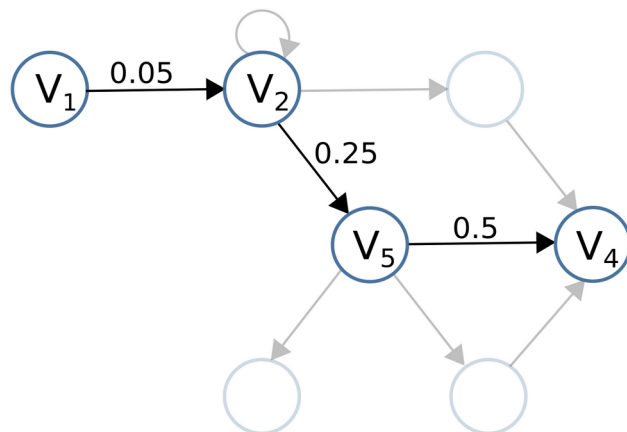


Block connection prob. p_{ij}

0	0.05	0	0	0	0	0
0	0.1	0.3	0	0.25	0	0
0	0	0	0.1	0	0	0
0	0	0	0	0	0	0
0	0	0	0.5	0	0.2	0.4
0	0	0	0.15	0	0	0
0	0	0	0	0	0	0

Cost $c_{ij} := \frac{1}{p_{ij} |\hat{V}_i| |\hat{V}_j|}$

0	0.8	0	0	0	0	0
0	0	1.33	0	0.53	0	0
0	0	0	2	0	0	0
0	0	0	0	0	0	0
0	0	0	0.13	0	0.42	0.56
0	0	0	0.33	0	0	0
0	0	0	0	0	0	0



Path:

$$\mathcal{P} = \{V_1, V_2, V_5, V_4\}$$

Path length:

$$\begin{aligned}
 \ell(\mathcal{P}) &= t_{12}c_{12} + t_{25}c_{25} + t_{54}c_{54} \\
 &= (1 \times 0.8) + (0.5 \times 0.53) + (0.333 \times 0.42) \\
 &= 1.205
 \end{aligned}$$

Fig S1. An illustrative example for calculating the path length of a random walk on the circuit.