Alice

Bob

$$E \cong (\mathbb{Z}/2^{e_A}3^{e_B}\mathbb{Z})^2$$

$$E[2^{e_A}] = \langle P_A, Q_A \rangle \qquad E[3^{e_B}] = \langle P_B, Q_B \rangle$$

Choose $m_A, n_A \in \mathbb{Z}$

Choose $m_B, n_B \in \mathbb{Z}$

$A := [m_A]P_A + [n_A]Q_A$

$B := [m_B]P_B + [n_B]Q_B$

$\alpha : E \to E/\langle A \rangle$

$\beta : E \to E/\langle B \rangle$

$$\xrightarrow{\quad E/\langle A \rangle, \alpha(P_B), \alpha(Q_B) \quad}$$

$$\xleftarrow{\quad E/\langle B \rangle, \beta(P_A), \beta(Q_A) \quad}$$