

$$\mathcal{L}(t) = \sum_{i,j} N_{ij} \log(P_{ij}^t)$$

$$a \bullet \xrightarrow{t} \bullet b$$

$$\alpha \square \xrightarrow{t} \square \beta$$

$$N_{ij} = \sum_{\text{sites } k} \mathbb{I}\{a_k = i, b_k = j\}$$

A

$$N_{ij} = \sum_{\text{sites } k} \alpha_{ki} \cdot \beta_{kj}$$

B