$$\begin{array}{ccc}
d & \xrightarrow{\ \ g\ \ } & d' \\
{\scriptstyle \tau_d}\downarrow{\scriptstyle \cong} & & {\scriptstyle \cong}\downarrow{\scriptstyle \tau_{d'}} \\
FG(d) & \xrightarrow{\ FG(g)\ } & FG(d')
\end{array}$$