

Logiweb sequent calculus, Chores

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1 Test cases

$[(x\#y = z \Rightarrow \forall x: x = y) \text{ 'ijcar}]^{\cdot}$

$[(x\#x = z \Rightarrow \forall x: x = y) \text{ 'ijcar}]^{-}$

$[(x\#y = x \Rightarrow \forall x: x = y) \text{ 'ijcar}]^{-}$

$[(x\#y = z \Rightarrow \forall y: x = y) \text{ 'ijcar}]^{-}$

$[\langle a \equiv a | b = c \rangle \text{ 'ijcar}]^{\cdot}$

$[\langle b \equiv a | b = c \rangle \text{ 'ijcar}]^{-}$

$[\langle c \equiv a | b = c \rangle \text{ 'ijcar}]^{-}$

$[\langle a \equiv b | b = c \rangle \text{ 'ijcar}]^{-}$

$[\langle b \equiv b | b = c \rangle \text{ 'ijcar}]^{-}$

$[\langle c \equiv b | b = c \rangle \text{ 'ijcar}]^{\cdot}$

$[\langle \forall a: a = b \equiv \forall a: a = b | a = c \rangle \text{ 'ijcar}]^{\cdot}$

$[\langle \forall a: a = c \equiv \forall a: a = b | b = c \rangle \text{ 'ijcar}]^{\cdot}$

$[\langle \forall a: a = 0 + a \Rightarrow c \cdot d = 0 + c \cdot d \equiv \forall a: a = 0 + a \Rightarrow b = 0 + b | b = c \cdot d \rangle \text{ 'ijcar}]^{\cdot}$

$[(\forall a: a = 0 + a \Rightarrow b = 0 + b \equiv \forall a: a = 0 + a \Rightarrow b = 0 + b | a := c) \text{ 'ijcar}] \cdot$

$[\text{Ded}(0, 0) \text{ 'ijcar}] \cdot$

$[\text{Ded}(0, 1) \text{ 'ijcar}]^-$

$[\text{Ded}_8([\Pi A: \mathcal{A}], \top)] \cdot$

$[\text{Ded}_7([\Pi A: \mathcal{A}]) \stackrel{t}{=} [\mathcal{A}]] \cdot$

$[\text{Ded}(\Pi A: \mathcal{A}, \mathcal{A}) \text{ 'ijcar}] \cdot$

$[\text{Ded}(\mathcal{A}, \mathcal{B}) \text{ 'ijcar}]^-$

$[\text{Ded}(\Pi A: \mathcal{A}, \mathcal{B}) \text{ 'ijcar}]^-$

$[\text{Ded}(\Pi A, \mathcal{B}: \mathcal{A} \vdash \mathcal{B}, \mathcal{A} \Rightarrow \mathcal{B}) \text{ 'ijcar}] \cdot$

$[\text{Ded}(\Pi A, \mathcal{B}: \mathcal{A} \vdash \mathcal{B}, \mathcal{A} \Rightarrow \mathcal{A}) \text{ 'ijcar}]^-$

$[\text{Ded}(\Pi A, \mathcal{B}: \mathcal{A} \vdash \mathcal{B}, \mathcal{B} \Rightarrow \mathcal{B}) \text{ 'ijcar}]^-$

$[\text{Ded}(\Pi A, \mathcal{B}: \mathcal{A} \vdash \mathcal{B}, 0) \text{ 'ijcar}]^-$

$[\text{Ded}(0, \mathcal{A} \Rightarrow \mathcal{A}) \text{ 'ijcar}]^-$

$[\text{Ded}(\Pi A, \mathcal{B}, \mathcal{C}: \mathcal{A} \vdash \mathcal{B} \vdash \mathcal{C}, \mathcal{A} \Rightarrow \mathcal{B} \Rightarrow \mathcal{C}) \text{ 'ijcar}] \cdot$

$[\text{Ded}(\Pi A, \mathcal{B}: \mathcal{A} \vdash \mathcal{B} \vdash \mathcal{A}, \mathcal{A} \Rightarrow \mathcal{B} \Rightarrow \mathcal{C}) \text{ 'ijcar}]^-$

$[\text{Ded}(\Pi A, \mathcal{B}, \mathcal{C}: (\mathcal{A} \vdash \mathcal{B}) \vdash \mathcal{C}, (\mathcal{A} \Rightarrow \mathcal{B}) \Rightarrow \mathcal{C}) \text{ 'ijcar}]^-$

$[\text{Ded}(0, x) \text{ 'ijcar}]^-$

$[\text{Ded}(x, 0) \text{ 'ijcar}] \cdot$

$[\text{Ded}(x, x) \text{ 'ijcar}] \cdot$

$[\text{Ded}(\forall x: x, x) \text{ 'ijcar}]^-$

$[\text{Ded}(x, \forall y: z) \text{ 'ijcar}] \cdot$

$[\text{Ded}(\forall x: x, \forall x: x) \text{ 'ijcar}] \cdot$

$[\text{Ded}(0 \vdash 0, 0 \Rightarrow 0) \text{ 'ijcar}] \cdot$

$[\text{Ded}(x \vdash 0, 0 \Rightarrow 0) \text{ 'ijcar}]^-$

$[\text{Ded}(0 \vdash x, 0 \Rightarrow 0) \text{ 'ijcar}] \cdot$

$[\text{Ded}(x \vdash x, 0 \Rightarrow 0) \text{ 'ijcar}]^-$

$[\text{Ded}(0 \vdash 0, \forall x: 0 \Rightarrow 0) \text{ 'ijcar}] \cdot$

$[\text{Ded}(x \vdash 0, \forall x: x \Rightarrow 0) \text{ 'ijcar}] \cdot$

[Ded($0 \vdash x, \forall x: 0 \Rightarrow x$) 'ijcar]·

[Ded($x \vdash x, \forall x: x \Rightarrow x$) 'ijcar]·

[Ded($0 \vdash 0, 0 \Rightarrow \forall x: 0$) 'ijcar]⁻

[Ded($x \vdash 0, 0 \Rightarrow \forall x: 0$) 'ijcar]⁻

[Ded($0 \vdash x, 0 \Rightarrow \forall y: z$) 'ijcar]·

[Ded($x \vdash x, 0 \Rightarrow \forall x: x$) 'ijcar]⁻

[Ded($0 \vdash 0, \forall x: 0 \Rightarrow \forall x: 0$) 'ijcar]⁻

[Ded($x \vdash 0, \forall x: x \Rightarrow \forall x: 0$) 'ijcar]⁻

[Ded($0 \vdash x, \forall x: 0 \Rightarrow 2$) 'ijcar]·

[Ded($x \vdash x, \forall x: x \Rightarrow 3$) 'ijcar]·

[Ded($x + y = y + x, 2 + 3 = 3 + 2$) 'ijcar]·

[Ded($x + y = y + x, 2 + 3 = 2 + 3$) 'ijcar]⁻

[Ded($x + y = y + x, 2 + 3 = 2 + 2$) 'ijcar]⁻

[Ded($x + y = y + x, 2 + 3 = 3 + 3$) 'ijcar]⁻

2 Pyk definitions

[$x \overset{\circ}{=} y \overset{\text{pyk}}{\equiv} \text{“general macro define } * \text{ as } * \text{ end define”}$]

[RootVisible(x) $\overset{\text{pyk}}{\equiv}$ “make root visible * end visible”]

[ijcar $\overset{\text{pyk}}{\equiv}$ “ijcar”]

[$x^{\text{hide}} \overset{\text{pyk}}{\equiv}$ “* hide”]

[$x' \overset{\text{pyk}}{\equiv}$ “* suc”]

[$x = y \overset{\text{pyk}}{\equiv}$ “* equal *”]

[$x \neq y \overset{\text{pyk}}{\equiv}$ “* unequal *”]

[$x \Rightarrow y \overset{\text{pyk}}{\equiv}$ “* imply *”]

[$x \Leftrightarrow y \overset{\text{pyk}}{\equiv}$ “* if and only if *”]

[$x \mid y \overset{\text{pyk}}{\equiv}$ “* alternative *”]

$[\exists x: y \stackrel{\text{pyk}}{=} \text{“exist * indeed *”}]$

$[\forall x: y \stackrel{\text{pyk}}{=} \text{“for all * indeed *”}]$

$[\forall_{\text{obj}} x: y \stackrel{\text{pyk}}{=} \text{“for all objects * indeed *”}]$

$[\Pi x: y \stackrel{\text{pyk}}{=} \text{“for all terms * indeed *”}]$

$[\text{Arbitrary} \gg i; p \stackrel{\text{pyk}}{=} \text{“any term * end line *”}]$

$[x \setminus y \stackrel{\text{pyk}}{=} \text{“* safe row *”}]$

$[A \stackrel{\text{pyk}}{=} \text{“ijcar example axiom”}]$

$[R \stackrel{\text{pyk}}{=} \text{“ijcar example rule”}]$

$[C \stackrel{\text{pyk}}{=} \text{“ijcar example contradiction”}]$

$[T \stackrel{\text{pyk}}{=} \text{“ijcar example theory”}]$

$[L \stackrel{\text{pyk}}{=} \text{“ijcar example lemma”}]$

$[\{x\} \stackrel{\text{pyk}}{=} \text{“set * end set”}]$

$[S \stackrel{\text{pyk}}{=} \text{“system s”}]$

$[\text{Neg} \stackrel{\text{pyk}}{=} \text{“double negation”}]$

$[S1 \stackrel{\text{pyk}}{=} \text{“axiom s one”}]$

$[S2 \stackrel{\text{pyk}}{=} \text{“axiom s two”}]$

$[S3 \stackrel{\text{pyk}}{=} \text{“axiom s three”}]$

$[S4 \stackrel{\text{pyk}}{=} \text{“axiom s four”}]$

$[S5 \stackrel{\text{pyk}}{=} \text{“axiom s five”}]$

$[S6 \stackrel{\text{pyk}}{=} \text{“axiom s six”}]$

$[S7 \stackrel{\text{pyk}}{=} \text{“axiom s seven”}]$

$[S8 \stackrel{\text{pyk}}{=} \text{“axiom s eight”}]$

$[S9 \stackrel{\text{pyk}}{=} \text{“axiom s nine”}]$

$[\text{MP} \stackrel{\text{pyk}}{=} \text{“rule mp”}]$

[Gen $\stackrel{\text{pyk}}{=} \text{“rule gen”}$]

[Ded $\stackrel{\text{pyk}}{=} \text{“deduction”}$]

[Repetition $\stackrel{\text{pyk}}{=} \text{“repetition”}$]

[A1' $\stackrel{\text{pyk}}{=} \text{“lemma a one”}$]

[A2' $\stackrel{\text{pyk}}{=} \text{“lemma a two”}$]

[A4' $\stackrel{\text{pyk}}{=} \text{“lemma a four”}$]

[A5' $\stackrel{\text{pyk}}{=} \text{“lemma a five”}$]

[x^{var} $\stackrel{\text{pyk}}{=} \text{“* is object var”}$]

[x#y $\stackrel{\text{pyk}}{=} \text{“* avoid *”}$]

[x#⁰y $\stackrel{\text{pyk}}{=} \text{“* avoid zero *”}$]

[x#¹y $\stackrel{\text{pyk}}{=} \text{“* avoid one *”}$]

[x#*y $\stackrel{\text{pyk}}{=} \text{“* avoid star *”}$]

[<x≡y|z:=u> $\stackrel{\text{pyk}}{=} \text{“sub * is * where * is * end sub”}$]

[<x≡⁰y|z:=u> $\stackrel{\text{pyk}}{=} \text{“sub zero * is * where * is * end sub”}$]

[<x≡¹y|z:=u> $\stackrel{\text{pyk}}{=} \text{“sub one * is * where * is * end sub”}$]

[<x≡*y|z:=u> $\stackrel{\text{pyk}}{=} \text{“sub star * is * where * is * end sub”}$]

[Ded(x, y) $\stackrel{\text{pyk}}{=} \text{“deduction * conclude * end deduction”}$]

[Ded₀(x, y) $\stackrel{\text{pyk}}{=} \text{“deduction zero * conclude * end deduction”}$]

[Ded₁(x, y, z) $\stackrel{\text{pyk}}{=} \text{“deduction one * conclude * condition * end deduction”}$]

[Ded₂(x, y, z) $\stackrel{\text{pyk}}{=} \text{“deduction two * conclude * condition * end deduction”}$]

[Ded₃(x, y, z, u) $\stackrel{\text{pyk}}{=} \text{“deduction three * conclude * condition * bound * end deduction”}$]

[Ded₄(x, y, z, u) $\stackrel{\text{pyk}}{=} \text{“deduction four * conclude * condition * bound * end deduction”}$]

[Ded₄^{*}(x, y, z, u) $\stackrel{\text{pyk}}{=} \equiv$ “deduction four star * conclude * condition * bound * end deduction”]

[Ded₅(x, y, z) $\stackrel{\text{pyk}}{=} \equiv$ “deduction five * condition * bound * end deduction”]

[Ded₆(p, c, e, b) $\stackrel{\text{pyk}}{=} \equiv$ “deduction six * conclude * exception * bound * end deduction”]

[Ded₆^{*}(p, c, e, b) $\stackrel{\text{pyk}}{=} \equiv$ “deduction six star * conclude * exception * bound * end deduction”]

[Ded₇(p) $\stackrel{\text{pyk}}{=} \equiv$ “deduction seven * end deduction”]

[Ded₈(p, b) $\stackrel{\text{pyk}}{=} \equiv$ “deduction eight * bound * end deduction”]

[Ded₈^{*}(p, b) $\stackrel{\text{pyk}}{=} \equiv$ “deduction eight * bound * end deduction”]

[Begin b; l : End; p $\stackrel{\text{pyk}}{=} \equiv$ “block * line * end block *”]

[Last block line l $\gg i$; $\stackrel{\text{pyk}}{=} \equiv$ “because * indeed * end line”]

[x \supseteq y $\stackrel{\text{pyk}}{=} \equiv$ “* object modus ponens *”]

[Prop 3.2a $\stackrel{\text{pyk}}{=} \equiv$ “prop three two a”]

[Prop 3.2b $\stackrel{\text{pyk}}{=} \equiv$ “prop three two b”]

[Prop 3.2c $\stackrel{\text{pyk}}{=} \equiv$ “prop three two c”]

[Prop 3.2d $\stackrel{\text{pyk}}{=} \equiv$ “prop three two d”]

[Prop 3.2e₁ $\stackrel{\text{pyk}}{=} \equiv$ “prop three two e one”]

[Prop 3.2e₂ $\stackrel{\text{pyk}}{=} \equiv$ “prop three two e two”]

[Prop 3.2e $\stackrel{\text{pyk}}{=} \equiv$ “prop three two e”]

[Prop 3.2f₁ $\stackrel{\text{pyk}}{=} \equiv$ “prop three two f one”]

[Prop 3.2f₂ $\stackrel{\text{pyk}}{=} \equiv$ “prop three two f two”]

[Prop 3.2f $\stackrel{\text{pyk}}{=} \equiv$ “prop three two f”]

[Prop 3.2g₁ $\stackrel{\text{pyk}}{=} \equiv$ “prop three two g one”]

[Prop 3.2g₂ $\stackrel{\text{pyk}}{=} \equiv$ “prop three two g two”]

[Prop 3.2g $\stackrel{\text{pyk}}{=} \text{“prop three two g”}$]

[Prop 3.2h₁ $\stackrel{\text{pyk}}{=} \text{“prop three two h one”}$]

[Prop 3.2h₂ $\stackrel{\text{pyk}}{=} \text{“prop three two h two”}$]

[Prop 3.2h $\stackrel{\text{pyk}}{=} \text{“prop three two h”}$]

[MacroIndent(x) $\stackrel{\text{pyk}}{=} \text{“macro indent *”}$]

[Block₁(t, s, c) $\stackrel{\text{pyk}}{=} \text{“block one * state * cache * end block”}$]

[Block₂(b) $\stackrel{\text{pyk}}{=} \text{“block two * end block”}$]

[$\rightarrow \stackrel{\text{pyk}}{=} \text{“evaluates to”}$]

3 T_EX definitions

[[x $\stackrel{\circ}{=} y$] $\stackrel{\text{tex}}{=} \text{“}$
 [#1/tex name/tex.
 \stackrel{\circ}{=} \{\circ\} \{=\} #2.
 ”]

[RootVisible(x) $\stackrel{\text{tex}}{=} \text{“#1/tex name/tex.”}$]

[RootVisible(x) $\stackrel{\text{name}}{=} \text{“}$
 RootVisible(#1.
)”]

[x^{hide} $\stackrel{\text{tex}}{=} \text{“#1.}$
 $\{\}^{\text{hide}}$ ”]

[x' $\stackrel{\text{tex}}{=} \text{“#1.}$
 $\{\}'$ ”]

[x = y $\stackrel{\text{tex}}{=} \text{“#1.}$
 = #2.”]

[x ≠ y $\stackrel{\text{tex}}{=} \text{“#1.}$
 \neq #2.”]

[x ⇒ y $\stackrel{\text{tex}}{=} \text{“#1.}$
 \Rightarrow #2.”]

[x ⇔ y $\stackrel{\text{tex}}{=} \text{“#1.}$
 \Leftrightarrow #2.”]

[x | y $\stackrel{\text{tex}}{=}$ “#1.
\mathrel{|\} #2.”]

[∃x:y $\stackrel{\text{tex}}{=}$ “
\exists #1.
\colon #2.”]

[∀x:y $\stackrel{\text{tex}}{=}$ “
\forall #1.
\colon #2.”]

[∀_{obj}x:y $\stackrel{\text{tex}}{=}$ “
\forall_{obj} #1.
\colon #2.”]

[∏x:y $\stackrel{\text{tex}}{=}$ “
\Pi #1.
\colon #2.”]

[Arbitrary >> i;p $\stackrel{\text{tex}}{=}$ “
\newline \makebox [0.1\textwidth] [l] { \$
\if \relax \csname lgwproofline\endcsname L_? \else
\global \advance \lgwproofline by 1
L\ifnum \lgwproofline <10 0\fi \number \lgwproofline
\fi
\$:\makebox [0.4\textwidth] [l] { \$Arbitrary\}\gg\}\$ }\quad
\parbox [t] {0.4\textwidth } { \$#1.
\$\hfill \makebox [0mm] [l] { \quad ; } } #2.”]

[Arbitrary >> i;p $\stackrel{\text{name}}{=}$ “
Arbitrary \gg #1.
; #2.”]

[x\y $\stackrel{\text{tex}}{=}$ “#1.
\{\} #2.”]

[x\y $\stackrel{\text{name}}{=}$ “#1.
\backslash \backslash #2.”]

[A $\stackrel{\text{tex}}{=}$ “
A”]

[R $\stackrel{\text{tex}}{=}$ “
R”]

[C $\stackrel{\text{tex}}{=}$ “
C”]

[T $\stackrel{\text{tex}}{=}$ “ T”]

[L $\stackrel{\text{tex}}{=}$ “ L”]

[{x} $\stackrel{\text{tex}}{=}$ “ \{\#1.
 \}”]

[S $\stackrel{\text{tex}}{=}$ “ S”]

[Neg $\stackrel{\text{tex}}{=}$ “ Neg”]

[S1 $\stackrel{\text{tex}}{=}$ “ S1”]

[S2 $\stackrel{\text{tex}}{=}$ “ S2”]

[S3 $\stackrel{\text{tex}}{=}$ “ S3”]

[S4 $\stackrel{\text{tex}}{=}$ “ S4”]

[S5 $\stackrel{\text{tex}}{=}$ “ S5”]

[S6 $\stackrel{\text{tex}}{=}$ “ S6”]

[S7 $\stackrel{\text{tex}}{=}$ “ S7”]

[S8 $\stackrel{\text{tex}}{=}$ “ S8”]

[S9 $\stackrel{\text{tex}}{=}$ “ S9”]

[MP $\stackrel{\text{tex}}{=}$ “ MP”]

[Gen $\stackrel{\text{tex}}{=}$ “ Gen”]

[Ded $\stackrel{\text{tex}}{=} \text{“} \text{Ded”}$]

[Repetition $\stackrel{\text{tex}}{=} \text{“} \text{Repetition”}$]

[A1' $\stackrel{\text{tex}}{=} \text{“} \text{A1”}$]

[A2' $\stackrel{\text{tex}}{=} \text{“} \text{A2”}$]

[A4' $\stackrel{\text{tex}}{=} \text{“} \text{A4”}$]

[A5' $\stackrel{\text{tex}}{=} \text{“} \text{A5”}$]

[x^{var} $\stackrel{\text{tex}}{=} \text{“} \#1. \{ \} ^ { \text{var} } \text{”}$]

[x#y $\stackrel{\text{tex}}{=} \text{“} \#1. \backslash \# . \# 2 . \text{”}$]

[x#⁰y $\stackrel{\text{tex}}{=} \text{“} \#1. \backslash \# . ^ 0 \# 2 . \text{”}$]

[x#¹y $\stackrel{\text{tex}}{=} \text{“} \#1. \backslash \# . ^ 1 \# 2 . \text{”}$]

[x#*y $\stackrel{\text{tex}}{=} \text{“} \#1. \backslash \# . ^ * \# 2 . \text{”}$]

[<x≡y|z:=u> $\stackrel{\text{tex}}{=} \text{“} \backslash \text{langle} \# 1. \{ \backslash \text{equiv} \} \# 2. | \# 3. \{ : = \} \# 4. \backslash \text{rangle} \text{”}$]

[<x≡⁰y|z:=u> $\stackrel{\text{tex}}{=} \text{“} \backslash \text{langle} \# 1. \{ \backslash \text{equiv} \} ^ 0 \# 2. | \# 3. \{ : = \} \# 4. \backslash \text{rangle} \text{”}$]

$\langle x \equiv^1 y | z := u \rangle \stackrel{\text{tex}}{=} \text{“}$
 $\quad \backslash \text{angle } \#1.$
 $\quad \{ \backslash \text{equiv} \} ^1 \#2.$
 $\quad | \#3.$
 $\quad \{ := \} \#4.$
 $\quad \backslash \text{rangle ”}$

$[x \equiv^* y | z := u] \stackrel{\text{tex}}{=} \text{“}$
 $\quad \backslash \text{angle } \#1.$
 $\quad \{ \backslash \text{equiv} \} ^* \#2.$
 $\quad | \#3.$
 $\quad \{ := \} \#4.$
 $\quad \backslash \text{rangle ”}$

$[\text{Ded}(x, y) \stackrel{\text{tex}}{=} \text{“}$
 $\quad \text{Ded}(\#1.$
 $\quad , \#2.$
 $\quad \text{)”}$

$[\text{Ded}_0(x, y) \stackrel{\text{tex}}{=} \text{“}$
 $\quad \text{Ded}_0(\#1.$
 $\quad , \#2.$
 $\quad \text{)”}$

$[\text{Ded}_1(x, y, z) \stackrel{\text{tex}}{=} \text{“}$
 $\quad \text{Ded}_1(\#1.$
 $\quad , \#2.$
 $\quad , \#3.$
 $\quad \text{)”}$

$[\text{Ded}_2(x, y, z) \stackrel{\text{tex}}{=} \text{“}$
 $\quad \text{Ded}_2(\#1.$
 $\quad , \#2.$
 $\quad , \#3.$
 $\quad \text{)”}$

$[\text{Ded}_3(x, y, z, u) \stackrel{\text{tex}}{=} \text{“}$
 $\quad \text{Ded}_3(\#1.$
 $\quad , \#2.$
 $\quad , \#3.$
 $\quad , \#4.$
 $\quad \text{)”}$

$[\text{Ded}_4(x, y, z, u) \stackrel{\text{tex}}{=} \text{“}$
 $\quad \text{Ded}_4(\#1.$
 $\quad , \#2.$
 $\quad , \#3.$

, #4.
)”]

[Ded₄^{*}(x, y, z, u) $\stackrel{\text{tex}}{\equiv}$ “
Ded_4^*(#1.
, #2.
, #3.
, #4.
)”]

[Ded₅(x, y, z) $\stackrel{\text{tex}}{\equiv}$ “
Ded_5(#1.
, #2.
, #3.
)”]

[Ded₆(p, c, e, b) $\stackrel{\text{tex}}{\equiv}$ “
Ded_6(#1.
, #2.
, #3.
, #4.
)”]

[Ded₆^{*}(p, c, e, b) $\stackrel{\text{tex}}{\equiv}$ “
Ded_6^*(#1.
, #2.
, #3.
, #4.
)”]

[Ded₇(p) $\stackrel{\text{tex}}{\equiv}$ “
Ded_7(#1.
)”]

[Ded₈(p, b) $\stackrel{\text{tex}}{\equiv}$ “
Ded_8(#1.
, #2.
)”]

[Ded₈^{*}(p, b) $\stackrel{\text{tex}}{\equiv}$ “
Ded_8^*(#1.
, #2.
)”]

[Begin b;l : End; p $\stackrel{\text{tex}}{\equiv}$ “
\newline \makebox [0.1\textwidth]{}%
\parbox [b]{0.4\textwidth}{\raggedright

```

\setlength {\parindent }{-0.1\textwidth }%
\makebox [0.1\textwidth ][l]{$
\if \relax \csname lgwproofline\endcsname L_? \else
\global \advance \lgwproofline by 1
L\ifnum \lgwproofline <10 0\fi \number \lgwproofline
\fi
$:\$Block {\}\gg {\}$}\quad
\parbox [t]{0.4\textwidth }{\$Begin
$\hfill \makebox [0mm][l]{\quad ;}}\#1.
\newline \makebox [0.1\textwidth ]{\}%
\parbox [b]{0.4\textwidth }{\raggedright
\setlength {\parindent }{-0.1\textwidth }%
\makebox [0.1\textwidth ][l]{$\#2.
$:\$Block {\}\gg {\}$}\quad
\parbox [t]{0.4\textwidth }{\$End
$\hfill \makebox [0mm][l]{\quad ;}}\#3.”]

```

```

[Begin b;l : End; p  $\stackrel{\text{name}}{=}$  “
Begin \, #1.
; #2.
: End ; #3.”]

```

```

[Last block line a  $\gg$  i ;  $\stackrel{\text{tex}}{=}$  “
\newline \makebox [0.1\textwidth ]{\}%
\parbox [b]{0.4\textwidth }{\raggedright
\setlength {\parindent }{-0.1\textwidth }%
\makebox [0.1\textwidth ][l]{$
\if \relax \csname lgwproofline\endcsname L_? \else
\global \advance \lgwproofline by 1
L\ifnum \lgwproofline <10 0\fi \number \lgwproofline
\fi
$:\$#1.
{\}\gg {\}$}\quad
\parbox [t]{0.4\textwidth }{\$#2.
$\hfill \makebox [0mm][l]{\quad ;}}”]
[Last block line a  $\gg$  i ;  $\stackrel{\text{name}}{=}$  “
Last\ block\ line \, #1.
\gg #2.
\, ;”]

```

```

[x  $\supseteq$  y  $\stackrel{\text{tex}}{=}$  “#1.
\unrhd #2.”]

```

```

[Prop 3.2a  $\stackrel{\text{tex}}{=}$  “
Prop\ 3.2a”]

```

[Prop 3.2b $\stackrel{\text{tex}}{=} “$
Prop\ 3.2b”]

[Prop 3.2c $\stackrel{\text{tex}}{=} “$
Prop\ 3.2c”]

[Prop 3.2d $\stackrel{\text{tex}}{=} “$
Prop\ 3.2d”]

[Prop 3.2e₁ $\stackrel{\text{tex}}{=} “$
Prop\ 3.2e_1”]

[Prop 3.2e₂ $\stackrel{\text{tex}}{=} “$
Prop\ 3.2e_2”]

[Prop 3.2e $\stackrel{\text{tex}}{=} “$
Prop\ 3.2e”]

[Prop 3.2f₁ $\stackrel{\text{tex}}{=} “$
Prop\ 3.2f_1”]

[Prop 3.2f₂ $\stackrel{\text{tex}}{=} “$
Prop\ 3.2f_2”]

[Prop 3.2f $\stackrel{\text{tex}}{=} “$
Prop\ 3.2f”]

[Prop 3.2g₁ $\stackrel{\text{tex}}{=} “$
Prop\ 3.2g_1”]

[Prop 3.2g₂ $\stackrel{\text{tex}}{=} “$
Prop\ 3.2g_2”]

[Prop 3.2g $\stackrel{\text{tex}}{=} “$
Prop\ 3.2g”]

[Prop 3.2h₁ $\stackrel{\text{tex}}{=} “$
Prop\ 3.2h_1”]

[Prop 3.2h₂ $\stackrel{\text{tex}}{=} “$
Prop\ 3.2h_2”]

[Prop 3.2h $\stackrel{\text{tex}}{=} “$
Prop\ 3.2h”]

[MacroIndent(x) $\stackrel{\text{tex}}{=} “$
\$%
\leftskip=1em%
\$#1.”]

```
[MacroIndent(x)  $\stackrel{\text{name}}{=} \text{“}$   
    MacroIndent(#1.  
    )”]
```

```
[Block1(t, s, c)  $\stackrel{\text{tex}}{=} \text{“}$   
    Block_1(#1.  
    , #2.  
    , #3.  
    )”]
```

```
[Block2(b)  $\stackrel{\text{tex}}{=} \text{“}$   
    Block_2(#1.  
    )”]
```

```
[ $\rightarrow \stackrel{\text{tex}}{=} \text{“}$   
    \rightarrow ”]
```

3.1 Variables

```
[ $\bar{x} \stackrel{\text{pyk}}{=} \text{“object var * end var”}$ ]
```

```
[ $\bar{x} \stackrel{\text{tex}}{=} \text{“}\overline{\#1.}$ ”]
```

```
[ $a \doteq \bar{a}$ ]
```

```
[ $b \doteq \bar{b}$ ]
```

```
[ $c \doteq \bar{c}$ ]
```

```
[ $d \doteq \bar{d}$ ]
```

```
[ $e \doteq \bar{e}$ ]
```

```
[ $f \doteq \bar{f}$ ]
```

```
[ $g \doteq \bar{g}$ ]
```

```
[ $h \doteq \bar{h}$ ]
```

```
[ $i \doteq \bar{i}$ ]
```

```
[ $j \doteq \bar{j}$ ]
```

```
[ $k \doteq \bar{k}$ ]
```

```
[ $l \doteq \bar{l}$ ]
```

```
[ $m \doteq \bar{m}$ ]
```

```
[ $n \doteq \bar{n}$ ]
```

```
[ $o \doteq \bar{o}$ ]
```

```
[ $p \doteq \bar{p}$ ]
```

```
[ $q \doteq \bar{q}$ ]
```

```
[ $r \doteq \bar{r}$ ]
```

```
[ $s \doteq \bar{s}$ ]
```

```
[ $t \doteq \bar{t}$ ]
```

```
[ $u \doteq \bar{u}$ ]
```

```
[ $v \doteq \bar{v}$ ]
```

```
[ $w \doteq \bar{w}$ ]
```

```
[ $x \doteq \bar{x}$ ]
```

```
[ $y \doteq \bar{y}$ ]
```

$[z \stackrel{\text{pyk}}{=} \bar{z}]$
 $[a \stackrel{\text{pyk}}{=} \text{“object a”}]$
 $[b \stackrel{\text{pyk}}{=} \text{“object b”}]$
 $[c \stackrel{\text{pyk}}{=} \text{“object c”}]$
 $[d \stackrel{\text{pyk}}{=} \text{“object d”}]$
 $[e \stackrel{\text{pyk}}{=} \text{“object e”}]$
 $[f \stackrel{\text{pyk}}{=} \text{“object f”}]$
 $[g \stackrel{\text{pyk}}{=} \text{“object g”}]$
 $[h \stackrel{\text{pyk}}{=} \text{“object h”}]$
 $[i \stackrel{\text{pyk}}{=} \text{“object i”}]$
 $[j \stackrel{\text{pyk}}{=} \text{“object j”}]$
 $[k \stackrel{\text{pyk}}{=} \text{“object k”}]$
 $[l \stackrel{\text{pyk}}{=} \text{“object l”}]$
 $[m \stackrel{\text{pyk}}{=} \text{“object m”}]$
 $[n \stackrel{\text{pyk}}{=} \text{“object n”}]$
 $[o \stackrel{\text{pyk}}{=} \text{“object o”}]$
 $[p \stackrel{\text{pyk}}{=} \text{“object p”}]$
 $[q \stackrel{\text{pyk}}{=} \text{“object q”}]$
 $[r \stackrel{\text{pyk}}{=} \text{“object r”}]$
 $[s \stackrel{\text{pyk}}{=} \text{“object s”}]$
 $[t \stackrel{\text{pyk}}{=} \text{“object t”}]$
 $[u \stackrel{\text{pyk}}{=} \text{“object u”}]$
 $[v \stackrel{\text{pyk}}{=} \text{“object v”}]$
 $[w \stackrel{\text{pyk}}{=} \text{“object w”}]$
 $[x \stackrel{\text{pyk}}{=} \text{“object x”}]$
 $[y \stackrel{\text{pyk}}{=} \text{“object y”}]$
 $[z \stackrel{\text{pyk}}{=} \text{“object z”}]$
 $[a \stackrel{\text{tex}}{=} \text{“}$
 $\backslash\text{mathit}\{a\}”]$
 $[b \stackrel{\text{tex}}{=} \text{“}$
 $\backslash\text{mathit}\{b\}”]$
 $[c \stackrel{\text{tex}}{=} \text{“}$
 $\backslash\text{mathit}\{c\}”]$
 $[d \stackrel{\text{tex}}{=} \text{“}$
 $\backslash\text{mathit}\{d\}”]$
 $[e \stackrel{\text{tex}}{=} \text{“}$
 $\backslash\text{mathit}\{e\}”]$

$[f \stackrel{\text{tex}}{=} \text{“} \backslash\text{mathit}\{f\}\text{”}]$
 $[g \stackrel{\text{tex}}{=} \text{“} \backslash\text{mathit}\{g\}\text{”}]$
 $[h \stackrel{\text{tex}}{=} \text{“} \backslash\text{mathit}\{h\}\text{”}]$
 $[i \stackrel{\text{tex}}{=} \text{“} \backslash\text{mathit}\{i\}\text{”}]$
 $[j \stackrel{\text{tex}}{=} \text{“} \backslash\text{mathit}\{j\}\text{”}]$
 $[k \stackrel{\text{tex}}{=} \text{“} \backslash\text{mathit}\{k\}\text{”}]$
 $[l \stackrel{\text{tex}}{=} \text{“} \backslash\text{mathit}\{l\}\text{”}]$
 $[m \stackrel{\text{tex}}{=} \text{“} \backslash\text{mathit}\{m\}\text{”}]$
 $[n \stackrel{\text{tex}}{=} \text{“} \backslash\text{mathit}\{n\}\text{”}]$
 $[o \stackrel{\text{tex}}{=} \text{“} \backslash\text{mathit}\{o\}\text{”}]$
 $[p \stackrel{\text{tex}}{=} \text{“} \backslash\text{mathit}\{p\}\text{”}]$
 $[q \stackrel{\text{tex}}{=} \text{“} \backslash\text{mathit}\{q\}\text{”}]$
 $[r \stackrel{\text{tex}}{=} \text{“} \backslash\text{mathit}\{r\}\text{”}]$
 $[s \stackrel{\text{tex}}{=} \text{“} \backslash\text{mathit}\{s\}\text{”}]$
 $[t \stackrel{\text{tex}}{=} \text{“} \backslash\text{mathit}\{t\}\text{”}]$
 $[u \stackrel{\text{tex}}{=} \text{“} \backslash\text{mathit}\{u\}\text{”}]$
 $[v \stackrel{\text{tex}}{=} \text{“} \backslash\text{mathit}\{v\}\text{”}]$
 $[w \stackrel{\text{tex}}{=} \text{“} \backslash\text{mathit}\{w\}\text{”}]$
 $[x \stackrel{\text{tex}}{=} \text{“} \backslash\text{mathit}\{x\}\text{”}]$
 $[y \stackrel{\text{tex}}{=} \text{“} \backslash\text{mathit}\{y\}\text{”}]$

$[z \stackrel{\text{tex}}{=} \text{"} \backslash \text{mathit}\{z\} \text{"}]$

4 Priority table

Priority table

Preassociative

[ijcar], [ijcar base], [bracket * end bracket], [big bracket * end bracket], [$\$ * \$$],
[flush left *], [x], [y], [z], [$[* \bowtie *]$], [$[* \xrightarrow{*} *]$], [pyk], [tex], [name], [prio], [*], [T],
[if(*, *, *)], [$[* \xrightarrow{*} *]$], [val], [claim], [\perp], [f(*)], [$(*)^I$], [F], [0], [1], [2], [3], [4], [5], [6],
[7], [8], [9], [0], [1], [2], [3], [4], [5], [6], [7], [8], [9], [a], [b], [c], [d], [e], [f], [g], [h], [i], [j],
[k], [l], [m], [n], [o], [p], [q], [r], [s], [t], [u], [v], [w], [$(*)^M$], [If(*, *, *)],
[array{*} * end array], [l], [c], [r], [empty], [$\{ * | * := * \}$], [$\mathcal{M}(*)$], [$\tilde{\mathcal{U}}(*)$], [$\mathcal{U}(*)$],
 $\mathcal{U}^M(*)$, [apply(*, *)], [apply₁(*, *)], [identifier(*)], [identifier₁(*, *)], [array-
plus(*, *)], [array-remove(*, *, *)], [array-put(*, *, *, *)], [array-add(*, *, *, *, *)],
[bit(*, *)], [bit₁(*, *)], [rack], ["vector"], ["bibliography"], ["dictionary"],
["body"], ["codex"], ["expansion"], ["code"], ["cache"], ["diagnose"], ["pyk"],
["tex"], ["texname"], ["value"], ["message"], ["macro"], ["definition"],
["unpack"], ["claim"], ["priority"], ["lambda"], ["apply"], ["true"], ["if"],
["quote"], ["proclaim"], ["define"], ["introduce"], ["hide"], ["pre"], ["post"],
 $\mathcal{E}(*, *, *)$, [$\mathcal{E}_2(*, *, *, *, *)$], [$\mathcal{E}_3(*, *, *, *, *)$], [$\mathcal{E}_4(*, *, *, *, *)$], [lookup(*, *, *)],
[abstract(*, *, *, *)], [$[*]$], [$\mathcal{M}(*, *, *)$], [$\mathcal{M}_2(*, *, *, *)$], [$\mathcal{M}^*(*, *, *)$], [macro],
[s₀], [zip(*, *)], [assoc₁(*, *, *)], [$(*)^P$], [self], [$[* \doteq *]$], [$[* \dot{=} *]$], [$[* \dot{=} *]$],
 $[* \stackrel{\text{pyk}}{=} *]$, [$[* \stackrel{\text{tex}}{=} *]$], [$[* \stackrel{\text{name}}{=} *]$], [Priority table*], [$\tilde{\mathcal{M}}_1$], [$\tilde{\mathcal{M}}_2(*)$], [$\tilde{\mathcal{M}}_3(*)$],
 $\tilde{\mathcal{M}}_4(*, *, *, *)$, [$\mathcal{M}(*, *, *)$], [$\tilde{\mathcal{Q}}(*, *, *)$], [$\tilde{\mathcal{Q}}_2(*, *, *)$], [$\tilde{\mathcal{Q}}_3(*, *, *, *)$], [$\tilde{\mathcal{Q}}^*(*, *, *, *)$],
[*], [*], [display(*)], [statement(*)], [$[*]$], [$[*]^-$], [aspect(*, *)],
[aspect(*, *, *)], [$\langle * \rangle$], [tuple₁(*), [tuple₂(*), [let₂(*, *)], [let₁(*, *)],
 $[* \stackrel{\text{claim}}{=} *]$, [checker], [check(*, *)], [check₂(*, *, *)], [check₃(*, *, *)],
[check^{*}(*, *)], [check₂^{*}(*, *, *)], [$[*]^\cdot$], [$[*]^-$], [$[*]^\circ$], [msg], [$[* \stackrel{\text{msg}}{=} *]$], [$\langle \text{stmt} \rangle$],
[stmt], [$[* \stackrel{\text{stmt}}{=} *]$], [HeadNil'], [HeadPair'], [Transitivity'], [\perp], [Contra'], [T_E'],
[L₁], [$\underline{*}$], [A], [B], [C], [D], [E], [F], [G], [H], [I], [J], [K], [L], [M], [N], [O], [P], [Q],
[R], [S], [T], [U], [V], [W], [X], [Y], [Z], [$\{ * | * := * \}$], [$\{ * | * := * \}$], [\emptyset], [Remainder],
 $(*)^\vee$, [intro(*, *, *, *)], [intro(*, *, *)], [error(*, *)], [error₂(*, *)], [proof(*, *, *)],
[proof₂(*, *)], [S(*, *)], [S^I(*, *)], [S^P(*, *)], [S^P(*, *, *)], [S^E(*, *)], [S^F(*, *, *)],
[S⁺(*, *)], [S⁺(*, *, *)], [S⁻(*, *)], [S⁻(*, *, *)], [S^{*}(*, *)], [S^{*}(*, *, *)],
[S₂^{*}(*, *, *, *)], [S[@](*, *)], [S[@](*, *, *)], [S⁺(*, *)], [S₁⁺(*, *, *, *)], [S⁺(*, *)],
[S₁⁺(*, *, *, *)], [S^{i.e.}(*, *)], [S₁^{i.e.}(*, *, *, *)], [S₂^{i.e.}(*, *, *, *)], [S[∇](*, *)],
[S₁[∇](*, *, *, *)], [Sⁱ(*, *)], [S₁ⁱ(*, *, *)], [S₂ⁱ(*, *, *, *)], [T(*)], [claims(*, *, *)],
[claims₂(*, *, *)], [$\langle \text{proof} \rangle$], [proof], [[Lemma * : *]], [[Proof of * : *]],
[[* lemma * : *]], [[* antilemma * : *]], [[* rule * : *]], [[* antirule * : *]],
[verifier], [V₁(*), [V₂(*, *)], [V₃(*, *, *, *)], [V₄(*, *)], [V₅(*, *, *, *)], [V₆(*, *, *, *)],
[V₇(*, *, *, *)], [Cut(*, *)], [Head_⊕(*), [Tail_⊕(*), [rule₁(*, *)], [rule(*, *)],
[Rule tactic], [Plus(*, *)], [[Theory *], [theory₂(*, *)], [theory₃(*, *)],
[theory₄(*, *, *)], [HeadNil''], [HeadPair''], [Transitivity''], [Contra''], [HeadNil],

[HeadPair], [Transitivity], [Contra], [T_E], [ragged right],
[ragged right expansion], [parm(*, *, *)], [parm*(*, *, *)], [inst(*, *)],
[inst*(*, *)], [occur(*, *, *)], [occur*(*, *, *)], [unify(* = *, *)], [unify*(*, = *, *)],
[unify₂(* = *, *)], [L_a], [L_b], [L_c], [L_d], [L_e], [L_f], [L_g], [L_h], [L_i], [L_j], [L_k], [L_l], [L_m],
[L_n], [L_o], [L_p], [L_q], [L_r], [L_s], [L_t], [L_u], [L_v], [L_w], [L_x], [L_y], [L_z], [L_A], [L_B], [L_C],
[L_D], [L_E], [L_F], [L_G], [L_H], [L_I], [L_J], [L_K], [L_L], [L_M], [L_N], [L_O], [L_P], [L_Q], [L_R],
[L_S], [L_T], [L_U], [L_V], [L_W], [L_X], [L_Y], [L_Z], [L_?], [Reflexivity], [Reflexivity₁],
[Commutativity], [Commutativity₁], [<tactic>], [tactic], [[*^{tactic} = *]], [P(*, *, *)],
[P*(*, *, *)], [p₀], [conclude₁(* , *)], [conclude₂(* , * , *)], [conclude₃(* , * , * , *)],
[conclude₄(* , *)], [[*^o = *]], [RootVisible(*)], [A], [R], [C], [T], [L], [{*}], [¯], [a], [b],
[c], [d], [e], [f], [g], [h], [i], [j], [k], [l], [m], [n], [o], [p], [q], [r], [s], [t], [u], [v], [w], [x],
[y], [z], [{*≡* | * :=*}], [{*≡⁰* | * :=*}], [{*≡¹* | * :=*}], [{*≡^{*}* | * :=*}],
[Ded(*, *)], [Ded₀(* , *)], [Ded₁(* , * , *)], [Ded₂(* , * , *)], [Ded₃(* , * , * , *)],
[Ded₄(* , * , * , *)], [Ded₄^{*}(* , * , * , *)], [Ded₅(* , * , *)], [Ded₆(* , * , * , *)],
[Ded₆^{*}(* , * , * , *)], [Ded₇(*)], [Ded₈(* , *)], [Ded₈^{*}(* , *)], [S], [Neg], [MP], [Gen],
[Ded], [S1], [S2], [S3], [S4], [S5], [S6], [S7], [S8], [S9], [Repetition], [A1′], [A2′], [A4′],
[A5′], [Prop 3.2a], [Prop 3.2b], [Prop 3.2c], [Prop 3.2d], [Prop 3.2e₁], [Prop 3.2e₂],
[Prop 3.2e], [Prop 3.2f₁], [Prop 3.2f₂], [Prop 3.2f], [Prop 3.2g₁], [Prop 3.2g₂],
[Prop 3.2g], [Prop 3.2h₁], [Prop 3.2h₂], [Prop 3.2h], [Block₁(* , * , *)], [Block₂(*)];

Preassociative

[*_{*}], [* / indexintro(*, *, *, *)], [* / intro(*, *, *)], [* / bothintro(*, *, *, *, *)],
[* / nameintro(*, *, *, *)], [*′], [* [*]], [* [* → *]], [* [* ⇒ *]], [*0], [*1], [0b], [*-color(*)],
[*-color*(*)], [*^H], [*^T], [*^U], [*^h], [*^t], [*^s], [*^c], [*^d], [*^a], [*^C], [*^M], [*^B], [*^r], [*ⁱ],
[*^d], [*^R], [*⁰], [*¹], [*²], [*³], [*⁴], [*⁵], [*⁶], [*⁷], [*⁸], [*⁹], [*^E], [*^V], [*^C], [*^{C*}],
[*_{hide}];

Preassociative

[“ * ”], [], [(*)^t], [string(*) + *], [string(*) ++ *], [
], [], [!*], [’*], [#*], [*\$], [%*], [&*], [’*], [(*)], [()*], [**], [+*], [,*], [-*], [.*], [/ *],
[0*], [1*], [2*], [3*], [4*], [5*], [6*], [7*], [8*], [9*], [:*], [;*], [<*], [=*], [>*], [?*],
[@*], [A*], [B*], [C*], [D*], [E*], [F*], [G*], [H*], [I*], [J*], [K*], [L*], [M*], [N*],
[O*], [P*], [Q*], [R*], [S*], [T*], [U*], [V*], [W*], [X*], [Y*], [Z*], [[*], [\ *], [] *], [^ *],
[_*], [’*], [a*], [b*], [c*], [d*], [e*], [f*], [g*], [h*], [i*], [j*], [k*], [l*], [m*], [n*], [o*],
[p*], [q*], [r*], [s*], [t*], [u*], [v*], [w*], [x*], [y*], [z*], [{*}, [| *], [} *], [~ *],
[Preassociative *; *], [Postassociative *; *], [[*], [*], [priority * end],
[newline *], [macro newline *], [MacroIndent(*)];

Preassociative

[* ’ *], [* ‘ *];

Preassociative

[*′];

Preassociative

[* · *], [* ·₀ *];

Preassociative

[* + *], [* +₀ *], [* +₁ *], [* - *], [* -₀ *], [* -₁ *];

Preassociative

[* ∪ {*}], [* ∪ *], [* \ {*}];

Postassociative

$[* \dot{\cdot} *], [* \dot{\cdot} *], [* \dot{:} *], [* \dot{+} *], [* \dot{:} *], [* \dot{+} *];$

Postassociative

$[*, *];$

Preassociative

$[* \overset{B}{\approx} *], [* \overset{D}{\approx} *], [* \overset{C}{\approx} *], [* \overset{P}{\approx} *], [* \approx *], [* = *], [* \dashv *], [* \overset{t}{=} *], [* \overset{t^*}{=} *], [* \overset{r}{=} *],$
 $[* \in_t *], [* \subseteq_T *], [* \overset{T}{=} *], [* \overset{s}{=} *], [* \text{ free in } *], [* \text{ free in }^* *], [* \text{ free for } * \text{ in } *],$
 $[* \text{ free for }^* * \text{ in } *], [* \in_c *], [* < *], [* <' *], [* \leq' *], [* = *], [* \neq *], [*^{\text{var}}],$
 $[* \#^0 *], [* \#^1 *], [* \#^* *];$

Preassociative

$[\neg *];$

Preassociative

$[* \wedge *], [* \dot{\wedge} *], [* \dot{\wedge} *], [* \wedge_c *];$

Preassociative

$[* \vee *], [* \parallel *], [* \ddot{\vee} *];$

Preassociative

$[\exists * : *], [\forall * : *], [\forall_{\text{obj}} * : *];$

Postassociative

$[* \dot{\Rightarrow} *], [* \Rightarrow *], [* \Leftrightarrow *];$

Postassociative

$[* : *], [* \text{ spy } *], [* ! *];$

Preassociative

$[* \left\{ \begin{array}{c} * \\ * \end{array} \right.];$

Preassociative

$[\lambda * . *], [\Lambda * . *], [\Lambda *], [\text{ if } * \text{ then } * \text{ else } *], [\text{ let } * = * \text{ in } *], [\text{ let } * \ddot{=} * \text{ in } *];$

Preassociative

$[* \# *];$

Preassociative

$[*^!], [*^\triangleright], [*^\vee], [*^+], [*^-], [*^*];$

Preassociative

$[* @ *], [* \triangleright *], [* \blacktriangleright *], [* \gg *], [* \supseteq *];$

Postassociative

$[* \vdash *], [* \Vdash *], [* \text{ i.e. } *];$

Preassociative

$[\forall * : *], [\Pi * : *];$

Postassociative

$[* \oplus *];$

Postassociative

$[*, *];$

Preassociative

$[* \text{ proves } *];$

Preassociative

$[* \text{ proof of } * : *], [\text{ Line } * : * \gg *], [\text{ Last line } * \gg * \square],$
 $[\text{ Line } * : \text{ Premise } \gg *], [\text{ Line } * : \text{ Side-condition } \gg *], [\text{ Arbitrary } \gg *];$

[Local $\gg * = *; *$], [Begin $*; * : \text{End}; *$], [Last block line $* \gg *; *$],
[Arbitrary $\gg *; *$];
Postassociative
[* | *];
Postassociative
[* then *], [*[*]*];
Preassociative
[*&*], [\rightarrow];
Preassociative
[**], [**]; **End table**