

$$\begin{array}{c}
(\Delta, \delta) \xRightarrow{\quad} (F\Delta, \varphi(\delta)) \xRightarrow{\quad} ((Ff)^*(Fg)_*(F\Delta), (Ff)^*(Fg)_*\varphi(\delta)) \\
\downarrow \\
(f^*g_*\Delta, f^*g_*\delta) \xRightarrow{\quad} (F(f^*g_*\Delta), \varphi(f^*g_*\delta)) \xRightarrow{\quad} ((Ff)^*(Fg)_*(F\Delta), \varphi(f^*g_*\delta))
\end{array}$$