

$$\begin{pmatrix} A_{j_1 j_1} & \cdots & A_{j_1 j_N} \\ \vdots & \ddots & \vdots \\ A_{j_N j_1} & \cdots & A_{j_N j_N} \end{pmatrix} \equiv \begin{pmatrix} a_{j_1 j_1}^\dagger & \cdots & a_{j_1 j_N}^\dagger \\ \vdots & \ddots & \vdots \\ a_{j_N j_1} & \cdots & a_{j_N j_N} \end{pmatrix}$$