

$$A \xrightarrow{\{\langle A, N_a \rangle\}_{\text{pk}(B)}^a}$$

$$A \xleftarrow{\{\langle N_a, z \rangle\}_{\text{pk}(A)}^a}$$

$$A \xrightarrow{\{z\}_{\text{pk}(B)}^a}$$

$$\xrightarrow{\{\langle x, y \rangle\}_{\text{pk}(B)}^a} B$$

$$\xleftarrow{\{\langle y, N_b \rangle\}_{\text{pk}(x)}^a} B$$

$$\xrightarrow{\{N_b\}_{\text{pk}(B)}^a} B$$