

	<i>Introduction rules</i>	<i>Elimination rules</i>
\wedge	<p>...</p> <p>$l.$ P from ...</p> <p>...</p> <p>$m.$ Q from ...</p> <p>...</p> <p>$n.$ $P \wedge Q$ from l and m by \wedge-introduction (it doesn't matter in what order l and m are in)</p>	<p>...</p> <p>$m.$ $P \wedge Q$ from ...</p> <p>...</p> <p>$n.$ P from m by \wedge-elimination</p> <p>or</p> <p>...</p> <p>$m.$ $P \wedge Q$ from ...</p> <p>...</p> <p>$n.$ Q from m by \wedge-elimination</p>
\vee	<p>...</p> <p>$m.$ P from ...</p> <p>...</p> <p>$n.$ $P \vee Q$ from m by \vee-introduction</p> <p>or</p> <p>...</p> <p>$m.$ Q from ...</p> <p>...</p> <p>$n.$ $P \vee Q$ from m by \vee-introduction</p>	<p>$l.$ $P \vee Q$ from ... by ...</p> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <p>$m_1.$ Assume P</p> <p>...</p> <p>$m_2.$ R</p> </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <p>$n_1.$ Assume Q</p> <p>...</p> <p>$n_2.$ R</p> </div> <p>$o.$ R from l, m_1-m_2, n_1-n_2 by \vee-elimination (it doesn't matter what order $l, m_1-m_2,$ and n_1-n_2 are in)</p>
\Rightarrow	<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <p>$m.$ Assume P</p> <p>...</p> <p>$n.$ Q from ... by ...</p> </div> <p>$n + 1.$ $P \Rightarrow Q$ from $m-n,$ by \Rightarrow-introduction</p>	<p>...</p> <p>$l.$ $P \Rightarrow Q$ by ...</p> <p>...</p> <p>$m.$ P by ...</p> <p>...</p> <p>$n.$ Q from l and m by \Rightarrow-elimination</p>
\neg	<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <p>$m.$ Assume P</p> <p>...</p> <p>$n.$ F from ... by ...</p> </div> <p>$n + 1.$ $\neg P$ from $m-n,$ by \neg-introduction</p>	<p>...</p> <p>$l.$ P by ...</p> <p>...</p> <p>$m.$ $\neg P$ by ...</p> <p>...</p> <p>$n.$ F from l and m by \neg-elimination</p>
T	<p>...</p> <p>$n.$ T</p>	No elimination rule for True.
F	No introduction rule for False.	<p>...</p> <p>$m.$ F from ... by ...</p> <p>...</p> <p>$n.$ P from $m,$ by F-elimination</p>
\forall	<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <p>$m.$ Consider an arbitrary x (from domain ...)</p> <p>...</p> <p>$n.$ $P(x)$ by ...</p> </div> <p>$n + 1.$ $\forall x.P(x)$ from $m-n$ by \forall-introduction</p>	<p>...</p> <p>$m.$ $\forall x.P(x)$ from ...</p> <p>...</p> <p>$n.$ $P(v)$ from m by \forall-elimination</p>
\exists	<p>...</p> <p>$m.$ $P(v)$</p> <p>...</p> <p>$n.$ $\exists x.P(x)$ from m by \exists-introduction with witness $x = v$</p>	<p>$l.$ $\exists x.P(x)$</p> <p>...</p> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <p>$m.$ For some actual $x_1, P(x_1)$</p> <p>...</p> <p>$n.$ Q (where x_1 not free in Q)</p> </div> <p>...</p> <p>$o.$ Q from $l, m-n,$ by \exists-elimination</p>
	<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <p>$m.$ Assume $\neg P$</p> <p>...</p> <p>$n.$ F from ... by ...</p> </div> <p>$n + 1.$ P from $m-n,$ by contradiction</p>	(Proof by contradiction)

