

$$\bar{\nu}_{\dot{V} \sqcup \dot{U}}^{-1} = \bar{\nu}_{\dot{V}}^{-1} \sqcup \bar{\nu}_{\dot{U}}^{-1}$$

$$\subset: h \in \bar{\nu}_{\dot{V} \sqcup \dot{U}}^{-1} \Rightarrow {}^h \nu \in \dot{V} \sqcup \dot{U} \Rightarrow \wedge \begin{cases} {}^h \nu \in \dot{V} & \Rightarrow h \in \bar{\nu}_{\dot{V}}^{-1} \\ {}^h \nu \notin \dot{U} & \Rightarrow h \notin \bar{\nu}_{\dot{U}}^{-1} \end{cases} \Rightarrow h \in \bar{\nu}_{\dot{V}}^{-1} \sqcup \bar{\nu}_{\dot{U}}^{-1}$$

$$\supset: h \in \bar{\nu}_{\dot{V}}^{-1} \sqcup \bar{\nu}_{\dot{U}}^{-1} \Rightarrow \wedge \begin{cases} h \in \bar{\nu}_{\dot{V}}^{-1} & \Rightarrow {}^h \nu \in \dot{V} \\ h \notin \bar{\nu}_{\dot{U}}^{-1} & \Rightarrow {}^h \nu \notin \dot{U} \end{cases} \Rightarrow h \in \bar{\nu}_{\dot{V} \sqcup \dot{U}}^{-1}$$