

$$\begin{array}{c}
 \mathcal{C} \times \mathcal{D} \\
 \begin{array}{ccccc}
 & & (f',g') \circ (f,g) = (f' \circ f, g' \circ g) & & \\
 & \nearrow & & \searrow & \\
 \cdots & (C_1, D_1) & \xrightarrow{(f,g)} & (C_2, D_2) & \xrightarrow{(f',g')} & (C_3, D_3) & \cdots
 \end{array}
 \end{array}$$