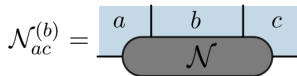


# Solvable initial states

- Fully shaded = solvable initial state for clockwork circuits



- Corresponding state follows as

$$\begin{aligned}
 |\Psi(\mathcal{N})\rangle &= \sum_{i_1, i_2, \dots}^q \dots \text{[Diagram of three gates with inputs } i_1, i_2, i_3, i_4, i_5 \text{]} \dots |\dots i_1 i_2 i_3 i_4 i_5 \dots\rangle \\
 &= \sum_{\dots, i_1, i_2 \dots}^q \left[ \dots \mathcal{N}_{\dots i_2}^{(i_1)} \mathcal{N}_{i_2, i_4}^{(i_3)} \mathcal{N}_{i_4 \dots}^{(i_5)} \dots \right] |\dots i_1 i_2 i_3 i_4 i_5 i_6 \dots\rangle,
 \end{aligned}$$

- Horizontal unitarity corresponds to unitarity of  $\mathcal{N}^{(b)}$ ,  $\forall b$

$\Rightarrow$  Parametrized by **set of unitary matrices**