

$$\begin{array}{ccccc}
 (\bullet, m) & \xrightarrow{\eta \times 1_M} & (e, m) & (m, e) & \xleftarrow{1_M \times \eta} & (m, \bullet) \\
 \swarrow \pi_M & & \downarrow \mu & \downarrow \mu & & \nearrow 1_M \times \eta \\
 & & m = e \cdot m = m \cdot e = m & & &
 \end{array}$$

$$\begin{array}{ccccc}
 \{\bullet\} \times M & \xrightarrow{\eta \times 1_M} & M \times M & \xleftarrow{1_M \times \eta} & M \times \{\bullet\} \\
 \searrow \pi_M & & \downarrow \mu & & \swarrow \pi_M \\
 & & M & &
 \end{array}$$