

$$\begin{array}{ccc}
 F(x) & \longrightarrow & F(y) \\
 \varphi_x \downarrow & & \downarrow \varphi_y \\
 G(\Gamma_1(x)) & \longrightarrow & G(\Gamma_1(y)) \\
 G(\alpha_x) \downarrow & & \downarrow G(\alpha_y) \\
 G(\Gamma_2(x)) & \longrightarrow & G(\Gamma_2(y))
 \end{array}$$

$$\begin{array}{ccc}
 G(x) & \longrightarrow & G(y) \\
 \textcolor{red}{\psi_x} \downarrow & & \downarrow \textcolor{green}{\psi_y} \\
 F(K_1(x)) & \longrightarrow & F(K_1(y)) \\
 \textcolor{blue}{F(\beta_x)} \downarrow & & \downarrow \textcolor{green}{F(\beta_y)} \\
 F(K_2(x)) & \textcolor{orange}{\longrightarrow} & F(K_2(y))
 \end{array}$$