

Natural Deduction Rules for PredCalc

	introduction	elimination	proviso
\wedge	$\frac{\varphi \quad \psi}{\varphi \wedge \psi}$	$\frac{\varphi \wedge \psi}{\varphi} \quad \frac{\varphi \wedge \psi}{\psi}$	
\vee	$\frac{\varphi}{\varphi \vee \psi} \quad \frac{\psi}{\varphi \vee \psi}$	$\frac{\varphi \vee \psi \quad \varphi \vdash \chi \quad \psi \vdash \chi}{\chi}$	
\rightarrow	$\frac{\varphi \vdash \psi}{\varphi \rightarrow \psi}$	$\frac{\varphi \rightarrow \psi \quad \varphi}{\psi} \quad \frac{\varphi \rightarrow \psi \quad \neg \psi}{\neg \varphi}$	
\perp	$\frac{\varphi \quad \neg \varphi}{\perp}$	$\frac{\varphi \vdash \perp}{\neg \varphi} \quad \frac{\neg \varphi \vdash \perp}{\varphi}$	
$\neg \neg$	$\frac{\varphi}{\neg \neg \varphi}$	$\frac{\neg \neg \varphi}{\varphi}$	
$=$	$\overline{t = t}$	$\frac{t_1 = t_2 \quad \varphi(t_1)}{\varphi(t_2)}$	
\forall	$\frac{\Gamma \vdash \varphi(x_0)}{\Gamma \vdash \forall x \varphi(x)}$	$\frac{\forall x \varphi(x)}{\varphi(t)}$	x_0 does not occur in $\Gamma \cup \{\varphi\}$
\exists	$\frac{\varphi(t)}{\exists x \varphi}$	$\frac{\Gamma \vdash \exists x \varphi \quad \Gamma, \varphi(x_0) \vdash \chi}{\Gamma \vdash \chi}$	x_0 does not occur in $\Gamma \cup \{\varphi, \chi\}$