

TABLE 2.1
Rules of inference

$\frac{\begin{array}{c} \bigcirc \\ \neg \bigcirc \\ \hline \times \end{array}}$	$\frac{\begin{array}{c} \checkmark (\bigcirc \rightarrow \Delta) \\ \neg \bigcirc \quad \Delta \end{array}}{\quad}$	$\frac{\begin{array}{c} \checkmark (\bigcirc \wedge \Delta) \\ \bigcirc \end{array}}{\Delta}$	$\frac{\begin{array}{c} \checkmark (\bigcirc \vee \Delta) \\ \bigcirc \quad \Delta \end{array}}{\quad}$	$\frac{\begin{array}{c} \checkmark (\bigcirc \leftrightarrow \Delta) \\ \bigcirc \quad \neg \bigcirc \\ \Delta \quad \neg \Delta \end{array}}{\quad}$	$\frac{\checkmark (\bigcirc \wedge \Delta \wedge \square)}{\begin{array}{c} \bigcirc \\ \Delta \\ \square \end{array}}$	$\frac{\checkmark (\bigcirc \vee \Delta \vee \square)}{\begin{array}{c} \bigcirc \quad \Delta \quad \square \end{array}}$
$\frac{\checkmark \neg \neg \bigcirc}{\bigcirc}$	$\frac{\checkmark \neg (\bigcirc \rightarrow \Delta)}{\begin{array}{c} \bigcirc \\ \neg \Delta \end{array}}$	$\frac{\checkmark \neg (\bigcirc \wedge \Delta)}{\neg \bigcirc \quad \neg \Delta}$	$\frac{\checkmark \neg (\bigcirc \vee \Delta)}{\neg \bigcirc \quad \neg \Delta}$	$\frac{\checkmark \neg (\bigcirc \leftrightarrow \Delta)}{\neg \bigcirc \quad \begin{array}{c} \bigcirc \\ \Delta \quad \neg \Delta \end{array}}$	$\frac{\checkmark \neg (\bigcirc \wedge \Delta \wedge \square)}{\neg \bigcirc \quad \neg \Delta \quad \neg \square}$	$\frac{\checkmark \neg (\bigcirc \vee \Delta \vee \square)}{\neg \bigcirc \quad \neg \Delta \quad \neg \square}$

\neg Identity. Close paths containing lines " $\neg Iaa$ " (or " $a \neq a$ ").

$$\frac{a \neq a}{\times}$$

Rules for \neg

$$\frac{\checkmark \neg \forall x \neg \bigcirc}{\exists x \neg \bigcirc} \quad \frac{\checkmark \neg \exists x \neg \bigcirc}{\forall x \neg \bigcirc} \quad \frac{\checkmark \neg \neg \bigcirc}{\bigcirc} \quad \frac{\begin{array}{c} \bigcirc \\ \neg \bigcirc \\ \hline \times \end{array}}$$

