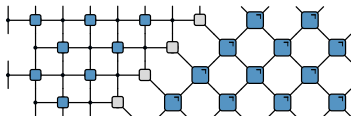
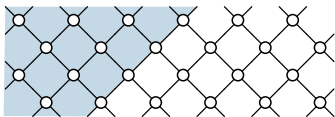


Heterogeneous biunitary circuits

- We can vary the shading pattern...



- ... by introducing new elements

$$(U_{a,b})_c = \begin{array}{c} \text{Diagram of a vertex } U \text{ with inputs } a, b \text{ and output } c \end{array} = \begin{array}{c} \text{Diagram of a vertex } U \text{ with inputs } a, b \text{ and output } c \end{array}$$

⇒ Biunitarity implies that these vertices correspond to **quantum Latin squares**

⇒ Matrix of vectors $U_{a,b}$ for which every row and column forms an orthonormal basis