

$termvar, x, y$  term variable

$index, i, j, k$

$term, t$

$::=$

term

	$x$	variable
	<b>unit</b>	unit
	<b>contra</b>	contradiction
	$(t_1, t_2)$	pair
	<b>fst</b> $t$	first projection
	<b>snd</b> $t$	second projection
	<b>inj</b> <sub>1</sub> $t$	first injection
	<b>inj</b> <sub>2</sub> $t$	second injection
	<b>case</b> $t$ of $x.t_1, y.t_2$	sum case
	$\lambda x : T. t$	unary functions
	$t_1 t_2$	function application
	$\Box t$	past necessity functor
	$\Diamond t$	past possibility functor
	$\blacksquare t$	necessity functor
	$\blacklozenge t$	possibility functor
	<b>let</b> $\Box t_1 = t_2$ in $t_3$	past necessity elim
	<b>let</b> $\blacksquare t_1 = t_2$ in $t_3$	necessity elim
	<b>let</b> $\Diamond t_1 = t_2$ in $t_3$	past possibility elim
	<b>let</b> $\blacklozenge t_1 = t_2$ in $t_3$	possibility elim

$form, type, A, B, C, T$

$::=$

formula and type

	$\top$	true or the unit type
	$\perp$	false or the empty type
	$\Box A$	past necessity
	$\blacksquare A$	necessity
	$\Diamond A$	past possibility
	$\blacklozenge A$	possibility
	$A \wedge B$	conjunction
	$A \vee B$	disjunction
	$A \rightarrow B$	implication

$\Gamma, \Delta$

$::=$

type context

	$\emptyset$	empty context
	$A$	formula el
	$x : T$	typed el
	$\Gamma, \Gamma'$	append

$\boxed{\Gamma; \Delta \vdash A}$

$$\begin{array}{c}
\frac{}{\Gamma; \Delta, A \vdash A} \text{ L\_AX} \\
\frac{}{\Gamma, A; \emptyset \vdash A} \text{ L\_BAX} \\
\frac{}{\Gamma; \Delta \vdash \top} \text{ L\_TRUE} \\
\frac{}{\Gamma; \Delta, \perp \vdash A} \text{ L\_FALSE} \\
\frac{\Gamma; \Delta \vdash A \quad \Gamma; \Delta \vdash B}{\Gamma; \Delta \vdash A \wedge B} \text{ L\_CONJ}
\end{array}$$

$$\begin{array}{c}
\frac{\Gamma; \Delta \vdash A \wedge B}{\Gamma; \Delta \vdash A} \quad \text{L\_CONJE1} \\
\frac{\Gamma; \Delta \vdash A \wedge B}{\Gamma; \Delta \vdash B} \quad \text{L\_CONJE2} \\
\frac{\Gamma; \Delta \vdash A}{\Gamma; \Delta \vdash A \vee B} \quad \text{L\_DISJI1} \\
\frac{\Gamma; \Delta \vdash B}{\Gamma; \Delta \vdash A \vee B} \quad \text{L\_DISJI2} \\
\frac{\Gamma; \Delta, A \vdash C \quad \Gamma; \Delta, B \vdash C \quad \Gamma; \Delta \vdash A \vee B}{\Gamma; \Delta \vdash C} \quad \text{L\_DISJE} \\
\frac{\Gamma; \Delta, A \vdash B}{\Gamma; \Delta \vdash A \rightarrow B} \quad \text{L\_IMPI} \\
\frac{\Gamma; \Delta \vdash A \rightarrow B \quad \Gamma; \Delta \vdash A}{\Gamma; \Delta \vdash B} \quad \text{L\_IMPE} \\
\frac{\Gamma; \emptyset \vdash A}{\Gamma; \Delta \vdash \Box A} \quad \text{L\_BOXI} \\
\frac{\Gamma; \Delta \vdash \Box A \quad \Gamma, A; \Delta \vdash B}{\Gamma; \Delta \vdash B} \quad \text{L\_BOXE} \\
\frac{\Gamma; \Delta \vdash A}{\Gamma; \Delta \vdash \Diamond A} \quad \text{L\_BDIAI} \\
\frac{\Gamma; \Delta \vdash \Diamond A \quad \Gamma; A \vdash \Diamond B}{\Gamma; \Delta \vdash \Diamond A} \quad \text{L\_BDIAE} \\
\frac{\Gamma; \emptyset \vdash A}{\Gamma; \Delta \vdash \blacksquare A} \quad \text{L\_BBOXI} \\
\frac{\Gamma; \Delta \vdash \blacksquare A \quad \Gamma, A; \Delta \vdash B}{\Gamma; \Delta \vdash B} \quad \text{L\_BBOXE} \\
\frac{\Gamma; \Delta \vdash A}{\Gamma; \Delta \vdash \Diamond A} \quad \text{L\_DIAI} \\
\frac{\Gamma; \Delta \vdash \Diamond A \quad \Gamma; A \vdash \Diamond B}{\Gamma; \Delta \vdash \Diamond A} \quad \text{L\_DIAE}
\end{array}$$

$$\boxed{\Gamma \vdash t : T}$$

Definition rules: 20 good 0 bad  
 Definition rule clauses: 37 good 0 bad