

$$\begin{array}{c} g_1 \\ g_2 \\ \vdots \\ g_{|G|} \end{array} \boxed{g} \star \begin{array}{c} h_1 \\ h_2 \\ \vdots \\ h_{|G|} \end{array} \boxed{h} \xrightarrow{\mathcal{F}_M} \begin{array}{|c|c|c|c|c|c|c|} \hline \hat{g}(\rho_1) & & & & & & \\ \hline & \hat{g}(\rho_2) & & & & & \\ \hline & & \hat{g}(\rho_3) & & & & \\ \hline & & & \ddots & & & \\ \hline \end{array} \cdot \begin{array}{|c|c|c|c|c|c|c|} \hline \hat{h}(\rho_1) & & & & & & \\ \hline & \hat{h}(\rho_2) & & & & & \\ \hline & & \hat{h}(\rho_3) & & & & \\ \hline & & & \ddots & & & \\ \hline \end{array}^\dagger$$