

$$\begin{array}{ccccc}
X & \longrightarrow & Y & \longrightarrow & Z & \xrightarrow{\eta} & QZ & \xrightarrow{\ell(\eta)} & QU_X \\
\downarrow f & & \downarrow & & \downarrow g & & \downarrow Q(g) & & \downarrow Q(U_f) \\
X' & \longrightarrow & Y' & \longrightarrow & Z' & \xrightarrow{\eta'} & QZ' & \xrightarrow{\ell(\eta')} & QU_{X'}
\end{array}$$