

$$\begin{array}{ccc}
 F(B, C) & \xrightarrow{\textcolor{red}{\eta}_{(B, C)}} & G(B, C) \\
 F(f, 1_C) \downarrow & & \downarrow G(f, 1_C) \\
 F(B', C) & \xrightarrow{\textcolor{blue}{\eta}_{(B', C)}} & G(B', C) \\
 F(1_{B'}, g) \downarrow & & \downarrow G(1_{B'}, g) \\
 F(B', C') & \xrightarrow{\textcolor{blue}{\eta}_{(B', C')}} & G(B', C')
 \end{array}$$

$$\begin{array}{ccc}
 F(B, C) & \xrightarrow{\textcolor{red}{\eta}_{(B, C)}} & G(B, C) \\
 F(f, g) \downarrow & & \downarrow G(f, g) \\
 F(B', C') & \xrightarrow{\textcolor{blue}{\eta}_{(B', C')}} & G(B', C')
 \end{array}$$