Logiweb sequent calculus, Chores

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Contents

1 Test cases

$[(x\#y = z \Rightarrow \forall x\colon x = y)$ ' check$]^{\cdot}$

$[(x\#x = z \Rightarrow \forall x\colon x = y)$ ' check$]^{-}$

$[(x\#y = x \Rightarrow \forall x\colon x = y)$ ' check$]^{-}$

$[(x\#y = z \Rightarrow \forall y\colon x = y)$ ' check$]^{-}$

$[\langle a\equiv a|b\!:=\!c\rangle$ ' check$]^{\cdot}$

$[\langle b\equiv a|b\!:=\!c\rangle$ ' check$]^{-}$

$[\langle c\equiv a|b\!:=\!c\rangle$ ' check$]^{-}$

$[\langle a\equiv b|b\!:=\!c\rangle$ ' check$]^{-}$

$[\langle b\equiv b|b\!:=\!c\rangle$ ' check$]^{-}$

$[\langle c\equiv b|b\!:=\!c\rangle$ ' check$]^{\cdot}$

$[\langle \forall a\colon a = b\equiv\forall a\colon a = b|a\!:=\!c\rangle$ ' check$]^{\cdot}$

$[\langle \forall a\colon a = c\equiv\forall a\colon a = b|b\!:=\!c\rangle$ ' check$]^{\cdot}$

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

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

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

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

$[\text{Ded}_8(\lceil \Pi \mathcal{A}: \mathcal{A} \rceil, \mathsf{T})]^{\cdot}$

$[\text{Ded}_7(\lceil \Pi \mathcal{A}: \mathcal{A} \rceil) \overset{\mathrm{t}}{=} \lceil \mathcal{A} \rceil]^{\cdot}$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

$[\mathrm{Ded}(0 \vdash x, \forall x\colon 0 \Rightarrow x)$ ' check]˙

$[\mathrm{Ded}(x \vdash x, \forall x\colon x \Rightarrow x)$ ' check]˙

$[\mathrm{Ded}(0 \vdash 0, 0 \Rightarrow \forall x\colon 0)$ ' check]⁻

$[\mathrm{Ded}(x \vdash 0, 0 \Rightarrow \forall x\colon 0)$ ' check]⁻

$[\mathrm{Ded}(0 \vdash x, 0 \Rightarrow \forall y\colon z)$ ' check]˙

$[\mathrm{Ded}(x \vdash x, 0 \Rightarrow \forall x\colon x)$ ' check]⁻

$[\mathrm{Ded}(0 \vdash 0, \forall x\colon 0 \Rightarrow \forall x\colon 0)$ ' check]⁻

$[\mathrm{Ded}(x \vdash 0, \forall x\colon x \Rightarrow \forall x\colon 0)$ ' check]⁻

$[\mathrm{Ded}(0 \vdash x, \forall x\colon 0 \Rightarrow 2)$ ' check]˙

$[\mathrm{Ded}(x \vdash x, \forall x\colon x \Rightarrow 3)$ ' check]˙

$[\mathrm{Ded}(x + y = y + x, 2 + 3 = 3 + 2)$ ' check]˙

$[\mathrm{Ded}(x + y = y + x, 2 + 3 = 2 + 3)$ ' check]⁻

$[\mathrm{Ded}(x + y = y + x, 2 + 3 = 2 + 2)$ ' check]⁻

$[\mathrm{Ded}(x + y = y + x, 2 + 3 = 3 + 3)$ ' check]⁻

2   Pyk definitions

$([[* \overset{\circ}{=} *] \overset{\mathrm{pyk}}{\mapsto}$ "general macro define " as " end define"]

$[\mathrm{RootVisible}(*) \overset{\mathrm{pyk}}{\mapsto}$ "make root visible " end visible"]

$[\mathrm{A} \overset{\mathrm{pyk}}{\mapsto}$ "sequent example axiom"]

$[\mathrm{R} \overset{\mathrm{pyk}}{\mapsto}$ "sequent example rule"]

$[\mathrm{C} \overset{\mathrm{pyk}}{\mapsto}$ "sequent example contradiction"]

$[\mathrm{T} \overset{\mathrm{pyk}}{\mapsto}$ "sequent example theory"]

$[\mathrm{L} \overset{\mathrm{pyk}}{\mapsto}$ "sequent example lemma"]

$[\{*\} \overset{\mathrm{pyk}}{\mapsto}$ "set " end set"]

$[\overline{*} \overset{\mathrm{pyk}}{\mapsto}$ "object var " end var"]

$[a \overset{\mathrm{pyk}}{\mapsto}$ "object a"]

$[b \overset{\mathrm{pyk}}{\mapsto}$ "object b"]

$[c \overset{\mathrm{pyk}}{\mapsto}$ "object c"]

$[d \overset{\mathrm{pyk}}{\mapsto}$ "object d"]

$[e \overset{\mathrm{pyk}}{\mapsto}$ "object e"]

$[f \overset{\mathrm{pyk}}{\mapsto}$ "object f"]

$[g \overset{\text{pyk}}{\to} \text{``object g''}]$

$[h \overset{\text{pyk}}{\to} \text{``object h''}]$

$[i \overset{\text{pyk}}{\to} \text{``object i''}]$

$[j \overset{\text{pyk}}{\to} \text{``object j''}]$

$[k \overset{\text{pyk}}{\to} \text{``object k''}]$

$[l \overset{\text{pyk}}{\to} \text{``object l''}]$

$[m \overset{\text{pyk}}{\to} \text{``object m''}]$

$[n \overset{\text{pyk}}{\to} \text{``object n''}]$

$[o \overset{\text{pyk}}{\to} \text{``object o''}]$

$[p \overset{\text{pyk}}{\to} \text{``object p''}]$

$[q \overset{\text{pyk}}{\to} \text{``object q''}]$

$[r \overset{\text{pyk}}{\to} \text{``object r''}]$

$[s \overset{\text{pyk}}{\to} \text{``object s''}]$

$[t \overset{\text{pyk}}{\to} \text{``object t''}]$

$[u \overset{\text{pyk}}{\to} \text{``object u''}]$

$[v \overset{\text{pyk}}{\to} \text{``object v''}]$

$[w \overset{\text{pyk}}{\to} \text{``object w''}]$

$[x \overset{\text{pyk}}{\to} \text{``object x''}]$

$[y \overset{\text{pyk}}{\to} \text{``object y''}]$

$[z \overset{\text{pyk}}{\to} \text{``object z''}]$

$[\langle * \equiv * \mid * := * \rangle \overset{\text{pyk}}{\to} \text{``sub " is " where " is " end sub''}]$

$[\langle * \equiv^0 * \mid * := * \rangle \overset{\text{pyk}}{\to} \text{``sub zero " is " where " is " end sub''}]$

$[\langle * \equiv^1 * \mid * := * \rangle \overset{\text{pyk}}{\to} \text{``sub one " is " where " is " end sub''}]$

$[\langle * \equiv^* * \mid * := * \rangle \overset{\text{pyk}}{\to} \text{``sub star " is " where " is " end sub''}]$

$[\text{Ded}(*, *) \overset{\text{pyk}}{\to} \text{``deduction " conclude " end deduction''}]$

$[\text{Ded}_0(*, *) \overset{\text{pyk}}{\to} \text{``deduction zero " conclude " end deduction''}]$

$[\text{Ded}_1(*, *, *) \overset{\text{pyk}}{\to} \text{``deduction one " conclude " condition " end deduction''}]$

$[\text{Ded}_2(*, *, *) \overset{\text{pyk}}{\to} \text{``deduction two " conclude " condition " end deduction''}]$

$[\text{Ded}_3(*, *, *, *) \overset{\text{pyk}}{\to} \text{``deduction three " conclude " condition " bound " end deduction''}]$

$[\text{Ded}_4(*, *, *, *) \overset{\text{pyk}}{\to} \text{``deduction four " conclude " condition " bound " end deduction''}]$

$[\text{Ded}_4^*(*, *, *, *) \overset{\text{pyk}}{\to} \text{``deduction four star " conclude " condition " bound " end deduction''}]$

$[\text{Ded}_5(*, *, *) \overset{\text{pyk}}{\to} \text{``deduction five " condition " bound " end deduction''}]$

$[\text{Ded}_6(*, *, *, *) \overset{\text{pyk}}{\to} \text{``deduction six " conclude " exception " bound " end}$

deduction"]

$[\mathrm{Ded}_6^*(*, *, *, *) \overset{\mathrm{pyk}}{\rightarrow}$ "deduction six star " conclude " exception " bound " end deduction"]

$[\mathrm{Ded}_7(*) \overset{\mathrm{pyk}}{\rightarrow}$ "deduction seven " end deduction"]

$[\mathrm{Ded}_8(*, *) \overset{\mathrm{pyk}}{\rightarrow}$ "deduction eight " bound " end deduction"]

$[\mathrm{Ded}_8^*(*, *) \overset{\mathrm{pyk}}{\rightarrow}$ "deduction eight star " bound " end deduction"]

$[\mathrm{S} \overset{\mathrm{pyk}}{\rightarrow}$ "system s"]

$[\mathrm{Neg} \overset{\mathrm{pyk}}{\rightarrow}$ "double negation"]

$[\mathrm{MP} \overset{\mathrm{pyk}}{\rightarrow}$ "rule mp"]

$[\mathrm{Gen} \overset{\mathrm{pyk}}{\rightarrow}$ "rule gen"]

$[\mathrm{Ded} \overset{\mathrm{pyk}}{\rightarrow}$ "deduction"]

$[\mathrm{S1} \overset{\mathrm{pyk}}{\rightarrow}$ "axiom s one"]

$[\mathrm{S2} \overset{\mathrm{pyk}}{\rightarrow}$ "axiom s two"]

$[\mathrm{S3} \overset{\mathrm{pyk}}{\rightarrow}$ "axiom s three"]

$[\mathrm{S4} \overset{\mathrm{pyk}}{\rightarrow}$ "axiom s four"]

$[\mathrm{S5} \overset{\mathrm{pyk}}{\rightarrow}$ "axiom s five"]

$[\mathrm{S6} \overset{\mathrm{pyk}}{\rightarrow}$ "axiom s six"]

$[\mathrm{S7} \overset{\mathrm{pyk}}{\rightarrow}$ "axiom s seven"]

$[\mathrm{S8} \overset{\mathrm{pyk}}{\rightarrow}$ "axiom s eight"]

$[\mathrm{S9} \overset{\mathrm{pyk}}{\rightarrow}$ "axiom s nine"]

$[\mathrm{Repetition} \overset{\mathrm{pyk}}{\rightarrow}$ "repetition"]

$[\mathrm{A1}' \overset{\mathrm{pyk}}{\rightarrow}$ "lemma a one"]

$[\mathrm{A2}' \overset{\mathrm{pyk}}{\rightarrow}$ "lemma a two"]

$[\mathrm{A4}' \overset{\mathrm{pyk}}{\rightarrow}$ "lemma a four"]

$[\mathrm{A5}' \overset{\mathrm{pyk}}{\rightarrow}$ "lemma a five"]

$[\mathrm{Prop\ 3.2a} \overset{\mathrm{pyk}}{\rightarrow}$ "prop three two a"]

$[\mathrm{Prop\ 3.2b} \overset{\mathrm{pyk}}{\rightarrow}$ "prop three two b"]

$[\mathrm{Prop\ 3.2c} \overset{\mathrm{pyk}}{\rightarrow}$ "prop three two c"]

$[\mathrm{Prop\ 3.2d} \overset{\mathrm{pyk}}{\rightarrow}$ "prop three two d"]

$[\mathrm{Prop\ 3.2e_1} \overset{\mathrm{pyk}}{\rightarrow}$ "prop three two e one"]

$[\mathrm{Prop\ 3.2e_2} \overset{\mathrm{pyk}}{\rightarrow}$ "prop three two e two"]

$[\mathrm{Prop\ 3.2e} \overset{\mathrm{pyk}}{\rightarrow}$ "prop three two e"]

$[\mathrm{Prop\ 3.2f_1} \overset{\mathrm{pyk}}{\rightarrow}$ "prop three two f one"]

$[\mathrm{Prop\ 3.2f_2} \overset{\mathrm{pyk}}{\rightarrow}$ "prop three two f two"]

$[\mathrm{Prop\ 3.2f} \overset{\mathrm{pyk}}{\rightarrow}$ "prop three two f"]

$[\mathrm{Prop\ 3.2g_1} \overset{\mathrm{pyk}}{\rightarrow}$ "prop three two g one"]

$[\text{Prop } 3.2\text{g}_2 \overset{\text{pyk}}{\mapsto} \text{"prop three two g two"}]$

$[\text{Prop } 3.2\text{g} \overset{\text{pyk}}{\mapsto} \text{"prop three two g"}]$

$[\text{Prop } 3.2\text{h}_1 \overset{\text{pyk}}{\mapsto} \text{"prop three two h one"}]$

$[\text{Prop } 3.2\text{h}_2 \overset{\text{pyk}}{\mapsto} \text{"prop three two h two"}]$

$[\text{Prop } 3.2\text{h} \overset{\text{pyk}}{\mapsto} \text{"prop three two h"}]$

$[\text{Block}_1(*, *, *) \overset{\text{pyk}}{\mapsto} \text{"block one " state " cache " end block"}]$

$[\text{Block}_2(*) \overset{\text{pyk}}{\mapsto} \text{"block two " end block"}]$

$[*^{\text{hide}} \overset{\text{pyk}}{\mapsto} \text{"" hide"}]$

$[\text{MacroIndent}(*) \overset{\text{pyk}}{\mapsto} \text{"macro indent ""}]$

$[*' \overset{\text{pyk}}{\mapsto} \text{"" suc"}]$

$[* = * \overset{\text{pyk}}{\mapsto} \text{"" equal ""}]$

$[* \neq * \overset{\text{pyk}}{\mapsto} \text{"" unequal ""}]$

$[*^{\text{var}} \overset{\text{pyk}}{\mapsto} \text{"" is object var"}]$

$[*\#^0* \overset{\text{pyk}}{\mapsto} \text{"" avoid zero ""}]$

$[*\#^1* \overset{\text{pyk}}{\mapsto} \text{"" avoid one ""}]$

$[*\#^** \overset{\text{pyk}}{\mapsto} \text{"" avoid star ""}]$

$[\exists*{:}* \overset{\text{pyk}}{\mapsto} \text{"exist " indeed ""}]$

$[\forall*{:}* \overset{\text{pyk}}{\mapsto} \text{"for all " indeed ""}]$

$[\forall_{\text{obj}}*{:}* \overset{\text{pyk}}{\mapsto} \text{"for all objects " indeed ""}]$

$[* \Rightarrow * \overset{\text{pyk}}{\mapsto} \text{"" imply ""}]$

$[* \Leftrightarrow * \overset{\text{pyk}}{\mapsto} \text{"" if and only if ""}]$

$[*\#* \overset{\text{pyk}}{\mapsto} \text{"" avoid ""}]$

$[* \trianglerighteq * \overset{\text{pyk}}{\mapsto} \text{"" object modus ponens ""}]$

$[\Pi*{:}* \overset{\text{pyk}}{\mapsto} \text{"for all terms " indeed ""}]$

$[\text{Begin } *; * : \text{End}; * \overset{\text{pyk}}{\mapsto} \text{"block " line " end block ""}]$

$[\text{Last block line } * \gg *; \overset{\text{pyk}}{\mapsto} \text{"because " indeed " end line"}]$

$[\text{Arbitrary} \gg *; * \overset{\text{pyk}}{\mapsto} \text{"any term " end line ""}]$

$[* \mid * \overset{\text{pyk}}{\mapsto} \text{"" alternative ""}]$

$[\to \overset{\text{pyk}}{\mapsto} \text{"evaluates to"}]$

$[*\backslash\backslash* \overset{\text{pyk}}{\mapsto} \text{"" safe row ""}]$

$[\text{check} \overset{\text{pyk}}{\mapsto} \text{"check"}]$

$)^{\mathbf{P}}$

3 TEX definitions

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

$[\text{RootVisible}(x) \overset{\text{tex}}{=}$ "#1/tex name/tex."]

$[\text{RootVisible}(x) \overset{\text{name}}{=}$ "
        RootVisible(#1.
)"]

$[x^{\text{hide}} \overset{\text{tex}}{=}$ "#1.
        {}^{hide}"]

$[x' \overset{\text{tex}}{=}$ "#1.
        {}'"]

$[x = y \overset{\text{tex}}{=}$ "#1.
        = #2."]

$[x \neq y \overset{\text{tex}}{=}$ "#1.
        \neq #2."]

$[x \Rightarrow y \overset{\text{tex}}{=}$ "#1.
        \Rightarrow #2."]

$[x \Leftrightarrow y \overset{\text{tex}}{=}$ "#1.
        \Leftrightarrow #2."]

$[x \mid y \overset{\text{tex}}{=}$ "#1.
        \mathrel{|} #2."]

$[\exists x: y \overset{\text{tex}}{=}$ "
        \exists #1.
        \colon #2."]

$[\forall x: y \overset{\text{tex}}{=}$ "
        \forall #1.
        \colon #2."]

$[\forall_{\text{obj}} x: y \overset{\text{tex}}{=}$ "
        \forall_{obj} #1.
        \colon #2."]

$[\Pi x: y \overset{\text{tex}}{=}$ "
        \Pi #1.
        \colon #2."]

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

[Arbitrary $\gg$ i; p $\overset{\text{name}}{=}$ "
$\quad$ Arbitrary \gg #1.
$\quad$; #2."]

[x\\y $\overset{\text{tex}}{=}$ "#1.
$\quad$ \\{}#2."]

[x\\y $\overset{\text{name}}{=}$ "#1.
$\quad$ \backslash \backslash #2."]

[A $\overset{\text{tex}}{=}$ "
$\quad$ A"]

[R $\overset{\text{tex}}{=}$ "
$\quad$ R"]

[C $\overset{\text{tex}}{=}$ "
$\quad$ C"]

[T $\overset{\text{tex}}{=}$ "
$\quad$ T"]

[L $\overset{\text{tex}}{=}$ "
$\quad$ L"]

[{x} $\overset{\text{tex}}{=}$ "
$\quad$ \{#1.
$\quad$ \}"]

[S $\overset{\text{tex}}{=}$ "
$\quad$ S"]

[Neg $\overset{\text{tex}}{=}$ "
$\quad$ Neg"]

[S1 $\overset{\text{tex}}{=}$ "
$\quad$ S1"]

[S2 $\overset{\text{tex}}{=}$ "
            S2"]

[S3 $\overset{\text{tex}}{=}$ "
            S3"]

[S4 $\overset{\text{tex}}{=}$ "
            S4"]

[S5 $\overset{\text{tex}}{=}$ "
            S5"]

[S6 $\overset{\text{tex}}{=}$ "
            S6"]

[S7 $\overset{\text{tex}}{=}$ "
            S7"]

[S8 $\overset{\text{tex}}{=}$ "
            S8"]

[S9 $\overset{\text{tex}}{=}$ "
            S9"]

[MP $\overset{\text{tex}}{=}$ "
            MP"]

[Gen $\overset{\text{tex}}{=}$ "
            Gen"]

[Ded $\overset{\text{tex}}{=}$ "
            Ded"]

[Repetition $\overset{\text{tex}}{=}$ "
            Repetition"]

[A1′ $\overset{\text{tex}}{=}$ "
            A1'"]

[A2′ $\overset{\text{tex}}{=}$ "
            A2'"]

[A4′ $\overset{\text{tex}}{=}$ "
            A4'"]

[A5′ $\overset{\text{tex}}{=}$ "
            A5'"]

$[\mathsf{x}^{\mathrm{var}} \overset{\text{tex}}{=} \text{``}\#1.$
$\phantom{[\mathsf{x}^{\mathrm{var}} \overset{\text{tex}}{=} \text{``}}\{\}\hat{\ }\{\mathrm{var}\}\text{''}]$

$[\mathsf{x}\#\mathsf{y} \overset{\text{tex}}{=} \text{``}\#1.$
$\phantom{[\mathsf{x}\#\mathsf{y} \overset{\text{tex}}{=} \text{``}}\backslash\#.\#2.\text{''}]$

$[\mathsf{x}\#^0\mathsf{y} \overset{\text{tex}}{=} \text{``}\#1.$
$\phantom{[\mathsf{x}\#^0\mathsf{y} \overset{\text{tex}}{=} \text{``}}\backslash\#.\hat{\ }0\#2.\text{''}]$

$[\mathsf{x}\#^1\mathsf{y} \overset{\text{tex}}{=} \text{``}\#1.$
$\phantom{[\mathsf{x}\#^1\mathsf{y} \overset{\text{tex}}{=} \text{``}}\backslash\#.\hat{\ }1\#2.\text{''}]$

$[\mathsf{x}\#^*\mathsf{y} \overset{\text{tex}}{=} \text{``}\#1.$
$\phantom{[\mathsf{x}\#^*\mathsf{y} \overset{\text{tex}}{=} \text{``}}\backslash\#.\hat{\ }*\#2.\text{''}]$

$[\langle\mathsf{x}{\equiv}\mathsf{y}|\mathsf{z}{:=}\mathsf{u}\rangle \overset{\text{tex}}{=} \text{``}$
$\backslash\mathrm{langle}\ \#1.$
$\{\backslash\mathrm{equiv}\}\ \#2.$
$|\ \#3.$
$\{:=\}\ \#4.$
$\backslash\mathrm{rangle}\ \text{''}]$

$[\langle\mathsf{x}{\equiv}^0\mathsf{y}|\mathsf{z}{:=}\mathsf{u}\rangle \overset{\text{tex}}{=} \text{``}$
$\backslash\mathrm{langle}\ \#1.$
$\{\backslash\mathrm{equiv}\}\hat{\ }0\ \#2.$
$|\ \#3.$
$\{:=\}\ \#4.$
$\backslash\mathrm{rangle}\ \text{''}]$

$[\langle\mathsf{x}{\equiv}^1\mathsf{y}|\mathsf{z}{:=}\mathsf{u}\rangle \overset{\text{tex}}{=} \text{``}$
$\backslash\mathrm{langle}\ \#1.$
$\{\backslash\mathrm{equiv}\}\hat{\ }1\ \#2.$
$|\ \#3.$
$\{:=\}\ \#4.$
$\backslash\mathrm{rangle}\ \text{''}]$

$[\langle\mathsf{x}{\equiv}^*\mathsf{y}|\mathsf{z}{:=}\mathsf{u}\rangle \overset{\text{tex}}{=} \text{``}$
$\backslash\mathrm{langle}\ \#1.$
$\{\backslash\mathrm{equiv}\}\hat{\ }*\ \#2.$
$|\ \#3.$
$\{:=\}\ \#4.$
$\backslash\mathrm{rangle}\ \text{''}]$

$[\mathrm{Ded}(\mathsf{x}, \mathsf{y}) \overset{\text{tex}}{=} \text{``}$
$\mathrm{Ded}(\#1.$
$, \#2.$
$)\text{''}]$

$[\mathrm{Ded}_0(\mathsf{x}, \mathsf{y}) \overset{\mathrm{tex}}{=} \text{``}$
    Ded_0(#1.
    ,#2.
)"]

$[\mathrm{Ded}_1(\mathsf{x}, \mathsf{y}, \mathsf{z}) \overset{\mathrm{tex}}{=} \text{``}$
    Ded_1(#1.
    ,#2.
    ,#3.
)"]

$[\mathrm{Ded}_2(\mathsf{x}, \mathsf{y}, \mathsf{z}) \overset{\mathrm{tex}}{=} \text{``}$
    Ded_2(#1.
    ,#2.
    ,#3.
)"]

$[\mathrm{Ded}_3(\mathsf{x}, \mathsf{y}, \mathsf{z}, \mathsf{u}) \overset{\mathrm{tex}}{=} \text{``}$
    Ded_3(#1.
    ,#2.
    ,#3.
    ,#4.
)"]

$[\mathrm{Ded}_4(\mathsf{x}, \mathsf{y}, \mathsf{z}, \mathsf{u}) \overset{\mathrm{tex}}{=} \text{``}$
    Ded_4(#1.
    ,#2.
    ,#3.
    ,#4.
)"]

$[\mathrm{Ded}_4^*(\mathsf{x}, \mathsf{y}, \mathsf{z}, \mathsf{u}) \overset{\mathrm{tex}}{=} \text{``}$
    Ded_4^*(#1.
    ,#2.
    ,#3.
    ,#4.
)"]

$[\mathrm{Ded}_5(\mathsf{x}, \mathsf{y}, \mathsf{z}) \overset{\mathrm{tex}}{=} \text{``}$
    Ded_5(#1.
    ,#2.
    ,#3.
)"]

$[\mathrm{Ded}_6(\mathsf{p}, \mathsf{c}, \mathsf{e}, \mathsf{b}) \overset{\mathrm{tex}}{=} \text{``}$
    Ded_6(#1.
    ,#2.

$$, \#3.$$
$$, \#4.$$
$$)"]$$

$[\mathrm{Ded}_6^*(\mathsf{p}, \mathsf{c}, \mathsf{e}, \mathsf{b}) \overset{\mathrm{tex}}{=} \text{``}$
$$\mathrm{Ded\_6}\hat{\ }*(\#1.$$
$$, \#2.$$
$$, \#3.$$
$$, \#4.$$
$$)"]$$

$[\mathrm{Ded}_7(\mathsf{p}) \overset{\mathrm{tex}}{=} \text{``}$
$$\mathrm{Ded\_7}(\#1.$$
$$)"]$$

$[\mathrm{Ded}_8(\mathsf{p}, \mathsf{b}) \overset{\mathrm{tex}}{=} \text{``}$
$$\mathrm{Ded\_8}(\#1.$$
$$, \#2.$$
$$)"]$$

$[\mathrm{Ded}_8^*(\mathsf{p}, \mathsf{b}) \overset{\mathrm{tex}}{=} \text{``}$
$$\mathrm{Ded\_8}\hat{\ }*(\#1.$$
$$, \#2.$$
$$)"]$$

$[\mathrm{Begin}\, \mathsf{b}; \mathsf{l} : \mathrm{End};\, \mathsf{p} \overset{\mathrm{tex}}{=} \text{``}$

```
\newline \makebox [0.1\textwidth]{}%
\parbox [b]{0.4\textwidth }{\raggedright
\setlength {\parindent }{-0.1\textwidth }%
\makebox [0.1\textwidth ][l]{$
\if \relax \csname lgwprooflinep\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."]
```

$[\mathrm{Begin}\, \mathsf{b}; \mathsf{l} : \mathrm{End};\, \mathsf{p} \overset{\mathrm{name}}{=} \text{``}$
$$\mathrm{Begin}\, \backslash,\ \#1.$$

```
              ; #2.
              : End ; #3."]

[Last block line a ≫ i ; ≝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 lgwprooflinep\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 ≫ i ; ≝ⁿᵃᵐᵉ "
              Last\ block\ line \, #1.
              \gg #2.
              \, ;"]

[x ▷ y ≝ᵗᵉˣ "#1.
              \unrhd #2."]

[Prop 3.2a ≝ᵗᵉˣ "
              Prop\ 3.2a"]

[Prop 3.2b ≝ᵗᵉˣ "
              Prop\ 3.2b"]

[Prop 3.2c ≝ᵗᵉˣ "
              Prop\ 3.2c"]

[Prop 3.2d ≝ᵗᵉˣ "
              Prop\ 3.2d"]

[Prop 3.2e₁ ≝ᵗᵉˣ "
              Prop\ 3.2e_1"]

[Prop 3.2e₂ ≝ᵗᵉˣ "
              Prop\ 3.2e_2"]

[Prop 3.2e ≝ᵗᵉˣ "
              Prop\ 3.2e"]

[Prop 3.2f₁ ≝ᵗᵉˣ "
              Prop\ 3.2f_1"]
```

$[\text{Prop 3.2f}_2 \overset{\text{tex}}{=} "$
$\quad\quad\text{Prop}\backslash\ 3.2f\_2"]$

$[\text{Prop 3.2f} \overset{\text{tex}}{=} "$
$\quad\quad\text{Prop}\backslash\ 3.2f"]$

$[\text{Prop 3.2g}_1 \overset{\text{tex}}{=} "$
$\quad\quad\text{Prop}\backslash\ 3.2g\_1"]$

$[\text{Prop 3.2g}_2 \overset{\text{tex}}{=} "$
$\quad\quad\text{Prop}\backslash\ 3.2g\_2"]$

$[\text{Prop 3.2g} \overset{\text{tex}}{=} "$
$\quad\quad\text{Prop}\backslash\ 3.2g"]$

$[\text{Prop 3.2h}_1 \overset{\text{tex}}{=} "$
$\quad\quad\text{Prop}\backslash\ 3.2h\_1"]$

$[\text{Prop 3.2h}_2 \overset{\text{tex}}{=} "$
$\quad\quad\text{Prop}\backslash\ 3.2h\_2"]$

$[\text{Prop 3.2h} \overset{\text{tex}}{=} "$
$\quad\quad\text{Prop}\backslash\ 3.2h"]$

$[\text{MacroIndent}(\mathsf{x}) \overset{\text{tex}}{=} "$
$\quad\quad \$\%$
$\quad\quad \backslash\text{leftskip=1em}\%$
$\quad\quad \$\#1."]$

$[\text{MacroIndent}(\mathsf{x}) \overset{\text{name}}{=} "$
$\quad\quad \text{MacroIndent}(\#1.$
$\quad\quad)"]$

$[\text{Block}_1(\mathsf{t}, \mathsf{s}, \mathsf{c}) \overset{\text{tex}}{=} "$
$\quad\quad \text{Block}\_1(\#1.$
$\quad\quad , \#2.$
$\quad\quad , \#3.$
$\quad\quad)"]$

$[\text{Block}_2(\mathsf{b}) \overset{\text{tex}}{=} "$
$\quad\quad \text{Block}\_2(\#1.$
$\quad\quad)"]$

$[\rightarrow \overset{\text{tex}}{=} "$
$\quad\quad \backslash\text{rightarrow }"]$

3.1 Variables

$[\overline{\mathsf{x}} \stackrel{\text{tex}}{=} \text{``}\backslash\text{overline}\{\#1.\}\text{''}]$

$[a \stackrel{\cdot\cdot}{=} \overline{\mathsf{a}}]$

$[b \stackrel{\cdot\cdot}{=} \overline{\mathsf{b}}]$

$[c \stackrel{\cdot\cdot}{=} \overline{\mathsf{c}}]$

$[d \stackrel{\cdot\cdot}{=} \overline{\mathsf{d}}]$

$[e \stackrel{\cdot\cdot}{=} \overline{\mathsf{e}}]$

$[f \stackrel{\cdot\cdot}{=} \overline{\mathsf{f}}]$

$[g \stackrel{\cdot\cdot}{=} \overline{\mathsf{g}}]$

$[h \stackrel{\cdot\cdot}{=} \overline{\mathsf{h}}]$

$[i \stackrel{\cdot\cdot}{=} \overline{\mathsf{i}}]$

$[j \stackrel{\cdot\cdot}{=} \overline{\mathsf{j}}]$

$[k \stackrel{\cdot\cdot}{=} \overline{\mathsf{k}}]$

$[l \stackrel{\cdot\cdot}{=} \overline{\mathsf{l}}]$

$[m \stackrel{\cdot\cdot}{=} \overline{\mathsf{m}}]$

$[n \stackrel{\cdot\cdot}{=} \overline{\mathsf{n}}]$

$[o \stackrel{\cdot\cdot}{=} \overline{\mathsf{o}}]$

$[p \stackrel{\cdot\cdot}{=} \overline{\mathsf{p}}]$

$[q \stackrel{\cdot\cdot}{=} \overline{\mathsf{q}}]$

$[r \stackrel{\cdot\cdot}{=} \overline{\mathsf{r}}]$

$[s \stackrel{\cdot\cdot}{=} \overline{\mathsf{s}}]$

$[t \stackrel{\cdot\cdot}{=} \overline{\mathsf{t}}]$

$[u \stackrel{\cdot\cdot}{=} \overline{\mathsf{u}}]$

$[v \stackrel{\cdot\cdot}{=} \overline{\mathsf{v}}]$

$[w \stackrel{\cdot\cdot}{=} \overline{\mathsf{w}}]$

$[x \stackrel{\cdot\cdot}{=} \overline{\mathsf{x}}]$

$[y \stackrel{\cdot\cdot}{=} \overline{\mathsf{y}}]$

$[z \stackrel{\cdot\cdot}{=} \overline{\mathsf{z}}]$

$[a \stackrel{\text{tex}}{=} \text{``}$
$\backslash\text{mathit}\{a\}\text{''}]$

$[b \stackrel{\text{tex}}{=} \text{``}$
$\backslash\text{mathit}\{b\}\text{''}]$

$[c \stackrel{\text{tex}}{=} \text{``}$
$\backslash\text{mathit}\{c\}\text{''}]$

$[d \stackrel{\text{tex}}{=} \text{``}$
$\backslash\text{mathit}\{d\}\text{''}]$

$[e \stackrel{\text{tex}}{=} \text{``}$
$\backslash\text{mathit}\{e\}\text{''}]$

$[f \stackrel{\text{tex}}{=} \text{``}$
$\backslash\text{mathit}\{f\}\text{''}]$

$[g \stackrel{\text{tex}}{=} \text{``}$
$\backslash\text{mathit}\{g\}\text{''}]$

$[h \stackrel{\text{tex}}{=} \text{``}$
$\mathit{h}\text{''}]$
$[i \stackrel{\text{tex}}{=} \text{``}$
$\mathit{i}\text{''}]$
$[j \stackrel{\text{tex}}{=} \text{``}$
$\mathit{j}\text{''}]$
$[k \stackrel{\text{tex}}{=} \text{``}$
$\mathit{k}\text{''}]$
$[l \stackrel{\text{tex}}{=} \text{``}$
$\mathit{l}\text{''}]$
$[m \stackrel{\text{tex}}{=} \text{``}$
$\mathit{m}\text{''}]$
$[n \stackrel{\text{tex}}{=} \text{``}$
$\mathit{n}\text{''}]$
$[o \stackrel{\text{tex}}{=} \text{``}$
$\mathit{o}\text{''}]$
$[p \stackrel{\text{tex}}{=} \text{``}$
$\mathit{p}\text{''}]$
$[q \stackrel{\text{tex}}{=} \text{``}$
$\mathit{q}\text{''}]$
$[r \stackrel{\text{tex}}{=} \text{``}$
$\mathit{r}\text{''}]$
$[s \stackrel{\text{tex}}{=} \text{``}$
$\mathit{s}\text{''}]$
$[t \stackrel{\text{tex}}{=} \text{``}$
$\mathit{t}\text{''}]$
$[u \stackrel{\text{tex}}{=} \text{``}$
$\mathit{u}\text{''}]$
$[v \stackrel{\text{tex}}{=} \text{``}$
$\mathit{v}\text{''}]$
$[w \stackrel{\text{tex}}{=} \text{``}$
$\mathit{w}\text{''}]$
$[x \stackrel{\text{tex}}{=} \text{``}$
$\mathit{x}\text{''}]$
$[y \stackrel{\text{tex}}{=} \text{``}$
$\mathit{y}\text{''}]$
$[z \stackrel{\text{tex}}{=} \text{``}$
$\mathit{z}\text{''}]$

4 Priority table

Priority table
Preassociative

[check], [base], [bracket $*$ end bracket], [big bracket $*$ end bracket], [\$ $*$ \$],
[**flush left** [$*$]], [x], [y], [z], [[$* \bowtie *$]], [[$* \xrightarrow{*} *$]], [pyk], [tex], [name], [prio], [$*$], [T],
[if($*, *, *$)], [[$* \xRightarrow{*} *$]], [val], [claim], [$\bot$], [f($*$)], [($*$)$^{\mathrm{I}}$], [F], [$\underline{0}$], [$\underline{1}$], [$\underline{2}$], [$\underline{3}$], [$\underline{4}$], [$\underline{5}$], [$\underline{6}$],
[$\underline{7}$], [$\underline{8}$], [$\underline{9}$], [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], [($*$)$^{\mathrm{M}}$], [If($*, *, *$)],
[array\{$*$\} $*$ end array], [l], [c], [r], [empty], [$\langle * \mid * := * \rangle$], [$\mathcal{M}(*)$], [$\tilde{\mathcal{U}}(*)$], [$\mathcal{U}(*)$],
[$\mathcal{U}^{\mathrm{M}}(*)$], [**apply**($*, *$)], [**apply**$_1(*, *$)], [identifier($*$)], [identifier$_1(*, *$)], [array-
plus($*, *$)], [array-remove($*, *, *$)], [array-put($*, *, *, *$)], [array-add($*, *, *, *, *$)],
[bit($*, *$)], [bit$_1(*, *$)], [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**($*, *, *, *$)], [$\lceil * \rceil$], [$\mathcal{M}(*, *, *$)], [$\mathcal{M}_2(*, *, *, *$)], [$\mathcal{M}^*(*, *, *$)], [macro],
[s$_0$], [**zip**($*, *$)], [**assoc**$_1(*, *, *$)], [($*$)$^{\mathbf{P}}$], [self], [[$* \overset{..}{=} *$]], [[$* \overset{.}{=} *$]], [[$* \overset{.}{=} *$]],
[[$* \overset{\mathrm{pyk}}{=} *$]], [[$* \overset{\mathrm{tex}}{=} *$]], [[$* \overset{\mathrm{name}}{=} *$]], [**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($*$)], [[$*$]$^\cdot$], [[$*$]$^-$], [**aspect**($*, *$)],
[**aspect**($*, *, *$)], [$\langle * \rangle$], [**tuple**$_1(*$)], [**tuple**$_2(*$)], [let$_2(*, *$)], [let$_1(*, *$)],
[[$* \overset{\mathrm{claim}}{=} *$]], [checker], [**check**($*, *$)], [**check**$_2(*, *, *$)], [**check**$_3(*, *, *$)],
[**check**$^*(*, *$)], [**check**$_2^*(*, *, *$)], [[$*$]$^\cdot$], [[$*$]$^-$], [[$*$]$^\circ$], [msg], [[$* \overset{\mathrm{msg}}{=} *$]], [<stmt>],
[stmt], [[$* \overset{\mathrm{stmt}}{=} *$]], [HeadNil$'$], [HeadPair$'$], [Transitivity$'$], [$\bot\!\!\bot$], [Contra$'$], [T$_{\mathrm{E}}'$],
[L$_1$], [$\underline{*}$], [$\mathcal{A}$], [$\mathcal{B}$], [$\mathcal{C}$], [$\mathcal{D}$], [$\mathcal{E}$], [$\mathcal{F}$], [$\mathcal{G}$], [$\mathcal{H}$], [$\mathcal{I}$], [$\mathcal{J}$], [$\mathcal{K}$], [$\mathcal{L}$], [$\mathcal{M}$], [$\mathcal{N}$], [$\mathcal{O}$], [$\mathcal{P}$], [$\mathcal{Q}$],
[$\mathcal{R}$], [$\mathcal{S}$], [$\mathcal{T}$], [$\mathcal{U}$], [$\mathcal{V}$], [$\mathcal{W}$], [$\mathcal{X}$], [$\mathcal{Y}$], [$\mathcal{Z}$], [$\langle * \mid * := * \rangle$], [$\langle '* \mid * := * \rangle$], [$\emptyset$], [Remainder],
[($*$)$^{\mathbf{v}}$], [intro($*, *, *, *$)], [intro($*, *, *$)], [error($*, *$)], [error$_2(*, *$)], [proof($*, *, *$)],
[proof$_2(*, *$)], [$\mathcal{S}(*, *$)], [$\mathcal{S}^{\mathrm{I}}(*, *$)], [$\mathcal{S}^{\rhd}(*, *$)], [$\mathcal{S}_1^{\rhd}(*, *, *$)], [$\mathcal{S}^{\mathrm{E}}(*, *$)], [$\mathcal{S}_1^{\mathrm{E}}(*, *, *$)],
[$\mathcal{S}^+(*, *$)], [$\mathcal{S}_1^+(*, *, *$)], [$\mathcal{S}^-(*, *$)], [$\mathcal{S}_1^-(*, *, *$)], [$\mathcal{S}^*(*, *$)], [$\mathcal{S}_1^*(*, *, *$)],
[$\mathcal{S}_2^*(*, *, *, *$)], [$\mathcal{S}^{@}(*, *$)], [$\mathcal{S}_1^{@}(*, *, *$)], [$\mathcal{S}^{\vdash}(*, *$)], [$\mathcal{S}_1^{\vdash}(*, *, *, *$)], [$\mathcal{S}^{\Vdash}(*, *$)],
[$\mathcal{S}_1^{\Vdash}(*, *, *, *$)], [$\mathcal{S}^{\mathrm{i.e.}}(*, *$)], [$\mathcal{S}_1^{\mathrm{i.e.}}(*, *, *, *$)], [$\mathcal{S}_2^{\mathrm{i.e.}}(*, *, *, *$)], [$\mathcal{S}^{\forall}(*, *$)],
[$\mathcal{S}_1^{\forall}(*, *, *, *$)], [$\mathcal{S}^{;}(*, *$)], [$\mathcal{S}_1^{;}(*, *, *$)], [$\mathcal{S}_2^{;}(*, *, *, *$)], [$\mathcal{T}(*$)], [claims($*, *, *$)],
[claims$_2(*, *, *$)], [<proof>], [proof], [[**Lemma** $* : *$]], [[**Proof of** $* : *$]],
[[$*$ **lemma** $* : *$]], [[$*$ **antilemma** $* : *$]], [[$*$ **rule** $* : *$]], [[$*$ **antirule** $* : *$]],
[verifier], [$\mathcal{V}_1(*$)], [$\mathcal{V}_2(*, *$)], [$\mathcal{V}_3(*, *, *, *$)], [$\mathcal{V}_4(*, *$)], [$\mathcal{V}_5(*, *, *, *$)], [$\mathcal{V}_6(*, *, *, *$)],
[$\mathcal{V}_7(*, *, *, *$)], [Cut($*, *$)], [Head$_\oplus(*$)], [Tail$_\oplus(*$)], [rule$_1(*, *$)], [rule($*, *$)],
[Rule tactic], [Plus($*, *$)], [[**Theory** $*$]], [theory$_2(*, *$)], [theory$_3(*, *$)],
[theory$_4(*, *, *$)], [HeadNil$''$], [HeadPair$''$], [Transitivity$''$], [Contra$''$], [HeadNil],
[HeadPair], [Transitivity], [Contra], [T$_{\mathrm{E}}$], [ragged right],
[ragged right expansion], [parm($*, *, *$)], [parm$^*(*, *, *$)], [inst($*, *$)],
[inst$^*(*, *$)], [occur($*, *, *$)], [occur$^*(*, *, *$)], [unify($* = *, *$)], [unify$^*(* = *, *$)],
[unify$_2(* = *, *$)], [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], [Reflexivity$_1$],
[Commutativity], [Commutativity$_1$], [<tactic>], [tactic], $[[* \overset{\text{tactic}}{=} *]], [\mathcal{P}(*, *, *)],$
$[\mathcal{P}^*(*, *, *)], [p_0], [\text{conclude}_1(*, *)], [\text{conclude}_2(*, *, *)], [\text{conclude}_3(*, *, *, *)],$
$[\text{conclude}_4(*, *)], [[* \overset{\circ}{=} *]],$ [RootVisible(*)], [A], [R], [C], [T], [L], $[\{*\}], [\overline{*}], [a], [b],$
$[c], [d], [e], [f], [g], [h], [i], [j], [k], [l], [m], [n], [o], [p], [q], [r], [s], [t], [u], [v], [w], [x],$
$[y], [z], [\langle * \equiv * \mid * := *\rangle], [\langle * \equiv^0 * \mid * := *\rangle], [\langle * \equiv^1 * \mid * := *\rangle], [\langle * \equiv^* * \mid * := *\rangle],$
$[\text{Ded}(*, *)], [\text{Ded}_0(*, *)], [\text{Ded}_1(*, *, *)], [\text{Ded}_2(*, *, *)], [\text{Ded}_3(*, *, *, *)],$
$[\text{Ded}_4(*, *, *, *)], [\text{Ded}_4^*(*, *, *, *)], [\text{Ded}_5(*, *, *)], [\text{Ded}_6(*, *, *, *)],$
$[\text{Ded}_6^*(*, *, *, *)], [\text{Ded}_7(*)], [\text{Ded}_8(*, *)], [\text{Ded}_8^*(*, *)], [S], [\text{Neg}], [\text{MP}], [\text{Gen}],$
[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 3.2e$_1$], [Prop 3.2e$_2$],
[Prop 3.2e], [Prop 3.2f$_1$], [Prop 3.2f$_2$], [Prop 3.2f], [Prop 3.2g$_1$], [Prop 3.2g$_2$],
[Prop 3.2g], [Prop 3.2h$_1$], [Prop 3.2h$_2$], [Prop 3.2h], $[\text{Block}_1(*, *, *)], [\text{Block}_2(*)];$

Preassociative

$[*_-\{*\}], [*/\text{indexintro}(*, *, *, *)], [*/\text{intro}(*, *, *)], [*/\text{bothintro}(*, *, *, *, *)],$
$[*/\text{nameintro}(*, *, *, *)], [*'], [*[*]], [*[*\to*]], [*[*\Rightarrow*]], [*0], [*1], [0b], [*\text{-color}(*)],$
$[*\text{-color}^*(*)], [*^H], [*^T], [*^U], [*^h], [*^t], [*^s], [*^c], [*^d], [*^a], [*^C], [*^M], [*^B], [*^r], [*^i],$
$[*^d], [*^R], [*^0], [*^1], [*^2], [*^3], [*^4], [*^5], [*^6], [*^7], [*^8], [*^9], [*^E], [*^\mathcal{V}], [*^\mathcal{C}], [*^{\mathcal{C}^*}],$
$[*^{\text{hide}}];$

Preassociative

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

Preassociative

$[* '*], [* `*];$

Preassociative

$[*'];$

Preassociative

$[* \cdot *], [* \cdot_0 *];$

Preassociative

$[* + *], [* +_0 *], [* +_1 *], [* - *], [* -_0 *], [* -_1 *];$

Preassociative

$[* \cup \{*\}], [* \cup *], [*\backslash\{*\}];$

Postassociative

$[* \therefore *], [* \therefore *], [* \vdots\vdots *], [* \underline{+2*} *], [* :: *], [* +2* *];$

Postassociative

$[*, *];$

Preassociative

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

Preassociative

$[\neg *];$

Preassociative

$[* \wedge *], [* \ddot{\wedge} *], [* \tilde{\wedge} *], [* \wedge_c *];$

Preassociative

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

Preassociative

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

Postassociative

$[* \overset{..}{\Rightarrow} *], [* \Rightarrow *], [* \Leftrightarrow *];$

Postassociative

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

Preassociative

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

Preassociative

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

Preassociative

$[*\#*];$

Preassociative

$[*^{\text{I}}], [*^{\triangleright}], [*^{\text{V}}], [*^{+}], [*^{-}], [*^{*}];$

Preassociative

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

Postassociative

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

Preassociative

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

Postassociative

$[* \oplus *];$

Postassociative

$[*; *];$

Preassociative

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

Preassociative

$[* \textbf{ proof of } * : *], [\text{Line } * : * \gg *; *], [\text{Last line } * \gg * \square],$
$[\text{Line } * : \text{Premise} \gg *; *], [\text{Line } * : \text{Side-condition} \gg *; *], [\text{Arbitrary} \gg *; *],$
$[\text{Local} \gg * = *; *], [\text{Begin } *; * : \text{End}; *], [\text{Last block line } * \gg *;],$
$[\text{Arbitrary} \gg *; *];$

Postassociative

$[* | *];$

Postassociative
$[* , *], [*[*]*];$
Preassociative
$[*\&*], [\rightarrow];$
Preassociative
$[*\backslash\backslash*], [* \text{ linebreak}[4] *], [*\backslash\backslash*];$ **End table**