

$$\begin{array}{ccc}
 G & \xrightarrow{\eta_G} & I(F(G)) \\
 & \searrow \varphi & \downarrow I(\psi) \\
 & & I(H)
 \end{array}
 \qquad
 \begin{array}{ccc}
 & & F(G) \\
 & & \downarrow \psi \\
 & & H
 \end{array}$$