## Compositions

Diagonal compositions of biunitaries return biunitaries

$$\Rightarrow \qquad \Rightarrow \qquad \Rightarrow \qquad \text{QLS + QLS = Dual-unitary}$$

$$\Rightarrow \qquad \Rightarrow \qquad \Rightarrow \qquad \Rightarrow \qquad \text{QLS + QLS = Quantum cross}$$

$$\Rightarrow \qquad \Rightarrow \qquad \Rightarrow \qquad \Rightarrow \qquad \text{Had + Had = QLS}$$

$$\Rightarrow \qquad \Rightarrow \qquad \Rightarrow \qquad \Rightarrow \qquad \text{UEB + UEB = QLS}$$