

$$\begin{array}{ccc}
 A & \xrightarrow{g} & B \\
 \downarrow & \circlearrowleft & \downarrow \\
 X_i & \xrightarrow{f_i} & Y_i
 \end{array}$$

$$\begin{array}{ccc}
 (B, X_i) & \xrightarrow[(1)]{(g, X_i)} & (A, X_i) \\
 (B, f_i) \downarrow & & \downarrow 2 (A, f_I) \\
 (B, Y_i) & \xrightarrow[(g, Y_i)]{3} & (A, Y_i)
 \end{array}$$