

$$\begin{array}{ccccccc}
Y^{\vee} & \xrightarrow{\text{ru}_Y^{-1}} & Y^{\vee} \otimes 1 & \xrightarrow{\text{id}_{Y^{\vee}} \otimes \text{coev}_X} & Y^{\vee} \otimes (X \otimes X^{\vee}) \\
& & & & & & \\
& \xrightarrow{\text{as}^{-1}} & (Y^{\vee} \otimes X) \otimes X^{\vee} & \xrightarrow{(\text{id}_{Y^{\vee}} \otimes f) \otimes \text{id}_{X^{\vee}}} & (Y^{\vee} \otimes Y) \otimes X^{\vee} \\
& & & & & & \\
& & \xrightarrow{\text{ev}_Y \otimes \text{id}_{X^{\vee}}} & 1 \otimes X^{\vee} & \xrightarrow{\text{lu}_{X^{\vee}}} & X^{\vee}
\end{array}$$