,1,2}^{mdl} = (-c_{2,1}^{ci}) * c_{1,1}^{inv} \\
c_{209,2,2}^{mdl} = (-c_{2,1}^{ci}) * c_{1,2}^{inv} \\
c_{209,3,2}^{mdl} = (-c_{2,1}^{ci}) * c_{1,3}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- | P_3 \rangle = c_{209,0,3}^{mdl} P_0 + c_{209,1,3}^{mdl} P_1 + c_{209,2,3}^{mdl} P_2 + c_{209,3,3}^{mdl} P_3 \\
c_{209,0,3}^{mdl} = (-c_{3,1}^{ci}) * c_{1,0}^{inv} \\
c_{209,1,3}^{mdl} = (-c_{3,1}^{ci}) * c_{1,1}^{inv} \\
c_{209,2,3}^{mdl} = (-c_{3,1}^{ci}) * c_{1,2}^{inv} \\
c_{209,3,3}^{mdl} = (-c_{3,1}^{ci}) * c_{1,3}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- | P_4 \rangle = \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- | P_5 \rangle = \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- | P_6 \rangle = \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- | P_7 \rangle = \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- | P_8 \rangle = \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- | P_9 \rangle = \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- | P_{10} \rangle =
\end{aligned}$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{11}\rangle = c_{209,11,11}^{mdl} P_{11} + c_{209,12,11}^{mdl} P_{12}$$

$$c_{209,11,11}^{mdl} = (-c_{11,12}^{ci}) * c_{12,11}^{inv}$$

$$c_{209,12,11}^{mdl} = (-c_{11,12}^{ci}) * c_{12,12}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{12}\rangle = c_{209,11,12}^{mdl} P_{11} + c_{209,12,12}^{mdl} P_{12}$$

$$c_{209,11,12}^{mdl} = (-c_{12,12}^{ci}) * c_{12,11}^{inv}$$

$$c_{209,12,12}^{mdl} = (-c_{12,12}^{ci}) * c_{12,12}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{13}\rangle = c_{209,13,13}^{mdl} P_{13} + c_{209,14,13}^{mdl} P_{14}$$

$$c_{209,13,13}^{mdl} = (-c_{13,13}^{ci}) * c_{13,13}^{inv}$$

$$c_{209,14,13}^{mdl} = (-c_{13,13}^{ci}) * c_{13,14}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{14}\rangle = c_{209,13,14}^{mdl} P_{13} + c_{209,14,14}^{mdl} P_{14}$$

$$c_{209,13,14}^{mdl} = (-c_{14,13}^{ci}) * c_{13,13}^{inv}$$

$$c_{209,14,14}^{mdl} = (-c_{14,13}^{ci}) * c_{13,14}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{15}\rangle = c_{209,15,15}^{mdl} P_{15}$$

$$c_{209,15,15}^{mdl} = (-c_{15,15}^{ci}) * c_{15,15}^{inv}$$

$$\hat{O}_{210} : \langle P_p | \hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- | P_q \rangle = >$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_0\rangle = c_{210,0,0}^{mdl} P_0 + c_{210,1,0}^{mdl} P_1 + c_{210,2,0}^{mdl} P_2 + c_{210,3,0}^{mdl} P_3$$

$$c_{210,0,0}^{mdl} = c_{0,0}^{ci} * c_{1,0}^{inv}$$

$$c_{210,1,0}^{mdl} = c_{0,0}^{ci} * c_{1,1}^{inv}$$

$$c_{210,2,0}^{mdl} = c_{0,0}^{ci} * c_{1,2}^{inv}$$

$$c_{210,3,0}^{mdl} = c_{0,0}^{ci} * c_{1,3}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_1\rangle = c_{210,0,1}^{mdl} P_0 + c_{210,1,1}^{mdl} P_1 + c_{210,2,1}^{mdl} P_2 + c_{210,3,1}^{mdl} P_3$$

$$c_{210,0,1}^{mdl} = c_{1,0}^{ci} * c_{1,0}^{inv}$$

$$c_{210,1,1}^{mdl} = c_{1,0}^{ci} * c_{1,1}^{inv}$$

$$c_{210,2,1}^{mdl} = c_{1,0}^{ci} * c_{1,2}^{inv}$$

$$c_{210,3,1}^{mdl} = c_{1,0}^{ci} * c_{1,3}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_2\rangle = c_{210,0,2}^{mdl} P_0 + c_{210,1,2}^{mdl} P_1 + c_{210,2,2}^{mdl} P_2 + c_{210,3,2}^{mdl} P_3$$

$$c_{210,0,2}^{mdl} = c_{2,0}^{ci} * c_{1,0}^{inv}$$

$$c_{210,1,2}^{mdl} = c_{2,0}^{ci} * c_{1,1}^{inv}$$

$$\begin{aligned}
c_{210,2,2}^{mdl} &= c_{2,0}^{ci} * c_{1,2}^{inv} \\
c_{210,3,2}^{mdl} &= c_{2,0}^{ci} * c_{1,3}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_3\rangle &= c_{210,0,3}^{mdl} P_0 + c_{210,1,3}^{mdl} P_1 + c_{210,2,3}^{mdl} P_2 + c_{210,3,3}^{mdl} P_3 \\
c_{210,0,3}^{mdl} &= c_{3,0}^{ci} * c_{1,0}^{inv} \\
c_{210,1,3}^{mdl} &= c_{3,0}^{ci} * c_{1,1}^{inv} \\
c_{210,2,3}^{mdl} &= c_{3,0}^{ci} * c_{1,2}^{inv} \\
c_{210,3,3}^{mdl} &= c_{3,0}^{ci} * c_{1,3}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_4\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_5\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_6\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_7\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_8\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_9\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{10}\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{11}\rangle &= c_{210,11,11}^{mdl} P_{11} + c_{210,12,11}^{mdl} P_{12} \\
c_{210,11,11}^{mdl} &= (-c_{11,11}^{ci}) * c_{12,11}^{inv} \\
c_{210,12,11}^{mdl} &= (-c_{11,11}^{ci}) * c_{12,12}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{12}\rangle &= c_{210,11,12}^{mdl} P_{11} + c_{210,12,12}^{mdl} P_{12} \\
c_{210,11,12}^{mdl} &= (-c_{12,11}^{ci}) * c_{12,11}^{inv} \\
c_{210,12,12}^{mdl} &= (-c_{12,11}^{ci}) * c_{12,12}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{13}\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{14}\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{15}\rangle &= \\
\hat{O}_{211} : \langle P_p | \hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- | P_q \rangle &=> \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_0\rangle &= c_{211,0,0}^{mdl} P_0 + c_{211,1,0}^{mdl} P_1 + c_{211,2,0}^{mdl} P_2 + c_{211,3,0}^{mdl} P_3 \\
c_{211,0,0}^{mdl} &= (-c_{0,2}^{ci}) * c_{1,0}^{inv} \\
c_{211,1,0}^{mdl} &= (-c_{0,2}^{ci}) * c_{1,1}^{inv} \\
c_{211,2,0}^{mdl} &= (-c_{0,2}^{ci}) * c_{1,2}^{inv}
\end{aligned}$$

$$\begin{aligned}
c_{211,3,0}^{mdl} &= (-c_{0,2}^{ci}) * c_{1,3}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_1\rangle &= c_{211,0,1}^{mdl} P_0 + c_{211,1,1}^{mdl} P_1 + c_{211,2,1}^{mdl} P_2 + c_{211,3,1}^{mdl} P_3 \\
c_{211,0,1}^{mdl} &= (-c_{1,2}^{ci}) * c_{1,0}^{inv} \\
c_{211,1,1}^{mdl} &= (-c_{1,2}^{ci}) * c_{1,1}^{inv} \\
c_{211,2,1}^{mdl} &= (-c_{1,2}^{ci}) * c_{1,2}^{inv} \\
c_{211,3,1}^{mdl} &= (-c_{1,2}^{ci}) * c_{1,3}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_2\rangle &= c_{211,0,2}^{mdl} P_0 + c_{211,1,2}^{mdl} P_1 + c_{211,2,2}^{mdl} P_2 + c_{211,3,2}^{mdl} P_3 \\
c_{211,0,2}^{mdl} &= (-c_{2,2}^{ci}) * c_{1,0}^{inv} \\
c_{211,1,2}^{mdl} &= (-c_{2,2}^{ci}) * c_{1,1}^{inv} \\
c_{211,2,2}^{mdl} &= (-c_{2,2}^{ci}) * c_{1,2}^{inv} \\
c_{211,3,2}^{mdl} &= (-c_{2,2}^{ci}) * c_{1,3}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_3\rangle &= c_{211,0,3}^{mdl} P_0 + c_{211,1,3}^{mdl} P_1 + c_{211,2,3}^{mdl} P_2 + c_{211,3,3}^{mdl} P_3 \\
c_{211,0,3}^{mdl} &= (-c_{3,2}^{ci}) * c_{1,0}^{inv} \\
c_{211,1,3}^{mdl} &= (-c_{3,2}^{ci}) * c_{1,1}^{inv} \\
c_{211,2,3}^{mdl} &= (-c_{3,2}^{ci}) * c_{1,2}^{inv} \\
c_{211,3,3}^{mdl} &= (-c_{3,2}^{ci}) * c_{1,3}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_4\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_5\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_6\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_7\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_8\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_9\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_{10}\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_{11}\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_{12}\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_{13}\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_{14}\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_{15}\rangle &=
\end{aligned}$$

$$\begin{aligned}
\hat{O}_{212} : \langle P_p | \hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- | P_q \rangle &=> \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- | P_0 \rangle &= c_{212,0,0}^{mdl} P_0 + c_{212,1,0}^{mdl} P_1 + c_{212,2,0}^{mdl} P_2 + c_{212,3,0}^{mdl} P_3 \\
c_{212,0,0}^{mdl} &= c_{0,2}^{ci} * c_{1,0}^{inv} \\
c_{212,1,0}^{mdl} &= c_{0,2}^{ci} * c_{1,1}^{inv} \\
c_{212,2,0}^{mdl} &= c_{0,2}^{ci} * c_{1,2}^{inv} \\
c_{212,3,0}^{mdl} &= c_{0,2}^{ci} * c_{1,3}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- | P_1 \rangle &= c_{212,0,1}^{mdl} P_0 + c_{212,1,1}^{mdl} P_1 + c_{212,2,1}^{mdl} P_2 + c_{212,3,1}^{mdl} P_3 \\
c_{212,0,1}^{mdl} &= c_{1,2}^{ci} * c_{1,0}^{inv} \\
c_{212,1,1}^{mdl} &= c_{1,2}^{ci} * c_{1,1}^{inv} \\
c_{212,2,1}^{mdl} &= c_{1,2}^{ci} * c_{1,2}^{inv} \\
c_{212,3,1}^{mdl} &= c_{1,2}^{ci} * c_{1,3}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- | P_2 \rangle &= c_{212,0,2}^{mdl} P_0 + c_{212,1,2}^{mdl} P_1 + c_{212,2,2}^{mdl} P_2 + c_{212,3,2}^{mdl} P_3 \\
c_{212,0,2}^{mdl} &= c_{2,2}^{ci} * c_{1,0}^{inv} \\
c_{212,1,2}^{mdl} &= c_{2,2}^{ci} * c_{1,1}^{inv} \\
c_{212,2,2}^{mdl} &= c_{2,2}^{ci} * c_{1,2}^{inv} \\
c_{212,3,2}^{mdl} &= c_{2,2}^{ci} * c_{1,3}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- | P_3 \rangle &= c_{212,0,3}^{mdl} P_0 + c_{212,1,3}^{mdl} P_1 + c_{212,2,3}^{mdl} P_2 + c_{212,3,3}^{mdl} P_3 \\
c_{212,0,3}^{mdl} &= c_{3,2}^{ci} * c_{1,0}^{inv} \\
c_{212,1,3}^{mdl} &= c_{3,2}^{ci} * c_{1,1}^{inv} \\
c_{212,2,3}^{mdl} &= c_{3,2}^{ci} * c_{1,2}^{inv} \\
c_{212,3,3}^{mdl} &= c_{3,2}^{ci} * c_{1,3}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- | P_4 \rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- | P_5 \rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- | P_6 \rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- | P_7 \rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- | P_8 \rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- | P_9 \rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- | P_{10} \rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- | P_{11} \rangle &=
\end{aligned}$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_{12}\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_{13}\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_{14}\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{213} : \langle P_p | \hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- | P_q \rangle = >$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_0\rangle = c_{213,0,0}^{mdl} P_0 + c_{213,1,0}^{mdl} P_1 + c_{213,2,0}^{mdl} P_2 + c_{213,3,0}^{mdl} P_3$$

$$c_{213,0,0}^{mdl} = (-c_{0,3}^{ci}) * c_{1,0}^{inv}$$

$$c_{213,1,0}^{mdl} = (-c_{0,3}^{ci}) * c_{1,1}^{inv}$$

$$c_{213,2,0}^{mdl} = (-c_{0,3}^{ci}) * c_{1,2}^{inv}$$

$$c_{213,3,0}^{mdl} = (-c_{0,3}^{ci}) * c_{1,3}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_1\rangle = c_{213,0,1}^{mdl} P_0 + c_{213,1,1}^{mdl} P_1 + c_{213,2,1}^{mdl} P_2 + c_{213,3,1}^{mdl} P_3$$

$$c_{213,0,1}^{mdl} = (-c_{1,3}^{ci}) * c_{1,0}^{inv}$$

$$c_{213,1,1}^{mdl} = (-c_{1,3}^{ci}) * c_{1,1}^{inv}$$

$$c_{213,2,1}^{mdl} = (-c_{1,3}^{ci}) * c_{1,2}^{inv}$$

$$c_{213,3,1}^{mdl} = (-c_{1,3}^{ci}) * c_{1,3}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_2\rangle = c_{213,0,2}^{mdl} P_0 + c_{213,1,2}^{mdl} P_1 + c_{213,2,2}^{mdl} P_2 + c_{213,3,2}^{mdl} P_3$$

$$c_{213,0,2}^{mdl} = (-c_{2,3}^{ci}) * c_{1,0}^{inv}$$

$$c_{213,1,2}^{mdl} = (-c_{2,3}^{ci}) * c_{1,1}^{inv}$$

$$c_{213,2,2}^{mdl} = (-c_{2,3}^{ci}) * c_{1,2}^{inv}$$

$$c_{213,3,2}^{mdl} = (-c_{2,3}^{ci}) * c_{1,3}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_3\rangle = c_{213,0,3}^{mdl} P_0 + c_{213,1,3}^{mdl} P_1 + c_{213,2,3}^{mdl} P_2 + c_{213,3,3}^{mdl} P_3$$

$$c_{213,0,3}^{mdl} = (-c_{3,3}^{ci}) * c_{1,0}^{inv}$$

$$c_{213,1,3}^{mdl} = (-c_{3,3}^{ci}) * c_{1,1}^{inv}$$

$$c_{213,2,3}^{mdl} = (-c_{3,3}^{ci}) * c_{1,2}^{inv}$$

$$c_{213,3,3}^{mdl} = (-c_{3,3}^{ci}) * c_{1,3}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_4\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_5\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_6\rangle =$$

$$\begin{aligned}
& \hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_7\rangle = \\
& \hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_8\rangle = \\
& \hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_9\rangle = \\
& \hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_{10}\rangle = \\
& \hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_{11}\rangle = \\
& \hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_{12}\rangle = \\
& \hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_{13}\rangle = c_{213,13,13}^{mdl} P_{13} + c_{213,14,13}^{mdl} P_{14} \\
& c_{213,13,13}^{mdl} = (-(-c_{13,14}^{ci})) * c_{13,13}^{inv} \\
& c_{213,14,13}^{mdl} = (-(-c_{13,14}^{ci})) * c_{13,14}^{inv} \\
& \hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_{14}\rangle = c_{213,13,14}^{mdl} P_{13} + c_{213,14,14}^{mdl} P_{14} \\
& c_{213,13,14}^{mdl} = (-(-c_{14,14}^{ci})) * c_{13,13}^{inv} \\
& c_{213,14,14}^{mdl} = (-(-c_{14,14}^{ci})) * c_{13,14}^{inv} \\
& \hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_{15}\rangle = \\
& \hat{O}_{214} : \langle P_p | \hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- | P_q \rangle = > \\
& \hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_0\rangle = c_{214,0,0}^{mdl} P_0 + c_{214,1,0}^{mdl} P_1 + c_{214,2,0}^{mdl} P_2 + c_{214,3,0}^{mdl} P_3 \\
& c_{214,0,0}^{mdl} = c_{0,1}^{ci} * c_{1,0}^{inv} \\
& c_{214,1,0}^{mdl} = c_{0,1}^{ci} * c_{1,1}^{inv} \\
& c_{214,2,0}^{mdl} = c_{0,1}^{ci} * c_{1,2}^{inv} \\
& c_{214,3,0}^{mdl} = c_{0,1}^{ci} * c_{1,3}^{inv} \\
& \hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_1\rangle = c_{214,0,1}^{mdl} P_0 + c_{214,1,1}^{mdl} P_1 + c_{214,2,1}^{mdl} P_2 + c_{214,3,1}^{mdl} P_3 \\
& c_{214,0,1}^{mdl} = c_{1,1}^{ci} * c_{1,0}^{inv} \\
& c_{214,1,1}^{mdl} = c_{1,1}^{ci} * c_{1,1}^{inv} \\
& c_{214,2,1}^{mdl} = c_{1,1}^{ci} * c_{1,2}^{inv} \\
& c_{214,3,1}^{mdl} = c_{1,1}^{ci} * c_{1,3}^{inv} \\
& \hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_2\rangle = c_{214,0,2}^{mdl} P_0 + c_{214,1,2}^{mdl} P_1 + c_{214,2,2}^{mdl} P_2 + c_{214,3,2}^{mdl} P_3 \\
& c_{214,0,2}^{mdl} = c_{2,1}^{ci} * c_{1,0}^{inv} \\
& c_{214,1,2}^{mdl} = c_{2,1}^{ci} * c_{1,1}^{inv} \\
& c_{214,2,2}^{mdl} = c_{2,1}^{ci} * c_{1,2}^{inv}
\end{aligned}$$

$$\begin{aligned}
c_{214,3,2}^{mdl} &= c_{2,1}^{ci} * c_{1,3}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_3\rangle &= c_{214,0,3}^{mdl} P_0 + c_{214,1,3}^{mdl} P_1 + c_{214,2,3}^{mdl} P_2 + c_{214,3,3}^{mdl} P_3 \\
c_{214,0,3}^{mdl} &= c_{3,1}^{ci} * c_{1,0}^{inv} \\
c_{214,1,3}^{mdl} &= c_{3,1}^{ci} * c_{1,1}^{inv} \\
c_{214,2,3}^{mdl} &= c_{3,1}^{ci} * c_{1,2}^{inv} \\
c_{214,3,3}^{mdl} &= c_{3,1}^{ci} * c_{1,3}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_4\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_5\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_6\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_7\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_8\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_9\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{10}\rangle &= \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{11}\rangle &= c_{214,11,11}^{mdl} P_{11} + c_{214,12,11}^{mdl} P_{12} \\
c_{214,11,11}^{mdl} &= (-(-c_{11,12}^{ci})) * c_{12,11}^{inv} \\
c_{214,12,11}^{mdl} &= (-(-c_{11,12}^{ci})) * c_{12,12}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{12}\rangle &= c_{214,11,12}^{mdl} P_{11} + c_{214,12,12}^{mdl} P_{12} \\
c_{214,11,12}^{mdl} &= (-(-c_{12,12}^{ci})) * c_{12,11}^{inv} \\
c_{214,12,12}^{mdl} &= (-(-c_{12,12}^{ci})) * c_{12,12}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{13}\rangle &= c_{214,13,13}^{mdl} P_{13} + c_{214,14,13}^{mdl} P_{14} \\
c_{214,13,13}^{mdl} &= (-(-c_{13,13}^{ci})) * c_{13,13}^{inv} \\
c_{214,14,13}^{mdl} &= (-(-c_{13,13}^{ci})) * c_{13,14}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{14}\rangle &= c_{214,13,14}^{mdl} P_{13} + c_{214,14,14}^{mdl} P_{14} \\
c_{214,13,14}^{mdl} &= (-(-c_{14,13}^{ci})) * c_{13,13}^{inv} \\
c_{214,14,14}^{mdl} &= (-(-c_{14,13}^{ci})) * c_{13,14}^{inv} \\
\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{15}\rangle &= c_{214,15,15}^{mdl} P_{15} \\
c_{214,15,15}^{mdl} &= c_{15,15}^{ci} * c_{15,15}^{inv} \\
\hat{O}_{215} : \langle P_p | \hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- | P_q \rangle &=>
\end{aligned}$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_0\rangle = c_{215,0,0}^{mdl} P_0 + c_{215,1,0}^{mdl} P_1 + c_{215,2,0}^{mdl} P_2 + c_{215,3,0}^{mdl} P_3$$

$$c_{215,0,0}^{mdl} = c_{0,3}^{ci} * c_{1,0}^{inv}$$

$$c_{215,1,0}^{mdl} = c_{0,3}^{ci} * c_{1,1}^{inv}$$

$$c_{215,2,0}^{mdl} = c_{0,3}^{ci} * c_{1,2}^{inv}$$

$$c_{215,3,0}^{mdl} = c_{0,3}^{ci} * c_{1,3}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_1\rangle = c_{215,0,1}^{mdl} P_0 + c_{215,1,1}^{mdl} P_1 + c_{215,2,1}^{mdl} P_2 + c_{215,3,1}^{mdl} P_3$$

$$c_{215,0,1}^{mdl} = c_{1,3}^{ci} * c_{1,0}^{inv}$$

$$c_{215,1,1}^{mdl} = c_{1,3}^{ci} * c_{1,1}^{inv}$$

$$c_{215,2,1}^{mdl} = c_{1,3}^{ci} * c_{1,2}^{inv}$$

$$c_{215,3,1}^{mdl} = c_{1,3}^{ci} * c_{1,3}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_2\rangle = c_{215,0,2}^{mdl} P_0 + c_{215,1,2}^{mdl} P_1 + c_{215,2,2}^{mdl} P_2 + c_{215,3,2}^{mdl} P_3$$

$$c_{215,0,2}^{mdl} = c_{2,3}^{ci} * c_{1,0}^{inv}$$

$$c_{215,1,2}^{mdl} = c_{2,3}^{ci} * c_{1,1}^{inv}$$

$$c_{215,2,2}^{mdl} = c_{2,3}^{ci} * c_{1,2}^{inv}$$

$$c_{215,3,2}^{mdl} = c_{2,3}^{ci} * c_{1,3}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_3\rangle = c_{215,0,3}^{mdl} P_0 + c_{215,1,3}^{mdl} P_1 + c_{215,2,3}^{mdl} P_2 + c_{215,3,3}^{mdl} P_3$$

$$c_{215,0,3}^{mdl} = c_{3,3}^{ci} * c_{1,0}^{inv}$$

$$c_{215,1,3}^{mdl} = c_{3,3}^{ci} * c_{1,1}^{inv}$$

$$c_{215,2,3}^{mdl} = c_{3,3}^{ci} * c_{1,2}^{inv}$$

$$c_{215,3,3}^{mdl} = c_{3,3}^{ci} * c_{1,3}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_4\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_5\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_6\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_7\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_8\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_9\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{10}\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{11}\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{12}\rangle =$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{13}\rangle = c_{215,13,13}^{mdl} P_{13} + c_{215,14,13}^{mdl} P_{14}$$

$$c_{215,13,13}^{mdl} = (-c_{13,14}^{ci}) * c_{13,13}^{inv}$$

$$c_{215,14,13}^{mdl} = (-c_{13,14}^{ci}) * c_{13,14}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{14}\rangle = c_{215,13,14}^{mdl} P_{13} + c_{215,14,14}^{mdl} P_{14}$$

$$c_{215,13,14}^{mdl} = (-c_{14,14}^{ci}) * c_{13,13}^{inv}$$

$$c_{215,14,14}^{mdl} = (-c_{14,14}^{ci}) * c_{13,14}^{inv}$$

$$\hat{0}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{216} : \langle P_p | \hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- | P_q \rangle =>$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_0\rangle = c_{216,0,0}^{mdl} P_0 + c_{216,1,0}^{mdl} P_1 + c_{216,2,0}^{mdl} P_2 + c_{216,3,0}^{mdl} P_3$$

$$c_{216,0,0}^{mdl} = (-(-c_{0,0}^{ci})) * c_{0,0}^{inv}$$

$$c_{216,1,0}^{mdl} = (-(-c_{0,0}^{ci})) * c_{0,1}^{inv}$$

$$c_{216,2,0}^{mdl} = (-(-c_{0,0}^{ci})) * c_{0,2}^{inv}$$

$$c_{216,3,0}^{mdl} = (-(-c_{0,0}^{ci})) * c_{0,3}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_1\rangle = c_{216,0,1}^{mdl} P_0 + c_{216,1,1}^{mdl} P_1 + c_{216,2,1}^{mdl} P_2 + c_{216,3,1}^{mdl} P_3$$

$$c_{216,0,1}^{mdl} = (-(-c_{1,0}^{ci})) * c_{0,0}^{inv}$$

$$c_{216,1,1}^{mdl} = (-(-c_{1,0}^{ci})) * c_{0,1}^{inv}$$

$$c_{216,2,1}^{mdl} = (-(-c_{1,0}^{ci})) * c_{0,2}^{inv}$$

$$c_{216,3,1}^{mdl} = (-(-c_{1,0}^{ci})) * c_{0,3}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_2\rangle = c_{216,0,2}^{mdl} P_0 + c_{216,1,2}^{mdl} P_1 + c_{216,2,2}^{mdl} P_2 + c_{216,3,2}^{mdl} P_3$$

$$c_{216,0,2}^{mdl} = (-(-c_{2,0}^{ci})) * c_{0,0}^{inv}$$

$$c_{216,1,2}^{mdl} = (-(-c_{2,0}^{ci})) * c_{0,1}^{inv}$$

$$c_{216,2,2}^{mdl} = (-(-c_{2,0}^{ci})) * c_{0,2}^{inv}$$

$$c_{216,3,2}^{mdl} = (-(-c_{2,0}^{ci})) * c_{0,3}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_3\rangle = c_{216,0,3}^{mdl} P_0 + c_{216,1,3}^{mdl} P_1 + c_{216,2,3}^{mdl} P_2 + c_{216,3,3}^{mdl} P_3$$

$$c_{216,0,3}^{mdl} = (-(-c_{3,0}^{ci})) * c_{0,0}^{inv}$$

$$c_{216,1,3}^{mdl} = (-(-c_{3,0}^{ci})) * c_{0,1}^{inv}$$

$$c_{216,2,3}^{mdl} = (-(-c_{3,0}^{ci})) * c_{0,2}^{inv}$$

$$c_{216,3,3}^{mdl} = (-(-c_{3,0}^{ci})) * c_{0,3}^{inv}$$

$$\begin{aligned}
& \hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_4\rangle = \\
& \hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_5\rangle = \\
& \hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_6\rangle = \\
& \hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_7\rangle = \\
& \hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_8\rangle = \\
& \hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_9\rangle = \\
& \hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_{10}\rangle = \\
& \hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_{11}\rangle = c_{216,11,11}^{mdl} P_{11} + c_{216,12,11}^{mdl} P_{12} \\
& c_{216,11,11}^{mdl} = (-(-c_{11,11}^{ci})) * c_{11,11}^{inv} \\
& c_{216,12,11}^{mdl} = (-(-c_{11,11}^{ci})) * c_{11,12}^{inv} \\
& \hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_{12}\rangle = c_{216,11,12}^{mdl} P_{11} + c_{216,12,12}^{mdl} P_{12} \\
& c_{216,11,12}^{mdl} = (-(-c_{12,11}^{ci})) * c_{11,11}^{inv} \\
& c_{216,12,12}^{mdl} = (-(-c_{12,11}^{ci})) * c_{11,12}^{inv} \\
& \hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_{13}\rangle = c_{216,13,13}^{mdl} P_{13} + c_{216,14,13}^{mdl} P_{14} \\
& c_{216,13,13}^{mdl} = (-(-c_{13,13}^{ci})) * c_{13,13}^{inv} \\
& c_{216,14,13}^{mdl} = (-(-c_{13,13}^{ci})) * c_{13,14}^{inv} \\
& \hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_{14}\rangle = c_{216,13,14}^{mdl} P_{13} + c_{216,14,14}^{mdl} P_{14} \\
& c_{216,13,14}^{mdl} = (-(-c_{14,13}^{ci})) * c_{13,13}^{inv} \\
& c_{216,14,14}^{mdl} = (-(-c_{14,13}^{ci})) * c_{13,14}^{inv} \\
& \hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_{15}\rangle = c_{216,15,15}^{mdl} P_{15} \\
& c_{216,15,15}^{mdl} = (-(-c_{15,15}^{ci})) * c_{15,15}^{inv} \\
\\
& \hat{O}_{217} : \langle P_p | \hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- | P_q \rangle = > \\
& \hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_0\rangle = c_{217,0,0}^{mdl} P_0 + c_{217,1,0}^{mdl} P_1 + c_{217,2,0}^{mdl} P_2 + c_{217,3,0}^{mdl} P_3 \\
& c_{217,0,0}^{mdl} = (-(-c_{0,1}^{ci})) * c_{0,0}^{inv} \\
& c_{217,1,0}^{mdl} = (-(-c_{0,1}^{ci})) * c_{0,1}^{inv} \\
& c_{217,2,0}^{mdl} = (-(-c_{0,1}^{ci})) * c_{0,2}^{inv} \\
& c_{217,3,0}^{mdl} = (-(-c_{0,1}^{ci})) * c_{0,3}^{inv} \\
& \hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_1\rangle = c_{217,0,1}^{mdl} P_0 + c_{217,1,1}^{mdl} P_1 + c_{217,2,1}^{mdl} P_2 + c_{217,3,1}^{mdl} P_3
\end{aligned}$$

$$\begin{aligned}
c_{217,0,1}^{mdl} &= (-(-c_{1,1}^{ci})) * c_{0,0}^{inv} \\
c_{217,1,1}^{mdl} &= (-(-c_{1,1}^{ci})) * c_{0,1}^{inv} \\
c_{217,2,1}^{mdl} &= (-(-c_{1,1}^{ci})) * c_{0,2}^{inv} \\
c_{217,3,1}^{mdl} &= (-(-c_{1,1}^{ci})) * c_{0,3}^{inv} \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_2\rangle &= c_{217,0,2}^{mdl} P_0 + c_{217,1,2}^{mdl} P_1 + c_{217,2,2}^{mdl} P_2 + c_{217,3,2}^{mdl} P_3 \\
c_{217,0,2}^{mdl} &= (-(-c_{2,1}^{ci})) * c_{0,0}^{inv} \\
c_{217,1,2}^{mdl} &= (-(-c_{2,1}^{ci})) * c_{0,1}^{inv} \\
c_{217,2,2}^{mdl} &= (-(-c_{2,1}^{ci})) * c_{0,2}^{inv} \\
c_{217,3,2}^{mdl} &= (-(-c_{2,1}^{ci})) * c_{0,3}^{inv} \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_3\rangle &= c_{217,0,3}^{mdl} P_0 + c_{217,1,3}^{mdl} P_1 + c_{217,2,3}^{mdl} P_2 + c_{217,3,3}^{mdl} P_3 \\
c_{217,0,3}^{mdl} &= (-(-c_{3,1}^{ci})) * c_{0,0}^{inv} \\
c_{217,1,3}^{mdl} &= (-(-c_{3,1}^{ci})) * c_{0,1}^{inv} \\
c_{217,2,3}^{mdl} &= (-(-c_{3,1}^{ci})) * c_{0,2}^{inv} \\
c_{217,3,3}^{mdl} &= (-(-c_{3,1}^{ci})) * c_{0,3}^{inv} \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_4\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_5\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_6\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_7\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_8\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_9\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{10}\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{11}\rangle &= c_{217,11,11}^{mdl} P_{11} + c_{217,12,11}^{mdl} P_{12} \\
c_{217,11,11}^{mdl} &= (-c_{11,12}^{ci}) * c_{11,11}^{inv} \\
c_{217,12,11}^{mdl} &= (-c_{11,12}^{ci}) * c_{11,12}^{inv} \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{12}\rangle &= c_{217,11,12}^{mdl} P_{11} + c_{217,12,12}^{mdl} P_{12} \\
c_{217,11,12}^{mdl} &= (-c_{12,12}^{ci}) * c_{11,11}^{inv} \\
c_{217,12,12}^{mdl} &= (-c_{12,12}^{ci}) * c_{11,12}^{inv} \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{13}\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{14}\rangle &=
\end{aligned}$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{218} : \langle P_p | \hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- | P_q \rangle = >$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_0\rangle = c_{218,0,0}^{mdl} P_0 + c_{218,1,0}^{mdl} P_1 + c_{218,2,0}^{mdl} P_2 + c_{218,3,0}^{mdl} P_3$$

$$c_{218,0,0}^{mdl} = (-c_{0,0}^{ci}) * c_{0,0}^{inv}$$

$$c_{218,1,0}^{mdl} = (-c_{0,0}^{ci}) * c_{0,1}^{inv}$$

$$c_{218,2,0}^{mdl} = (-c_{0,0}^{ci}) * c_{0,2}^{inv}$$

$$c_{218,3,0}^{mdl} = (-c_{0,0}^{ci}) * c_{0,3}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_1\rangle = c_{218,0,1}^{mdl} P_0 + c_{218,1,1}^{mdl} P_1 + c_{218,2,1}^{mdl} P_2 + c_{218,3,1}^{mdl} P_3$$

$$c_{218,0,1}^{mdl} = (-c_{1,0}^{ci}) * c_{0,0}^{inv}$$

$$c_{218,1,1}^{mdl} = (-c_{1,0}^{ci}) * c_{0,1}^{inv}$$

$$c_{218,2,1}^{mdl} = (-c_{1,0}^{ci}) * c_{0,2}^{inv}$$

$$c_{218,3,1}^{mdl} = (-c_{1,0}^{ci}) * c_{0,3}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_2\rangle = c_{218,0,2}^{mdl} P_0 + c_{218,1,2}^{mdl} P_1 + c_{218,2,2}^{mdl} P_2 + c_{218,3,2}^{mdl} P_3$$

$$c_{218,0,2}^{mdl} = (-c_{2,0}^{ci}) * c_{0,0}^{inv}$$

$$c_{218,1,2}^{mdl} = (-c_{2,0}^{ci}) * c_{0,1}^{inv}$$

$$c_{218,2,2}^{mdl} = (-c_{2,0}^{ci}) * c_{0,2}^{inv}$$

$$c_{218,3,2}^{mdl} = (-c_{2,0}^{ci}) * c_{0,3}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_3\rangle = c_{218,0,3}^{mdl} P_0 + c_{218,1,3}^{mdl} P_1 + c_{218,2,3}^{mdl} P_2 + c_{218,3,3}^{mdl} P_3$$

$$c_{218,0,3}^{mdl} = (-c_{3,0}^{ci}) * c_{0,0}^{inv}$$

$$c_{218,1,3}^{mdl} = (-c_{3,0}^{ci}) * c_{0,1}^{inv}$$

$$c_{218,2,3}^{mdl} = (-c_{3,0}^{ci}) * c_{0,2}^{inv}$$

$$c_{218,3,3}^{mdl} = (-c_{3,0}^{ci}) * c_{0,3}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_4\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_5\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_6\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_7\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_8\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_9\rangle =$$

$$\begin{aligned}
& \hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{10}\rangle = \\
& \hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{11}\rangle = c_{218,11,11}^{mdl} P_{11} + c_{218,12,11}^{mdl} P_{12} \\
& c_{218,11,11}^{mdl} = (-c_{11,11}^{ci}) * c_{11,11}^{inv} \\
& c_{218,12,11}^{mdl} = (-c_{11,11}^{ci}) * c_{11,12}^{inv} \\
& \hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{12}\rangle = c_{218,11,12}^{mdl} P_{11} + c_{218,12,12}^{mdl} P_{12} \\
& c_{218,11,12}^{mdl} = (-c_{12,11}^{ci}) * c_{11,11}^{inv} \\
& c_{218,12,12}^{mdl} = (-c_{12,11}^{ci}) * c_{11,12}^{inv} \\
& \hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{13}\rangle = c_{218,13,13}^{mdl} P_{13} + c_{218,14,13}^{mdl} P_{14} \\
& c_{218,13,13}^{mdl} = (-c_{13,13}^{ci}) * c_{13,13}^{inv} \\
& c_{218,14,13}^{mdl} = (-c_{13,13}^{ci}) * c_{13,14}^{inv} \\
& \hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{14}\rangle = c_{218,13,14}^{mdl} P_{13} + c_{218,14,14}^{mdl} P_{14} \\
& c_{218,13,14}^{mdl} = (-c_{14,13}^{ci}) * c_{13,13}^{inv} \\
& c_{218,14,14}^{mdl} = (-c_{14,13}^{ci}) * c_{13,14}^{inv} \\
& \hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{15}\rangle = c_{218,15,15}^{mdl} P_{15} \\
& c_{218,15,15}^{mdl} = (-c_{15,15}^{ci}) * c_{15,15}^{inv} \\
\\
& \hat{O}_{219} : \langle P_p | \hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- | P_q \rangle = > \\
& \hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_0\rangle = c_{219,0,0}^{mdl} P_0 + c_{219,1,0}^{mdl} P_1 + c_{219,2,0}^{mdl} P_2 + c_{219,3,0}^{mdl} P_3 \\
& c_{219,0,0}^{mdl} = (-(-c_{0,2}^{ci})) * c_{0,0}^{inv} \\
& c_{219,1,0}^{mdl} = (-(-c_{0,2}^{ci})) * c_{0,1}^{inv} \\
& c_{219,2,0}^{mdl} = (-(-c_{0,2}^{ci})) * c_{0,2}^{inv} \\
& c_{219,3,0}^{mdl} = (-(-c_{0,2}^{ci})) * c_{0,3}^{inv} \\
& \hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_1\rangle = c_{219,0,1}^{mdl} P_0 + c_{219,1,1}^{mdl} P_1 + c_{219,2,1}^{mdl} P_2 + c_{219,3,1}^{mdl} P_3 \\
& c_{219,0,1}^{mdl} = (-(-c_{1,2}^{ci})) * c_{0,0}^{inv} \\
& c_{219,1,1}^{mdl} = (-(-c_{1,2}^{ci})) * c_{0,1}^{inv} \\
& c_{219,2,1}^{mdl} = (-(-c_{1,2}^{ci})) * c_{0,2}^{inv} \\
& c_{219,3,1}^{mdl} = (-(-c_{1,2}^{ci})) * c_{0,3}^{inv} \\
& \hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_2\rangle = c_{219,0,2}^{mdl} P_0 + c_{219,1,2}^{mdl} P_1 + c_{219,2,2}^{mdl} P_2 + c_{219,3,2}^{mdl} P_3 \\
& c_{219,0,2}^{mdl} = (-(-c_{2,2}^{ci})) * c_{0,0}^{inv}
\end{aligned}$$

$$\begin{aligned}
c_{219,1,2}^{mdl} &= (-(-c_{2,2}^{ci})) * c_{0,1}^{inv} \\
c_{219,2,2}^{mdl} &= (-(-c_{2,2}^{ci})) * c_{0,2}^{inv} \\
c_{219,3,2}^{mdl} &= (-(-c_{2,2}^{ci})) * c_{0,3}^{inv} \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_3\rangle &= c_{219,0,3}^{mdl} P_0 + c_{219,1,3}^{mdl} P_1 + c_{219,2,3}^{mdl} P_2 + c_{219,3,3}^{mdl} P_3 \\
c_{219,0,3}^{mdl} &= (-(-c_{3,2}^{ci})) * c_{0,0}^{inv} \\
c_{219,1,3}^{mdl} &= (-(-c_{3,2}^{ci})) * c_{0,1}^{inv} \\
c_{219,2,3}^{mdl} &= (-(-c_{3,2}^{ci})) * c_{0,2}^{inv} \\
c_{219,3,3}^{mdl} &= (-(-c_{3,2}^{ci})) * c_{0,3}^{inv} \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_4\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_5\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_6\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_7\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_8\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_9\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_{10}\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_{11}\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_{12}\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_{13}\rangle &= c_{219,13,13}^{mdl} P_{13} + c_{219,14,13}^{mdl} P_{14} \\
c_{219,13,13}^{mdl} &= (-(-c_{13,14}^{ci})) * c_{13,13}^{inv} \\
c_{219,14,13}^{mdl} &= (-(-c_{13,14}^{ci})) * c_{13,14}^{inv} \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_{14}\rangle &= c_{219,13,14}^{mdl} P_{13} + c_{219,14,14}^{mdl} P_{14} \\
c_{219,13,14}^{mdl} &= (-(-c_{14,14}^{ci})) * c_{13,13}^{inv} \\
c_{219,14,14}^{mdl} &= (-(-c_{14,14}^{ci})) * c_{13,14}^{inv} \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_{15}\rangle &= \\
\hat{O}_{220} : \langle P_p | \hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- | P_q \rangle &= > \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_0\rangle &= c_{220,0,0}^{mdl} P_0 + c_{220,1,0}^{mdl} P_1 + c_{220,2,0}^{mdl} P_2 + c_{220,3,0}^{mdl} P_3 \\
c_{220,0,0}^{mdl} &= (-c_{0,2}^{ci}) * c_{0,0}^{inv} \\
c_{220,1,0}^{mdl} &= (-c_{0,2}^{ci}) * c_{0,1}^{inv}
\end{aligned}$$

$$\begin{aligned}
c_{220,2,0}^{mdl} &= (-c_{0,2}^{ci}) * c_{0,2}^{inv} \\
c_{220,3,0}^{mdl} &= (-c_{0,2}^{ci}) * c_{0,3}^{inv} \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_1\rangle &= c_{220,0,1}^{mdl} P_0 + c_{220,1,1}^{mdl} P_1 + c_{220,2,1}^{mdl} P_2 + c_{220,3,1}^{mdl} P_3 \\
c_{220,0,1}^{mdl} &= (-c_{1,2}^{ci}) * c_{0,0}^{inv} \\
c_{220,1,1}^{mdl} &= (-c_{1,2}^{ci}) * c_{0,1}^{inv} \\
c_{220,2,1}^{mdl} &= (-c_{1,2}^{ci}) * c_{0,2}^{inv} \\
c_{220,3,1}^{mdl} &= (-c_{1,2}^{ci}) * c_{0,3}^{inv} \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_2\rangle &= c_{220,0,2}^{mdl} P_0 + c_{220,1,2}^{mdl} P_1 + c_{220,2,2}^{mdl} P_2 + c_{220,3,2}^{mdl} P_3 \\
c_{220,0,2}^{mdl} &= (-c_{2,2}^{ci}) * c_{0,0}^{inv} \\
c_{220,1,2}^{mdl} &= (-c_{2,2}^{ci}) * c_{0,1}^{inv} \\
c_{220,2,2}^{mdl} &= (-c_{2,2}^{ci}) * c_{0,2}^{inv} \\
c_{220,3,2}^{mdl} &= (-c_{2,2}^{ci}) * c_{0,3}^{inv} \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_3\rangle &= c_{220,0,3}^{mdl} P_0 + c_{220,1,3}^{mdl} P_1 + c_{220,2,3}^{mdl} P_2 + c_{220,3,3}^{mdl} P_3 \\
c_{220,0,3}^{mdl} &= (-c_{3,2}^{ci}) * c_{0,0}^{inv} \\
c_{220,1,3}^{mdl} &= (-c_{3,2}^{ci}) * c_{0,1}^{inv} \\
c_{220,2,3}^{mdl} &= (-c_{3,2}^{ci}) * c_{0,2}^{inv} \\
c_{220,3,3}^{mdl} &= (-c_{3,2}^{ci}) * c_{0,3}^{inv} \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_4\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_5\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_6\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_7\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_8\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_9\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_{10}\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_{11}\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_{12}\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_{13}\rangle &= c_{220,13,13}^{mdl} P_{13} + c_{220,14,13}^{mdl} P_{14} \\
c_{220,13,13}^{mdl} &= (-c_{13,14}^{ci}) * c_{13,13}^{inv} \\
c_{220,14,13}^{mdl} &= (-c_{13,14}^{ci}) * c_{13,14}^{inv}
\end{aligned}$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_{14}\rangle = c_{220,13,14}^{mdl} P_{13} + c_{220,14,14}^{mdl} P_{14}$$

$$c_{220,13,14}^{mdl} = (-c_{14,14}^{ci}) * c_{13,13}^{inv}$$

$$c_{220,14,14}^{mdl} = (-c_{14,14}^{ci}) * c_{13,14}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{221} : \langle P_p | \hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- | P_q \rangle =>$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_0\rangle = c_{221,0,0}^{mdl} P_0 + c_{221,1,0}^{mdl} P_1 + c_{221,2,0}^{mdl} P_2 + c_{221,3,0}^{mdl} P_3$$

$$c_{221,0,0}^{mdl} = (-(-c_{0,3}^{ci})) * c_{0,0}^{inv}$$

$$c_{221,1,0}^{mdl} = (-(-c_{0,3}^{ci})) * c_{0,1}^{inv}$$

$$c_{221,2,0}^{mdl} = (-(-c_{0,3}^{ci})) * c_{0,2}^{inv}$$

$$c_{221,3,0}^{mdl} = (-(-c_{0,3}^{ci})) * c_{0,3}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_1\rangle = c_{221,0,1}^{mdl} P_0 + c_{221,1,1}^{mdl} P_1 + c_{221,2,1}^{mdl} P_2 + c_{221,3,1}^{mdl} P_3$$

$$c_{221,0,1}^{mdl} = (-(-c_{1,3}^{ci})) * c_{0,0}^{inv}$$

$$c_{221,1,1}^{mdl} = (-(-c_{1,3}^{ci})) * c_{0,1}^{inv}$$

$$c_{221,2,1}^{mdl} = (-(-c_{1,3}^{ci})) * c_{0,2}^{inv}$$

$$c_{221,3,1}^{mdl} = (-(-c_{1,3}^{ci})) * c_{0,3}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_2\rangle = c_{221,0,2}^{mdl} P_0 + c_{221,1,2}^{mdl} P_1 + c_{221,2,2}^{mdl} P_2 + c_{221,3,2}^{mdl} P_3$$

$$c_{221,0,2}^{mdl} = (-(-c_{2,3}^{ci})) * c_{0,0}^{inv}$$

$$c_{221,1,2}^{mdl} = (-(-c_{2,3}^{ci})) * c_{0,1}^{inv}$$

$$c_{221,2,2}^{mdl} = (-(-c_{2,3}^{ci})) * c_{0,2}^{inv}$$

$$c_{221,3,2}^{mdl} = (-(-c_{2,3}^{ci})) * c_{0,3}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_3\rangle = c_{221,0,3}^{mdl} P_0 + c_{221,1,3}^{mdl} P_1 + c_{221,2,3}^{mdl} P_2 + c_{221,3,3}^{mdl} P_3$$

$$c_{221,0,3}^{mdl} = (-(-c_{3,3}^{ci})) * c_{0,0}^{inv}$$

$$c_{221,1,3}^{mdl} = (-(-c_{3,3}^{ci})) * c_{0,1}^{inv}$$

$$c_{221,2,3}^{mdl} = (-(-c_{3,3}^{ci})) * c_{0,2}^{inv}$$

$$c_{221,3,3}^{mdl} = (-(-c_{3,3}^{ci})) * c_{0,3}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_4\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_5\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_6\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_7\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_8\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_9\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_{10}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_{11}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_{12}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_{13}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_{14}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{222} : \langle P_p | \hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- | P_q \rangle = >$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_0\rangle = c_{222,0,0}^{mdl} P_0 + c_{222,1,0}^{mdl} P_1 + c_{222,2,0}^{mdl} P_2 + c_{222,3,0}^{mdl} P_3$$

$$c_{222,0,0}^{mdl} = (-c_{0,1}^{ci}) * c_{0,0}^{inv}$$

$$c_{222,1,0}^{mdl} = (-c_{0,1}^{ci}) * c_{0,1}^{inv}$$

$$c_{222,2,0}^{mdl} = (-c_{0,1}^{ci}) * c_{0,2}^{inv}$$

$$c_{222,3,0}^{mdl} = (-c_{0,1}^{ci}) * c_{0,3}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_1\rangle = c_{222,0,1}^{mdl} P_0 + c_{222,1,1}^{mdl} P_1 + c_{222,2,1}^{mdl} P_2 + c_{222,3,1}^{mdl} P_3$$

$$c_{222,0,1}^{mdl} = (-c_{1,1}^{ci}) * c_{0,0}^{inv}$$

$$c_{222,1,1}^{mdl} = (-c_{1,1}^{ci}) * c_{0,1}^{inv}$$

$$c_{222,2,1}^{mdl} = (-c_{1,1}^{ci}) * c_{0,2}^{inv}$$

$$c_{222,3,1}^{mdl} = (-c_{1,1}^{ci}) * c_{0,3}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_2\rangle = c_{222,0,2}^{mdl} P_0 + c_{222,1,2}^{mdl} P_1 + c_{222,2,2}^{mdl} P_2 + c_{222,3,2}^{mdl} P_3$$

$$c_{222,0,2}^{mdl} = (-c_{2,1}^{ci}) * c_{0,0}^{inv}$$

$$c_{222,1,2}^{mdl} = (-c_{2,1}^{ci}) * c_{0,1}^{inv}$$

$$c_{222,2,2}^{mdl} = (-c_{2,1}^{ci}) * c_{0,2}^{inv}$$

$$c_{222,3,2}^{mdl} = (-c_{2,1}^{ci}) * c_{0,3}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_3\rangle = c_{222,0,3}^{mdl} P_0 + c_{222,1,3}^{mdl} P_1 + c_{222,2,3}^{mdl} P_2 + c_{222,3,3}^{mdl} P_3$$

$$c_{222,0,3}^{mdl} = (-c_{3,1}^{ci}) * c_{0,0}^{inv}$$

$$c_{222,1,3}^{mdl} = (-c_{3,1}^{ci}) * c_{0,1}^{inv}$$

$$c_{222,2,3}^{mdl} = (-c_{3,1}^{ci}) * c_{0,2}^{inv}$$

$$c_{222,3,3}^{mdl} = (-c_{3,1}^{ci}) * c_{0,3}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_4\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_5\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_6\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_7\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_8\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_9\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{10}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{11}\rangle = c_{222,11,11}^{mdl} P_{11} + c_{222,12,11}^{mdl} P_{12}$$

$$c_{222,11,11}^{mdl} = (-(-c_{11,12}^{ci})) * c_{11,11}^{inv}$$

$$c_{222,12,11}^{mdl} = (-(-c_{11,12}^{ci})) * c_{11,12}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{12}\rangle = c_{222,11,12}^{mdl} P_{11} + c_{222,12,12}^{mdl} P_{12}$$

$$c_{222,11,12}^{mdl} = (-(-c_{12,12}^{ci})) * c_{11,11}^{inv}$$

$$c_{222,12,12}^{mdl} = (-(-c_{12,12}^{ci})) * c_{11,12}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{13}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{14}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{223} : \langle P_p | \hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- | P_q \rangle = >$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_0\rangle = c_{223,0,0}^{mdl} P_0 + c_{223,1,0}^{mdl} P_1 + c_{223,2,0}^{mdl} P_2 + c_{223,3,0}^{mdl} P_3$$

$$c_{223,0,0}^{mdl} = (-c_{0,3}^{ci}) * c_{0,0}^{inv}$$

$$c_{223,1,0}^{mdl} = (-c_{0,3}^{ci}) * c_{0,1}^{inv}$$

$$c_{223,2,0}^{mdl} = (-c_{0,3}^{ci}) * c_{0,2}^{inv}$$

$$c_{223,3,0}^{mdl} = (-c_{0,3}^{ci}) * c_{0,3}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_1\rangle = c_{223,0,1}^{mdl} P_0 + c_{223,1,1}^{mdl} P_1 + c_{223,2,1}^{mdl} P_2 + c_{223,3,1}^{mdl} P_3$$

$$c_{223,0,1}^{mdl} = (-c_{1,3}^{ci}) * c_{0,0}^{inv}$$

$$c_{223,1,1}^{mdl} = (-c_{1,3}^{ci}) * c_{0,1}^{inv}$$

$$c_{223,2,1}^{mdl} = (-c_{1,3}^{ci}) * c_{0,2}^{inv}$$

$$c_{223,3,1}^{mdl} = (-c_{1,3}^{ci}) * c_{0,3}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_2\rangle = c_{223,0,2}^{mdl} P_0 + c_{223,1,2}^{mdl} P_1 + c_{223,2,2}^{mdl} P_2 + c_{223,3,2}^{mdl} P_3$$

$$c_{223,0,2}^{mdl} = (-c_{2,3}^{ci}) * c_{0,0}^{inv}$$

$$c_{223,1,2}^{mdl} = (-c_{2,3}^{ci}) * c_{0,1}^{inv}$$

$$c_{223,2,2}^{mdl} = (-c_{2,3}^{ci}) * c_{0,2}^{inv}$$

$$c_{223,3,2}^{mdl} = (-c_{2,3}^{ci}) * c_{0,3}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_3\rangle = c_{223,0,3}^{mdl} P_0 + c_{223,1,3}^{mdl} P_1 + c_{223,2,3}^{mdl} P_2 + c_{223,3,3}^{mdl} P_3$$

$$c_{223,0,3}^{mdl} = (-c_{3,3}^{ci}) * c_{0,0}^{inv}$$

$$c_{223,1,3}^{mdl} = (-c_{3,3}^{ci}) * c_{0,1}^{inv}$$

$$c_{223,2,3}^{mdl} = (-c_{3,3}^{ci}) * c_{0,2}^{inv}$$

$$c_{223,3,3}^{mdl} = (-c_{3,3}^{ci}) * c_{0,3}^{inv}$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_4\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_5\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_6\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_7\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_8\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_9\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{10}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{11}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{12}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{13}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{14}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{224} : \langle P_p | \hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- | P_q \rangle = >$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_0\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_1\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_2\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_3\rangle =$$

$$\begin{aligned}
\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_4\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_5\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_6\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_7\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_8\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_9\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_{10}\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_{11}\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_{12}\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_{13}\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_{14}\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_{15}\rangle &=
\end{aligned}$$

$$\hat{O}_{225} : \langle P_p | \hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- | P_q \rangle = >$$

$$\begin{aligned}
\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_0\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_1\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_2\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_3\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_4\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_5\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_6\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_7\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_8\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_9\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_{10}\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_{11}\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_{12}\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_{13}\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_{14}\rangle &=
\end{aligned}$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{226} : \langle P_p | \hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- | P_q \rangle =>$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_0\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_1\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_2\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_3\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_4\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_5\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_6\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_7\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_8\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_9\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_{10}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_{11}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_{12}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_{13}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_{14}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{227} : \langle P_p | \hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- | P_q \rangle =>$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_0\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_1\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_2\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_3\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_4\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_5\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_6\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_7\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_8\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_9\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_{10}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_{11}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_{12}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_{13}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_{14}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{228} : \langle P_p | \hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- | P_q \rangle = >$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_0\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_1\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_2\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_3\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_4\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_5\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_6\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_7\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_8\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_9\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_{10}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_{11}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_{12}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_{13}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_{14}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{229} : \langle P_p | \hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- | P_q \rangle = >$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_0\rangle =$$

$$\begin{aligned}
\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_1\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_2\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_3\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_4\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_5\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_6\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_7\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_8\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_9\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{10}\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{11}\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{12}\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{13}\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{14}\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{15}\rangle &=
\end{aligned}$$

$$\hat{O}_{230} : \langle P_p | \hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- | P_q \rangle = >$$

$$\begin{aligned}
\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_0\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_1\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_2\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_3\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_4\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_5\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_6\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_7\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_8\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_9\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{10}\rangle &= \\
\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{11}\rangle &=
\end{aligned}$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{12}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{13}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{14}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{231} : \langle P_p | \hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- | P_q \rangle =>$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_0\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_1\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_2\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_3\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_4\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_5\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_6\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_7\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_8\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_9\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_{10}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_{11}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_{12}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_{13}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_{14}\rangle =$$

$$\hat{0}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{232} : \langle P_p | \hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- | P_q \rangle =>$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_0\rangle = c_{232,0,0}^{mdl} P_0 + c_{232,1,0}^{mdl} P_1 + c_{232,2,0}^{mdl} P_2 + c_{232,3,0}^{mdl} P_3$$

$$c_{232,0,0}^{mdl} = (-c_{0,0}^{ci}) * c_{2,0}^{inv}$$

$$c_{232,1,0}^{mdl} = (-c_{0,0}^{ci}) * c_{2,1}^{inv}$$

$$c_{232,2,0}^{mdl} = (-c_{0,0}^{ci}) * c_{2,2}^{inv}$$

$$c_{232,3,0}^{mdl} = (-c_{0,0}^{ci}) * c_{2,3}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_1\rangle = c_{232,0,1}^{mdl} P_0 + c_{232,1,1}^{mdl} P_1 + c_{232,2,1}^{mdl} P_2 + c_{232,3,1}^{mdl} P_3$$

$$c_{232,0,1}^{mdl} = (-c_{1,0}^{ci}) * c_{2,0}^{inv}$$

$$c_{232,1,1}^{mdl} = (-c_{1,0}^{ci}) * c_{2,1}^{inv}$$

$$c_{232,2,1}^{mdl} = (-c_{1,0}^{ci}) * c_{2,2}^{inv}$$

$$c_{232,3,1}^{mdl} = (-c_{1,0}^{ci}) * c_{2,3}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_2\rangle = c_{232,0,2}^{mdl} P_0 + c_{232,1,2}^{mdl} P_1 + c_{232,2,2}^{mdl} P_2 + c_{232,3,2}^{mdl} P_3$$

$$c_{232,0,2}^{mdl} = (-c_{2,0}^{ci}) * c_{2,0}^{inv}$$

$$c_{232,1,2}^{mdl} = (-c_{2,0}^{ci}) * c_{2,1}^{inv}$$

$$c_{232,2,2}^{mdl} = (-c_{2,0}^{ci}) * c_{2,2}^{inv}$$

$$c_{232,3,2}^{mdl} = (-c_{2,0}^{ci}) * c_{2,3}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_3\rangle = c_{232,0,3}^{mdl} P_0 + c_{232,1,3}^{mdl} P_1 + c_{232,2,3}^{mdl} P_2 + c_{232,3,3}^{mdl} P_3$$

$$c_{232,0,3}^{mdl} = (-c_{3,0}^{ci}) * c_{2,0}^{inv}$$

$$c_{232,1,3}^{mdl} = (-c_{3,0}^{ci}) * c_{2,1}^{inv}$$

$$c_{232,2,3}^{mdl} = (-c_{3,0}^{ci}) * c_{2,2}^{inv}$$

$$c_{232,3,3}^{mdl} = (-c_{3,0}^{ci}) * c_{2,3}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_4\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_5\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_6\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_7\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_8\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_9\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_{10}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_{11}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_{12}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_{13}\rangle = c_{232,13,13}^{mdl} P_{13} + c_{232,14,13}^{mdl} P_{14}$$

$$c_{232,13,13}^{mdl} = (-c_{13,13}^{ci}) * c_{14,13}^{inv}$$

$$c_{232,14,13}^{mdl} = (-c_{13,13}^{ci}) * c_{14,14}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_{14}\rangle = c_{232,13,14}^{mdl} P_{13} + c_{232,14,14}^{mdl} P_{14}$$

$$c_{232,13,14}^{mdl} = (-c_{14,13}^{ci}) * c_{14,13}^{inv}$$

$$c_{232,14,14}^{mdl} = (-c_{14,13}^{ci}) * c_{14,14}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{233} : \langle P_p | \hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- | P_q \rangle =>$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_0\rangle = c_{233,0,0}^{mdl} P_0 + c_{233,1,0}^{mdl} P_1 + c_{233,2,0}^{mdl} P_2 + c_{233,3,0}^{mdl} P_3$$

$$c_{233,0,0}^{mdl} = (-c_{0,1}^{ci}) * c_{2,0}^{inv}$$

$$c_{233,1,0}^{mdl} = (-c_{0,1}^{ci}) * c_{2,1}^{inv}$$

$$c_{233,2,0}^{mdl} = (-c_{0,1}^{ci}) * c_{2,2}^{inv}$$

$$c_{233,3,0}^{mdl} = (-c_{0,1}^{ci}) * c_{2,3}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_1\rangle = c_{233,0,1}^{mdl} P_0 + c_{233,1,1}^{mdl} P_1 + c_{233,2,1}^{mdl} P_2 + c_{233,3,1}^{mdl} P_3$$

$$c_{233,0,1}^{mdl} = (-c_{1,1}^{ci}) * c_{2,0}^{inv}$$

$$c_{233,1,1}^{mdl} = (-c_{1,1}^{ci}) * c_{2,1}^{inv}$$

$$c_{233,2,1}^{mdl} = (-c_{1,1}^{ci}) * c_{2,2}^{inv}$$

$$c_{233,3,1}^{mdl} = (-c_{1,1}^{ci}) * c_{2,3}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_2\rangle = c_{233,0,2}^{mdl} P_0 + c_{233,1,2}^{mdl} P_1 + c_{233,2,2}^{mdl} P_2 + c_{233,3,2}^{mdl} P_3$$

$$c_{233,0,2}^{mdl} = (-c_{2,1}^{ci}) * c_{2,0}^{inv}$$

$$c_{233,1,2}^{mdl} = (-c_{2,1}^{ci}) * c_{2,1}^{inv}$$

$$c_{233,2,2}^{mdl} = (-c_{2,1}^{ci}) * c_{2,2}^{inv}$$

$$c_{233,3,2}^{mdl} = (-c_{2,1}^{ci}) * c_{2,3}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_3\rangle = c_{233,0,3}^{mdl} P_0 + c_{233,1,3}^{mdl} P_1 + c_{233,2,3}^{mdl} P_2 + c_{233,3,3}^{mdl} P_3$$

$$c_{233,0,3}^{mdl} = (-c_{3,1}^{ci}) * c_{2,0}^{inv}$$

$$c_{233,1,3}^{mdl} = (-c_{3,1}^{ci}) * c_{2,1}^{inv}$$

$$c_{233,2,3}^{mdl} = (-c_{3,1}^{ci}) * c_{2,2}^{inv}$$

$$c_{233,3,3}^{mdl} = (-c_{3,1}^{ci}) * c_{2,3}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_4\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_5\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_6\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_7\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_8\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_9\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{10}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{11}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{12}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{13}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{14}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{234} : \langle P_p | \hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- | P_q \rangle = >$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_0\rangle = c_{234,0,0}^{mdl} P_0 + c_{234,1,0}^{mdl} P_1 + c_{234,2,0}^{mdl} P_2 + c_{234,3,0}^{mdl} P_3$$

$$c_{234,0,0}^{mdl} = c_{0,0}^{ci} * c_{2,0}^{inv}$$

$$c_{234,1,0}^{mdl} = c_{0,0}^{ci} * c_{2,1}^{inv}$$

$$c_{234,2,0}^{mdl} = c_{0,0}^{ci} * c_{2,2}^{inv}$$

$$c_{234,3,0}^{mdl} = c_{0,0}^{ci} * c_{2,3}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_1\rangle = c_{234,0,1}^{mdl} P_0 + c_{234,1,1}^{mdl} P_1 + c_{234,2,1}^{mdl} P_2 + c_{234,3,1}^{mdl} P_3$$

$$c_{234,0,1}^{mdl} = c_{1,0}^{ci} * c_{2,0}^{inv}$$

$$c_{234,1,1}^{mdl} = c_{1,0}^{ci} * c_{2,1}^{inv}$$

$$c_{234,2,1}^{mdl} = c_{1,0}^{ci} * c_{2,2}^{inv}$$

$$c_{234,3,1}^{mdl} = c_{1,0}^{ci} * c_{2,3}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_2\rangle = c_{234,0,2}^{mdl} P_0 + c_{234,1,2}^{mdl} P_1 + c_{234,2,2}^{mdl} P_2 + c_{234,3,2}^{mdl} P_3$$

$$c_{234,0,2}^{mdl} = c_{2,0}^{ci} * c_{2,0}^{inv}$$

$$c_{234,1,2}^{mdl} = c_{2,0}^{ci} * c_{2,1}^{inv}$$

$$c_{234,2,2}^{mdl} = c_{2,0}^{ci} * c_{2,2}^{inv}$$

$$c_{234,3,2}^{mdl} = c_{2,0}^{ci} * c_{2,3}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_3\rangle = c_{234,0,3}^{mdl} P_0 + c_{234,1,3}^{mdl} P_1 + c_{234,2,3}^{mdl} P_2 + c_{234,3,3}^{mdl} P_3$$

$$c_{234,0,3}^{mdl} = c_{3,0}^{ci} * c_{2,0}^{inv}$$

$$c_{234,1,3}^{mdl} = c_{3,0}^{ci} * c_{2,1}^{inv}$$

$$c_{234,2,3}^{mdl} = c_{3,0}^{ci} * c_{2,2}^{inv}$$

$$c_{234,3,3}^{mdl} = c_{3,0}^{ci} * c_{2,3}^{inv}$$

$$\begin{aligned}
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_4\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_5\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_6\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_7\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_8\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_9\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{10}\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{11}\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{12}\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{13}\rangle &= c_{234,13,13}^{mdl} P_{13} + c_{234,14,13}^{mdl} P_{14} \\
c_{234,13,13}^{mdl} &= c_{13,13}^{ci} * c_{14,13}^{inv} \\
c_{234,14,13}^{mdl} &= c_{13,13}^{ci} * c_{14,14}^{inv} \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{14}\rangle &= c_{234,13,14}^{mdl} P_{13} + c_{234,14,14}^{mdl} P_{14} \\
c_{234,13,14}^{mdl} &= c_{14,13}^{ci} * c_{14,13}^{inv} \\
c_{234,14,14}^{mdl} &= c_{14,13}^{ci} * c_{14,14}^{inv} \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{15}\rangle &=
\end{aligned}$$

$$\begin{aligned}
\hat{O}_{235} : \langle P_p | \hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- | P_q \rangle &=> \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_0\rangle &= c_{235,0,0}^{mdl} P_0 + c_{235,1,0}^{mdl} P_1 + c_{235,2,0}^{mdl} P_2 + c_{235,3,0}^{mdl} P_3 \\
c_{235,0,0}^{mdl} &= (-c_{0,2}^{ci}) * c_{2,0}^{inv} \\
c_{235,1,0}^{mdl} &= (-c_{0,2}^{ci}) * c_{2,1}^{inv} \\
c_{235,2,0}^{mdl} &= (-c_{0,2}^{ci}) * c_{2,2}^{inv} \\
c_{235,3,0}^{mdl} &= (-c_{0,2}^{ci}) * c_{2,3}^{inv} \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_1\rangle &= c_{235,0,1}^{mdl} P_0 + c_{235,1,1}^{mdl} P_1 + c_{235,2,1}^{mdl} P_2 + c_{235,3,1}^{mdl} P_3 \\
c_{235,0,1}^{mdl} &= (-c_{1,2}^{ci}) * c_{2,0}^{inv} \\
c_{235,1,1}^{mdl} &= (-c_{1,2}^{ci}) * c_{2,1}^{inv} \\
c_{235,2,1}^{mdl} &= (-c_{1,2}^{ci}) * c_{2,2}^{inv} \\
c_{235,3,1}^{mdl} &= (-c_{1,2}^{ci}) * c_{2,3}^{inv} \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_2\rangle &= c_{235,0,2}^{mdl} P_0 + c_{235,1,2}^{mdl} P_1 + c_{235,2,2}^{mdl} P_2 + c_{235,3,2}^{mdl} P_3
\end{aligned}$$

$$\begin{aligned}
c_{235,0,2}^{mdl} &= (-c_{2,2}^{ci}) * c_{2,0}^{inv} \\
c_{235,1,2}^{mdl} &= (-c_{2,2}^{ci}) * c_{2,1}^{inv} \\
c_{235,2,2}^{mdl} &= (-c_{2,2}^{ci}) * c_{2,2}^{inv} \\
c_{235,3,2}^{mdl} &= (-c_{2,2}^{ci}) * c_{2,3}^{inv} \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_3\rangle &= c_{235,0,3}^{mdl} P_0 + c_{235,1,3}^{mdl} P_1 + c_{235,2,3}^{mdl} P_2 + c_{235,3,3}^{mdl} P_3 \\
c_{235,0,3}^{mdl} &= (-c_{3,2}^{ci}) * c_{2,0}^{inv} \\
c_{235,1,3}^{mdl} &= (-c_{3,2}^{ci}) * c_{2,1}^{inv} \\
c_{235,2,3}^{mdl} &= (-c_{3,2}^{ci}) * c_{2,2}^{inv} \\
c_{235,3,3}^{mdl} &= (-c_{3,2}^{ci}) * c_{2,3}^{inv} \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_4\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_5\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_6\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_7\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_8\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_9\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_{10}\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_{11}\rangle &= c_{235,11,11}^{mdl} P_{11} + c_{235,12,11}^{mdl} P_{12} \\
c_{235,11,11}^{mdl} &= (-c_{11,11}^{ci}) * c_{11,11}^{inv} \\
c_{235,12,11}^{mdl} &= (-c_{11,11}^{ci}) * c_{11,12}^{inv} \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_{12}\rangle &= c_{235,11,12}^{mdl} P_{11} + c_{235,12,12}^{mdl} P_{12} \\
c_{235,11,12}^{mdl} &= (-c_{12,11}^{ci}) * c_{11,11}^{inv} \\
c_{235,12,12}^{mdl} &= (-c_{12,11}^{ci}) * c_{11,12}^{inv} \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_{13}\rangle &= c_{235,13,13}^{mdl} P_{13} + c_{235,14,13}^{mdl} P_{14} \\
c_{235,13,13}^{mdl} &= (-c_{13,14}^{ci}) * c_{14,13}^{inv} \\
c_{235,14,13}^{mdl} &= (-c_{13,14}^{ci}) * c_{14,14}^{inv} \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_{14}\rangle &= c_{235,13,14}^{mdl} P_{13} + c_{235,14,14}^{mdl} P_{14} \\
c_{235,13,14}^{mdl} &= (-c_{14,14}^{ci}) * c_{14,13}^{inv} \\
c_{235,14,14}^{mdl} &= (-c_{14,14}^{ci}) * c_{14,14}^{inv} \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_{15}\rangle &= c_{235,15,15}^{mdl} P_{15}
\end{aligned}$$

$$c_{235,15,15}^{mdl} = (-c_{15,15}^{ci}) * c_{15,15}^{inv}$$

$$\hat{O}_{236} : \langle P_p | \hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- | P_q \rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- | P_0 \rangle = c_{236,0,0}^{mdl} P_0 + c_{236,1,0}^{mdl} P_1 + c_{236,2,0}^{mdl} P_2 + c_{236,3,0}^{mdl} P_3$$

$$c_{236,0,0}^{mdl} = c_{0,2}^{ci} * c_{2,0}^{inv}$$

$$c_{236,1,0}^{mdl} = c_{0,2}^{ci} * c_{2,1}^{inv}$$

$$c_{236,2,0}^{mdl} = c_{0,2}^{ci} * c_{2,2}^{inv}$$

$$c_{236,3,0}^{mdl} = c_{0,2}^{ci} * c_{2,3}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- | P_1 \rangle = c_{236,0,1}^{mdl} P_0 + c_{236,1,1}^{mdl} P_1 + c_{236,2,1}^{mdl} P_2 + c_{236,3,1}^{mdl} P_3$$

$$c_{236,0,1}^{mdl} = c_{1,2}^{ci} * c_{2,0}^{inv}$$

$$c_{236,1,1}^{mdl} = c_{1,2}^{ci} * c_{2,1}^{inv}$$

$$c_{236,2,1}^{mdl} = c_{1,2}^{ci} * c_{2,2}^{inv}$$

$$c_{236,3,1}^{mdl} = c_{1,2}^{ci} * c_{2,3}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- | P_2 \rangle = c_{236,0,2}^{mdl} P_0 + c_{236,1,2}^{mdl} P_1 + c_{236,2,2}^{mdl} P_2 + c_{236,3,2}^{mdl} P_3$$

$$c_{236,0,2}^{mdl} = c_{2,2}^{ci} * c_{2,0}^{inv}$$

$$c_{236,1,2}^{mdl} = c_{2,2}^{ci} * c_{2,1}^{inv}$$

$$c_{236,2,2}^{mdl} = c_{2,2}^{ci} * c_{2,2}^{inv}$$

$$c_{236,3,2}^{mdl} = c_{2,2}^{ci} * c_{2,3}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- | P_3 \rangle = c_{236,0,3}^{mdl} P_0 + c_{236,1,3}^{mdl} P_1 + c_{236,2,3}^{mdl} P_2 + c_{236,3,3}^{mdl} P_3$$

$$c_{236,0,3}^{mdl} = c_{3,2}^{ci} * c_{2,0}^{inv}$$

$$c_{236,1,3}^{mdl} = c_{3,2}^{ci} * c_{2,1}^{inv}$$

$$c_{236,2,3}^{mdl} = c_{3,2}^{ci} * c_{2,2}^{inv}$$

$$c_{236,3,3}^{mdl} = c_{3,2}^{ci} * c_{2,3}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- | P_4 \rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- | P_5 \rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- | P_6 \rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- | P_7 \rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- | P_8 \rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- | P_9 \rangle =$$

$$\begin{aligned}
& \hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_{10}\rangle = \\
& \hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_{11}\rangle = c_{236,11,11}^{mdl} P_{11} + c_{236,12,11}^{mdl} P_{12} \\
& c_{236,11,11}^{mdl} = c_{11,11}^{ci} * c_{11,11}^{inv} \\
& c_{236,12,11}^{mdl} = c_{11,11}^{ci} * c_{11,12}^{inv} \\
& \hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_{12}\rangle = c_{236,11,12}^{mdl} P_{11} + c_{236,12,12}^{mdl} P_{12} \\
& c_{236,11,12}^{mdl} = c_{12,11}^{ci} * c_{11,11}^{inv} \\
& c_{236,12,12}^{mdl} = c_{12,11}^{ci} * c_{11,12}^{inv} \\
& \hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_{13}\rangle = c_{236,13,13}^{mdl} P_{13} + c_{236,14,13}^{mdl} P_{14} \\
& c_{236,13,13}^{mdl} = c_{13,14}^{ci} * c_{14,13}^{inv} \\
& c_{236,14,13}^{mdl} = c_{13,14}^{ci} * c_{14,14}^{inv} \\
& \hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_{14}\rangle = c_{236,13,14}^{mdl} P_{13} + c_{236,14,14}^{mdl} P_{14} \\
& c_{236,13,14}^{mdl} = c_{14,14}^{ci} * c_{14,13}^{inv} \\
& c_{236,14,14}^{mdl} = c_{14,14}^{ci} * c_{14,14}^{inv} \\
& \hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_{15}\rangle = c_{236,15,15}^{mdl} P_{15} \\
& c_{236,15,15}^{mdl} = c_{15,15}^{ci} * c_{15,15}^{inv} \\
\\
& \hat{O}_{237} : \langle P_p | \hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- | P_q \rangle = > \\
& \hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_0\rangle = c_{237,0,0}^{mdl} P_0 + c_{237,1,0}^{mdl} P_1 + c_{237,2,0}^{mdl} P_2 + c_{237,3,0}^{mdl} P_3 \\
& c_{237,0,0}^{mdl} = (-c_{0,3}^{ci}) * c_{2,0}^{inv} \\
& c_{237,1,0}^{mdl} = (-c_{0,3}^{ci}) * c_{2,1}^{inv} \\
& c_{237,2,0}^{mdl} = (-c_{0,3}^{ci}) * c_{2,2}^{inv} \\
& c_{237,3,0}^{mdl} = (-c_{0,3}^{ci}) * c_{2,3}^{inv} \\
& \hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_1\rangle = c_{237,0,1}^{mdl} P_0 + c_{237,1,1}^{mdl} P_1 + c_{237,2,1}^{mdl} P_2 + c_{237,3,1}^{mdl} P_3 \\
& c_{237,0,1}^{mdl} = (-c_{1,3}^{ci}) * c_{2,0}^{inv} \\
& c_{237,1,1}^{mdl} = (-c_{1,3}^{ci}) * c_{2,1}^{inv} \\
& c_{237,2,1}^{mdl} = (-c_{1,3}^{ci}) * c_{2,2}^{inv} \\
& c_{237,3,1}^{mdl} = (-c_{1,3}^{ci}) * c_{2,3}^{inv} \\
& \hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_2\rangle = c_{237,0,2}^{mdl} P_0 + c_{237,1,2}^{mdl} P_1 + c_{237,2,2}^{mdl} P_2 + c_{237,3,2}^{mdl} P_3 \\
& c_{237,0,2}^{mdl} = (-c_{2,3}^{ci}) * c_{2,0}^{inv}
\end{aligned}$$

$$\begin{aligned}
c_{237,1,2}^{mdl} &= (-c_{2,3}^{ci}) * c_{2,1}^{inv} \\
c_{237,2,2}^{mdl} &= (-c_{2,3}^{ci}) * c_{2,2}^{inv} \\
c_{237,3,2}^{mdl} &= (-c_{2,3}^{ci}) * c_{2,3}^{inv} \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_3\rangle &= c_{237,0,3}^{mdl} P_0 + c_{237,1,3}^{mdl} P_1 + c_{237,2,3}^{mdl} P_2 + c_{237,3,3}^{mdl} P_3 \\
c_{237,0,3}^{mdl} &= (-c_{3,3}^{ci}) * c_{2,0}^{inv} \\
c_{237,1,3}^{mdl} &= (-c_{3,3}^{ci}) * c_{2,1}^{inv} \\
c_{237,2,3}^{mdl} &= (-c_{3,3}^{ci}) * c_{2,2}^{inv} \\
c_{237,3,3}^{mdl} &= (-c_{3,3}^{ci}) * c_{2,3}^{inv} \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_4\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_5\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_6\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_7\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_8\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_9\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_{10}\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_{11}\rangle &= c_{237,11,11}^{mdl} P_{11} + c_{237,12,11}^{mdl} P_{12} \\
c_{237,11,11}^{mdl} &= (-c_{11,12}^{ci}) * c_{11,11}^{inv} \\
c_{237,12,11}^{mdl} &= (-c_{11,12}^{ci}) * c_{11,12}^{inv} \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_{12}\rangle &= c_{237,11,12}^{mdl} P_{11} + c_{237,12,12}^{mdl} P_{12} \\
c_{237,11,12}^{mdl} &= (-c_{12,12}^{ci}) * c_{11,11}^{inv} \\
c_{237,12,12}^{mdl} &= (-c_{12,12}^{ci}) * c_{11,12}^{inv} \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_{13}\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_{14}\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_{15}\rangle &= \\
\hat{O}_{238} : \langle P_p | \hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- | P_q \rangle &= > \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_0\rangle &= c_{238,0,0}^{mdl} P_0 + c_{238,1,0}^{mdl} P_1 + c_{238,2,0}^{mdl} P_2 + c_{238,3,0}^{mdl} P_3 \\
c_{238,0,0}^{mdl} &= c_{0,1}^{ci} * c_{2,0}^{inv} \\
c_{238,1,0}^{mdl} &= c_{0,1}^{ci} * c_{2,1}^{inv}
\end{aligned}$$

$$\begin{aligned}
c_{238,2,0}^{mdl} &= c_{0,1}^{ci} * c_{2,2}^{inv} \\
c_{238,3,0}^{mdl} &= c_{0,1}^{ci} * c_{2,3}^{inv} \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_1\rangle &= c_{238,0,1}^{mdl} P_0 + c_{238,1,1}^{mdl} P_1 + c_{238,2,1}^{mdl} P_2 + c_{238,3,1}^{mdl} P_3 \\
c_{238,0,1}^{mdl} &= c_{1,1}^{ci} * c_{2,0}^{inv} \\
c_{238,1,1}^{mdl} &= c_{1,1}^{ci} * c_{2,1}^{inv} \\
c_{238,2,1}^{mdl} &= c_{1,1}^{ci} * c_{2,2}^{inv} \\
c_{238,3,1}^{mdl} &= c_{1,1}^{ci} * c_{2,3}^{inv} \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_2\rangle &= c_{238,0,2}^{mdl} P_0 + c_{238,1,2}^{mdl} P_1 + c_{238,2,2}^{mdl} P_2 + c_{238,3,2}^{mdl} P_3 \\
c_{238,0,2}^{mdl} &= c_{2,1}^{ci} * c_{2,0}^{inv} \\
c_{238,1,2}^{mdl} &= c_{2,1}^{ci} * c_{2,1}^{inv} \\
c_{238,2,2}^{mdl} &= c_{2,1}^{ci} * c_{2,2}^{inv} \\
c_{238,3,2}^{mdl} &= c_{2,1}^{ci} * c_{2,3}^{inv} \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_3\rangle &= c_{238,0,3}^{mdl} P_0 + c_{238,1,3}^{mdl} P_1 + c_{238,2,3}^{mdl} P_2 + c_{238,3,3}^{mdl} P_3 \\
c_{238,0,3}^{mdl} &= c_{3,1}^{ci} * c_{2,0}^{inv} \\
c_{238,1,3}^{mdl} &= c_{3,1}^{ci} * c_{2,1}^{inv} \\
c_{238,2,3}^{mdl} &= c_{3,1}^{ci} * c_{2,2}^{inv} \\
c_{238,3,3}^{mdl} &= c_{3,1}^{ci} * c_{2,3}^{inv} \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_4\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_5\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_6\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_7\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_8\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_9\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{10}\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{11}\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{12}\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{13}\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{14}\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{15}\rangle &=
\end{aligned}$$

$$\begin{aligned}
\hat{O}_{239} : \langle P_p | \hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- | P_q \rangle = & \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- | P_0 \rangle = c_{239,0,0}^{mdl} P_0 + c_{239,1,0}^{mdl} P_1 + c_{239,2,0}^{mdl} P_2 + c_{239,3,0}^{mdl} P_3 \\
c_{239,0,0}^{mdl} = c_{0,3}^{ci} * c_{2,0}^{inv} \\
c_{239,1,0}^{mdl} = c_{0,3}^{ci} * c_{2,1}^{inv} \\
c_{239,2,0}^{mdl} = c_{0,3}^{ci} * c_{2,2}^{inv} \\
c_{239,3,0}^{mdl} = c_{0,3}^{ci} * c_{2,3}^{inv} \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- | P_1 \rangle = c_{239,0,1}^{mdl} P_0 + c_{239,1,1}^{mdl} P_1 + c_{239,2,1}^{mdl} P_2 + c_{239,3,1}^{mdl} P_3 \\
c_{239,0,1}^{mdl} = c_{1,3}^{ci} * c_{2,0}^{inv} \\
c_{239,1,1}^{mdl} = c_{1,3}^{ci} * c_{2,1}^{inv} \\
c_{239,2,1}^{mdl} = c_{1,3}^{ci} * c_{2,2}^{inv} \\
c_{239,3,1}^{mdl} = c_{1,3}^{ci} * c_{2,3}^{inv} \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- | P_2 \rangle = c_{239,0,2}^{mdl} P_0 + c_{239,1,2}^{mdl} P_1 + c_{239,2,2}^{mdl} P_2 + c_{239,3,2}^{mdl} P_3 \\
c_{239,0,2}^{mdl} = c_{2,3}^{ci} * c_{2,0}^{inv} \\
c_{239,1,2}^{mdl} = c_{2,3}^{ci} * c_{2,1}^{inv} \\
c_{239,2,2}^{mdl} = c_{2,3}^{ci} * c_{2,2}^{inv} \\
c_{239,3,2}^{mdl} = c_{2,3}^{ci} * c_{2,3}^{inv} \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- | P_3 \rangle = c_{239,0,3}^{mdl} P_0 + c_{239,1,3}^{mdl} P_1 + c_{239,2,3}^{mdl} P_2 + c_{239,3,3}^{mdl} P_3 \\
c_{239,0,3}^{mdl} = c_{3,3}^{ci} * c_{2,0}^{inv} \\
c_{239,1,3}^{mdl} = c_{3,3}^{ci} * c_{2,1}^{inv} \\
c_{239,2,3}^{mdl} = c_{3,3}^{ci} * c_{2,2}^{inv} \\
c_{239,3,3}^{mdl} = c_{3,3}^{ci} * c_{2,3}^{inv} \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- | P_4 \rangle = \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- | P_5 \rangle = \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- | P_6 \rangle = \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- | P_7 \rangle = \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- | P_8 \rangle = \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- | P_9 \rangle = \\
\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- | P_{10} \rangle =
\end{aligned}$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{11}\rangle = c_{239,11,11}^{mdl} P_{11} + c_{239,12,11}^{mdl} P_{12}$$

$$c_{239,11,11}^{mdl} = c_{11,12}^{ci} * c_{11,11}^{inv}$$

$$c_{239,12,11}^{mdl} = c_{11,12}^{ci} * c_{11,12}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{12}\rangle = c_{239,11,12}^{mdl} P_{11} + c_{239,12,12}^{mdl} P_{12}$$

$$c_{239,11,12}^{mdl} = c_{12,12}^{ci} * c_{11,11}^{inv}$$

$$c_{239,12,12}^{mdl} = c_{12,12}^{ci} * c_{11,12}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{13}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{14}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{240} : \langle P_p | \hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- | P_q \rangle =>$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_0\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_1\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_2\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_3\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_4\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_5\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_6\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_7\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_8\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_9\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_{10}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_{11}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_{12}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_{13}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_{14}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{241} : \langle P_p | \hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- | P_q \rangle =>$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_0\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_1\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_2\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_3\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_4\rangle = c_{241,5,4}^{mdl} P_5$$

$$c_{241,5,4}^{mdl} = (-c_{4,4}^{ci}) * c_{5,5}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_5\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_6\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_7\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_8\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_9\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_{10}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_{11}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_{12}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_{13}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_{14}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{242} : \langle P_p | \hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- | P_q \rangle = >$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_0\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_1\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_2\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_3\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_4\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_5\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_6\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_7\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_8\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_9\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_{10}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_{11}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_{12}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_{13}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_{14}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{243} : \langle P_p | \hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- | P_q \rangle =>$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_0\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_1\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_2\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_3\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_4\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_5\rangle = c_{243,5,5}^{mdl} P_5$$

$$c_{243,5,5}^{mdl} = (-c_{5,5}^{ci}) * c_{5,5}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_6\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_7\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_8\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_9\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_{10}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_{11}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_{12}\rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_{13}\rangle = c_{243,13,13}^{mdl} P_{13} + c_{243,14,13}^{mdl} P_{14}$$

$$c_{243,13,13}^{mdl} = (-c_{13,13}^{ci}) * c_{13,13}^{inv} + (-c_{13,14}^{ci}) * c_{14,13}^{inv}$$

$$c_{243,14,13}^{mdl} = (-c_{13,13}^{ci}) * c_{13,14}^{inv} + (-c_{13,14}^{ci}) * c_{14,14}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_{14}\rangle = c_{243,13,14}^{mdl} P_{13} + c_{243,14,14}^{mdl} P_{14}$$

$$c_{243,13,14}^{mdl} = (-c_{14,13}^{ci}) * c_{13,13}^{inv} + (-c_{14,14}^{ci}) * c_{14,13}^{inv}$$

$$c_{243,14,14}^{mdl} = (-c_{14,13}^{ci}) * c_{13,14}^{inv} + (-c_{14,14}^{ci}) * c_{14,14}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_{15}\rangle = c_{243,15,15}^{mdl} P_{15}$$

$$c_{243,15,15}^{mdl} = (-c_{15,15}^{ci}) * c_{15,15}^{inv}$$

$$\hat{O}_{244} : \langle P_p | \hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- | P_q \rangle =>$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- | P_0 \rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- | P_1 \rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- | P_2 \rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- | P_3 \rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- | P_4 \rangle = c_{244,5,4}^{mdl} P_5$$

$$c_{244,5,4}^{mdl} = c_{4,4}^{ci} * c_{5,5}^{inv}$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- | P_5 \rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- | P_6 \rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- | P_7 \rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- | P_8 \rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- | P_9 \rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- | P_{10} \rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- | P_{11} \rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- | P_{12} \rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- | P_{13} \rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- | P_{14} \rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- | P_{15} \rangle =$$

$$\hat{O}_{245} : \langle P_p | \hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- | P_q \rangle =>$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- | P_0 \rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- | P_1 \rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- | P_2 \rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- | P_3 \rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- | P_4 \rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- | P_5 \rangle =$$

$$\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- | P_6 \rangle =$$

$$\begin{aligned}
\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_7\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_8\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_9\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{10}\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{11}\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{12}\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{13}\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{14}\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{15}\rangle &=
\end{aligned}$$

$$\hat{O}_{246} : \langle P_p | \hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- | P_q \rangle = >$$

$$\begin{aligned}
\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_0\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_1\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_2\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_3\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_4\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_5\rangle &= c_{246,5,5}^{mdl} P_5 \\
c_{246,5,5}^{mdl} &= c_{5,5}^{ci} * c_{5,5}^{inv} \\
\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_6\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_7\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_8\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_9\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{10}\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{11}\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{12}\rangle &= \\
\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{13}\rangle &= c_{246,13,13}^{mdl} P_{13} + c_{246,14,13}^{mdl} P_{14} \\
c_{246,13,13}^{mdl} &= c_{13,13}^{ci} * c_{13,13}^{inv} + (-(-c_{13,14}^{ci})) * c_{14,13}^{inv} \\
c_{246,14,13}^{mdl} &= c_{13,13}^{ci} * c_{13,14}^{inv} + (-(-c_{13,14}^{ci})) * c_{14,14}^{inv} \\
\hat{0}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{14}\rangle &= c_{246,13,14}^{mdl} P_{13} + c_{246,14,14}^{mdl} P_{14}
\end{aligned}$$

$$c_{246,13,14}^{mdl} = c_{14,13}^{ci} * c_{13,13}^{inv} + (-(-c_{14,14}^{ci})) * c_{14,13}^{inv}$$

$$c_{246,14,14}^{mdl} = c_{14,13}^{ci} * c_{13,14}^{inv} + (-(-c_{14,14}^{ci})) * c_{14,14}^{inv}$$

$$\hat{0}_{\beta}^{+} \hat{1}_{\beta}^{+} \hat{1}_{\beta}^{-} \hat{0}_{\beta}^{-} |P_{15}\rangle = c_{246,15,15}^{mdl} P_{15}$$

$$c_{246,15,15}^{mdl} = (-(-c_{15,15}^{ci})) * c_{15,15}^{inv}$$

$$\hat{O}_{247} : \langle P_p | \hat{0}_{\beta}^{+} \hat{1}_{\beta}^{+} \hat{1}_{\beta}^{-} \hat{1}_{\beta}^{-} | P_q \rangle = >$$

$$\hat{0}_{\beta}^{+} \hat{1}_{\beta}^{+} \hat{1}_{\beta}^{-} \hat{1}_{\beta}^{-} |P_0\rangle =$$

$$\hat{0}_{\beta}^{+} \hat{1}_{\beta}^{+} \hat{1}_{\beta}^{-} \hat{1}_{\beta}^{-} |P_1\rangle =$$

$$\hat{0}_{\beta}^{+} \hat{1}_{\beta}^{+} \hat{1}_{\beta}^{-} \hat{1}_{\beta}^{-} |P_2\rangle =$$

$$\hat{0}_{\beta}^{+} \hat{1}_{\beta}^{+} \hat{1}_{\beta}^{-} \hat{1}_{\beta}^{-} |P_3\rangle =$$

$$\hat{0}_{\beta}^{+} \hat{1}_{\beta}^{+} \hat{1}_{\beta}^{-} \hat{1}_{\beta}^{-} |P_4\rangle =$$

$$\hat{0}_{\beta}^{+} \hat{1}_{\beta}^{+} \hat{1}_{\beta}^{-} \hat{1}_{\beta}^{-} |P_5\rangle =$$

$$\hat{0}_{\beta}^{+} \hat{1}_{\beta}^{+} \hat{1}_{\beta}^{-} \hat{1}_{\beta}^{-} |P_6\rangle =$$

$$\hat{0}_{\beta}^{+} \hat{1}_{\beta}^{+} \hat{1}_{\beta}^{-} \hat{1}_{\beta}^{-} |P_7\rangle =$$

$$\hat{0}_{\beta}^{+} \hat{1}_{\beta}^{+} \hat{1}_{\beta}^{-} \hat{1}_{\beta}^{-} |P_8\rangle =$$

$$\hat{0}_{\beta}^{+} \hat{1}_{\beta}^{+} \hat{1}_{\beta}^{-} \hat{1}_{\beta}^{-} |P_9\rangle =$$

$$\hat{0}_{\beta}^{+} \hat{1}_{\beta}^{+} \hat{1}_{\beta}^{-} \hat{1}_{\beta}^{-} |P_{10}\rangle =$$

$$\hat{0}_{\beta}^{+} \hat{1}_{\beta}^{+} \hat{1}_{\beta}^{-} \hat{1}_{\beta}^{-} |P_{11}\rangle =$$

$$\hat{0}_{\beta}^{+} \hat{1}_{\beta}^{+} \hat{1}_{\beta}^{-} \hat{1}_{\beta}^{-} |P_{12}\rangle =$$

$$\hat{0}_{\beta}^{+} \hat{1}_{\beta}^{+} \hat{1}_{\beta}^{-} \hat{1}_{\beta}^{-} |P_{13}\rangle =$$

$$\hat{0}_{\beta}^{+} \hat{1}_{\beta}^{+} \hat{1}_{\beta}^{-} \hat{1}_{\beta}^{-} |P_{14}\rangle =$$

$$\hat{0}_{\beta}^{+} \hat{1}_{\beta}^{+} \hat{1}_{\beta}^{-} \hat{1}_{\beta}^{-} |P_{15}\rangle =$$

$$\hat{O}_{248} : \langle P_p | \hat{1}_{\alpha}^{+} \hat{0}_{\alpha}^{+} \hat{0}_{\alpha}^{-} \hat{0}_{\alpha}^{-} | P_q \rangle = >$$

$$\hat{1}_{\alpha}^{+} \hat{0}_{\alpha}^{+} \hat{0}_{\alpha}^{-} \hat{0}_{\alpha}^{-} |P_0\rangle =$$

$$\hat{1}_{\alpha}^{+} \hat{0}_{\alpha}^{+} \hat{0}_{\alpha}^{-} \hat{0}_{\alpha}^{-} |P_1\rangle =$$

$$\hat{1}_{\alpha}^{+} \hat{0}_{\alpha}^{+} \hat{0}_{\alpha}^{-} \hat{0}_{\alpha}^{-} |P_2\rangle =$$

$$\hat{1}_{\alpha}^{+} \hat{0}_{\alpha}^{+} \hat{0}_{\alpha}^{-} \hat{0}_{\alpha}^{-} |P_3\rangle =$$

$$\hat{1}_{\alpha}^{+} \hat{0}_{\alpha}^{+} \hat{0}_{\alpha}^{-} \hat{0}_{\alpha}^{-} |P_4\rangle =$$

$$\begin{aligned}
\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_5\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_6\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_7\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_8\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_9\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_{10}\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_{11}\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_{12}\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_{13}\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_{14}\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_{15}\rangle &=
\end{aligned}$$

$$\hat{O}_{249} : \langle P_p | \hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- | P_q \rangle = >$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_0\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_1\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_2\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_3\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_4\rangle = c_{249,4,4}^{mdl} P_4$$

$$c_{249,4,4}^{mdl} = (-(-c_{4,4}^{ci})) * c_{4,4}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_5\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_6\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_7\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_8\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_9\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_{10}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_{11}\rangle = c_{249,11,11}^{mdl} P_{11} + c_{249,12,11}^{mdl} P_{12}$$

$$c_{249,11,11}^{mdl} = c_{11,11}^{ci} * c_{11,11}^{inv} + (-(-c_{11,12}^{ci})) * c_{12,11}^{inv}$$

$$c_{249,12,11}^{mdl} = c_{11,11}^{ci} * c_{11,12}^{inv} + (-(-c_{11,12}^{ci})) * c_{12,12}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_{12}\rangle = c_{249,11,12}^{mdl} P_{11} + c_{249,12,12}^{mdl} P_{12}$$

$$c_{249,11,12}^{mdl} = c_{12,11}^{ci} * c_{11,11}^{inv} + (-(-c_{12,12}^{ci})) * c_{12,11}^{inv}$$

$$c_{249,12,12}^{mdl} = c_{12,11}^{ci} * c_{11,12}^{inv} + (-(-c_{12,12}^{ci})) * c_{12,12}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_{13}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_{14}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_{15}\rangle = c_{249,15,15}^{mdl} P_{15}$$

$$c_{249,15,15}^{mdl} = c_{15,15}^{ci} * c_{15,15}^{inv}$$

$$\hat{O}_{250} : \langle P_p | \hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\beta^- | P_q \rangle = >$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_0\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_1\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_2\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_3\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_4\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_5\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_6\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_7\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_8\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_9\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_{10}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_{11}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_{12}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_{13}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_{14}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{251} : \langle P_p | \hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- | P_q \rangle = >$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_0\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_1\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_2\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_3\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_4\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_5\rangle = c_{251,4,5}^{mdl} P_4$$

$$c_{251,4,5}^{mdl} = (-(-c_{5,5}^{ci})) * c_{4,4}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_6\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_7\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_8\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_9\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_{10}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_{11}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_{12}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_{13}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_{14}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{252} : \langle P_p | \hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- | P_q \rangle = >$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_0\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_1\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_2\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_3\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_4\rangle = c_{252,4,4}^{mdl} P_4$$

$$c_{252,4,4}^{mdl} = (-c_{4,4}^{ci}) * c_{4,4}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_5\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_6\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_7\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_8\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_9\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_{10}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_{11}\rangle = c_{252,11,11}^{mdl} P_{11} + c_{252,12,11}^{mdl} P_{12}$$

$$c_{252,11,11}^{mdl} = (-c_{11,11}^{ci}) * c_{11,11}^{inv} + (-c_{11,12}^{ci}) * c_{12,11}^{inv}$$

$$c_{252,12,11}^{mdl} = (-c_{11,11}^{ci}) * c_{11,12}^{inv} + (-c_{11,12}^{ci}) * c_{12,12}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_{12}\rangle = c_{252,11,12}^{mdl} P_{11} + c_{252,12,12}^{mdl} P_{12}$$

$$c_{252,11,12}^{mdl} = (-c_{12,11}^{ci}) * c_{11,11}^{inv} + (-c_{12,12}^{ci}) * c_{12,11}^{inv}$$

$$c_{252,12,12}^{mdl} = (-c_{12,11}^{ci}) * c_{11,12}^{inv} + (-c_{12,12}^{ci}) * c_{12,12}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_{13}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_{14}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_{15}\rangle = c_{252,15,15}^{mdl} P_{15}$$

$$c_{252,15,15}^{mdl} = (-c_{15,15}^{ci}) * c_{15,15}^{inv}$$

$$\hat{O}_{253} : \langle P_p | \hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- | P_q \rangle =>$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_0\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_1\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_2\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_3\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_4\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_5\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_6\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_7\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_8\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_9\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{10}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{11}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{12}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{13}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{14}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{254} : \langle P_p | \hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- | P_q \rangle =>$$

$$\begin{aligned}
& \hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_0\rangle = \\
& \hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_1\rangle = \\
& \hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_2\rangle = \\
& \hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_3\rangle = \\
& \hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_4\rangle = \\
& \hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_5\rangle = c_{254,4,5}^{mdl} P_4 \\
& c_{254,4,5}^{mdl} = (-c_{5,5}^{ci}) * c_{4,4}^{inv} \\
& \hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_6\rangle = \\
& \hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_7\rangle = \\
& \hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_8\rangle = \\
& \hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_9\rangle = \\
& \hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{10}\rangle = \\
& \hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{11}\rangle = \\
& \hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{12}\rangle = \\
& \hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{13}\rangle = \\
& \hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{14}\rangle = \\
& \hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{15}\rangle =
\end{aligned}$$

$$\hat{O}_{255} : \langle P_p | \hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- | P_q \rangle = >$$

$$\begin{aligned}
& \hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_0\rangle = \\
& \hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_1\rangle = \\
& \hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_2\rangle = \\
& \hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_3\rangle = \\
& \hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_4\rangle = \\
& \hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_5\rangle = \\
& \hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_6\rangle = \\
& \hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_7\rangle = \\
& \hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_8\rangle = \\
& \hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_9\rangle =
\end{aligned}$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_{10}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_{11}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_{12}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_{13}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_{14}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{256} : \langle P_p | \hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- | P_q \rangle = >$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_0\rangle = c_{256,0,0}^{mdl} P_0 + c_{256,1,0}^{mdl} P_1 + c_{256,2,0}^{mdl} P_2 + c_{256,3,0}^{mdl} P_3$$

$$c_{256,0,0}^{mdl} = (-(-c_{0,0}^{ci})) * c_{2,0}^{inv}$$

$$c_{256,1,0}^{mdl} = (-(-c_{0,0}^{ci})) * c_{2,1}^{inv}$$

$$c_{256,2,0}^{mdl} = (-(-c_{0,0}^{ci})) * c_{2,2}^{inv}$$

$$c_{256,3,0}^{mdl} = (-(-c_{0,0}^{ci})) * c_{2,3}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_1\rangle = c_{256,0,1}^{mdl} P_0 + c_{256,1,1}^{mdl} P_1 + c_{256,2,1}^{mdl} P_2 + c_{256,3,1}^{mdl} P_3$$

$$c_{256,0,1}^{mdl} = (-(-c_{1,0}^{ci})) * c_{2,0}^{inv}$$

$$c_{256,1,1}^{mdl} = (-(-c_{1,0}^{ci})) * c_{2,1}^{inv}$$

$$c_{256,2,1}^{mdl} = (-(-c_{1,0}^{ci})) * c_{2,2}^{inv}$$

$$c_{256,3,1}^{mdl} = (-(-c_{1,0}^{ci})) * c_{2,3}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_2\rangle = c_{256,0,2}^{mdl} P_0 + c_{256,1,2}^{mdl} P_1 + c_{256,2,2}^{mdl} P_2 + c_{256,3,2}^{mdl} P_3$$

$$c_{256,0,2}^{mdl} = (-(-c_{2,0}^{ci})) * c_{2,0}^{inv}$$

$$c_{256,1,2}^{mdl} = (-(-c_{2,0}^{ci})) * c_{2,1}^{inv}$$

$$c_{256,2,2}^{mdl} = (-(-c_{2,0}^{ci})) * c_{2,2}^{inv}$$

$$c_{256,3,2}^{mdl} = (-(-c_{2,0}^{ci})) * c_{2,3}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_3\rangle = c_{256,0,3}^{mdl} P_0 + c_{256,1,3}^{mdl} P_1 + c_{256,2,3}^{mdl} P_2 + c_{256,3,3}^{mdl} P_3$$

$$c_{256,0,3}^{mdl} = (-(-c_{3,0}^{ci})) * c_{2,0}^{inv}$$

$$c_{256,1,3}^{mdl} = (-(-c_{3,0}^{ci})) * c_{2,1}^{inv}$$

$$c_{256,2,3}^{mdl} = (-(-c_{3,0}^{ci})) * c_{2,2}^{inv}$$

$$c_{256,3,3}^{mdl} = (-(-c_{3,0}^{ci})) * c_{2,3}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_4\rangle =$$

$$\begin{aligned}
& \hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_5\rangle = \\
& \hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_6\rangle = \\
& \hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_7\rangle = \\
& \hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_8\rangle = \\
& \hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_9\rangle = \\
& \hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_{10}\rangle = \\
& \hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_{11}\rangle = \\
& \hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_{12}\rangle = \\
& \hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_{13}\rangle = c_{256,13,13}^{mdl} P_{13} + c_{256,14,13}^{mdl} P_{14} \\
& c_{256,13,13}^{mdl} = (-(-c_{13,13}^{ci})) * c_{14,13}^{inv} \\
& c_{256,14,13}^{mdl} = (-(-c_{13,13}^{ci})) * c_{14,14}^{inv} \\
& \hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_{14}\rangle = c_{256,13,14}^{mdl} P_{13} + c_{256,14,14}^{mdl} P_{14} \\
& c_{256,13,14}^{mdl} = (-(-c_{14,13}^{ci})) * c_{14,13}^{inv} \\
& c_{256,14,14}^{mdl} = (-(-c_{14,13}^{ci})) * c_{14,14}^{inv} \\
& \hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_{15}\rangle = \\
& \hat{O}_{257} : \langle P_p | \hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- | P_q \rangle = > \\
& \hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_0\rangle = c_{257,0,0}^{mdl} P_0 + c_{257,1,0}^{mdl} P_1 + c_{257,2,0}^{mdl} P_2 + c_{257,3,0}^{mdl} P_3 \\
& c_{257,0,0}^{mdl} = (-(-c_{0,1}^{ci})) * c_{2,0}^{inv} \\
& c_{257,1,0}^{mdl} = (-(-c_{0,1}^{ci})) * c_{2,1}^{inv} \\
& c_{257,2,0}^{mdl} = (-(-c_{0,1}^{ci})) * c_{2,2}^{inv} \\
& c_{257,3,0}^{mdl} = (-(-c_{0,1}^{ci})) * c_{2,3}^{inv} \\
& \hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_1\rangle = c_{257,0,1}^{mdl} P_0 + c_{257,1,1}^{mdl} P_1 + c_{257,2,1}^{mdl} P_2 + c_{257,3,1}^{mdl} P_3 \\
& c_{257,0,1}^{mdl} = (-(-c_{1,1}^{ci})) * c_{2,0}^{inv} \\
& c_{257,1,1}^{mdl} = (-(-c_{1,1}^{ci})) * c_{2,1}^{inv} \\
& c_{257,2,1}^{mdl} = (-(-c_{1,1}^{ci})) * c_{2,2}^{inv} \\
& c_{257,3,1}^{mdl} = (-(-c_{1,1}^{ci})) * c_{2,3}^{inv} \\
& \hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_2\rangle = c_{257,0,2}^{mdl} P_0 + c_{257,1,2}^{mdl} P_1 + c_{257,2,2}^{mdl} P_2 + c_{257,3,2}^{mdl} P_3 \\
& c_{257,0,2}^{mdl} = (-(-c_{2,1}^{ci})) * c_{2,0}^{inv}
\end{aligned}$$

$$c_{257,1,2}^{mdl} = (-(-c_{2,1}^{ci})) * c_{2,1}^{inv}$$

$$c_{257,2,2}^{mdl} = (-(-c_{2,1}^{ci})) * c_{2,2}^{inv}$$

$$c_{257,3,2}^{mdl} = (-(-c_{2,1}^{ci})) * c_{2,3}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_3\rangle = c_{257,0,3}^{mdl} P_0 + c_{257,1,3}^{mdl} P_1 + c_{257,2,3}^{mdl} P_2 + c_{257,3,3}^{mdl} P_3$$

$$c_{257,0,3}^{mdl} = (-(-c_{3,1}^{ci})) * c_{2,0}^{inv}$$

$$c_{257,1,3}^{mdl} = (-(-c_{3,1}^{ci})) * c_{2,1}^{inv}$$

$$c_{257,2,3}^{mdl} = (-(-c_{3,1}^{ci})) * c_{2,2}^{inv}$$

$$c_{257,3,3}^{mdl} = (-(-c_{3,1}^{ci})) * c_{2,3}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_4\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_5\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_6\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_7\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_8\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_9\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{10}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{11}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{12}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{13}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{14}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{258} : \langle P_p | \hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- | P_q \rangle = >$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_0\rangle = c_{258,0,0}^{mdl} P_0 + c_{258,1,0}^{mdl} P_1 + c_{258,2,0}^{mdl} P_2 + c_{258,3,0}^{mdl} P_3$$

$$c_{258,0,0}^{mdl} = (-c_{0,0}^{ci}) * c_{2,0}^{inv}$$

$$c_{258,1,0}^{mdl} = (-c_{0,0}^{ci}) * c_{2,1}^{inv}$$

$$c_{258,2,0}^{mdl} = (-c_{0,0}^{ci}) * c_{2,2}^{inv}$$

$$c_{258,3,0}^{mdl} = (-c_{0,0}^{ci}) * c_{2,3}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_1\rangle = c_{258,0,1}^{mdl} P_0 + c_{258,1,1}^{mdl} P_1 + c_{258,2,1}^{mdl} P_2 + c_{258,3,1}^{mdl} P_3$$

$$c_{258,0,1}^{mdl} = (-c_{1,0}^{ci}) * c_{2,0}^{inv}$$

$$\begin{aligned}
c_{258,1,1}^{mdl} &= (-c_{1,0}^{ci}) * c_{2,1}^{inv} \\
c_{258,2,1}^{mdl} &= (-c_{1,0}^{ci}) * c_{2,2}^{inv} \\
c_{258,3,1}^{mdl} &= (-c_{1,0}^{ci}) * c_{2,3}^{inv} \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_2\rangle &= c_{258,0,2}^{mdl} P_0 + c_{258,1,2}^{mdl} P_1 + c_{258,2,2}^{mdl} P_2 + c_{258,3,2}^{mdl} P_3 \\
c_{258,0,2}^{mdl} &= (-c_{2,0}^{ci}) * c_{2,0}^{inv} \\
c_{258,1,2}^{mdl} &= (-c_{2,0}^{ci}) * c_{2,1}^{inv} \\
c_{258,2,2}^{mdl} &= (-c_{2,0}^{ci}) * c_{2,2}^{inv} \\
c_{258,3,2}^{mdl} &= (-c_{2,0}^{ci}) * c_{2,3}^{inv} \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_3\rangle &= c_{258,0,3}^{mdl} P_0 + c_{258,1,3}^{mdl} P_1 + c_{258,2,3}^{mdl} P_2 + c_{258,3,3}^{mdl} P_3 \\
c_{258,0,3}^{mdl} &= (-c_{3,0}^{ci}) * c_{2,0}^{inv} \\
c_{258,1,3}^{mdl} &= (-c_{3,0}^{ci}) * c_{2,1}^{inv} \\
c_{258,2,3}^{mdl} &= (-c_{3,0}^{ci}) * c_{2,2}^{inv} \\
c_{258,3,3}^{mdl} &= (-c_{3,0}^{ci}) * c_{2,3}^{inv} \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_4\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_5\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_6\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_7\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_8\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_9\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{10}\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{11}\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{12}\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{13}\rangle &= c_{258,13,13}^{mdl} P_{13} + c_{258,14,13}^{mdl} P_{14} \\
c_{258,13,13}^{mdl} &= (-c_{13,13}^{ci}) * c_{14,13}^{inv} \\
c_{258,14,13}^{mdl} &= (-c_{13,13}^{ci}) * c_{14,14}^{inv} \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{14}\rangle &= c_{258,13,14}^{mdl} P_{13} + c_{258,14,14}^{mdl} P_{14} \\
c_{258,13,14}^{mdl} &= (-c_{14,13}^{ci}) * c_{14,13}^{inv} \\
c_{258,14,14}^{mdl} &= (-c_{14,13}^{ci}) * c_{14,14}^{inv} \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{15}\rangle &=
\end{aligned}$$

$$\begin{aligned}
\hat{O}_{259} : \langle P_p | \hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- | P_q \rangle = & \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- | P_0 \rangle = c_{259,0,0}^{mdl} P_0 + c_{259,1,0}^{mdl} P_1 + c_{259,2,0}^{mdl} P_2 + c_{259,3,0}^{mdl} P_3 \\
c_{259,0,0}^{mdl} = & (-(-c_{0,2}^{ci})) * c_{2,0}^{inv} \\
c_{259,1,0}^{mdl} = & (-(-c_{0,2}^{ci})) * c_{2,1}^{inv} \\
c_{259,2,0}^{mdl} = & (-(-c_{0,2}^{ci})) * c_{2,2}^{inv} \\
c_{259,3,0}^{mdl} = & (-(-c_{0,2}^{ci})) * c_{2,3}^{inv} \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- | P_1 \rangle = c_{259,0,1}^{mdl} P_0 + c_{259,1,1}^{mdl} P_1 + c_{259,2,1}^{mdl} P_2 + c_{259,3,1}^{mdl} P_3 \\
c_{259,0,1}^{mdl} = & (-(-c_{1,2}^{ci})) * c_{2,0}^{inv} \\
c_{259,1,1}^{mdl} = & (-(-c_{1,2}^{ci})) * c_{2,1}^{inv} \\
c_{259,2,1}^{mdl} = & (-(-c_{1,2}^{ci})) * c_{2,2}^{inv} \\
c_{259,3,1}^{mdl} = & (-(-c_{1,2}^{ci})) * c_{2,3}^{inv} \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- | P_2 \rangle = c_{259,0,2}^{mdl} P_0 + c_{259,1,2}^{mdl} P_1 + c_{259,2,2}^{mdl} P_2 + c_{259,3,2}^{mdl} P_3 \\
c_{259,0,2}^{mdl} = & (-(-c_{2,2}^{ci})) * c_{2,0}^{inv} \\
c_{259,1,2}^{mdl} = & (-(-c_{2,2}^{ci})) * c_{2,1}^{inv} \\
c_{259,2,2}^{mdl} = & (-(-c_{2,2}^{ci})) * c_{2,2}^{inv} \\
c_{259,3,2}^{mdl} = & (-(-c_{2,2}^{ci})) * c_{2,3}^{inv} \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- | P_3 \rangle = c_{259,0,3}^{mdl} P_0 + c_{259,1,3}^{mdl} P_1 + c_{259,2,3}^{mdl} P_2 + c_{259,3,3}^{mdl} P_3 \\
c_{259,0,3}^{mdl} = & (-(-c_{3,2}^{ci})) * c_{2,0}^{inv} \\
c_{259,1,3}^{mdl} = & (-(-c_{3,2}^{ci})) * c_{2,1}^{inv} \\
c_{259,2,3}^{mdl} = & (-(-c_{3,2}^{ci})) * c_{2,2}^{inv} \\
c_{259,3,3}^{mdl} = & (-(-c_{3,2}^{ci})) * c_{2,3}^{inv} \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- | P_4 \rangle = & \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- | P_5 \rangle = & \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- | P_6 \rangle = & \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- | P_7 \rangle = & \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- | P_8 \rangle = & \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- | P_9 \rangle = & \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- | P_{10} \rangle = &
\end{aligned}$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_{11}\rangle = c_{259,11,11}^{mdl} P_{11} + c_{259,12,11}^{mdl} P_{12}$$

$$c_{259,11,11}^{mdl} = (-(-c_{11,11}^{ci})) * c_{11,11}^{inv}$$

$$c_{259,12,11}^{mdl} = (-(-c_{11,11}^{ci})) * c_{11,12}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_{12}\rangle = c_{259,11,12}^{mdl} P_{11} + c_{259,12,12}^{mdl} P_{12}$$

$$c_{259,11,12}^{mdl} = (-(-c_{12,11}^{ci})) * c_{11,11}^{inv}$$

$$c_{259,12,12}^{mdl} = (-(-c_{12,11}^{ci})) * c_{11,12}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_{13}\rangle = c_{259,13,13}^{mdl} P_{13} + c_{259,14,13}^{mdl} P_{14}$$

$$c_{259,13,13}^{mdl} = (-(-c_{13,14}^{ci})) * c_{14,13}^{inv}$$

$$c_{259,14,13}^{mdl} = (-(-c_{13,14}^{ci})) * c_{14,14}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_{14}\rangle = c_{259,13,14}^{mdl} P_{13} + c_{259,14,14}^{mdl} P_{14}$$

$$c_{259,13,14}^{mdl} = (-(-c_{14,14}^{ci})) * c_{14,13}^{inv}$$

$$c_{259,14,14}^{mdl} = (-(-c_{14,14}^{ci})) * c_{14,14}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_{15}\rangle = c_{259,15,15}^{mdl} P_{15}$$

$$c_{259,15,15}^{mdl} = (-(-c_{15,15}^{ci})) * c_{15,15}^{inv}$$

$$\hat{O}_{260} : \langle P_p | \hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- | P_q \rangle = >$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_0\rangle = c_{260,0,0}^{mdl} P_0 + c_{260,1,0}^{mdl} P_1 + c_{260,2,0}^{mdl} P_2 + c_{260,3,0}^{mdl} P_3$$

$$c_{260,0,0}^{mdl} = (-c_{0,2}^{ci}) * c_{2,0}^{inv}$$

$$c_{260,1,0}^{mdl} = (-c_{0,2}^{ci}) * c_{2,1}^{inv}$$

$$c_{260,2,0}^{mdl} = (-c_{0,2}^{ci}) * c_{2,2}^{inv}$$

$$c_{260,3,0}^{mdl} = (-c_{0,2}^{ci}) * c_{2,3}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_1\rangle = c_{260,0,1}^{mdl} P_0 + c_{260,1,1}^{mdl} P_1 + c_{260,2,1}^{mdl} P_2 + c_{260,3,1}^{mdl} P_3$$

$$c_{260,0,1}^{mdl} = (-c_{1,2}^{ci}) * c_{2,0}^{inv}$$

$$c_{260,1,1}^{mdl} = (-c_{1,2}^{ci}) * c_{2,1}^{inv}$$

$$c_{260,2,1}^{mdl} = (-c_{1,2}^{ci}) * c_{2,2}^{inv}$$

$$c_{260,3,1}^{mdl} = (-c_{1,2}^{ci}) * c_{2,3}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_2\rangle = c_{260,0,2}^{mdl} P_0 + c_{260,1,2}^{mdl} P_1 + c_{260,2,2}^{mdl} P_2 + c_{260,3,2}^{mdl} P_3$$

$$c_{260,0,2}^{mdl} = (-c_{2,2}^{ci}) * c_{2,0}^{inv}$$

$$c_{260,1,2}^{mdl} = (-c_{2,2}^{ci}) * c_{2,1}^{inv}$$

$$\begin{aligned}
c_{260,2,2}^{mdl} &= (-c_{2,2}^{ci}) * c_{2,2}^{inv} \\
c_{260,3,2}^{mdl} &= (-c_{2,2}^{ci}) * c_{2,3}^{inv} \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_3\rangle &= c_{260,0,3}^{mdl} P_0 + c_{260,1,3}^{mdl} P_1 + c_{260,2,3}^{mdl} P_2 + c_{260,3,3}^{mdl} P_3 \\
c_{260,0,3}^{mdl} &= (-c_{3,2}^{ci}) * c_{2,0}^{inv} \\
c_{260,1,3}^{mdl} &= (-c_{3,2}^{ci}) * c_{2,1}^{inv} \\
c_{260,2,3}^{mdl} &= (-c_{3,2}^{ci}) * c_{2,2}^{inv} \\
c_{260,3,3}^{mdl} &= (-c_{3,2}^{ci}) * c_{2,3}^{inv} \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_4\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_5\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_6\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_7\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_8\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_9\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_{10}\rangle &= \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_{11}\rangle &= c_{260,11,11}^{mdl} P_{11} + c_{260,12,11}^{mdl} P_{12} \\
c_{260,11,11}^{mdl} &= (-c_{11,11}^{ci}) * c_{11,11}^{inv} \\
c_{260,12,11}^{mdl} &= (-c_{11,11}^{ci}) * c_{11,12}^{inv} \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_{12}\rangle &= c_{260,11,12}^{mdl} P_{11} + c_{260,12,12}^{mdl} P_{12} \\
c_{260,11,12}^{mdl} &= (-c_{12,11}^{ci}) * c_{11,11}^{inv} \\
c_{260,12,12}^{mdl} &= (-c_{12,11}^{ci}) * c_{11,12}^{inv} \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_{13}\rangle &= c_{260,13,13}^{mdl} P_{13} + c_{260,14,13}^{mdl} P_{14} \\
c_{260,13,13}^{mdl} &= (-c_{13,14}^{ci}) * c_{14,13}^{inv} \\
c_{260,14,13}^{mdl} &= (-c_{13,14}^{ci}) * c_{14,14}^{inv} \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_{14}\rangle &= c_{260,13,14}^{mdl} P_{13} + c_{260,14,14}^{mdl} P_{14} \\
c_{260,13,14}^{mdl} &= (-c_{14,14}^{ci}) * c_{14,13}^{inv} \\
c_{260,14,14}^{mdl} &= (-c_{14,14}^{ci}) * c_{14,14}^{inv} \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_{15}\rangle &= c_{260,15,15}^{mdl} P_{15} \\
c_{260,15,15}^{mdl} &= (-c_{15,15}^{ci}) * c_{15,15}^{inv}
\end{aligned}$$

$$\begin{aligned}
\hat{O}_{261} : \langle P_p | \hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- | P_q \rangle = & \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- | P_0 \rangle = c_{261,0,0}^{mdl} P_0 + c_{261,1,0}^{mdl} P_1 + c_{261,2,0}^{mdl} P_2 + c_{261,3,0}^{mdl} P_3 \\
c_{261,0,0}^{mdl} = & (-(-c_{0,3}^{ci})) * c_{2,0}^{inv} \\
c_{261,1,0}^{mdl} = & (-(-c_{0,3}^{ci})) * c_{2,1}^{inv} \\
c_{261,2,0}^{mdl} = & (-(-c_{0,3}^{ci})) * c_{2,2}^{inv} \\
c_{261,3,0}^{mdl} = & (-(-c_{0,3}^{ci})) * c_{2,3}^{inv} \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- | P_1 \rangle = c_{261,0,1}^{mdl} P_0 + c_{261,1,1}^{mdl} P_1 + c_{261,2,1}^{mdl} P_2 + c_{261,3,1}^{mdl} P_3 \\
c_{261,0,1}^{mdl} = & (-(-c_{1,3}^{ci})) * c_{2,0}^{inv} \\
c_{261,1,1}^{mdl} = & (-(-c_{1,3}^{ci})) * c_{2,1}^{inv} \\
c_{261,2,1}^{mdl} = & (-(-c_{1,3}^{ci})) * c_{2,2}^{inv} \\
c_{261,3,1}^{mdl} = & (-(-c_{1,3}^{ci})) * c_{2,3}^{inv} \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- | P_2 \rangle = c_{261,0,2}^{mdl} P_0 + c_{261,1,2}^{mdl} P_1 + c_{261,2,2}^{mdl} P_2 + c_{261,3,2}^{mdl} P_3 \\
c_{261,0,2}^{mdl} = & (-(-c_{2,3}^{ci})) * c_{2,0}^{inv} \\
c_{261,1,2}^{mdl} = & (-(-c_{2,3}^{ci})) * c_{2,1}^{inv} \\
c_{261,2,2}^{mdl} = & (-(-c_{2,3}^{ci})) * c_{2,2}^{inv} \\
c_{261,3,2}^{mdl} = & (-(-c_{2,3}^{ci})) * c_{2,3}^{inv} \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- | P_3 \rangle = c_{261,0,3}^{mdl} P_0 + c_{261,1,3}^{mdl} P_1 + c_{261,2,3}^{mdl} P_2 + c_{261,3,3}^{mdl} P_3 \\
c_{261,0,3}^{mdl} = & (-(-c_{3,3}^{ci})) * c_{2,0}^{inv} \\
c_{261,1,3}^{mdl} = & (-(-c_{3,3}^{ci})) * c_{2,1}^{inv} \\
c_{261,2,3}^{mdl} = & (-(-c_{3,3}^{ci})) * c_{2,2}^{inv} \\
c_{261,3,3}^{mdl} = & (-(-c_{3,3}^{ci})) * c_{2,3}^{inv} \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- | P_4 \rangle = & \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- | P_5 \rangle = & \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- | P_6 \rangle = & \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- | P_7 \rangle = & \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- | P_8 \rangle = & \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- | P_9 \rangle = & \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- | P_{10} \rangle = & \\
\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- | P_{11} \rangle = c_{261,11,11}^{mdl} P_{11} + c_{261,12,11}^{mdl} P_{12}
\end{aligned}$$

$$c_{261,11,11}^{mdl} = (-(-c_{11,12}^{ci})) * c_{11,11}^{inv}$$

$$c_{261,12,11}^{mdl} = (-(-c_{11,12}^{ci})) * c_{11,12}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_{12}\rangle = c_{261,11,12}^{mdl} P_{11} + c_{261,12,12}^{mdl} P_{12}$$

$$c_{261,11,12}^{mdl} = (-(-c_{12,12}^{ci})) * c_{11,11}^{inv}$$

$$c_{261,12,12}^{mdl} = (-(-c_{12,12}^{ci})) * c_{11,12}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_{13}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_{14}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{262} : \langle P_p | \hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- | P_q \rangle = >$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_0\rangle = c_{262,0,0}^{mdl} P_0 + c_{262,1,0}^{mdl} P_1 + c_{262,2,0}^{mdl} P_2 + c_{262,3,0}^{mdl} P_3$$

$$c_{262,0,0}^{mdl} = (-c_{0,1}^{ci}) * c_{2,0}^{inv}$$

$$c_{262,1,0}^{mdl} = (-c_{0,1}^{ci}) * c_{2,1}^{inv}$$

$$c_{262,2,0}^{mdl} = (-c_{0,1}^{ci}) * c_{2,2}^{inv}$$

$$c_{262,3,0}^{mdl} = (-c_{0,1}^{ci}) * c_{2,3}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_1\rangle = c_{262,0,1}^{mdl} P_0 + c_{262,1,1}^{mdl} P_1 + c_{262,2,1}^{mdl} P_2 + c_{262,3,1}^{mdl} P_3$$

$$c_{262,0,1}^{mdl} = (-c_{1,1}^{ci}) * c_{2,0}^{inv}$$

$$c_{262,1,1}^{mdl} = (-c_{1,1}^{ci}) * c_{2,1}^{inv}$$

$$c_{262,2,1}^{mdl} = (-c_{1,1}^{ci}) * c_{2,2}^{inv}$$

$$c_{262,3,1}^{mdl} = (-c_{1,1}^{ci}) * c_{2,3}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_2\rangle = c_{262,0,2}^{mdl} P_0 + c_{262,1,2}^{mdl} P_1 + c_{262,2,2}^{mdl} P_2 + c_{262,3,2}^{mdl} P_3$$

$$c_{262,0,2}^{mdl} = (-c_{2,1}^{ci}) * c_{2,0}^{inv}$$

$$c_{262,1,2}^{mdl} = (-c_{2,1}^{ci}) * c_{2,1}^{inv}$$

$$c_{262,2,2}^{mdl} = (-c_{2,1}^{ci}) * c_{2,2}^{inv}$$

$$c_{262,3,2}^{mdl} = (-c_{2,1}^{ci}) * c_{2,3}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_3\rangle = c_{262,0,3}^{mdl} P_0 + c_{262,1,3}^{mdl} P_1 + c_{262,2,3}^{mdl} P_2 + c_{262,3,3}^{mdl} P_3$$

$$c_{262,0,3}^{mdl} = (-c_{3,1}^{ci}) * c_{2,0}^{inv}$$

$$c_{262,1,3}^{mdl} = (-c_{3,1}^{ci}) * c_{2,1}^{inv}$$

$$c_{262,2,3}^{mdl} = (-c_{3,1}^{ci}) * c_{2,2}^{inv}$$

$$c_{262,3,3}^{mdl} = (-c_{3,1}^{ci}) * c_{2,3}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_4\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_5\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_6\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_7\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_8\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_9\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{10}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{11}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{12}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{13}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{14}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{263} : \langle P_p | \hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- | P_q \rangle = >$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_0\rangle = c_{263,0,0}^{mdl} P_0 + c_{263,1,0}^{mdl} P_1 + c_{263,2,0}^{mdl} P_2 + c_{263,3,0}^{mdl} P_3$$

$$c_{263,0,0}^{mdl} = (-c_{0,3}^{ci}) * c_{2,0}^{inv}$$

$$c_{263,1,0}^{mdl} = (-c_{0,3}^{ci}) * c_{2,1}^{inv}$$

$$c_{263,2,0}^{mdl} = (-c_{0,3}^{ci}) * c_{2,2}^{inv}$$

$$c_{263,3,0}^{mdl} = (-c_{0,3}^{ci}) * c_{2,3}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_1\rangle = c_{263,0,1}^{mdl} P_0 + c_{263,1,1}^{mdl} P_1 + c_{263,2,1}^{mdl} P_2 + c_{263,3,1}^{mdl} P_3$$

$$c_{263,0,1}^{mdl} = (-c_{1,3}^{ci}) * c_{2,0}^{inv}$$

$$c_{263,1,1}^{mdl} = (-c_{1,3}^{ci}) * c_{2,1}^{inv}$$

$$c_{263,2,1}^{mdl} = (-c_{1,3}^{ci}) * c_{2,2}^{inv}$$

$$c_{263,3,1}^{mdl} = (-c_{1,3}^{ci}) * c_{2,3}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_2\rangle = c_{263,0,2}^{mdl} P_0 + c_{263,1,2}^{mdl} P_1 + c_{263,2,2}^{mdl} P_2 + c_{263,3,2}^{mdl} P_3$$

$$c_{263,0,2}^{mdl} = (-c_{2,3}^{ci}) * c_{2,0}^{inv}$$

$$c_{263,1,2}^{mdl} = (-c_{2,3}^{ci}) * c_{2,1}^{inv}$$

$$c_{263,2,2}^{mdl} = (-c_{2,3}^{ci}) * c_{2,2}^{inv}$$

$$c_{263,3,2}^{mdl} = (-c_{2,3}^{ci}) * c_{2,3}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_3\rangle = c_{263,0,3}^{mdl} P_0 + c_{263,1,3}^{mdl} P_1 + c_{263,2,3}^{mdl} P_2 + c_{263,3,3}^{mdl} P_3$$

$$c_{263,0,3}^{mdl} = (-c_{3,3}^{ci}) * c_{2,0}^{inv}$$

$$c_{263,1,3}^{mdl} = (-c_{3,3}^{ci}) * c_{2,1}^{inv}$$

$$c_{263,2,3}^{mdl} = (-c_{3,3}^{ci}) * c_{2,2}^{inv}$$

$$c_{263,3,3}^{mdl} = (-c_{3,3}^{ci}) * c_{2,3}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_4\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_5\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_6\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_7\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_8\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_9\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{10}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{11}\rangle = c_{263,11,11}^{mdl} P_{11} + c_{263,12,11}^{mdl} P_{12}$$

$$c_{263,11,11}^{mdl} = (-c_{11,12}^{ci}) * c_{11,11}^{inv}$$

$$c_{263,12,11}^{mdl} = (-c_{11,12}^{ci}) * c_{11,12}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{12}\rangle = c_{263,11,12}^{mdl} P_{11} + c_{263,12,12}^{mdl} P_{12}$$

$$c_{263,11,12}^{mdl} = (-c_{12,12}^{ci}) * c_{11,11}^{inv}$$

$$c_{263,12,12}^{mdl} = (-c_{12,12}^{ci}) * c_{11,12}^{inv}$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{13}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{14}\rangle =$$

$$\hat{1}_\alpha^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{264} : \langle P_p | \hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- | P_q \rangle = >$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_0\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_1\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_2\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_3\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_4\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_9\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_{10}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_{11}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_{12}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_{13}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_{14}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{268} : \langle P_p | \hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- | P_q \rangle = >$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_0\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_1\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_2\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_3\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_4\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_5\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_6\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_7\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_8\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_9\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_{10}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_{11}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_{12}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_{13}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_{14}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{269} : \langle P_p | \hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- | P_q \rangle = >$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_0\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_1\rangle =$$

$$\begin{aligned}
\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_2\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_3\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_4\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_5\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_6\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_7\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_8\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_9\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{10}\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{11}\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{12}\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{13}\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{14}\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{15}\rangle &=
\end{aligned}$$

$$\hat{O}_{270} : \langle P_p | \hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- | P_q \rangle = >$$

$$\begin{aligned}
\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_0\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_1\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_2\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_3\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_4\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_5\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_6\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_7\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_8\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_9\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{10}\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{11}\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{12}\rangle &=
\end{aligned}$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{13}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{14}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{271} : \langle P_p | \hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- | P_q \rangle = >$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_0\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_1\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_2\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_3\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_4\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_5\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_6\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_7\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_8\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_9\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_{10}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_{11}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_{12}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_{13}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_{14}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{272} : \langle P_p | \hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- | P_q \rangle = >$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_0\rangle = c_{272,0,0}^{mdl} P_0 + c_{272,1,0}^{mdl} P_1 + c_{272,2,0}^{mdl} P_2 + c_{272,3,0}^{mdl} P_3$$

$$c_{272,0,0}^{mdl} = (-c_{0,0}^{ci}) * c_{3,0}^{inv}$$

$$c_{272,1,0}^{mdl} = (-c_{0,0}^{ci}) * c_{3,1}^{inv}$$

$$c_{272,2,0}^{mdl} = (-c_{0,0}^{ci}) * c_{3,2}^{inv}$$

$$c_{272,3,0}^{mdl} = (-c_{0,0}^{ci}) * c_{3,3}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_1\rangle = c_{272,0,1}^{mdl} P_0 + c_{272,1,1}^{mdl} P_1 + c_{272,2,1}^{mdl} P_2 + c_{272,3,1}^{mdl} P_3$$

$$c_{272,0,1}^{mdl} = (-c_{1,0}^{ci}) * c_{3,0}^{inv}$$

$$c_{272,1,1}^{mdl} = (-c_{1,0}^{ci}) * c_{3,1}^{inv}$$

$$c_{272,2,1}^{mdl} = (-c_{1,0}^{ci}) * c_{3,2}^{inv}$$

$$c_{272,3,1}^{mdl} = (-c_{1,0}^{ci}) * c_{3,3}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_2\rangle = c_{272,0,2}^{mdl} P_0 + c_{272,1,2}^{mdl} P_1 + c_{272,2,2}^{mdl} P_2 + c_{272,3,2}^{mdl} P_3$$

$$c_{272,0,2}^{mdl} = (-c_{2,0}^{ci}) * c_{3,0}^{inv}$$

$$c_{272,1,2}^{mdl} = (-c_{2,0}^{ci}) * c_{3,1}^{inv}$$

$$c_{272,2,2}^{mdl} = (-c_{2,0}^{ci}) * c_{3,2}^{inv}$$

$$c_{272,3,2}^{mdl} = (-c_{2,0}^{ci}) * c_{3,3}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_3\rangle = c_{272,0,3}^{mdl} P_0 + c_{272,1,3}^{mdl} P_1 + c_{272,2,3}^{mdl} P_2 + c_{272,3,3}^{mdl} P_3$$

$$c_{272,0,3}^{mdl} = (-c_{3,0}^{ci}) * c_{3,0}^{inv}$$

$$c_{272,1,3}^{mdl} = (-c_{3,0}^{ci}) * c_{3,1}^{inv}$$

$$c_{272,2,3}^{mdl} = (-c_{3,0}^{ci}) * c_{3,2}^{inv}$$

$$c_{272,3,3}^{mdl} = (-c_{3,0}^{ci}) * c_{3,3}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_4\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_5\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_6\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_7\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_8\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_9\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_{10}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_{11}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_{12}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_{13}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_{14}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{273} : \langle P_p | \hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- | P_q \rangle = >$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_0\rangle = c_{273,0,0}^{mdl} P_0 + c_{273,1,0}^{mdl} P_1 + c_{273,2,0}^{mdl} P_2 + c_{273,3,0}^{mdl} P_3$$

$$\begin{aligned}
c_{273,0,0}^{mdl} &= (-c_{0,1}^{ci}) * c_{3,0}^{inv} \\
c_{273,1,0}^{mdl} &= (-c_{0,1}^{ci}) * c_{3,1}^{inv} \\
c_{273,2,0}^{mdl} &= (-c_{0,1}^{ci}) * c_{3,2}^{inv} \\
c_{273,3,0}^{mdl} &= (-c_{0,1}^{ci}) * c_{3,3}^{inv} \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_1\rangle &= c_{273,0,1}^{mdl} P_0 + c_{273,1,1}^{mdl} P_1 + c_{273,2,1}^{mdl} P_2 + c_{273,3,1}^{mdl} P_3 \\
c_{273,0,1}^{mdl} &= (-c_{1,1}^{ci}) * c_{3,0}^{inv} \\
c_{273,1,1}^{mdl} &= (-c_{1,1}^{ci}) * c_{3,1}^{inv} \\
c_{273,2,1}^{mdl} &= (-c_{1,1}^{ci}) * c_{3,2}^{inv} \\
c_{273,3,1}^{mdl} &= (-c_{1,1}^{ci}) * c_{3,3}^{inv} \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_2\rangle &= c_{273,0,2}^{mdl} P_0 + c_{273,1,2}^{mdl} P_1 + c_{273,2,2}^{mdl} P_2 + c_{273,3,2}^{mdl} P_3 \\
c_{273,0,2}^{mdl} &= (-c_{2,1}^{ci}) * c_{3,0}^{inv} \\
c_{273,1,2}^{mdl} &= (-c_{2,1}^{ci}) * c_{3,1}^{inv} \\
c_{273,2,2}^{mdl} &= (-c_{2,1}^{ci}) * c_{3,2}^{inv} \\
c_{273,3,2}^{mdl} &= (-c_{2,1}^{ci}) * c_{3,3}^{inv} \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_3\rangle &= c_{273,0,3}^{mdl} P_0 + c_{273,1,3}^{mdl} P_1 + c_{273,2,3}^{mdl} P_2 + c_{273,3,3}^{mdl} P_3 \\
c_{273,0,3}^{mdl} &= (-c_{3,1}^{ci}) * c_{3,0}^{inv} \\
c_{273,1,3}^{mdl} &= (-c_{3,1}^{ci}) * c_{3,1}^{inv} \\
c_{273,2,3}^{mdl} &= (-c_{3,1}^{ci}) * c_{3,2}^{inv} \\
c_{273,3,3}^{mdl} &= (-c_{3,1}^{ci}) * c_{3,3}^{inv} \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_4\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_5\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_6\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_7\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_8\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_9\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{10}\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{11}\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{12}\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{13}\rangle &= c_{273,13,13}^{mdl} P_{13} + c_{273,14,13}^{mdl} P_{14}
\end{aligned}$$

$$c_{273,13,13}^{mdl} = c_{13,13}^{ci} * c_{14,13}^{inv}$$

$$c_{273,14,13}^{mdl} = c_{13,13}^{ci} * c_{14,14}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{14}\rangle = c_{273,13,14}^{mdl} P_{13} + c_{273,14,14}^{mdl} P_{14}$$

$$c_{273,13,14}^{mdl} = c_{14,13}^{ci} * c_{14,13}^{inv}$$

$$c_{273,14,14}^{mdl} = c_{14,13}^{ci} * c_{14,14}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{274} : \langle P_p | \hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- | P_q \rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_0\rangle = c_{274,0,0}^{mdl} P_0 + c_{274,1,0}^{mdl} P_1 + c_{274,2,0}^{mdl} P_2 + c_{274,3,0}^{mdl} P_3$$

$$c_{274,0,0}^{mdl} = c_{0,0}^{ci} * c_{3,0}^{inv}$$

$$c_{274,1,0}^{mdl} = c_{0,0}^{ci} * c_{3,1}^{inv}$$

$$c_{274,2,0}^{mdl} = c_{0,0}^{ci} * c_{3,2}^{inv}$$

$$c_{274,3,0}^{mdl} = c_{0,0}^{ci} * c_{3,3}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_1\rangle = c_{274,0,1}^{mdl} P_0 + c_{274,1,1}^{mdl} P_1 + c_{274,2,1}^{mdl} P_2 + c_{274,3,1}^{mdl} P_3$$

$$c_{274,0,1}^{mdl} = c_{1,0}^{ci} * c_{3,0}^{inv}$$

$$c_{274,1,1}^{mdl} = c_{1,0}^{ci} * c_{3,1}^{inv}$$

$$c_{274,2,1}^{mdl} = c_{1,0}^{ci} * c_{3,2}^{inv}$$

$$c_{274,3,1}^{mdl} = c_{1,0}^{ci} * c_{3,3}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_2\rangle = c_{274,0,2}^{mdl} P_0 + c_{274,1,2}^{mdl} P_1 + c_{274,2,2}^{mdl} P_2 + c_{274,3,2}^{mdl} P_3$$

$$c_{274,0,2}^{mdl} = c_{2,0}^{ci} * c_{3,0}^{inv}$$

$$c_{274,1,2}^{mdl} = c_{2,0}^{ci} * c_{3,1}^{inv}$$

$$c_{274,2,2}^{mdl} = c_{2,0}^{ci} * c_{3,2}^{inv}$$

$$c_{274,3,2}^{mdl} = c_{2,0}^{ci} * c_{3,3}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_3\rangle = c_{274,0,3}^{mdl} P_0 + c_{274,1,3}^{mdl} P_1 + c_{274,2,3}^{mdl} P_2 + c_{274,3,3}^{mdl} P_3$$

$$c_{274,0,3}^{mdl} = c_{3,0}^{ci} * c_{3,0}^{inv}$$

$$c_{274,1,3}^{mdl} = c_{3,0}^{ci} * c_{3,1}^{inv}$$

$$c_{274,2,3}^{mdl} = c_{3,0}^{ci} * c_{3,2}^{inv}$$

$$c_{274,3,3}^{mdl} = c_{3,0}^{ci} * c_{3,3}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_4\rangle =$$

$$\begin{aligned}
&\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_5\rangle = \\
&\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_6\rangle = \\
&\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_7\rangle = \\
&\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_8\rangle = \\
&\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_9\rangle = \\
&\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{10}\rangle = \\
&\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{11}\rangle = \\
&\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{12}\rangle = \\
&\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{13}\rangle = \\
&\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{14}\rangle = \\
&\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{15}\rangle =
\end{aligned}$$

$$\hat{O}_{275} : \langle P_p | \hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- | P_q \rangle = >$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_0\rangle = c_{275,0,0}^{mdl} P_0 + c_{275,1,0}^{mdl} P_1 + c_{275,2,0}^{mdl} P_2 + c_{275,3,0}^{mdl} P_3$$

$$c_{275,0,0}^{mdl} = (-c_{0,2}^{ci}) * c_{3,0}^{inv}$$

$$c_{275,1,0}^{mdl} = (-c_{0,2}^{ci}) * c_{3,1}^{inv}$$

$$c_{275,2,0}^{mdl} = (-c_{0,2}^{ci}) * c_{3,2}^{inv}$$

$$c_{275,3,0}^{mdl} = (-c_{0,2}^{ci}) * c_{3,3}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_1\rangle = c_{275,0,1}^{mdl} P_0 + c_{275,1,1}^{mdl} P_1 + c_{275,2,1}^{mdl} P_2 + c_{275,3,1}^{mdl} P_3$$

$$c_{275,0,1}^{mdl} = (-c_{1,2}^{ci}) * c_{3,0}^{inv}$$

$$c_{275,1,1}^{mdl} = (-c_{1,2}^{ci}) * c_{3,1}^{inv}$$

$$c_{275,2,1}^{mdl} = (-c_{1,2}^{ci}) * c_{3,2}^{inv}$$

$$c_{275,3,1}^{mdl} = (-c_{1,2}^{ci}) * c_{3,3}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_2\rangle = c_{275,0,2}^{mdl} P_0 + c_{275,1,2}^{mdl} P_1 + c_{275,2,2}^{mdl} P_2 + c_{275,3,2}^{mdl} P_3$$

$$c_{275,0,2}^{mdl} = (-c_{2,2}^{ci}) * c_{3,0}^{inv}$$

$$c_{275,1,2}^{mdl} = (-c_{2,2}^{ci}) * c_{3,1}^{inv}$$

$$c_{275,2,2}^{mdl} = (-c_{2,2}^{ci}) * c_{3,2}^{inv}$$

$$c_{275,3,2}^{mdl} = (-c_{2,2}^{ci}) * c_{3,3}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_3\rangle = c_{275,0,3}^{mdl} P_0 + c_{275,1,3}^{mdl} P_1 + c_{275,2,3}^{mdl} P_2 + c_{275,3,3}^{mdl} P_3$$

$$c_{275,0,3}^{mdl} = (-c_{3,2}^{ci}) * c_{3,0}^{inv}$$

$$c_{275,1,3}^{mdl} = (-c_{3,2}^{ci}) * c_{3,1}^{inv}$$

$$c_{275,2,3}^{mdl} = (-c_{3,2}^{ci}) * c_{3,2}^{inv}$$

$$c_{275,3,3}^{mdl} = (-c_{3,2}^{ci}) * c_{3,3}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_4\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_5\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_6\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_7\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_8\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_9\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_{10}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_{11}\rangle = c_{275,11,11}^{mdl} P_{11} + c_{275,12,11}^{mdl} P_{12}$$

$$c_{275,11,11}^{mdl} = (-c_{11,11}^{ci}) * c_{12,11}^{inv}$$

$$c_{275,12,11}^{mdl} = (-c_{11,11}^{ci}) * c_{12,12}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_{12}\rangle = c_{275,11,12}^{mdl} P_{11} + c_{275,12,12}^{mdl} P_{12}$$

$$c_{275,11,12}^{mdl} = (-c_{12,11}^{ci}) * c_{12,11}^{inv}$$

$$c_{275,12,12}^{mdl} = (-c_{12,11}^{ci}) * c_{12,12}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_{13}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_{14}\rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{276} : \langle P_p | \hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- | P_q \rangle = >$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_0\rangle = c_{276,0,0}^{mdl} P_0 + c_{276,1,0}^{mdl} P_1 + c_{276,2,0}^{mdl} P_2 + c_{276,3,0}^{mdl} P_3$$

$$c_{276,0,0}^{mdl} = c_{0,2}^{ci} * c_{3,0}^{inv}$$

$$c_{276,1,0}^{mdl} = c_{0,2}^{ci} * c_{3,1}^{inv}$$

$$c_{276,2,0}^{mdl} = c_{0,2}^{ci} * c_{3,2}^{inv}$$

$$c_{276,3,0}^{mdl} = c_{0,2}^{ci} * c_{3,3}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_1\rangle = c_{276,0,1}^{mdl} P_0 + c_{276,1,1}^{mdl} P_1 + c_{276,2,1}^{mdl} P_2 + c_{276,3,1}^{mdl} P_3$$

$$c_{276,0,1}^{mdl} = c_{1,2}^{ci} * c_{3,0}^{inv}$$

$$\begin{aligned}
c_{276,1,1}^{mdl} &= c_{1,2}^{ci} * c_{3,1}^{inv} \\
c_{276,2,1}^{mdl} &= c_{1,2}^{ci} * c_{3,2}^{inv} \\
c_{276,3,1}^{mdl} &= c_{1,2}^{ci} * c_{3,3}^{inv} \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_2\rangle &= c_{276,0,2}^{mdl} P_0 + c_{276,1,2}^{mdl} P_1 + c_{276,2,2}^{mdl} P_2 + c_{276,3,2}^{mdl} P_3 \\
c_{276,0,2}^{mdl} &= c_{2,2}^{ci} * c_{3,0}^{inv} \\
c_{276,1,2}^{mdl} &= c_{2,2}^{ci} * c_{3,1}^{inv} \\
c_{276,2,2}^{mdl} &= c_{2,2}^{ci} * c_{3,2}^{inv} \\
c_{276,3,2}^{mdl} &= c_{2,2}^{ci} * c_{3,3}^{inv} \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_3\rangle &= c_{276,0,3}^{mdl} P_0 + c_{276,1,3}^{mdl} P_1 + c_{276,2,3}^{mdl} P_2 + c_{276,3,3}^{mdl} P_3 \\
c_{276,0,3}^{mdl} &= c_{3,2}^{ci} * c_{3,0}^{inv} \\
c_{276,1,3}^{mdl} &= c_{3,2}^{ci} * c_{3,1}^{inv} \\
c_{276,2,3}^{mdl} &= c_{3,2}^{ci} * c_{3,2}^{inv} \\
c_{276,3,3}^{mdl} &= c_{3,2}^{ci} * c_{3,3}^{inv} \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_4\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_5\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_6\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_7\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_8\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_9\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_{10}\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_{11}\rangle &= c_{276,11,11}^{mdl} P_{11} + c_{276,12,11}^{mdl} P_{12} \\
c_{276,11,11}^{mdl} &= c_{11,11}^{ci} * c_{12,11}^{inv} \\
c_{276,12,11}^{mdl} &= c_{11,11}^{ci} * c_{12,12}^{inv} \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_{12}\rangle &= c_{276,11,12}^{mdl} P_{11} + c_{276,12,12}^{mdl} P_{12} \\
c_{276,11,12}^{mdl} &= c_{12,11}^{ci} * c_{12,11}^{inv} \\
c_{276,12,12}^{mdl} &= c_{12,11}^{ci} * c_{12,12}^{inv} \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_{13}\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_{14}\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_{15}\rangle &=
\end{aligned}$$

$$\begin{aligned}
\hat{O}_{277} : \langle P_p | \hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- | P_q \rangle = & \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- | P_0 \rangle = c_{277,0,0}^{mdl} P_0 + c_{277,1,0}^{mdl} P_1 + c_{277,2,0}^{mdl} P_2 + c_{277,3,0}^{mdl} P_3 \\
c_{277,0,0}^{mdl} = (-c_{0,3}^{ci}) * c_{3,0}^{inv} \\
c_{277,1,0}^{mdl} = (-c_{0,3}^{ci}) * c_{3,1}^{inv} \\
c_{277,2,0}^{mdl} = (-c_{0,3}^{ci}) * c_{3,2}^{inv} \\
c_{277,3,0}^{mdl} = (-c_{0,3}^{ci}) * c_{3,3}^{inv} \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- | P_1 \rangle = c_{277,0,1}^{mdl} P_0 + c_{277,1,1}^{mdl} P_1 + c_{277,2,1}^{mdl} P_2 + c_{277,3,1}^{mdl} P_3 \\
c_{277,0,1}^{mdl} = (-c_{1,3}^{ci}) * c_{3,0}^{inv} \\
c_{277,1,1}^{mdl} = (-c_{1,3}^{ci}) * c_{3,1}^{inv} \\
c_{277,2,1}^{mdl} = (-c_{1,3}^{ci}) * c_{3,2}^{inv} \\
c_{277,3,1}^{mdl} = (-c_{1,3}^{ci}) * c_{3,3}^{inv} \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- | P_2 \rangle = c_{277,0,2}^{mdl} P_0 + c_{277,1,2}^{mdl} P_1 + c_{277,2,2}^{mdl} P_2 + c_{277,3,2}^{mdl} P_3 \\
c_{277,0,2}^{mdl} = (-c_{2,3}^{ci}) * c_{3,0}^{inv} \\
c_{277,1,2}^{mdl} = (-c_{2,3}^{ci}) * c_{3,1}^{inv} \\
c_{277,2,2}^{mdl} = (-c_{2,3}^{ci}) * c_{3,2}^{inv} \\
c_{277,3,2}^{mdl} = (-c_{2,3}^{ci}) * c_{3,3}^{inv} \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- | P_3 \rangle = c_{277,0,3}^{mdl} P_0 + c_{277,1,3}^{mdl} P_1 + c_{277,2,3}^{mdl} P_2 + c_{277,3,3}^{mdl} P_3 \\
c_{277,0,3}^{mdl} = (-c_{3,3}^{ci}) * c_{3,0}^{inv} \\
c_{277,1,3}^{mdl} = (-c_{3,3}^{ci}) * c_{3,1}^{inv} \\
c_{277,2,3}^{mdl} = (-c_{3,3}^{ci}) * c_{3,2}^{inv} \\
c_{277,3,3}^{mdl} = (-c_{3,3}^{ci}) * c_{3,3}^{inv} \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- | P_4 \rangle = \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- | P_5 \rangle = \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- | P_6 \rangle = \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- | P_7 \rangle = \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- | P_8 \rangle = \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- | P_9 \rangle = \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- | P_{10} \rangle =
\end{aligned}$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_{11}\rangle = c_{277,11,11}^{mdl} P_{11} + c_{277,12,11}^{mdl} P_{12}$$

$$c_{277,11,11}^{mdl} = (-c_{11,12}^{ci}) * c_{12,11}^{inv}$$

$$c_{277,12,11}^{mdl} = (-c_{11,12}^{ci}) * c_{12,12}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_{12}\rangle = c_{277,11,12}^{mdl} P_{11} + c_{277,12,12}^{mdl} P_{12}$$

$$c_{277,11,12}^{mdl} = (-c_{12,12}^{ci}) * c_{12,11}^{inv}$$

$$c_{277,12,12}^{mdl} = (-c_{12,12}^{ci}) * c_{12,12}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_{13}\rangle = c_{277,13,13}^{mdl} P_{13} + c_{277,14,13}^{mdl} P_{14}$$

$$c_{277,13,13}^{mdl} = (-c_{13,14}^{ci}) * c_{14,13}^{inv}$$

$$c_{277,14,13}^{mdl} = (-c_{13,14}^{ci}) * c_{14,14}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_{14}\rangle = c_{277,13,14}^{mdl} P_{13} + c_{277,14,14}^{mdl} P_{14}$$

$$c_{277,13,14}^{mdl} = (-c_{14,14}^{ci}) * c_{14,13}^{inv}$$

$$c_{277,14,14}^{mdl} = (-c_{14,14}^{ci}) * c_{14,14}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_{15}\rangle = c_{277,15,15}^{mdl} P_{15}$$

$$c_{277,15,15}^{mdl} = (-c_{15,15}^{ci}) * c_{15,15}^{inv}$$

$$\hat{O}_{278} : \langle P_p | \hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- | P_q \rangle =$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_0\rangle = c_{278,0,0}^{mdl} P_0 + c_{278,1,0}^{mdl} P_1 + c_{278,2,0}^{mdl} P_2 + c_{278,3,0}^{mdl} P_3$$

$$c_{278,0,0}^{mdl} = c_{0,1}^{ci} * c_{3,0}^{inv}$$

$$c_{278,1,0}^{mdl} = c_{0,1}^{ci} * c_{3,1}^{inv}$$

$$c_{278,2,0}^{mdl} = c_{0,1}^{ci} * c_{3,2}^{inv}$$

$$c_{278,3,0}^{mdl} = c_{0,1}^{ci} * c_{3,3}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_1\rangle = c_{278,0,1}^{mdl} P_0 + c_{278,1,1}^{mdl} P_1 + c_{278,2,1}^{mdl} P_2 + c_{278,3,1}^{mdl} P_3$$

$$c_{278,0,1}^{mdl} = c_{1,1}^{ci} * c_{3,0}^{inv}$$

$$c_{278,1,1}^{mdl} = c_{1,1}^{ci} * c_{3,1}^{inv}$$

$$c_{278,2,1}^{mdl} = c_{1,1}^{ci} * c_{3,2}^{inv}$$

$$c_{278,3,1}^{mdl} = c_{1,1}^{ci} * c_{3,3}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_2\rangle = c_{278,0,2}^{mdl} P_0 + c_{278,1,2}^{mdl} P_1 + c_{278,2,2}^{mdl} P_2 + c_{278,3,2}^{mdl} P_3$$

$$c_{278,0,2}^{mdl} = c_{2,1}^{ci} * c_{3,0}^{inv}$$

$$c_{278,1,2}^{mdl} = c_{2,1}^{ci} * c_{3,1}^{inv}$$

$$\begin{aligned}
c_{278,2,2}^{mdl} &= c_{2,1}^{ci} * c_{3,2}^{inv} \\
c_{278,3,2}^{mdl} &= c_{2,1}^{ci} * c_{3,3}^{inv} \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_3\rangle &= c_{278,0,3}^{mdl} P_0 + c_{278,1,3}^{mdl} P_1 + c_{278,2,3}^{mdl} P_2 + c_{278,3,3}^{mdl} P_3 \\
c_{278,0,3}^{mdl} &= c_{3,1}^{ci} * c_{3,0}^{inv} \\
c_{278,1,3}^{mdl} &= c_{3,1}^{ci} * c_{3,1}^{inv} \\
c_{278,2,3}^{mdl} &= c_{3,1}^{ci} * c_{3,2}^{inv} \\
c_{278,3,3}^{mdl} &= c_{3,1}^{ci} * c_{3,3}^{inv} \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_4\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_5\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_6\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_7\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_8\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_9\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{10}\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{11}\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{12}\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{13}\rangle &= c_{278,13,13}^{mdl} P_{13} + c_{278,14,13}^{mdl} P_{14} \\
c_{278,13,13}^{mdl} &= (-c_{13,13}^{ci}) * c_{14,13}^{inv} \\
c_{278,14,13}^{mdl} &= (-c_{13,13}^{ci}) * c_{14,14}^{inv} \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{14}\rangle &= c_{278,13,14}^{mdl} P_{13} + c_{278,14,14}^{mdl} P_{14} \\
c_{278,13,14}^{mdl} &= (-c_{14,13}^{ci}) * c_{14,13}^{inv} \\
c_{278,14,14}^{mdl} &= (-c_{14,13}^{ci}) * c_{14,14}^{inv} \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{15}\rangle &= \\
\hat{O}_{279} : \langle P_p | \hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- | P_q \rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_0\rangle &= c_{279,0,0}^{mdl} P_0 + c_{279,1,0}^{mdl} P_1 + c_{279,2,0}^{mdl} P_2 + c_{279,3,0}^{mdl} P_3 \\
c_{279,0,0}^{mdl} &= c_{0,3}^{ci} * c_{3,0}^{inv} \\
c_{279,1,0}^{mdl} &= c_{0,3}^{ci} * c_{3,1}^{inv} \\
c_{279,2,0}^{mdl} &= c_{0,3}^{ci} * c_{3,2}^{inv}
\end{aligned}$$

$$\begin{aligned}
c_{279,3,0}^{mdl} &= c_{0,3}^{ci} * c_{3,3}^{inv} \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_1\rangle &= c_{279,0,1}^{mdl} P_0 + c_{279,1,1}^{mdl} P_1 + c_{279,2,1}^{mdl} P_2 + c_{279,3,1}^{mdl} P_3 \\
c_{279,0,1}^{mdl} &= c_{1,3}^{ci} * c_{3,0}^{inv} \\
c_{279,1,1}^{mdl} &= c_{1,3}^{ci} * c_{3,1}^{inv} \\
c_{279,2,1}^{mdl} &= c_{1,3}^{ci} * c_{3,2}^{inv} \\
c_{279,3,1}^{mdl} &= c_{1,3}^{ci} * c_{3,3}^{inv} \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_2\rangle &= c_{279,0,2}^{mdl} P_0 + c_{279,1,2}^{mdl} P_1 + c_{279,2,2}^{mdl} P_2 + c_{279,3,2}^{mdl} P_3 \\
c_{279,0,2}^{mdl} &= c_{2,3}^{ci} * c_{3,0}^{inv} \\
c_{279,1,2}^{mdl} &= c_{2,3}^{ci} * c_{3,1}^{inv} \\
c_{279,2,2}^{mdl} &= c_{2,3}^{ci} * c_{3,2}^{inv} \\
c_{279,3,2}^{mdl} &= c_{2,3}^{ci} * c_{3,3}^{inv} \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_3\rangle &= c_{279,0,3}^{mdl} P_0 + c_{279,1,3}^{mdl} P_1 + c_{279,2,3}^{mdl} P_2 + c_{279,3,3}^{mdl} P_3 \\
c_{279,0,3}^{mdl} &= c_{3,3}^{ci} * c_{3,0}^{inv} \\
c_{279,1,3}^{mdl} &= c_{3,3}^{ci} * c_{3,1}^{inv} \\
c_{279,2,3}^{mdl} &= c_{3,3}^{ci} * c_{3,2}^{inv} \\
c_{279,3,3}^{mdl} &= c_{3,3}^{ci} * c_{3,3}^{inv} \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_4\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_5\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_6\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_7\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_8\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_9\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{10}\rangle &= \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{11}\rangle &= c_{279,11,11}^{mdl} P_{11} + c_{279,12,11}^{mdl} P_{12} \\
c_{279,11,11}^{mdl} &= c_{11,12}^{ci} * c_{12,11}^{inv} \\
c_{279,12,11}^{mdl} &= c_{11,12}^{ci} * c_{12,12}^{inv} \\
\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{12}\rangle &= c_{279,11,12}^{mdl} P_{11} + c_{279,12,12}^{mdl} P_{12} \\
c_{279,11,12}^{mdl} &= c_{12,12}^{ci} * c_{12,11}^{inv} \\
c_{279,12,12}^{mdl} &= c_{12,12}^{ci} * c_{12,12}^{inv}
\end{aligned}$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{13}\rangle = c_{279,13,13}^{mdl} P_{13} + c_{279,14,13}^{mdl} P_{14}$$

$$c_{279,13,13}^{mdl} = c_{13,14}^{ci} * c_{14,13}^{inv}$$

$$c_{279,14,13}^{mdl} = c_{13,14}^{ci} * c_{14,14}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{14}\rangle = c_{279,13,14}^{mdl} P_{13} + c_{279,14,14}^{mdl} P_{14}$$

$$c_{279,13,14}^{mdl} = c_{14,14}^{ci} * c_{14,13}^{inv}$$

$$c_{279,14,14}^{mdl} = c_{14,14}^{ci} * c_{14,14}^{inv}$$

$$\hat{1}_\alpha^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{15}\rangle = c_{279,15,15}^{mdl} P_{15}$$

$$c_{279,15,15}^{mdl} = c_{15,15}^{ci} * c_{15,15}^{inv}$$

$$\hat{O}_{280} : \langle P_p | \hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- | P_q \rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- | P_0 \rangle = c_{280,0,0}^{mdl} P_0 + c_{280,1,0}^{mdl} P_1 + c_{280,2,0}^{mdl} P_2 + c_{280,3,0}^{mdl} P_3$$

$$c_{280,0,0}^{mdl} = (-(-c_{0,0}^{ci})) * c_{1,0}^{inv}$$

$$c_{280,1,0}^{mdl} = (-(-c_{0,0}^{ci})) * c_{1,1}^{inv}$$

$$c_{280,2,0}^{mdl} = (-(-c_{0,0}^{ci})) * c_{1,2}^{inv}$$

$$c_{280,3,0}^{mdl} = (-(-c_{0,0}^{ci})) * c_{1,3}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- | P_1 \rangle = c_{280,0,1}^{mdl} P_0 + c_{280,1,1}^{mdl} P_1 + c_{280,2,1}^{mdl} P_2 + c_{280,3,1}^{mdl} P_3$$

$$c_{280,0,1}^{mdl} = (-(-c_{1,0}^{ci})) * c_{1,0}^{inv}$$

$$c_{280,1,1}^{mdl} = (-(-c_{1,0}^{ci})) * c_{1,1}^{inv}$$

$$c_{280,2,1}^{mdl} = (-(-c_{1,0}^{ci})) * c_{1,2}^{inv}$$

$$c_{280,3,1}^{mdl} = (-(-c_{1,0}^{ci})) * c_{1,3}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- | P_2 \rangle = c_{280,0,2}^{mdl} P_0 + c_{280,1,2}^{mdl} P_1 + c_{280,2,2}^{mdl} P_2 + c_{280,3,2}^{mdl} P_3$$

$$c_{280,0,2}^{mdl} = (-(-c_{2,0}^{ci})) * c_{1,0}^{inv}$$

$$c_{280,1,2}^{mdl} = (-(-c_{2,0}^{ci})) * c_{1,1}^{inv}$$

$$c_{280,2,2}^{mdl} = (-(-c_{2,0}^{ci})) * c_{1,2}^{inv}$$

$$c_{280,3,2}^{mdl} = (-(-c_{2,0}^{ci})) * c_{1,3}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- | P_3 \rangle = c_{280,0,3}^{mdl} P_0 + c_{280,1,3}^{mdl} P_1 + c_{280,2,3}^{mdl} P_2 + c_{280,3,3}^{mdl} P_3$$

$$c_{280,0,3}^{mdl} = (-(-c_{3,0}^{ci})) * c_{1,0}^{inv}$$

$$c_{280,1,3}^{mdl} = (-(-c_{3,0}^{ci})) * c_{1,1}^{inv}$$

$$c_{280,2,3}^{mdl} = (-(-c_{3,0}^{ci})) * c_{1,2}^{inv}$$

$$c_{280,3,3}^{mdl} = (-(-c_{3,0}^{ci})) * c_{1,3}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_4\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_5\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_6\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_7\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_8\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_9\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_{10}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_{11}\rangle = c_{280,11,11}^{mdl} P_{11} + c_{280,12,11}^{mdl} P_{12}$$

$$c_{280,11,11}^{mdl} = (-c_{11,11}^{ci}) * c_{12,11}^{inv}$$

$$c_{280,12,11}^{mdl} = (-c_{11,11}^{ci}) * c_{12,12}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_{12}\rangle = c_{280,11,12}^{mdl} P_{11} + c_{280,12,12}^{mdl} P_{12}$$

$$c_{280,11,12}^{mdl} = (-c_{12,11}^{ci}) * c_{12,11}^{inv}$$

$$c_{280,12,12}^{mdl} = (-c_{12,11}^{ci}) * c_{12,12}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_{13}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_{14}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{281} : \langle P_p | \hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- | P_q \rangle = >$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_0\rangle = c_{281,0,0}^{mdl} P_0 + c_{281,1,0}^{mdl} P_1 + c_{281,2,0}^{mdl} P_2 + c_{281,3,0}^{mdl} P_3$$

$$c_{281,0,0}^{mdl} = (-(-c_{0,1}^{ci})) * c_{1,0}^{inv}$$

$$c_{281,1,0}^{mdl} = (-(-c_{0,1}^{ci})) * c_{1,1}^{inv}$$

$$c_{281,2,0}^{mdl} = (-(-c_{0,1}^{ci})) * c_{1,2}^{inv}$$

$$c_{281,3,0}^{mdl} = (-(-c_{0,1}^{ci})) * c_{1,3}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_1\rangle = c_{281,0,1}^{mdl} P_0 + c_{281,1,1}^{mdl} P_1 + c_{281,2,1}^{mdl} P_2 + c_{281,3,1}^{mdl} P_3$$

$$c_{281,0,1}^{mdl} = (-(-c_{1,1}^{ci})) * c_{1,0}^{inv}$$

$$c_{281,1,1}^{mdl} = (-(-c_{1,1}^{ci})) * c_{1,1}^{inv}$$

$$c_{281,2,1}^{mdl} = (-(-c_{1,1}^{ci})) * c_{1,2}^{inv}$$

$$c_{281,3,1}^{mdl} = (-(-c_{1,1}^{ci})) * c_{1,3}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_2\rangle = c_{281,0,2}^{mdl} P_0 + c_{281,1,2}^{mdl} P_1 + c_{281,2,2}^{mdl} P_2 + c_{281,3,2}^{mdl} P_3$$

$$c_{281,0,2}^{mdl} = (-(-c_{2,1}^{ci})) * c_{1,0}^{inv}$$

$$c_{281,1,2}^{mdl} = (-(-c_{2,1}^{ci})) * c_{1,1}^{inv}$$

$$c_{281,2,2}^{mdl} = (-(-c_{2,1}^{ci})) * c_{1,2}^{inv}$$

$$c_{281,3,2}^{mdl} = (-(-c_{2,1}^{ci})) * c_{1,3}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_3\rangle = c_{281,0,3}^{mdl} P_0 + c_{281,1,3}^{mdl} P_1 + c_{281,2,3}^{mdl} P_2 + c_{281,3,3}^{mdl} P_3$$

$$c_{281,0,3}^{mdl} = (-(-c_{3,1}^{ci})) * c_{1,0}^{inv}$$

$$c_{281,1,3}^{mdl} = (-(-c_{3,1}^{ci})) * c_{1,1}^{inv}$$

$$c_{281,2,3}^{mdl} = (-(-c_{3,1}^{ci})) * c_{1,2}^{inv}$$

$$c_{281,3,3}^{mdl} = (-(-c_{3,1}^{ci})) * c_{1,3}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_4\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_5\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_6\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_7\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_8\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_9\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{10}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{11}\rangle = c_{281,11,11}^{mdl} P_{11} + c_{281,12,11}^{mdl} P_{12}$$

$$c_{281,11,11}^{mdl} = c_{11,12}^{ci} * c_{12,11}^{inv}$$

$$c_{281,12,11}^{mdl} = c_{11,12}^{ci} * c_{12,12}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{12}\rangle = c_{281,11,12}^{mdl} P_{11} + c_{281,12,12}^{mdl} P_{12}$$

$$c_{281,11,12}^{mdl} = c_{12,12}^{ci} * c_{12,11}^{inv}$$

$$c_{281,12,12}^{mdl} = c_{12,12}^{ci} * c_{12,12}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{13}\rangle = c_{281,13,13}^{mdl} P_{13} + c_{281,14,13}^{mdl} P_{14}$$

$$c_{281,13,13}^{mdl} = c_{13,13}^{ci} * c_{13,13}^{inv}$$

$$c_{281,14,13}^{mdl} = c_{13,13}^{ci} * c_{13,14}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{14}\rangle = c_{281,13,14}^{mdl} P_{13} + c_{281,14,14}^{mdl} P_{14}$$

$$c_{281,13,14}^{mdl} = c_{14,13}^{ci} * c_{13,13}^{inv}$$

$$c_{281,14,14}^{mdl} = c_{14,13}^{ci} * c_{13,14}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{15}\rangle = c_{281,15,15}^{mdl} P_{15}$$

$$c_{281,15,15}^{mdl} = (-(-c_{15,15}^{ci})) * c_{15,15}^{inv}$$

$$\hat{O}_{282} : \langle P_p | \hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- | P_q \rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- | P_0 \rangle = c_{282,0,0}^{mdl} P_0 + c_{282,1,0}^{mdl} P_1 + c_{282,2,0}^{mdl} P_2 + c_{282,3,0}^{mdl} P_3$$

$$c_{282,0,0}^{mdl} = (-c_{0,0}^{ci}) * c_{1,0}^{inv}$$

$$c_{282,1,0}^{mdl} = (-c_{0,0}^{ci}) * c_{1,1}^{inv}$$

$$c_{282,2,0}^{mdl} = (-c_{0,0}^{ci}) * c_{1,2}^{inv}$$

$$c_{282,3,0}^{mdl} = (-c_{0,0}^{ci}) * c_{1,3}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- | P_1 \rangle = c_{282,0,1}^{mdl} P_0 + c_{282,1,1}^{mdl} P_1 + c_{282,2,1}^{mdl} P_2 + c_{282,3,1}^{mdl} P_3$$

$$c_{282,0,1}^{mdl} = (-c_{1,0}^{ci}) * c_{1,0}^{inv}$$

$$c_{282,1,1}^{mdl} = (-c_{1,0}^{ci}) * c_{1,1}^{inv}$$

$$c_{282,2,1}^{mdl} = (-c_{1,0}^{ci}) * c_{1,2}^{inv}$$

$$c_{282,3,1}^{mdl} = (-c_{1,0}^{ci}) * c_{1,3}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- | P_2 \rangle = c_{282,0,2}^{mdl} P_0 + c_{282,1,2}^{mdl} P_1 + c_{282,2,2}^{mdl} P_2 + c_{282,3,2}^{mdl} P_3$$

$$c_{282,0,2}^{mdl} = (-c_{2,0}^{ci}) * c_{1,0}^{inv}$$

$$c_{282,1,2}^{mdl} = (-c_{2,0}^{ci}) * c_{1,1}^{inv}$$

$$c_{282,2,2}^{mdl} = (-c_{2,0}^{ci}) * c_{1,2}^{inv}$$

$$c_{282,3,2}^{mdl} = (-c_{2,0}^{ci}) * c_{1,3}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- | P_3 \rangle = c_{282,0,3}^{mdl} P_0 + c_{282,1,3}^{mdl} P_1 + c_{282,2,3}^{mdl} P_2 + c_{282,3,3}^{mdl} P_3$$

$$c_{282,0,3}^{mdl} = (-c_{3,0}^{ci}) * c_{1,0}^{inv}$$

$$c_{282,1,3}^{mdl} = (-c_{3,0}^{ci}) * c_{1,1}^{inv}$$

$$c_{282,2,3}^{mdl} = (-c_{3,0}^{ci}) * c_{1,2}^{inv}$$

$$c_{282,3,3}^{mdl} = (-c_{3,0}^{ci}) * c_{1,3}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- | P_4 \rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- | P_5 \rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- | P_6 \rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- | P_7 \rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- | P_8 \rangle =$$

$$\begin{aligned}
& \hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_9\rangle = \\
& \hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{10}\rangle = \\
& \hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{11}\rangle = c_{282,11,11}^{mdl} P_{11} + c_{282,12,11}^{mdl} P_{12} \\
& c_{282,11,11}^{mdl} = c_{11,11}^{ci} * c_{12,11}^{inv} \\
& c_{282,12,11}^{mdl} = c_{11,11}^{ci} * c_{12,12}^{inv} \\
& \hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{12}\rangle = c_{282,11,12}^{mdl} P_{11} + c_{282,12,12}^{mdl} P_{12} \\
& c_{282,11,12}^{mdl} = c_{12,11}^{ci} * c_{12,11}^{inv} \\
& c_{282,12,12}^{mdl} = c_{12,11}^{ci} * c_{12,12}^{inv} \\
& \hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{13}\rangle = \\
& \hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{14}\rangle = \\
& \hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{15}\rangle = \\
& \hat{O}_{283} : \langle P_p | \hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- | P_q \rangle = > \\
& \hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_0\rangle = c_{283,0,0}^{mdl} P_0 + c_{283,1,0}^{mdl} P_1 + c_{283,2,0}^{mdl} P_2 + c_{283,3,0}^{mdl} P_3 \\
& c_{283,0,0}^{mdl} = (-(-c_{0,2}^{ci})) * c_{1,0}^{inv} \\
& c_{283,1,0}^{mdl} = (-(-c_{0,2}^{ci})) * c_{1,1}^{inv} \\
& c_{283,2,0}^{mdl} = (-(-c_{0,2}^{ci})) * c_{1,2}^{inv} \\
& c_{283,3,0}^{mdl} = (-(-c_{0,2}^{ci})) * c_{1,3}^{inv} \\
& \hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_1\rangle = c_{283,0,1}^{mdl} P_0 + c_{283,1,1}^{mdl} P_1 + c_{283,2,1}^{mdl} P_2 + c_{283,3,1}^{mdl} P_3 \\
& c_{283,0,1}^{mdl} = (-(-c_{1,2}^{ci})) * c_{1,0}^{inv} \\
& c_{283,1,1}^{mdl} = (-(-c_{1,2}^{ci})) * c_{1,1}^{inv} \\
& c_{283,2,1}^{mdl} = (-(-c_{1,2}^{ci})) * c_{1,2}^{inv} \\
& c_{283,3,1}^{mdl} = (-(-c_{1,2}^{ci})) * c_{1,3}^{inv} \\
& \hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_2\rangle = c_{283,0,2}^{mdl} P_0 + c_{283,1,2}^{mdl} P_1 + c_{283,2,2}^{mdl} P_2 + c_{283,3,2}^{mdl} P_3 \\
& c_{283,0,2}^{mdl} = (-(-c_{2,2}^{ci})) * c_{1,0}^{inv} \\
& c_{283,1,2}^{mdl} = (-(-c_{2,2}^{ci})) * c_{1,1}^{inv} \\
& c_{283,2,2}^{mdl} = (-(-c_{2,2}^{ci})) * c_{1,2}^{inv} \\
& c_{283,3,2}^{mdl} = (-(-c_{2,2}^{ci})) * c_{1,3}^{inv} \\
& \hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_3\rangle = c_{283,0,3}^{mdl} P_0 + c_{283,1,3}^{mdl} P_1 + c_{283,2,3}^{mdl} P_2 + c_{283,3,3}^{mdl} P_3
\end{aligned}$$

$$c_{283,0,3}^{mdl} = (-(-c_{3,2}^{ci})) * c_{1,0}^{inv}$$

$$c_{283,1,3}^{mdl} = (-(-c_{3,2}^{ci})) * c_{1,1}^{inv}$$

$$c_{283,2,3}^{mdl} = (-(-c_{3,2}^{ci})) * c_{1,2}^{inv}$$

$$c_{283,3,3}^{mdl} = (-(-c_{3,2}^{ci})) * c_{1,3}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_4\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_5\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_6\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_7\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_8\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_9\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_{10}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_{11}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_{12}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_{13}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_{14}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{284} : \langle P_p | \hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- | P_q \rangle = >$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_0\rangle = c_{284,0,0}^{mdl} P_0 + c_{284,1,0}^{mdl} P_1 + c_{284,2,0}^{mdl} P_2 + c_{284,3,0}^{mdl} P_3$$

$$c_{284,0,0}^{mdl} = (-c_{0,2}^{ci}) * c_{1,0}^{inv}$$

$$c_{284,1,0}^{mdl} = (-c_{0,2}^{ci}) * c_{1,1}^{inv}$$

$$c_{284,2,0}^{mdl} = (-c_{0,2}^{ci}) * c_{1,2}^{inv}$$

$$c_{284,3,0}^{mdl} = (-c_{0,2}^{ci}) * c_{1,3}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_1\rangle = c_{284,0,1}^{mdl} P_0 + c_{284,1,1}^{mdl} P_1 + c_{284,2,1}^{mdl} P_2 + c_{284,3,1}^{mdl} P_3$$

$$c_{284,0,1}^{mdl} = (-c_{1,2}^{ci}) * c_{1,0}^{inv}$$

$$c_{284,1,1}^{mdl} = (-c_{1,2}^{ci}) * c_{1,1}^{inv}$$

$$c_{284,2,1}^{mdl} = (-c_{1,2}^{ci}) * c_{1,2}^{inv}$$

$$c_{284,3,1}^{mdl} = (-c_{1,2}^{ci}) * c_{1,3}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_2\rangle = c_{284,0,2}^{mdl} P_0 + c_{284,1,2}^{mdl} P_1 + c_{284,2,2}^{mdl} P_2 + c_{284,3,2}^{mdl} P_3$$

$$c_{284,0,2}^{mdl} = (-c_{2,2}^{ci}) * c_{1,0}^{inv}$$

$$c_{284,1,2}^{mdl} = (-c_{2,2}^{ci}) * c_{1,1}^{inv}$$

$$c_{284,2,2}^{mdl} = (-c_{2,2}^{ci}) * c_{1,2}^{inv}$$

$$c_{284,3,2}^{mdl} = (-c_{2,2}^{ci}) * c_{1,3}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_3\rangle = c_{284,0,3}^{mdl} P_0 + c_{284,1,3}^{mdl} P_1 + c_{284,2,3}^{mdl} P_2 + c_{284,3,3}^{mdl} P_3$$

$$c_{284,0,3}^{mdl} = (-c_{3,2}^{ci}) * c_{1,0}^{inv}$$

$$c_{284,1,3}^{mdl} = (-c_{3,2}^{ci}) * c_{1,1}^{inv}$$

$$c_{284,2,3}^{mdl} = (-c_{3,2}^{ci}) * c_{1,2}^{inv}$$

$$c_{284,3,3}^{mdl} = (-c_{3,2}^{ci}) * c_{1,3}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_4\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_5\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_6\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_7\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_8\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_9\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_{10}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_{11}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_{12}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_{13}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_{14}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{285} : \langle P_p | \hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- | P_q \rangle = >$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_0\rangle = c_{285,0,0}^{mdl} P_0 + c_{285,1,0}^{mdl} P_1 + c_{285,2,0}^{mdl} P_2 + c_{285,3,0}^{mdl} P_3$$

$$c_{285,0,0}^{mdl} = (-(-c_{0,3}^{ci})) * c_{1,0}^{inv}$$

$$c_{285,1,0}^{mdl} = (-(-c_{0,3}^{ci})) * c_{1,1}^{inv}$$

$$c_{285,2,0}^{mdl} = (-(-c_{0,3}^{ci})) * c_{1,2}^{inv}$$

$$c_{285,3,0}^{mdl} = (-(-c_{0,3}^{ci})) * c_{1,3}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_1\rangle = c_{285,0,1}^{mdl} P_0 + c_{285,1,1}^{mdl} P_1 + c_{285,2,1}^{mdl} P_2 + c_{285,3,1}^{mdl} P_3$$

$$\begin{aligned}
c_{285,0,1}^{mdl} &= (-(-c_{1,3}^{ci})) * c_{1,0}^{inv} \\
c_{285,1,1}^{mdl} &= (-(-c_{1,3}^{ci})) * c_{1,1}^{inv} \\
c_{285,2,1}^{mdl} &= (-(-c_{1,3}^{ci})) * c_{1,2}^{inv} \\
c_{285,3,1}^{mdl} &= (-(-c_{1,3}^{ci})) * c_{1,3}^{inv} \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_2\rangle &= c_{285,0,2}^{mdl} P_0 + c_{285,1,2}^{mdl} P_1 + c_{285,2,2}^{mdl} P_2 + c_{285,3,2}^{mdl} P_3 \\
c_{285,0,2}^{mdl} &= (-(-c_{2,3}^{ci})) * c_{1,0}^{inv} \\
c_{285,1,2}^{mdl} &= (-(-c_{2,3}^{ci})) * c_{1,1}^{inv} \\
c_{285,2,2}^{mdl} &= (-(-c_{2,3}^{ci})) * c_{1,2}^{inv} \\
c_{285,3,2}^{mdl} &= (-(-c_{2,3}^{ci})) * c_{1,3}^{inv} \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_3\rangle &= c_{285,0,3}^{mdl} P_0 + c_{285,1,3}^{mdl} P_1 + c_{285,2,3}^{mdl} P_2 + c_{285,3,3}^{mdl} P_3 \\
c_{285,0,3}^{mdl} &= (-(-c_{3,3}^{ci})) * c_{1,0}^{inv} \\
c_{285,1,3}^{mdl} &= (-(-c_{3,3}^{ci})) * c_{1,1}^{inv} \\
c_{285,2,3}^{mdl} &= (-(-c_{3,3}^{ci})) * c_{1,2}^{inv} \\
c_{285,3,3}^{mdl} &= (-(-c_{3,3}^{ci})) * c_{1,3}^{inv} \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_4\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_5\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_6\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_7\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_8\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_9\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_{10}\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_{11}\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_{12}\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_{13}\rangle &= c_{285,13,13}^{mdl} P_{13} + c_{285,14,13}^{mdl} P_{14} \\
c_{285,13,13}^{mdl} &= (-c_{13,14}^{ci}) * c_{13,13}^{inv} \\
c_{285,14,13}^{mdl} &= (-c_{13,14}^{ci}) * c_{13,14}^{inv} \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_{14}\rangle &= c_{285,13,14}^{mdl} P_{13} + c_{285,14,14}^{mdl} P_{14} \\
c_{285,13,14}^{mdl} &= (-c_{14,14}^{ci}) * c_{13,13}^{inv} \\
c_{285,14,14}^{mdl} &= (-c_{14,14}^{ci}) * c_{13,14}^{inv}
\end{aligned}$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{286} : \langle P_p | \hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- | P_q \rangle = >$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- | P_0 \rangle = c_{286,0,0}^{mdl} P_0 + c_{286,1,0}^{mdl} P_1 + c_{286,2,0}^{mdl} P_2 + c_{286,3,0}^{mdl} P_3$$

$$c_{286,0,0}^{mdl} = (-c_{0,1}^{ci}) * c_{1,0}^{inv}$$

$$c_{286,1,0}^{mdl} = (-c_{0,1}^{ci}) * c_{1,1}^{inv}$$

$$c_{286,2,0}^{mdl} = (-c_{0,1}^{ci}) * c_{1,2}^{inv}$$

$$c_{286,3,0}^{mdl} = (-c_{0,1}^{ci}) * c_{1,3}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- | P_1 \rangle = c_{286,0,1}^{mdl} P_0 + c_{286,1,1}^{mdl} P_1 + c_{286,2,1}^{mdl} P_2 + c_{286,3,1}^{mdl} P_3$$

$$c_{286,0,1}^{mdl} = (-c_{1,1}^{ci}) * c_{1,0}^{inv}$$

$$c_{286,1,1}^{mdl} = (-c_{1,1}^{ci}) * c_{1,1}^{inv}$$

$$c_{286,2,1}^{mdl} = (-c_{1,1}^{ci}) * c_{1,2}^{inv}$$

$$c_{286,3,1}^{mdl} = (-c_{1,1}^{ci}) * c_{1,3}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- | P_2 \rangle = c_{286,0,2}^{mdl} P_0 + c_{286,1,2}^{mdl} P_1 + c_{286,2,2}^{mdl} P_2 + c_{286,3,2}^{mdl} P_3$$

$$c_{286,0,2}^{mdl} = (-c_{2,1}^{ci}) * c_{1,0}^{inv}$$

$$c_{286,1,2}^{mdl} = (-c_{2,1}^{ci}) * c_{1,1}^{inv}$$

$$c_{286,2,2}^{mdl} = (-c_{2,1}^{ci}) * c_{1,2}^{inv}$$

$$c_{286,3,2}^{mdl} = (-c_{2,1}^{ci}) * c_{1,3}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- | P_3 \rangle = c_{286,0,3}^{mdl} P_0 + c_{286,1,3}^{mdl} P_1 + c_{286,2,3}^{mdl} P_2 + c_{286,3,3}^{mdl} P_3$$

$$c_{286,0,3}^{mdl} = (-c_{3,1}^{ci}) * c_{1,0}^{inv}$$

$$c_{286,1,3}^{mdl} = (-c_{3,1}^{ci}) * c_{1,1}^{inv}$$

$$c_{286,2,3}^{mdl} = (-c_{3,1}^{ci}) * c_{1,2}^{inv}$$

$$c_{286,3,3}^{mdl} = (-c_{3,1}^{ci}) * c_{1,3}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- | P_4 \rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- | P_5 \rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- | P_6 \rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- | P_7 \rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- | P_8 \rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- | P_9 \rangle =$$

$$\begin{aligned}
& \hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{10}\rangle = \\
& \hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{11}\rangle = c_{286,11,11}^{mdl} P_{11} + c_{286,12,11}^{mdl} P_{12} \\
& c_{286,11,11}^{mdl} = (-c_{11,12}^{ci}) * c_{12,11}^{inv} \\
& c_{286,12,11}^{mdl} = (-c_{11,12}^{ci}) * c_{12,12}^{inv} \\
& \hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{12}\rangle = c_{286,11,12}^{mdl} P_{11} + c_{286,12,12}^{mdl} P_{12} \\
& c_{286,11,12}^{mdl} = (-c_{12,12}^{ci}) * c_{12,11}^{inv} \\
& c_{286,12,12}^{mdl} = (-c_{12,12}^{ci}) * c_{12,12}^{inv} \\
& \hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{13}\rangle = c_{286,13,13}^{mdl} P_{13} + c_{286,14,13}^{mdl} P_{14} \\
& c_{286,13,13}^{mdl} = (-c_{13,13}^{ci}) * c_{13,13}^{inv} \\
& c_{286,14,13}^{mdl} = (-c_{13,13}^{ci}) * c_{13,14}^{inv} \\
& \hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{14}\rangle = c_{286,13,14}^{mdl} P_{13} + c_{286,14,14}^{mdl} P_{14} \\
& c_{286,13,14}^{mdl} = (-c_{14,13}^{ci}) * c_{13,13}^{inv} \\
& c_{286,14,14}^{mdl} = (-c_{14,13}^{ci}) * c_{13,14}^{inv} \\
& \hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{15}\rangle = c_{286,15,15}^{mdl} P_{15} \\
& c_{286,15,15}^{mdl} = (-c_{15,15}^{ci}) * c_{15,15}^{inv} \\
\\
& \hat{O}_{287} : \langle P_p | \hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- | P_q \rangle = > \\
& \hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_0\rangle = c_{287,0,0}^{mdl} P_0 + c_{287,1,0}^{mdl} P_1 + c_{287,2,0}^{mdl} P_2 + c_{287,3,0}^{mdl} P_3 \\
& c_{287,0,0}^{mdl} = (-c_{0,3}^{ci}) * c_{1,0}^{inv} \\
& c_{287,1,0}^{mdl} = (-c_{0,3}^{ci}) * c_{1,1}^{inv} \\
& c_{287,2,0}^{mdl} = (-c_{0,3}^{ci}) * c_{1,2}^{inv} \\
& c_{287,3,0}^{mdl} = (-c_{0,3}^{ci}) * c_{1,3}^{inv} \\
& \hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_1\rangle = c_{287,0,1}^{mdl} P_0 + c_{287,1,1}^{mdl} P_1 + c_{287,2,1}^{mdl} P_2 + c_{287,3,1}^{mdl} P_3 \\
& c_{287,0,1}^{mdl} = (-c_{1,3}^{ci}) * c_{1,0}^{inv} \\
& c_{287,1,1}^{mdl} = (-c_{1,3}^{ci}) * c_{1,1}^{inv} \\
& c_{287,2,1}^{mdl} = (-c_{1,3}^{ci}) * c_{1,2}^{inv} \\
& c_{287,3,1}^{mdl} = (-c_{1,3}^{ci}) * c_{1,3}^{inv} \\
& \hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_2\rangle = c_{287,0,2}^{mdl} P_0 + c_{287,1,2}^{mdl} P_1 + c_{287,2,2}^{mdl} P_2 + c_{287,3,2}^{mdl} P_3 \\
& c_{287,0,2}^{mdl} = (-c_{2,3}^{ci}) * c_{1,0}^{inv}
\end{aligned}$$

$$\begin{aligned}
c_{287,1,2}^{mdl} &= (-c_{2,3}^{ci}) * c_{1,1}^{inv} \\
c_{287,2,2}^{mdl} &= (-c_{2,3}^{ci}) * c_{1,2}^{inv} \\
c_{287,3,2}^{mdl} &= (-c_{2,3}^{ci}) * c_{1,3}^{inv} \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_3\rangle &= c_{287,0,3}^{mdl} P_0 + c_{287,1,3}^{mdl} P_1 + c_{287,2,3}^{mdl} P_2 + c_{287,3,3}^{mdl} P_3 \\
c_{287,0,3}^{mdl} &= (-c_{3,3}^{ci}) * c_{1,0}^{inv} \\
c_{287,1,3}^{mdl} &= (-c_{3,3}^{ci}) * c_{1,1}^{inv} \\
c_{287,2,3}^{mdl} &= (-c_{3,3}^{ci}) * c_{1,2}^{inv} \\
c_{287,3,3}^{mdl} &= (-c_{3,3}^{ci}) * c_{1,3}^{inv} \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_4\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_5\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_6\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_7\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_8\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_9\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{10}\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{11}\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{12}\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{13}\rangle &= c_{287,13,13}^{mdl} P_{13} + c_{287,14,13}^{mdl} P_{14} \\
c_{287,13,13}^{mdl} &= c_{13,14}^{ci} * c_{13,13}^{inv} \\
c_{287,14,13}^{mdl} &= c_{13,14}^{ci} * c_{13,14}^{inv} \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{14}\rangle &= c_{287,13,14}^{mdl} P_{13} + c_{287,14,14}^{mdl} P_{14} \\
c_{287,13,14}^{mdl} &= c_{14,14}^{ci} * c_{13,13}^{inv} \\
c_{287,14,14}^{mdl} &= c_{14,14}^{ci} * c_{13,14}^{inv} \\
\hat{1}_\beta^+ \hat{0}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{15}\rangle &=
\end{aligned}$$

$$\hat{O}_{288} : \langle P_p | \hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- | P_q \rangle = >$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_0\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_1\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_2\rangle =$$

$$\begin{aligned}
\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_3\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_4\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_5\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_6\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_7\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_8\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_9\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_{10}\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_{11}\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_{12}\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_{13}\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_{14}\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_{15}\rangle &=
\end{aligned}$$

$$\hat{O}_{289} : \langle P_p | \hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- | P_q \rangle = >$$

$$\begin{aligned}
\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_0\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_1\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_2\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_3\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_4\rangle &= c_{289,5,4}^{mdl} P_5 \\
c_{289,5,4}^{mdl} &= (-(-c_{4,4}^{ci})) * c_{5,5}^{inv} \\
\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_5\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_6\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_7\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_8\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_9\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_{10}\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_{11}\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_{12}\rangle &=
\end{aligned}$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_{13}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_{14}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{290} : \langle P_p | \hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- | P_q \rangle =>$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_0\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_1\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_2\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_3\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_4\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_5\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_6\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_7\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_8\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_9\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_{10}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_{11}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_{12}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_{13}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_{14}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{291} : \langle P_p | \hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- | P_q \rangle =>$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_0\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_1\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_2\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_3\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_4\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_5\rangle = c_{291,5,5}^{mdl} P_5$$

$$c_{291,5,5}^{mdl} = (-(-c_{5,5}^{ci})) * c_{5,5}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_6\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_7\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_8\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_9\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_{10}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_{11}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_{12}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_{13}\rangle = c_{291,13,13}^{mdl} P_{13} + c_{291,14,13}^{mdl} P_{14}$$

$$c_{291,13,13}^{mdl} = (-(-c_{13,13}^{ci})) * c_{13,13}^{inv} + c_{13,14}^{ci} * c_{14,13}^{inv}$$

$$c_{291,14,13}^{mdl} = (-(-c_{13,13}^{ci})) * c_{13,14}^{inv} + c_{13,14}^{ci} * c_{14,14}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_{14}\rangle = c_{291,13,14}^{mdl} P_{13} + c_{291,14,14}^{mdl} P_{14}$$

$$c_{291,13,14}^{mdl} = (-(-c_{14,13}^{ci})) * c_{13,13}^{inv} + c_{14,14}^{ci} * c_{14,13}^{inv}$$

$$c_{291,14,14}^{mdl} = (-(-c_{14,13}^{ci})) * c_{13,14}^{inv} + c_{14,14}^{ci} * c_{14,14}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_{15}\rangle = c_{291,15,15}^{mdl} P_{15}$$

$$c_{291,15,15}^{mdl} = c_{15,15}^{ci} * c_{15,15}^{inv}$$

$$\hat{O}_{292} : \langle P_p | \hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- | P_q \rangle = >$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_0\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_1\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_2\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_3\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_4\rangle = c_{292,5,4}^{mdl} P_5$$

$$c_{292,5,4}^{mdl} = (-c_{4,4}^{ci}) * c_{5,5}^{inv}$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_5\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_6\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_7\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_8\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_9\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_{10}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_{11}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_{12}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_{13}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_{14}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{293} : \langle P_p | \hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- | P_q \rangle =>$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_0\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_1\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_2\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_3\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_4\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_5\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_6\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_7\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_8\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_9\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{10}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{11}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{12}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{13}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{14}\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{294} : \langle P_p | \hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- | P_q \rangle =>$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_0\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_1\rangle =$$

$$\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_2\rangle =$$

$$\begin{aligned}
\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_3\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_4\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_5\rangle &= c_{294,5,5}^{mdl} P_5 \\
c_{294,5,5}^{mdl} &= (-c_{5,5}^{ci}) * c_{5,5}^{inv} \\
\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_6\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_7\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_8\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_9\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{10}\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{11}\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{12}\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{13}\rangle &= c_{294,13,13}^{mdl} P_{13} + c_{294,14,13}^{mdl} P_{14} \\
c_{294,13,13}^{mdl} &= (-c_{13,13}^{ci}) * c_{13,13}^{inv} + (-c_{13,14}^{ci}) * c_{14,13}^{inv} \\
c_{294,14,13}^{mdl} &= (-c_{13,13}^{ci}) * c_{13,14}^{inv} + (-c_{13,14}^{ci}) * c_{14,14}^{inv} \\
\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{14}\rangle &= c_{294,13,14}^{mdl} P_{13} + c_{294,14,14}^{mdl} P_{14} \\
c_{294,13,14}^{mdl} &= (-c_{14,13}^{ci}) * c_{13,13}^{inv} + (-c_{14,14}^{ci}) * c_{14,13}^{inv} \\
c_{294,14,14}^{mdl} &= (-c_{14,13}^{ci}) * c_{13,14}^{inv} + (-c_{14,14}^{ci}) * c_{14,14}^{inv} \\
\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{15}\rangle &= c_{294,15,15}^{mdl} P_{15} \\
c_{294,15,15}^{mdl} &= (-c_{15,15}^{ci}) * c_{15,15}^{inv}
\end{aligned}$$

$$\hat{O}_{295} : \langle P_p | \hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- | P_q \rangle =$$

$$\begin{aligned}
\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_0\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_1\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_2\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_3\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_4\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_5\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_6\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_7\rangle &=
\end{aligned}$$

$$\begin{aligned}
\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_8\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_9\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_{10}\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_{11}\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_{12}\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_{13}\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_{14}\rangle &= \\
\hat{1}_\beta^+ \hat{0}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_{15}\rangle &=
\end{aligned}$$

$$\hat{O}_{296} : \langle P_p | \hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- | P_q \rangle = >$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_0\rangle = c_{296,0,0}^{mdl} P_0 + c_{296,1,0}^{mdl} P_1 + c_{296,2,0}^{mdl} P_2 + c_{296,3,0}^{mdl} P_3$$

$$c_{296,0,0}^{mdl} = (-(-c_{0,0}^{ci})) * c_{3,0}^{inv}$$

$$c_{296,1,0}^{mdl} = (-(-c_{0,0}^{ci})) * c_{3,1}^{inv}$$

$$c_{296,2,0}^{mdl} = (-(-c_{0,0}^{ci})) * c_{3,2}^{inv}$$

$$c_{296,3,0}^{mdl} = (-(-c_{0,0}^{ci})) * c_{3,3}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_1\rangle = c_{296,0,1}^{mdl} P_0 + c_{296,1,1}^{mdl} P_1 + c_{296,2,1}^{mdl} P_2 + c_{296,3,1}^{mdl} P_3$$

$$c_{296,0,1}^{mdl} = (-(-c_{1,0}^{ci})) * c_{3,0}^{inv}$$

$$c_{296,1,1}^{mdl} = (-(-c_{1,0}^{ci})) * c_{3,1}^{inv}$$

$$c_{296,2,1}^{mdl} = (-(-c_{1,0}^{ci})) * c_{3,2}^{inv}$$

$$c_{296,3,1}^{mdl} = (-(-c_{1,0}^{ci})) * c_{3,3}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_2\rangle = c_{296,0,2}^{mdl} P_0 + c_{296,1,2}^{mdl} P_1 + c_{296,2,2}^{mdl} P_2 + c_{296,3,2}^{mdl} P_3$$

$$c_{296,0,2}^{mdl} = (-(-c_{2,0}^{ci})) * c_{3,0}^{inv}$$

$$c_{296,1,2}^{mdl} = (-(-c_{2,0}^{ci})) * c_{3,1}^{inv}$$

$$c_{296,2,2}^{mdl} = (-(-c_{2,0}^{ci})) * c_{3,2}^{inv}$$

$$c_{296,3,2}^{mdl} = (-(-c_{2,0}^{ci})) * c_{3,3}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_3\rangle = c_{296,0,3}^{mdl} P_0 + c_{296,1,3}^{mdl} P_1 + c_{296,2,3}^{mdl} P_2 + c_{296,3,3}^{mdl} P_3$$

$$c_{296,0,3}^{mdl} = (-(-c_{3,0}^{ci})) * c_{3,0}^{inv}$$

$$c_{296,1,3}^{mdl} = (-(-c_{3,0}^{ci})) * c_{3,1}^{inv}$$

$$c_{296,2,3}^{mdl} = (-(-c_{3,0}^{ci})) * c_{3,2}^{inv}$$

$$c_{296,3,3}^{mdl} = (-(-c_{3,0}^{ci})) * c_{3,3}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_4\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_5\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_6\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_7\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_8\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_9\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_{10}\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_{11}\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_{12}\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_{13}\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_{14}\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{0}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{297} : \langle P_p | \hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- | P_q \rangle = >$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_0\rangle = c_{297,0,0}^{mdl} P_0 + c_{297,1,0}^{mdl} P_1 + c_{297,2,0}^{mdl} P_2 + c_{297,3,0}^{mdl} P_3$$

$$c_{297,0,0}^{mdl} = (-(-c_{0,1}^{ci})) * c_{3,0}^{inv}$$

$$c_{297,1,0}^{mdl} = (-(-c_{0,1}^{ci})) * c_{3,1}^{inv}$$

$$c_{297,2,0}^{mdl} = (-(-c_{0,1}^{ci})) * c_{3,2}^{inv}$$

$$c_{297,3,0}^{mdl} = (-(-c_{0,1}^{ci})) * c_{3,3}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_1\rangle = c_{297,0,1}^{mdl} P_0 + c_{297,1,1}^{mdl} P_1 + c_{297,2,1}^{mdl} P_2 + c_{297,3,1}^{mdl} P_3$$

$$c_{297,0,1}^{mdl} = (-(-c_{1,1}^{ci})) * c_{3,0}^{inv}$$

$$c_{297,1,1}^{mdl} = (-(-c_{1,1}^{ci})) * c_{3,1}^{inv}$$

$$c_{297,2,1}^{mdl} = (-(-c_{1,1}^{ci})) * c_{3,2}^{inv}$$

$$c_{297,3,1}^{mdl} = (-(-c_{1,1}^{ci})) * c_{3,3}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_2\rangle = c_{297,0,2}^{mdl} P_0 + c_{297,1,2}^{mdl} P_1 + c_{297,2,2}^{mdl} P_2 + c_{297,3,2}^{mdl} P_3$$

$$c_{297,0,2}^{mdl} = (-(-c_{2,1}^{ci})) * c_{3,0}^{inv}$$

$$c_{297,1,2}^{mdl} = (-(-c_{2,1}^{ci})) * c_{3,1}^{inv}$$

$$c_{297,2,2}^{mdl} = (-(-c_{2,1}^{ci})) * c_{3,2}^{inv}$$

$$\begin{aligned}
c_{297,3,2}^{mdl} &= (-(-c_{2,1}^{ci})) * c_{3,3}^{inv} \\
\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_3\rangle &= c_{297,0,3}^{mdl} P_0 + c_{297,1,3}^{mdl} P_1 + c_{297,2,3}^{mdl} P_2 + c_{297,3,3}^{mdl} P_3 \\
c_{297,0,3}^{mdl} &= (-(-c_{3,1}^{ci})) * c_{3,0}^{inv} \\
c_{297,1,3}^{mdl} &= (-(-c_{3,1}^{ci})) * c_{3,1}^{inv} \\
c_{297,2,3}^{mdl} &= (-(-c_{3,1}^{ci})) * c_{3,2}^{inv} \\
c_{297,3,3}^{mdl} &= (-(-c_{3,1}^{ci})) * c_{3,3}^{inv} \\
\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_4\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_5\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_6\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_7\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_8\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_9\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{10}\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{11}\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{12}\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{13}\rangle &= c_{297,13,13}^{mdl} P_{13} + c_{297,14,13}^{mdl} P_{14} \\
c_{297,13,13}^{mdl} &= (-c_{13,13}^{ci}) * c_{14,13}^{inv} \\
c_{297,14,13}^{mdl} &= (-c_{13,13}^{ci}) * c_{14,14}^{inv} \\
\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{14}\rangle &= c_{297,13,14}^{mdl} P_{13} + c_{297,14,14}^{mdl} P_{14} \\
c_{297,13,14}^{mdl} &= (-c_{14,13}^{ci}) * c_{14,13}^{inv} \\
c_{297,14,14}^{mdl} &= (-c_{14,13}^{ci}) * c_{14,14}^{inv} \\
\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\alpha^- \hat{1}_\beta^- |P_{15}\rangle &= \\
\hat{O}_{298} : \langle P_p | \hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- | P_q \rangle &= > \\
\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_0\rangle &= c_{298,0,0}^{mdl} P_0 + c_{298,1,0}^{mdl} P_1 + c_{298,2,0}^{mdl} P_2 + c_{298,3,0}^{mdl} P_3 \\
c_{298,0,0}^{mdl} &= (-c_{0,0}^{ci}) * c_{3,0}^{inv} \\
c_{298,1,0}^{mdl} &= (-c_{0,0}^{ci}) * c_{3,1}^{inv} \\
c_{298,2,0}^{mdl} &= (-c_{0,0}^{ci}) * c_{3,2}^{inv} \\
c_{298,3,0}^{mdl} &= (-c_{0,0}^{ci}) * c_{3,3}^{inv}
\end{aligned}$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_1\rangle = c_{298,0,1}^{mdl} P_0 + c_{298,1,1}^{mdl} P_1 + c_{298,2,1}^{mdl} P_2 + c_{298,3,1}^{mdl} P_3$$

$$c_{298,0,1}^{mdl} = (-c_{1,0}^{ci}) * c_{3,0}^{inv}$$

$$c_{298,1,1}^{mdl} = (-c_{1,0}^{ci}) * c_{3,1}^{inv}$$

$$c_{298,2,1}^{mdl} = (-c_{1,0}^{ci}) * c_{3,2}^{inv}$$

$$c_{298,3,1}^{mdl} = (-c_{1,0}^{ci}) * c_{3,3}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_2\rangle = c_{298,0,2}^{mdl} P_0 + c_{298,1,2}^{mdl} P_1 + c_{298,2,2}^{mdl} P_2 + c_{298,3,2}^{mdl} P_3$$

$$c_{298,0,2}^{mdl} = (-c_{2,0}^{ci}) * c_{3,0}^{inv}$$

$$c_{298,1,2}^{mdl} = (-c_{2,0}^{ci}) * c_{3,1}^{inv}$$

$$c_{298,2,2}^{mdl} = (-c_{2,0}^{ci}) * c_{3,2}^{inv}$$

$$c_{298,3,2}^{mdl} = (-c_{2,0}^{ci}) * c_{3,3}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_3\rangle = c_{298,0,3}^{mdl} P_0 + c_{298,1,3}^{mdl} P_1 + c_{298,2,3}^{mdl} P_2 + c_{298,3,3}^{mdl} P_3$$

$$c_{298,0,3}^{mdl} = (-c_{3,0}^{ci}) * c_{3,0}^{inv}$$

$$c_{298,1,3}^{mdl} = (-c_{3,0}^{ci}) * c_{3,1}^{inv}$$

$$c_{298,2,3}^{mdl} = (-c_{3,0}^{ci}) * c_{3,2}^{inv}$$

$$c_{298,3,3}^{mdl} = (-c_{3,0}^{ci}) * c_{3,3}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_4\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_5\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_6\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_7\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_8\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_9\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{10}\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{11}\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{12}\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{13}\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{14}\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{0}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{299} : \langle P_p | \hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- | P_q \rangle = >$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_0\rangle = c_{299,0,0}^{mdl} P_0 + c_{299,1,0}^{mdl} P_1 + c_{299,2,0}^{mdl} P_2 + c_{299,3,0}^{mdl} P_3$$

$$c_{299,0,0}^{mdl} = (-(-c_{0,2}^{ci})) * c_{3,0}^{inv}$$

$$c_{299,1,0}^{mdl} = (-(-c_{0,2}^{ci})) * c_{3,1}^{inv}$$

$$c_{299,2,0}^{mdl} = (-(-c_{0,2}^{ci})) * c_{3,2}^{inv}$$

$$c_{299,3,0}^{mdl} = (-(-c_{0,2}^{ci})) * c_{3,3}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_1\rangle = c_{299,0,1}^{mdl} P_0 + c_{299,1,1}^{mdl} P_1 + c_{299,2,1}^{mdl} P_2 + c_{299,3,1}^{mdl} P_3$$

$$c_{299,0,1}^{mdl} = (-(-c_{1,2}^{ci})) * c_{3,0}^{inv}$$

$$c_{299,1,1}^{mdl} = (-(-c_{1,2}^{ci})) * c_{3,1}^{inv}$$

$$c_{299,2,1}^{mdl} = (-(-c_{1,2}^{ci})) * c_{3,2}^{inv}$$

$$c_{299,3,1}^{mdl} = (-(-c_{1,2}^{ci})) * c_{3,3}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_2\rangle = c_{299,0,2}^{mdl} P_0 + c_{299,1,2}^{mdl} P_1 + c_{299,2,2}^{mdl} P_2 + c_{299,3,2}^{mdl} P_3$$

$$c_{299,0,2}^{mdl} = (-(-c_{2,2}^{ci})) * c_{3,0}^{inv}$$

$$c_{299,1,2}^{mdl} = (-(-c_{2,2}^{ci})) * c_{3,1}^{inv}$$

$$c_{299,2,2}^{mdl} = (-(-c_{2,2}^{ci})) * c_{3,2}^{inv}$$

$$c_{299,3,2}^{mdl} = (-(-c_{2,2}^{ci})) * c_{3,3}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_3\rangle = c_{299,0,3}^{mdl} P_0 + c_{299,1,3}^{mdl} P_1 + c_{299,2,3}^{mdl} P_2 + c_{299,3,3}^{mdl} P_3$$

$$c_{299,0,3}^{mdl} = (-(-c_{3,2}^{ci})) * c_{3,0}^{inv}$$

$$c_{299,1,3}^{mdl} = (-(-c_{3,2}^{ci})) * c_{3,1}^{inv}$$

$$c_{299,2,3}^{mdl} = (-(-c_{3,2}^{ci})) * c_{3,2}^{inv}$$

$$c_{299,3,3}^{mdl} = (-(-c_{3,2}^{ci})) * c_{3,3}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_4\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_5\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_6\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_7\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_8\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_9\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_{10}\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_{11}\rangle = c_{299,11,11}^{mdl} P_{11} + c_{299,12,11}^{mdl} P_{12}$$

$$c_{299,11,11}^{mdl} = (-(-c_{11,11}^{ci})) * c_{12,11}^{inv}$$

$$c_{299,12,11}^{mdl} = (-(-c_{11,11}^{ci})) * c_{12,12}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_{12}\rangle = c_{299,11,12}^{mdl} P_{11} + c_{299,12,12}^{mdl} P_{12}$$

$$c_{299,11,12}^{mdl} = (-(-c_{12,11}^{ci})) * c_{12,11}^{inv}$$

$$c_{299,12,12}^{mdl} = (-(-c_{12,11}^{ci})) * c_{12,12}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_{13}\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_{14}\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{0}_\beta^- \hat{1}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{300} : \langle P_p | \hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- | P_q \rangle = >$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_0\rangle = c_{300,0,0}^{mdl} P_0 + c_{300,1,0}^{mdl} P_1 + c_{300,2,0}^{mdl} P_2 + c_{300,3,0}^{mdl} P_3$$

$$c_{300,0,0}^{mdl} = (-c_{0,2}^{ci}) * c_{3,0}^{inv}$$

$$c_{300,1,0}^{mdl} = (-c_{0,2}^{ci}) * c_{3,1}^{inv}$$

$$c_{300,2,0}^{mdl} = (-c_{0,2}^{ci}) * c_{3,2}^{inv}$$

$$c_{300,3,0}^{mdl} = (-c_{0,2}^{ci}) * c_{3,3}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_1\rangle = c_{300,0,1}^{mdl} P_0 + c_{300,1,1}^{mdl} P_1 + c_{300,2,1}^{mdl} P_2 + c_{300,3,1}^{mdl} P_3$$

$$c_{300,0,1}^{mdl} = (-c_{1,2}^{ci}) * c_{3,0}^{inv}$$

$$c_{300,1,1}^{mdl} = (-c_{1,2}^{ci}) * c_{3,1}^{inv}$$

$$c_{300,2,1}^{mdl} = (-c_{1,2}^{ci}) * c_{3,2}^{inv}$$

$$c_{300,3,1}^{mdl} = (-c_{1,2}^{ci}) * c_{3,3}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_2\rangle = c_{300,0,2}^{mdl} P_0 + c_{300,1,2}^{mdl} P_1 + c_{300,2,2}^{mdl} P_2 + c_{300,3,2}^{mdl} P_3$$

$$c_{300,0,2}^{mdl} = (-c_{2,2}^{ci}) * c_{3,0}^{inv}$$

$$c_{300,1,2}^{mdl} = (-c_{2,2}^{ci}) * c_{3,1}^{inv}$$

$$c_{300,2,2}^{mdl} = (-c_{2,2}^{ci}) * c_{3,2}^{inv}$$

$$c_{300,3,2}^{mdl} = (-c_{2,2}^{ci}) * c_{3,3}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_3\rangle = c_{300,0,3}^{mdl} P_0 + c_{300,1,3}^{mdl} P_1 + c_{300,2,3}^{mdl} P_2 + c_{300,3,3}^{mdl} P_3$$

$$c_{300,0,3}^{mdl} = (-c_{3,2}^{ci}) * c_{3,0}^{inv}$$

$$c_{300,1,3}^{mdl} = (-c_{3,2}^{ci}) * c_{3,1}^{inv}$$

$$c_{300,2,3}^{mdl} = (-c_{3,2}^{ci}) * c_{3,2}^{inv}$$

$$c_{300,3,3}^{mdl} = (-c_{3,2}^{ci}) * c_{3,3}^{inv}$$

$$\begin{aligned}
& \hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_4\rangle = \\
& \hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_5\rangle = \\
& \hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_6\rangle = \\
& \hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_7\rangle = \\
& \hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_8\rangle = \\
& \hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_9\rangle = \\
& \hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_{10}\rangle = \\
& \hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_{11}\rangle = c_{300,11,11}^{mdl} P_{11} + c_{300,12,11}^{mdl} P_{12} \\
& c_{300,11,11}^{mdl} = (-c_{11,11}^{ci}) * c_{12,11}^{inv} \\
& c_{300,12,11}^{mdl} = (-c_{11,11}^{ci}) * c_{12,12}^{inv} \\
& \hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_{12}\rangle = c_{300,11,12}^{mdl} P_{11} + c_{300,12,12}^{mdl} P_{12} \\
& c_{300,11,12}^{mdl} = (-c_{12,11}^{ci}) * c_{12,11}^{inv} \\
& c_{300,12,12}^{mdl} = (-c_{12,11}^{ci}) * c_{12,12}^{inv} \\
& \hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_{13}\rangle = \\
& \hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_{14}\rangle = \\
& \hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{0}_\beta^- |P_{15}\rangle = \\
& \hat{O}_{301} : \langle P_p | \hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- | P_q \rangle = > \\
& \hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_0\rangle = c_{301,0,0}^{mdl} P_0 + c_{301,1,0}^{mdl} P_1 + c_{301,2,0}^{mdl} P_2 + c_{301,3,0}^{mdl} P_3 \\
& c_{301,0,0}^{mdl} = (-(-c_{0,3}^{ci})) * c_{3,0}^{inv} \\
& c_{301,1,0}^{mdl} = (-(-c_{0,3}^{ci})) * c_{3,1}^{inv} \\
& c_{301,2,0}^{mdl} = (-(-c_{0,3}^{ci})) * c_{3,2}^{inv} \\
& c_{301,3,0}^{mdl} = (-(-c_{0,3}^{ci})) * c_{3,3}^{inv} \\
& \hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_1\rangle = c_{301,0,1}^{mdl} P_0 + c_{301,1,1}^{mdl} P_1 + c_{301,2,1}^{mdl} P_2 + c_{301,3,1}^{mdl} P_3 \\
& c_{301,0,1}^{mdl} = (-(-c_{1,3}^{ci})) * c_{3,0}^{inv} \\
& c_{301,1,1}^{mdl} = (-(-c_{1,3}^{ci})) * c_{3,1}^{inv} \\
& c_{301,2,1}^{mdl} = (-(-c_{1,3}^{ci})) * c_{3,2}^{inv} \\
& c_{301,3,1}^{mdl} = (-(-c_{1,3}^{ci})) * c_{3,3}^{inv} \\
& \hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_2\rangle = c_{301,0,2}^{mdl} P_0 + c_{301,1,2}^{mdl} P_1 + c_{301,2,2}^{mdl} P_2 + c_{301,3,2}^{mdl} P_3
\end{aligned}$$

$$\begin{aligned}
c_{301,0,2}^{mdl} &= (-(-c_{2,3}^{ci})) * c_{3,0}^{inv} \\
c_{301,1,2}^{mdl} &= (-(-c_{2,3}^{ci})) * c_{3,1}^{inv} \\
c_{301,2,2}^{mdl} &= (-(-c_{2,3}^{ci})) * c_{3,2}^{inv} \\
c_{301,3,2}^{mdl} &= (-(-c_{2,3}^{ci})) * c_{3,3}^{inv} \\
\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_3\rangle &= c_{301,0,3}^{mdl} P_0 + c_{301,1,3}^{mdl} P_1 + c_{301,2,3}^{mdl} P_2 + c_{301,3,3}^{mdl} P_3 \\
c_{301,0,3}^{mdl} &= (-(-c_{3,3}^{ci})) * c_{3,0}^{inv} \\
c_{301,1,3}^{mdl} &= (-(-c_{3,3}^{ci})) * c_{3,1}^{inv} \\
c_{301,2,3}^{mdl} &= (-(-c_{3,3}^{ci})) * c_{3,2}^{inv} \\
c_{301,3,3}^{mdl} &= (-(-c_{3,3}^{ci})) * c_{3,3}^{inv} \\
\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_4\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_5\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_6\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_7\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_8\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_9\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_{10}\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_{11}\rangle &= c_{301,11,11}^{mdl} P_{11} + c_{301,12,11}^{mdl} P_{12} \\
c_{301,11,11}^{mdl} &= (-(-c_{11,12}^{ci})) * c_{12,11}^{inv} \\
c_{301,12,11}^{mdl} &= (-(-c_{11,12}^{ci})) * c_{12,12}^{inv} \\
\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_{12}\rangle &= c_{301,11,12}^{mdl} P_{11} + c_{301,12,12}^{mdl} P_{12} \\
c_{301,11,12}^{mdl} &= (-(-c_{12,12}^{ci})) * c_{12,11}^{inv} \\
c_{301,12,12}^{mdl} &= (-(-c_{12,12}^{ci})) * c_{12,12}^{inv} \\
\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_{13}\rangle &= c_{301,13,13}^{mdl} P_{13} + c_{301,14,13}^{mdl} P_{14} \\
c_{301,13,13}^{mdl} &= (-(-c_{13,14}^{ci})) * c_{14,13}^{inv} \\
c_{301,14,13}^{mdl} &= (-(-c_{13,14}^{ci})) * c_{14,14}^{inv} \\
\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_{14}\rangle &= c_{301,13,14}^{mdl} P_{13} + c_{301,14,14}^{mdl} P_{14} \\
c_{301,13,14}^{mdl} &= (-(-c_{14,14}^{ci})) * c_{14,13}^{inv} \\
c_{301,14,14}^{mdl} &= (-(-c_{14,14}^{ci})) * c_{14,14}^{inv} \\
\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\alpha^- \hat{1}_\beta^- |P_{15}\rangle &= c_{301,15,15}^{mdl} P_{15}
\end{aligned}$$

$$c_{301,15,15}^{mdl} = (-(-c_{15,15}^{ci})) * c_{15,15}^{inv}$$

$$\hat{O}_{302} : \langle P_p | \hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- | P_q \rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- | P_0 \rangle = c_{302,0,0}^{mdl} P_0 + c_{302,1,0}^{mdl} P_1 + c_{302,2,0}^{mdl} P_2 + c_{302,3,0}^{mdl} P_3$$

$$c_{302,0,0}^{mdl} = (-c_{0,1}^{ci}) * c_{3,0}^{inv}$$

$$c_{302,1,0}^{mdl} = (-c_{0,1}^{ci}) * c_{3,1}^{inv}$$

$$c_{302,2,0}^{mdl} = (-c_{0,1}^{ci}) * c_{3,2}^{inv}$$

$$c_{302,3,0}^{mdl} = (-c_{0,1}^{ci}) * c_{3,3}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- | P_1 \rangle = c_{302,0,1}^{mdl} P_0 + c_{302,1,1}^{mdl} P_1 + c_{302,2,1}^{mdl} P_2 + c_{302,3,1}^{mdl} P_3$$

$$c_{302,0,1}^{mdl} = (-c_{1,1}^{ci}) * c_{3,0}^{inv}$$

$$c_{302,1,1}^{mdl} = (-c_{1,1}^{ci}) * c_{3,1}^{inv}$$

$$c_{302,2,1}^{mdl} = (-c_{1,1}^{ci}) * c_{3,2}^{inv}$$

$$c_{302,3,1}^{mdl} = (-c_{1,1}^{ci}) * c_{3,3}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- | P_2 \rangle = c_{302,0,2}^{mdl} P_0 + c_{302,1,2}^{mdl} P_1 + c_{302,2,2}^{mdl} P_2 + c_{302,3,2}^{mdl} P_3$$

$$c_{302,0,2}^{mdl} = (-c_{2,1}^{ci}) * c_{3,0}^{inv}$$

$$c_{302,1,2}^{mdl} = (-c_{2,1}^{ci}) * c_{3,1}^{inv}$$

$$c_{302,2,2}^{mdl} = (-c_{2,1}^{ci}) * c_{3,2}^{inv}$$

$$c_{302,3,2}^{mdl} = (-c_{2,1}^{ci}) * c_{3,3}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- | P_3 \rangle = c_{302,0,3}^{mdl} P_0 + c_{302,1,3}^{mdl} P_1 + c_{302,2,3}^{mdl} P_2 + c_{302,3,3}^{mdl} P_3$$

$$c_{302,0,3}^{mdl} = (-c_{3,1}^{ci}) * c_{3,0}^{inv}$$

$$c_{302,1,3}^{mdl} = (-c_{3,1}^{ci}) * c_{3,1}^{inv}$$

$$c_{302,2,3}^{mdl} = (-c_{3,1}^{ci}) * c_{3,2}^{inv}$$

$$c_{302,3,3}^{mdl} = (-c_{3,1}^{ci}) * c_{3,3}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- | P_4 \rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- | P_5 \rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- | P_6 \rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- | P_7 \rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- | P_8 \rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- | P_9 \rangle =$$

$$\begin{aligned}
& \hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{10}\rangle = \\
& \hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{11}\rangle = \\
& \hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{12}\rangle = \\
& \hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{13}\rangle = c_{302,13,13}^{mdl} P_{13} + c_{302,14,13}^{mdl} P_{14} \\
& c_{302,13,13}^{mdl} = (-(-c_{13,13}^{ci})) * c_{14,13}^{inv} \\
& c_{302,14,13}^{mdl} = (-(-c_{13,13}^{ci})) * c_{14,14}^{inv} \\
& \hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{14}\rangle = c_{302,13,14}^{mdl} P_{13} + c_{302,14,14}^{mdl} P_{14} \\
& c_{302,13,14}^{mdl} = (-(-c_{14,13}^{ci})) * c_{14,13}^{inv} \\
& c_{302,14,14}^{mdl} = (-(-c_{14,13}^{ci})) * c_{14,14}^{inv} \\
& \hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{0}_\alpha^- |P_{15}\rangle =
\end{aligned}$$

$$\begin{aligned}
& \hat{O}_{303} : \langle P_p | \hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- | P_q \rangle = > \\
& \hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_0\rangle = c_{303,0,0}^{mdl} P_0 + c_{303,1,0}^{mdl} P_1 + c_{303,2,0}^{mdl} P_2 + c_{303,3,0}^{mdl} P_3 \\
& c_{303,0,0}^{mdl} = (-c_{0,3}^{ci}) * c_{3,0}^{inv} \\
& c_{303,1,0}^{mdl} = (-c_{0,3}^{ci}) * c_{3,1}^{inv} \\
& c_{303,2,0}^{mdl} = (-c_{0,3}^{ci}) * c_{3,2}^{inv} \\
& c_{303,3,0}^{mdl} = (-c_{0,3}^{ci}) * c_{3,3}^{inv} \\
& \hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_1\rangle = c_{303,0,1}^{mdl} P_0 + c_{303,1,1}^{mdl} P_1 + c_{303,2,1}^{mdl} P_2 + c_{303,3,1}^{mdl} P_3 \\
& c_{303,0,1}^{mdl} = (-c_{1,3}^{ci}) * c_{3,0}^{inv} \\
& c_{303,1,1}^{mdl} = (-c_{1,3}^{ci}) * c_{3,1}^{inv} \\
& c_{303,2,1}^{mdl} = (-c_{1,3}^{ci}) * c_{3,2}^{inv} \\
& c_{303,3,1}^{mdl} = (-c_{1,3}^{ci}) * c_{3,3}^{inv} \\
& \hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_2\rangle = c_{303,0,2}^{mdl} P_0 + c_{303,1,2}^{mdl} P_1 + c_{303,2,2}^{mdl} P_2 + c_{303,3,2}^{mdl} P_3 \\
& c_{303,0,2}^{mdl} = (-c_{2,3}^{ci}) * c_{3,0}^{inv} \\
& c_{303,1,2}^{mdl} = (-c_{2,3}^{ci}) * c_{3,1}^{inv} \\
& c_{303,2,2}^{mdl} = (-c_{2,3}^{ci}) * c_{3,2}^{inv} \\
& c_{303,3,2}^{mdl} = (-c_{2,3}^{ci}) * c_{3,3}^{inv} \\
& \hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_3\rangle = c_{303,0,3}^{mdl} P_0 + c_{303,1,3}^{mdl} P_1 + c_{303,2,3}^{mdl} P_2 + c_{303,3,3}^{mdl} P_3 \\
& c_{303,0,3}^{mdl} = (-c_{3,3}^{ci}) * c_{3,0}^{inv}
\end{aligned}$$

$$c_{303,1,3}^{mdl} = (-c_{3,3}^{ci}) * c_{3,1}^{inv}$$

$$c_{303,2,3}^{mdl} = (-c_{3,3}^{ci}) * c_{3,2}^{inv}$$

$$c_{303,3,3}^{mdl} = (-c_{3,3}^{ci}) * c_{3,3}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_4\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_5\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_6\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_7\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_8\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_9\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{10}\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{11}\rangle = c_{303,11,11}^{mdl} P_{11} + c_{303,12,11}^{mdl} P_{12}$$

$$c_{303,11,11}^{mdl} = (-c_{11,12}^{ci}) * c_{12,11}^{inv}$$

$$c_{303,12,11}^{mdl} = (-c_{11,12}^{ci}) * c_{12,12}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{12}\rangle = c_{303,11,12}^{mdl} P_{11} + c_{303,12,12}^{mdl} P_{12}$$

$$c_{303,11,12}^{mdl} = (-c_{12,12}^{ci}) * c_{12,11}^{inv}$$

$$c_{303,12,12}^{mdl} = (-c_{12,12}^{ci}) * c_{12,12}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{13}\rangle = c_{303,13,13}^{mdl} P_{13} + c_{303,14,13}^{mdl} P_{14}$$

$$c_{303,13,13}^{mdl} = (-c_{13,14}^{ci}) * c_{14,13}^{inv}$$

$$c_{303,14,13}^{mdl} = (-c_{13,14}^{ci}) * c_{14,14}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{14}\rangle = c_{303,13,14}^{mdl} P_{13} + c_{303,14,14}^{mdl} P_{14}$$

$$c_{303,13,14}^{mdl} = (-c_{14,14}^{ci}) * c_{14,13}^{inv}$$

$$c_{303,14,14}^{mdl} = (-c_{14,14}^{ci}) * c_{14,14}^{inv}$$

$$\hat{1}_\beta^+ \hat{1}_\alpha^+ \hat{1}_\beta^- \hat{1}_\alpha^- |P_{15}\rangle = c_{303,15,15}^{mdl} P_{15}$$

$$c_{303,15,15}^{mdl} = (-c_{15,15}^{ci}) * c_{15,15}^{inv}$$

$$\hat{O}_{304} : \langle P_p | \hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- | P_q \rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- | P_0 \rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- | P_1 \rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- | P_2 \rangle =$$

$$\begin{aligned}
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_3\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_4\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_5\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_6\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_7\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_8\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_9\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_{10}\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_{11}\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_{12}\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_{13}\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_{14}\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{0}_\alpha^- |P_{15}\rangle &=
\end{aligned}$$

$$\hat{O}_{305} : \langle P_p | \hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- | P_q \rangle = >$$

$$\begin{aligned}
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_0\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_1\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_2\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_3\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_4\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_5\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_6\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_7\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_8\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_9\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_{10}\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_{11}\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_{12}\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_{13}\rangle &=
\end{aligned}$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_{14}\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\alpha^- \hat{1}_\alpha^- |P_{15}\rangle =$$

$$\hat{O}_{306} : \langle P_p | \hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- | P_q \rangle =>$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_0\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_1\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_2\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_3\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_4\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_5\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_6\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_7\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_8\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_9\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_{10}\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_{11}\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_{12}\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_{13}\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_{14}\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{0}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{307} : \langle P_p | \hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- | P_q \rangle =>$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_0\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_1\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_2\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_3\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_4\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_5\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_6\rangle =$$

$$\begin{aligned}
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_7\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_8\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_9\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_{10}\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_{11}\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_{12}\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_{13}\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_{14}\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{0}_\beta^- \hat{1}_\beta^- |P_{15}\rangle &=
\end{aligned}$$

$$\hat{O}_{308} : \langle P_p | \hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- | P_q \rangle =>$$

$$\begin{aligned}
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_0\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_1\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_2\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_3\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_4\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_5\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_6\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_7\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_8\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_9\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_{10}\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_{11}\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_{12}\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_{13}\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_{14}\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{0}_\alpha^- |P_{15}\rangle &=
\end{aligned}$$

$$\hat{O}_{309} : \langle P_p | \hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- | P_q \rangle =>$$

$$\begin{aligned}
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_0\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_1\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_2\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_3\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_4\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_5\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_6\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_7\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_8\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_9\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{10}\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{11}\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{12}\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{13}\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{14}\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\alpha^- \hat{1}_\alpha^- |P_{15}\rangle &=
\end{aligned}$$

$$\hat{O}_{310} : \langle P_p | \hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- | P_q \rangle = >$$

$$\begin{aligned}
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_0\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_1\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_2\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_3\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_4\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_5\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_6\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_7\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_8\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_9\rangle &= \\
\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{10}\rangle &=
\end{aligned}$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{11}\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{12}\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{13}\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{14}\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{0}_\beta^- |P_{15}\rangle =$$

$$\hat{O}_{311} : \langle P_p | \hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- | P_q \rangle =>$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_0\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_1\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_2\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_3\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_4\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_5\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_6\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_7\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_8\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_9\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_{10}\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_{11}\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_{12}\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_{13}\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_{14}\rangle =$$

$$\hat{1}_\beta^+ \hat{1}_\beta^+ \hat{1}_\beta^- \hat{1}_\beta^- |P_{15}\rangle =$$