$$
\begin{array}{ccc}
F(B,C) & \xrightarrow{\;\eta_{(B,C)}\;} & G(B,C) \\
\downarrow{\scriptstyle F(f,1_C)} & & \downarrow{\scriptstyle G(f,1_C)} \\
F(B',C) & \xrightarrow{\;\eta_{(B',C)}\;} & G(B',C)
\end{array}
\qquad\qquad
\begin{array}{ccc}
F(B',C) & \xrightarrow{\;\eta_{(B',C)}\;} & G(B',C) \\
\downarrow{\scriptstyle F(1_{B'},g)} & & \downarrow{\scriptstyle G(1_{B'},g)} \\
F(B',C') & \xrightarrow{\;\eta_{(B',C')}\;} & G(B',C')
\end{array}
$$