

$$\begin{array}{ccccc}
 A & \xrightarrow{e_1} & A \oplus B & \xrightarrow{p_2} & B \\
 \downarrow 0 & & \downarrow p_2 & & \downarrow g \\
 A & \xrightarrow{f} & B & \xrightarrow{g} & C
 \end{array}$$