

$$\begin{array}{c}
 \eta_X \\
 \rightarrow \\
 1 \rightarrow X \otimes X^{\vee} \xrightarrow{f \otimes \text{id}_X} X \otimes X^{\vee} \xrightarrow{\text{br}} X^{\vee} \otimes X \xrightarrow{\epsilon_X} 1
 \end{array}$$