

$$\begin{array}{ccc}
 k \otimes U & \xrightarrow{\lambda_U} & U \\
 1 \otimes f \downarrow & & \downarrow f \\
 k \otimes U' & \xrightarrow{\lambda_{U'}} & U'
 \end{array}$$

$$\begin{array}{ccc}
 U \otimes k & \xrightarrow{\rho_U} & U \\
 f \otimes 1 \downarrow & & \downarrow f \\
 U' \otimes k & \xrightarrow{\rho_{U'}} & U'
 \end{array}$$