

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