• if $V_{12} = 0$ $\qquad V_{1B} + V_{2B} = V_{1+2} \qquad M_B \to \infty$

$$|X\rangle = (1 + G_0 T_{1+2})|\phi^0\rangle = |X_{\bar{p}'_1} X_{\bar{p}'_2}\rangle$$

$$T_{1+2} = V_{1+2} + V_{1+2} G_0 T_{1+2}$$

• if $V = V_{1B} + V_{2B} + V_{12} = V_{1+2} + V_{12}$ $\qquad M_B \to \infty$

we exploit the 2-potential formula

$$T = V + V G_0 T = T_{1+2} + (1 + T_{1+2} G_0) \tilde{T} (1 + G_0 T_{1+2})$$

$$\tilde{T} = V_{12} + V_{12} G_{1+2} \tilde{T} \qquad G_{1+2} = \frac{1}{z - H_0 - V_{1+2}}$$

$$|X\rangle = [1 + \underbrace{(1 + G_0 T_{1+2})}_{\int d\bar{p}_1 d\bar{p}_2 |\bar{p}_1 \bar{p}_2\rangle\langle \bar{p}_1 \bar{p}_2|} G_0 \tilde{T}] \underbrace{(1 + G_0 T_{1+2})|\phi^0\rangle}_{X_{\bar{p}'_1} X_{\bar{p}'_2}}$$

$$= |X_{\bar{p}'_1} X_{\bar{p}'_2}\rangle + \int d\bar{p}_1 d\bar{p}_2 |X_{\bar{p}_1} X_{\bar{p}_2}\rangle\langle \bar{p}_1 \bar{p}_2 | G_0 \tilde{T} | X_{\bar{p}'_1} X_{\bar{p}'_2}\rangle$$