

Logiweb sequent calculus, Chores

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1 Test cases

2 Pyk definitions

$[[* \overset{\circ}{=} *] \xrightarrow{\text{pyk}}$ “general macro define " as " end define”]

$[\text{RootVisible}(*) \xrightarrow{\text{pyk}}$ “make root visible " end visible”]

$[A \xrightarrow{\text{pyk}}$ “sequent example axiom”]

$[R \xrightarrow{\text{pyk}}$ “sequent example rule”]

$[C \xrightarrow{\text{pyk}}$ “sequent example contradiction”]

$[T \xrightarrow{\text{pyk}}$ “sequent example theory”]

$[L \xrightarrow{\text{pyk}}$ “sequent example lemma”]

$[\{*\} \xrightarrow{\text{pyk}}$ “set " end set”]

$[\bar{*} \xrightarrow{\text{pyk}}$ “object var " end var”]

$[a \xrightarrow{\text{pyk}}$ “object a”]

$[b \xrightarrow{\text{pyk}}$ “object b”]

$[c \xrightarrow{\text{pyk}}$ “object c”]

$[d \xrightarrow{\text{pyk}}$ “object d”]

$[e \xrightarrow{\text{pyk}}$ “object e”]

$[f \xrightarrow{\text{pyk}}$ “object f”]

$[g \xrightarrow{\text{pyk}} \text{"object g"}]$

$[h \xrightarrow{\text{pyk}} \text{"object h"}]$

$[i \xrightarrow{\text{pyk}} \text{"object i"}]$

$[j \xrightarrow{\text{pyk}} \text{"object j"}]$

$[k \xrightarrow{\text{pyk}} \text{"object k"}]$

$[l \xrightarrow{\text{pyk}} \text{"object l"}]$

$[m \xrightarrow{\text{pyk}} \text{"object m"}]$

$[n \xrightarrow{\text{pyk}} \text{"object n"}]$

$[o \xrightarrow{\text{pyk}} \text{"object o"}]$

$[p \xrightarrow{\text{pyk}} \text{"object p"}]$

$[q \xrightarrow{\text{pyk}} \text{"object q"}]$

$[r \xrightarrow{\text{pyk}} \text{"object r"}]$

$[s \xrightarrow{\text{pyk}} \text{"object s"}]$

$[t \xrightarrow{\text{pyk}} \text{"object t"}]$

$[u \xrightarrow{\text{pyk}} \text{"object u"}]$

$[v \xrightarrow{\text{pyk}} \text{"object v"}]$

$[w \xrightarrow{\text{pyk}} \text{"object w"}]$

$[x \xrightarrow{\text{pyk}} \text{"object x"}]$

$[y \xrightarrow{\text{pyk}} \text{"object y"}]$

$[z \xrightarrow{\text{pyk}} \text{"object z"}]$

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

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

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

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

$[\text{Ded}(*, *) \xrightarrow{\text{pyk}} \text{"deduction " conclude " end deduction"}]$

$[\text{Ded}_0(*, *) \xrightarrow{\text{pyk}} \text{"deduction zero " conclude " end deduction"}]$

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

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

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

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

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

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

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

deduction”]

[Ded₆^{*}(*, *, *, *) $\xrightarrow{\text{pyk}}$ “deduction six star " conclude " exception " bound " end deduction”]

[Ded₇(*) $\xrightarrow{\text{pyk}}$ “deduction seven " end deduction”]

[Ded₈(*, *) $\xrightarrow{\text{pyk}}$ “deduction eight " bound " end deduction”]

[Ded₈^{*}(*, *) $\xrightarrow{\text{pyk}}$ “deduction eight star " bound " end deduction”]

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

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

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

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

[rule div $\xrightarrow{\text{pyk}}$ “rule div”]

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

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

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

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

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

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

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

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

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

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

[S10 $\xrightarrow{\text{pyk}}$ “axiom s ten”]

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

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

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

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

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

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

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

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

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

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

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

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

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

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

[Prop 3.2f $\xrightarrow{\text{pyk}}$ “prop three two f”]
 [Prop 3.2g₁ $\xrightarrow{\text{pyk}}$ “prop three two g one”]
 [Prop 3.2g₂ $\xrightarrow{\text{pyk}}$ “prop three two g two”]
 [Prop 3.2g $\xrightarrow{\text{pyk}}$ “prop three two g”]
 [Prop 3.2h₁ $\xrightarrow{\text{pyk}}$ “prop three two h one”]
 [Prop 3.2h₂ $\xrightarrow{\text{pyk}}$ “prop three two h two”]
 [Prop 3.2h $\xrightarrow{\text{pyk}}$ “prop three two h”]
 [Prop 3.2i $\xrightarrow{\text{pyk}}$ “prop three two i”]
 [Prop 3.2j₁ $\xrightarrow{\text{pyk}}$ “prop three two j one”]
 [Prop 3.2j₂ $\xrightarrow{\text{pyk}}$ “prop three two j two”]
 [Prop 3.2j $\xrightarrow{\text{pyk}}$ “prop three two j”]
 [Prop 3.2k₁ $\xrightarrow{\text{pyk}}$ “prop three two k one”]
 [Prop 3.2k₂ $\xrightarrow{\text{pyk}}$ “prop three two k two”]
 [Prop 3.2k $\xrightarrow{\text{pyk}}$ “prop three two k”]
 [Prop 3.2l₁ $\xrightarrow{\text{pyk}}$ “prop three two l one”]
 [Prop 3.2l₂ $\xrightarrow{\text{pyk}}$ “prop three two l two”]
 [Prop 3.2l $\xrightarrow{\text{pyk}}$ “prop three two l”]
 [Prop 3.2m₁ $\xrightarrow{\text{pyk}}$ “prop three two m one”]
 [Prop 3.2m₂ $\xrightarrow{\text{pyk}}$ “prop three two m two”]
 [Prop 3.2m $\xrightarrow{\text{pyk}}$ “prop three two m”]
 [Prop 3.2n₁ $\xrightarrow{\text{pyk}}$ “prop three two n one”]
 [Prop 3.2n₂ $\xrightarrow{\text{pyk}}$ “prop three two n two”]
 [Prop 3.2n $\xrightarrow{\text{pyk}}$ “prop three two n”]
 [Prop 3.2o $\xrightarrow{\text{pyk}}$ “prop three two o”]
 [Prop 3.4a₁ $\xrightarrow{\text{pyk}}$ “prop three four a one”]
 [Prop 3.4a₂ $\xrightarrow{\text{pyk}}$ “prop three four a two”]
 [Prop 3.4a $\xrightarrow{\text{pyk}}$ “prop three four a”]
 [Prop 3.4b $\xrightarrow{\text{pyk}}$ “prop three four b”]
 [Prop 3.4c₁ $\xrightarrow{\text{pyk}}$ “prop three four c one”]
 [Prop 3.4c₂ $\xrightarrow{\text{pyk}}$ “prop three four c two”]
 [Prop 3.4c $\xrightarrow{\text{pyk}}$ “prop three four c”]
 [Prop 3.4d₁ $\xrightarrow{\text{pyk}}$ “prop three four d one”]
 [Prop 3.4d₂ $\xrightarrow{\text{pyk}}$ “prop three four d two”]
 [Prop 3.4d $\xrightarrow{\text{pyk}}$ “prop three four d”]
 [Block₁(* , * , *) $\xrightarrow{\text{pyk}}$ “block one " state " cache " end block”]

$[\text{Block}_2(*) \xrightarrow{\text{pyk}} \text{"block two " end block"}]$
 $[*_{\text{hide}} \xrightarrow{\text{pyk}} \text{" hide"}]$
 $[\text{MacroIndent}(*) \xrightarrow{\text{pyk}} \text{"macro indent "}]$
 $[*_{\text{'}} \xrightarrow{\text{pyk}} \text{" suc"}]$
 $[* = * \xrightarrow{\text{pyk}} \text{" equal "}]$
 $[* \neq * \xrightarrow{\text{pyk}} \text{" unequal "}]$
 $[*_{\text{var}} \xrightarrow{\text{pyk}} \text{" is object var"}]$
 $[*_{\#0} \xrightarrow{\text{pyk}} \text{" avoid zero "}]$
 $[*_{\#1} \xrightarrow{\text{pyk}} \text{" avoid one "}]$
 $[*_{\#*} \xrightarrow{\text{pyk}} \text{" avoid star "}]$
 $[\exists *: * \xrightarrow{\text{pyk}} \text{"exist " indeed "}]$
 $[\forall *: * \xrightarrow{\text{pyk}} \text{"for all " indeed "}]$
 $[\forall_{\text{obj}} *: * \xrightarrow{\text{pyk}} \text{"for all objects " indeed "}]$
 $[* \Rightarrow * \xrightarrow{\text{pyk}} \text{" imply "}]$
 $[* \Leftrightarrow * \xrightarrow{\text{pyk}} \text{" if and only if "}]$
 $[*_{\#*} \xrightarrow{\text{pyk}} \text{" avoid "}]$
 $[* \supseteq * \xrightarrow{\text{pyk}} \text{" object modus ponens "}]$
 $[\Pi *: * \xrightarrow{\text{pyk}} \text{"for all terms " indeed "}]$
 $[\text{Begin} *; * : \text{End}; * \xrightarrow{\text{pyk}} \text{"block " line " end block "}]$
 $[\text{Last block line} * \gg *; * \xrightarrow{\text{pyk}} \text{"because " indeed " end line"}]$
 $[\text{Arbitrary} \gg *; * \xrightarrow{\text{pyk}} \text{"any term " end line "}]$
 $[* | * \xrightarrow{\text{pyk}} \text{" alternative "}]$
 $[\rightarrow \xrightarrow{\text{pyk}} \text{"evaluates to"}]$
 $[* \backslash * \xrightarrow{\text{pyk}} \text{" safe row "}]$
 $[* || * \xrightarrow{\text{pyk}} \text{" divides "}]$
 $[\text{pok} \xrightarrow{\text{pyk}} \text{"pok"}]$

3 T_EX definitions

$[[x \stackrel{\circ}{=} y] \xrightarrow{\text{tex}} \text{"$
 $\quad \quad \quad [\#1/\text{tex name}/\text{tex}.$
 $\quad \quad \quad \backslash\text{stackrel}{\{\circ\}}{=} \#2.$
 $\quad \quad \quad \text{"}]$
 $[\text{RootVisible}(x) \xrightarrow{\text{tex}} \text{"\#1/\text{tex name}/\text{tex}."}]$
 $[\text{RootVisible}(x) \xrightarrow{\text{name}} \text{"$

RootVisible(#1.
)]

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

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

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

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

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

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

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

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

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

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

[\prod x:y $\xrightarrow{\text{tex}}$ “
\Pi #1.
\colon #2.”]

[Arbitrary \gg i; p $\xrightarrow{\text{tex}}$ “
\newline \makebox [0.1\textwidth] [l] {
\if \relax \cname lgwproofline\endcname 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 \gg i; p $\xrightarrow{\text{name}}$ “
Arbitrary \gg #1.
; #2.”]

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

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

[A $\xrightarrow{\text{tex}}$ “
A”]

[R $\xrightarrow{\text{tex}}$ “
R”]

[C $\xrightarrow{\text{tex}}$ “
C”]

[T $\xrightarrow{\text{tex}}$ “
T”]

[L $\xrightarrow{\text{tex}}$ “
L”]

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

[S $\xrightarrow{\text{tex}}$ “
S”]

[Neg $\xrightarrow{\text{tex}}$ “
Neg”]

[S1 $\xrightarrow{\text{tex}}$ “
S1”]

[S2 $\xrightarrow{\text{tex}}$ “
S2”]

[S3 $\xrightarrow{\text{tex}}$ “
S3”]

[S4 $\xrightarrow{\text{tex}}$ “
S4”]

[S5 $\xrightarrow{\text{tex}}$ “
S5”]

[S6 $\xrightarrow{\text{tex}}$ “
S6”]

[S7 $\xrightarrow{\text{tex}}$ “
S7”]

[S8 $\xrightarrow{\text{tex}}$ “
S8”]

[S9 $\xrightarrow{\text{tex}}$ “
S9”]

[S10 $\xrightarrow{\text{tex}}$ “
S10”]

[MP $\xrightarrow{\text{tex}}$ “
MP”]

[Gen $\xrightarrow{\text{tex}}$ “
Gen”]

[Ded $\xrightarrow{\text{tex}}$ “
Ded”]

[Repetition $\xrightarrow{\text{tex}}$ “
Repetition”]

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

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

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

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

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

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

[x#⁰y $\xrightarrow{\text{tex}}$ “#1.
\#. ⁰#2.”]

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

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

[⟨x≡y|z:=u⟩ $\xrightarrow{\text{tex}}$ “
 \langle #1.
 {\equiv} #2.
 | #3.
 {:=} #4.
 \rangle ”]

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

[⟨x≡¹y|z:=u⟩ $\xrightarrow{\text{tex}}$ “
 \langle #1.
 {\equiv}^1 #2.
 | #3.
 {:=} #4.
 \rangle ”]

[⟨x≡*y|z:=u⟩ $\xrightarrow{\text{tex}}$ “
 \langle #1.
 {\equiv}^* #2.
 | #3.
 {:=} #4.
 \rangle ”]

[Ded(x, y) $\xrightarrow{\text{tex}}$ “
 Ded(#1.
 , #2.
)”]

[Ded₀(x, y) $\xrightarrow{\text{tex}}$ “
 Ded.0(#1.
 , #2.
)”]

[Ded₁(x, y, z) $\xrightarrow{\text{tex}}$ “
 Ded.1(#1.
 , #2.

, #3.
)]

[Ded₂(x, y, z) $\xrightarrow{\text{tex}}$ “
Ded_2(#1.
, #2.
, #3.
)]

[Ded₃(x, y, z, u) $\xrightarrow{\text{tex}}$ “
Ded_3(#1.
, #2.
, #3.
, #4.
)]

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

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

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

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

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

, #4.
)]

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

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

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

[Begin b;l : End; p $\xrightarrow{\text{tex}}$ “
\newline \makebox [0.1\textwidth]{}%
\parbox [b]{0.4\textwidth}{\raggedright
\setlength {\parindent}{-0.1\textwidth}%
\makebox [0.1\textwidth][l]{
\if \relax \cname 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 $\xrightarrow{\text{name}}$ “
Begin \, #1.
; #2.
: End ; #3.”]

[Last block line a $\gg i$; $\xrightarrow{\text{tex}}$ “
\newline \makebox [0.1\textwidth]{}%
\parbox [b]{0.4\textwidth}{\raggedright
\setlength {\parindent}{-0.1\textwidth}%
\makebox [0.1\textwidth][l]{
]

```

\if \relax \cname 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;  $\xrightarrow{\text{name}}$  “
Last\ block\ line \, #1.
\gg #2.
\, ;”]

```

```

[x  $\geq$  y  $\xrightarrow{\text{tex}}$  “#1.
\unrhd #2.”]

```

```

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

```

```

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

```

```

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

```

```

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

```

```

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

```

```

[Prop 3.2e1  $\xrightarrow{\text{tex}}$  “
Prop\ 3.2e.1”]

```

```

[Prop 3.2e2  $\xrightarrow{\text{tex}}$  “
Prop\ 3.2e.2”]

```

```

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

```

```

[Prop 3.2f1  $\xrightarrow{\text{tex}}$  “
Prop\ 3.2f.1”]

```

```

[Prop 3.2f2  $\xrightarrow{\text{tex}}$  “
Prop\ 3.2f.2”]

```

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

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

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

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

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

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

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

[Prop 3.2i $\xrightarrow{\text{tex}}$ “
Prop\ 3.2i”]

[Prop 3.2j $\xrightarrow{\text{tex}}$ “
Prop\ 3.2j”]

[Prop 3.2j₁ $\xrightarrow{\text{tex}}$ “
Prop\ 3.2j_1”]

[Prop 3.2j₂ $\xrightarrow{\text{tex}}$ “
Prop\ 3.2j_2”]

[Prop 3.2k $\xrightarrow{\text{tex}}$ “
Prop\ 3.2k”]

[Prop 3.2k₁ $\xrightarrow{\text{tex}}$ “
Prop\ 3.2k_1”]

[Prop 3.2k₂ $\xrightarrow{\text{tex}}$ “
Prop\ 3.2k_2”]

[Prop 3.2l $\xrightarrow{\text{tex}}$ “
Prop\ 3.2l”]

[Prop 3.2l₁ $\xrightarrow{\text{tex}}$ “
Prop\ 3.2l_1”]

[Prop 3.2l₂ $\xrightarrow{\text{tex}}$ “
Prop\ 3.2l_2”]

[Prop 3.2m $\xrightarrow{\text{tex}}$ “
Prop\ 3.2m”]

[Prop 3.2m₁ $\xrightarrow{\text{tex}}$ “
Prop\ 3.2m_1”]

[Prop 3.2m₂ $\xrightarrow{\text{tex}}$ “
Prop\ 3.2m_2”]

[Prop 3.2n $\xrightarrow{\text{tex}}$ “
Prop\ 3.2n”]

[Prop 3.2n₁ $\xrightarrow{\text{tex}}$ “
Prop\ 3.2n_1”]

[Prop 3.2n₂ $\xrightarrow{\text{tex}}$ “
Prop\ 3.2n_2”]

[Prop 3.2o $\xrightarrow{\text{tex}}$ “
Prop\ 3.2o”]

[Prop 3.4a₁ $\xrightarrow{\text{tex}}$ “
Prop\ 3.4a_1”]

[Prop 3.4a₂ $\xrightarrow{\text{tex}}$ “
Prop\ 3.4a_2”]

[Prop 3.4a $\xrightarrow{\text{tex}}$ “
Prop\ 3.4a”]

[Prop 3.4b $\xrightarrow{\text{tex}}$ “
Prop\ 3.4b”]

[Prop 3.4c₁ $\xrightarrow{\text{tex}}$ “
Prop\ 3.4c_1”]

[Prop 3.4c₂ $\xrightarrow{\text{tex}}$ “
Prop\ 3.4c_2”]

[Prop 3.4c $\xrightarrow{\text{tex}}$ “
Prop\ 3.4c”]

[Prop 3.4d₁ $\xrightarrow{\text{tex}}$ “
Prop\ 3.4d_1”]

[Prop 3.4d₂ $\xrightarrow{\text{tex}}$ “
Prop\ 3.4d_2”]

[Prop 3.4d $\xrightarrow{\text{tex}}$ “
Prop\ 3.4d”]

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

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

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

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

[$\rightarrow \xrightarrow{\text{tex}}$ “
\rightarrow ”]

3.1 Variables

[$\bar{x} \xrightarrow{\text{tex}}$ “\overline{#1.}”]
[$a \xrightarrow{\text{macro}}$ $\lambda t. \lambda s. \lambda c. \tilde{\mathcal{M}}_4(t, s, c, [[a \doteq \bar{a}]])$]
[$b \xrightarrow{\text{macro}}$ $\lambda t. \lambda s. \lambda c. \tilde{\mathcal{M}}_4(t, s, c, [[b \doteq \bar{b}]])$]
[$c \xrightarrow{\text{macro}}$ $\lambda t. \lambda s. \lambda c. \tilde{\mathcal{M}}_4(t, s, c, [[c \doteq \bar{c}]])$]
[$d \xrightarrow{\text{macro}}$ $\lambda t. \lambda s. \lambda c. \tilde{\mathcal{M}}_4(t, s, c, [[d \doteq \bar{d}]])$]
[$e \xrightarrow{\text{macro}}$ $\lambda t. \lambda s. \lambda c. \tilde{\mathcal{M}}_4(t, s, c, [[e \doteq \bar{e}]])$]
[$f \xrightarrow{\text{macro}}$ $\lambda t. \lambda s. \lambda c. \tilde{\mathcal{M}}_4(t, s, c, [[f \doteq \bar{f}]])$]
[$g \xrightarrow{\text{macro}}$ $\lambda t. \lambda s. \lambda c. \tilde{\mathcal{M}}_4(t, s, c, [[g \doteq \bar{g}]])$]
[$h \xrightarrow{\text{macro}}$ $\lambda t. \lambda s. \lambda c. \tilde{\mathcal{M}}_4(t, s, c, [[h \doteq \bar{h}]])$]
[$i \xrightarrow{\text{macro}}$ $\lambda t. \lambda s. \lambda c. \tilde{\mathcal{M}}_4(t, s, c, [[i \doteq \bar{i}]])$]
[$j \xrightarrow{\text{macro}}$ $\lambda t. \lambda s. \lambda c. \tilde{\mathcal{M}}_4(t, s, c, [[j \doteq \bar{j}]])$]
[$k \xrightarrow{\text{macro}}$ $\lambda t. \lambda s. \lambda c. \tilde{\mathcal{M}}_4(t, s, c, [[k \doteq \bar{k}]])$]
[$l \xrightarrow{\text{macro}}$ $\lambda t. \lambda s. \lambda c. \tilde{\mathcal{M}}_4(t, s, c, [[l \doteq \bar{l}]])$]
[$m \xrightarrow{\text{macro}}$ $\lambda t. \lambda s. \lambda c. \tilde{\mathcal{M}}_4(t, s, c, [[m \doteq \bar{m}]])$]
[$n \xrightarrow{\text{macro}}$ $\lambda t. \lambda s. \lambda c. \tilde{\mathcal{M}}_4(t, s, c, [[n \doteq \bar{n}]])$]

$[o \xrightarrow{\text{macro}} \lambda t. \lambda s. \lambda c. \tilde{\mathcal{M}}_4(t, s, c, [[o \doteq \bar{o}]])]$
 $[p \xrightarrow{\text{macro}} \lambda t. \lambda s. \lambda c. \tilde{\mathcal{M}}_4(t, s, c, [[p \doteq \bar{p}]])]$
 $[q \xrightarrow{\text{macro}} \lambda t. \lambda s. \lambda c. \tilde{\mathcal{M}}_4(t, s, c, [[q \doteq \bar{q}]])]$
 $[r \xrightarrow{\text{macro}} \lambda t. \lambda s. \lambda c. \tilde{\mathcal{M}}_4(t, s, c, [[r \doteq \bar{r}]])]$
 $[s \xrightarrow{\text{macro}} \lambda t. \lambda s. \lambda c. \tilde{\mathcal{M}}_4(t, s, c, [[s \doteq \bar{s}]])]$
 $[t \xrightarrow{\text{macro}} \lambda t. \lambda s. \lambda c. \tilde{\mathcal{M}}_4(t, s, c, [[t \doteq \bar{t}]])]$
 $[u \xrightarrow{\text{macro}} \lambda t. \lambda s. \lambda c. \tilde{\mathcal{M}}_4(t, s, c, [[u \doteq \bar{u}]])]$
 $[v \xrightarrow{\text{macro}} \lambda t. \lambda s. \lambda c. \tilde{\mathcal{M}}_4(t, s, c, [[v \doteq \bar{v}]])]$
 $[w \xrightarrow{\text{macro}} \lambda t. \lambda s. \lambda c. \tilde{\mathcal{M}}_4(t, s, c, [[w \doteq \bar{w}]])]$
 $[x \xrightarrow{\text{macro}} \lambda t. \lambda s. \lambda c. \tilde{\mathcal{M}}_4(t, s, c, [[x \doteq \bar{x}]])]$
 $[y \xrightarrow{\text{macro}} \lambda t. \lambda s. \lambda c. \tilde{\mathcal{M}}_4(t, s, c, [[y \doteq \bar{y}]])]$
 $[z \xrightarrow{\text{macro}} \lambda t. \lambda s. \lambda c. \tilde{\mathcal{M}}_4(t, s, c, [[z \doteq \bar{z}]])]$
 $[a \xrightarrow{\text{tex}} \text{“} \backslash \text{mathit}\{a\} \text{”}]$
 $[b \xrightarrow{\text{tex}} \text{“} \backslash \text{mathit}\{b\} \text{”}]$
 $[c \xrightarrow{\text{tex}} \text{“} \backslash \text{mathit}\{c\} \text{”}]$
 $[d \xrightarrow{\text{tex}} \text{“} \backslash \text{mathit}\{d\} \text{”}]$
 $[e \xrightarrow{\text{tex}} \text{“} \backslash \text{mathit}\{e\} \text{”}]$
 $[f \xrightarrow{\text{tex}} \text{“} \backslash \text{mathit}\{f\} \text{”}]$
 $[g \xrightarrow{\text{tex}} \text{“} \backslash \text{mathit}\{g\} \text{”}]$
 $[h \xrightarrow{\text{tex}} \text{“} \backslash \text{mathit}\{h\} \text{”}]$
 $[i \xrightarrow{\text{tex}} \text{“} \backslash \text{mathit}\{i\} \text{”}]$
 $[j \xrightarrow{\text{tex}} \text{“} \backslash \text{mathit}\{j\} \text{”}]$
 $[k \xrightarrow{\text{tex}} \text{“} \backslash \text{mathit}\{k\} \text{”}]$
 $[l \xrightarrow{\text{tex}} \text{“} \backslash \text{mathit}\{l\} \text{”}]$
 $[m \xrightarrow{\text{tex}} \text{“} \backslash \text{mathit}\{m\} \text{”}]$
 $[n \xrightarrow{\text{tex}} \text{“} \backslash \text{mathit}\{n\} \text{”}]$

$[o \xrightarrow{\text{tex}} \text{“} \backslash\mathit{o}\text{”}]$
 $[p \xrightarrow{\text{tex}} \text{“} \backslash\mathit{p}\text{”}]$
 $[q \xrightarrow{\text{tex}} \text{“} \backslash\mathit{q}\text{”}]$
 $[r \xrightarrow{\text{tex}} \text{“} \backslash\mathit{r}\text{”}]$
 $[s \xrightarrow{\text{tex}} \text{“} \backslash\mathit{s}\text{”}]$
 $[t \xrightarrow{\text{tex}} \text{“} \backslash\mathit{t}\text{”}]$
 $[u \xrightarrow{\text{tex}} \text{“} \backslash\mathit{u}\text{”}]$
 $[v \xrightarrow{\text{tex}} \text{“} \backslash\mathit{v}\text{”}]$
 $[w \xrightarrow{\text{tex}} \text{“} \backslash\mathit{w}\text{”}]$
 $[x \xrightarrow{\text{tex}} \text{“} \backslash\mathit{x}\text{”}]$
 $[y \xrightarrow{\text{tex}} \text{“} \backslash\mathit{y}\text{”}]$
 $[z \xrightarrow{\text{tex}} \text{“} \backslash\mathit{z}\text{”}]$

4 Priority table

$[\text{pok} \xrightarrow{\text{prio}}$

Preassociative

$[\text{pok}]$, $[\text{base}]$, $[\text{bracket } * \text{ end bracket}]$, $[\text{big bracket } * \text{ end bracket}]$, $[\$ * \$]$,
 $[\text{flush left } [*]]$, $[x]$, $[y]$, $[z]$, $[[* \bowtie *]]$, $[[* \xrightarrow{*} *]]$, $[\text{pyk}]$, $[\text{tex}]$, $[\text{name}]$, $[\text{prio}]$, $[*]$, $[\text{T}]$,
 $[\text{if}(*, *, *)]$, $[[* \xrightarrow{*} *]]$, $[\text{val}]$, $[\text{claim}]$, $[\perp]$, $[\text{f}(*)]$, $[(*)^I]$, $[\text{F}]$, $[0]$, $[1]$, $[2]$, $[3]$, $[4]$, $[5]$, $[6]$,
 $[7]$, $[8]$, $[9]$, $[0]$, $[1]$, $[2]$, $[3]$, $[4]$, $[5]$, $[6]$, $[7]$, $[8]$, $[9]$, $[\text{a}]$, $[\text{b}]$, $[\text{c}]$, $[\text{d}]$, $[\text{e}]$, $[\text{f}]$, $[\text{g}]$, $[\text{h}]$, $[i]$, $[j]$,
 $[k]$, $[l]$, $[\text{m}]$, $[\text{n}]$, $[\text{o}]$, $[\text{p}]$, $[\text{q}]$, $[\text{r}]$, $[\text{s}]$, $[\text{t}]$, $[\text{u}]$, $[\text{v}]$, $[\text{w}]$, $[(*)^M]$, $[\text{If}(*, *, *)]$,
 $[\text{array}\{*\} * \text{end array}]$, $[l]$, $[c]$, $[r]$, $[\text{empty}]$, $[\langle * | * := * \rangle]$, $[\mathcal{M}(*)]$, $[\tilde{\mathcal{U}}(*)]$, $[\mathcal{U}(*)]$,
 $[\mathcal{U}^M(*)]$, $[\mathbf{apply}(*, *)]$, $[\mathbf{apply}_1(*, *)]$, $[\text{identifier}(*)]$, $[\text{identifier}_1(*, *)]$, $[\text{array-}$
 $\text{plus}(*, *)]$, $[\text{array-remove}(*, *, *)]$, $[\text{array-put}(*, *, *, *)]$, $[\text{array-add}(*, *, *, *, *)]$,
 $[\text{bit}(*, *)]$, $[\text{bit}_1(*, *)]$, $[\text{rack}]$, $[\text{"vector"}]$, $[\text{"bibliography"}]$, $[\text{"dictionary"}]$,
 $[\text{"body"}]$, $[\text{"codex"}]$, $[\text{"expansion"}]$, $[\text{"code"}]$, $[\text{"cache"}]$, $[\text{"diagnose"}]$, $[\text{"pyk"}]$,
 $[\text{"tex"}]$, $[\text{"texname"}]$, $[\text{"value"}]$, $[\text{"message"}]$, $[\text{"macro"}]$, $[\text{"definition"}]$,
 $[\text{"unpack"}]$, $[\text{"claim"}]$, $[\text{"priority"}]$, $[\text{"lambda"}]$, $[\text{"apply"}]$, $[\text{"true"}]$, $[\text{"if"}]$,
 $[\text{"quote"}]$, $[\text{"proclaim"}]$, $[\text{"define"}]$, $[\text{"introduce"}]$, $[\text{"hide"}]$, $[\text{"pre"}]$, $[\text{"post"}]$,

$[\mathcal{E}(*, *, *)]$, $[\mathcal{E}_2(*, *, *, *, *)]$, $[\mathcal{E}_3(*, *, *, *, *)]$, $[\mathcal{E}_4(*, *, *, *, *)]$, **lookup** $(*, *, *)$,
abstract $(*, *, *, *, *)$, $[[*]]$, $[\mathcal{M}(*, *, *)]$, $[\mathcal{M}_2(*, *, *, *)]$, $[\mathcal{M}^*(*, *, *)]$, **macro**,
 $[s_0]$, **zip** $(*, *)$, **assoc** $_1(*, *, *, *)$, $[(*)^P]$, **self**, $[[* \doteq *]]$, $[[* \doteq *]]$, $[[* \doteq *]]$,
 $[[* \stackrel{\text{pyk}}{=} *]]$, $[[* \stackrel{\text{tex}}{=} *]]$, $[[* \stackrel{\text{name}}{=} *]]$, **Priority table** $[*]$, $[\tilde{\mathcal{M}}_1]$, $[\tilde{\mathcal{M}}_2(*)]$, $[\tilde{\mathcal{M}}_3(*)]$,
 $[\tilde{\mathcal{M}}_4(*, *, *, *, *)]$, $[\mathcal{M}(*, *, *, *)]$, $[\mathcal{Q}(*, *, *, *)]$, $[\tilde{\mathcal{Q}}_2(*, *, *, *)]$, $[\tilde{\mathcal{Q}}_3(*, *, *, *, *)]$, $[\tilde{\mathcal{Q}}^*(*, *, *, *)]$,
 $[(*)]$, $[(*)]$, $[\text{display}(*)]$, $[\text{statement}(*)]$, $[[*]^-]$, $[[*]^-]$, **aspect** $(*, *)$,
aspect $(*, *, *, *)$, $[(*)]$, **tuple** $_1(*)$, **tuple** $_2(*)$, $[\text{let}_2(*, *)]$, $[\text{let}_1(*, *, *)]$,
 $[[* \stackrel{\text{claim}}{=} *]]$, **checker**, **check** $(*, *)$, **check** $_2(*, *, *)$, **check** $_3(*, *, *, *)$,
check $^*(*, *)$, **check** $_2^*(*, *, *, *)$, $[[*]^-]$, $[[*]^-]$, $[[*]^\circ]$, **msg**, $[[* \stackrel{\text{msg}}{=} *]]$, $\langle \text{stmt} \rangle$,
 $\langle \text{stmt} \rangle$, $[[* \stackrel{\text{stmt}}{=} *]]$, **HeadNil'**, **HeadPair'**, **Transitivity'**, $[\perp]$, **Contra'**, $[\text{T}'_E]$,
 $[\mathcal{L}_1]$, $[\ast]$, $[\mathcal{A}]$, $[\mathcal{B}]$, $[\mathcal{C}]$, $[\mathcal{D}]$, $[\mathcal{E}]$, $[\mathcal{F}]$, $[\mathcal{G}]$, $[\mathcal{H}]$, $[\mathcal{I}]$, $[\mathcal{J}]$, $[\mathcal{K}]$, $[\mathcal{L}]$, $[\mathcal{M}]$, $[\mathcal{N}]$, $[\mathcal{O}]$, $[\mathcal{P}]$, $[\mathcal{Q}]$,
 $[\mathcal{R}]$, $[\mathcal{S}]$, $[\mathcal{T}]$, $[\mathcal{U}]$, $[\mathcal{V}]$, $[\mathcal{W}]$, $[\mathcal{X}]$, $[\mathcal{Y}]$, $[\mathcal{Z}]$, $[(\ast \mid \ast := \ast)]$, $[(\ast \mid \ast := \ast)]$, $[\emptyset]$, **Remainder**,
 $[(\ast \vee)]$, **intro** $(*, *, *, *)$, **intro** $(*, *, *)$, **error** $(*, *)$, **error** $_2(*, *)$, **proof** $(*, *, *)$,
proof $_2(*, *)$, $[\mathcal{S}(*, *)]$, $[\mathcal{S}^1(*, *)]$, $[\mathcal{S}^\triangleright(*, *)]$, $[\mathcal{S}^{\triangleright}_1(*, *, *)]$, $[\mathcal{S}^E(*, *)]$, $[\mathcal{S}^E_1(*, *, *)]$,
 $[\mathcal{S}^+(*, *)]$, $[\mathcal{S}^+_1(*, *, *)]$, $[\mathcal{S}^-(*, *)]$, $[\mathcal{S}^-_1(*, *, *)]$, $[\mathcal{S}^*(*, *)]$, $[\mathcal{S}^*_1(*, *, *)]$,
 $[\mathcal{S}^*_2(*, *, *, *)]$, $[\mathcal{S}^{\textcircled{a}}(*, *)]$, $[\mathcal{S}^{\textcircled{a}}_1(*, *, *, *)]$, $[\mathcal{S}^+(*, *)]$, $[\mathcal{S}^+_1(*, *, *, *)]$, $[\mathcal{S}^{\text{H}}(*, *)]$,
 $[\mathcal{S}^{\text{H}}_1(*, *, *, *)]$, $[\mathcal{S}^{\text{i.e.}}(*, *)]$, $[\mathcal{S}^{\text{i.e.}}_1(*, *, *, *, *)]$, $[\mathcal{S}^{\text{i.e.}}_2(*, *, *, *, *)]$, $[\mathcal{S}^\vee(*, *)]$,
 $[\mathcal{S}^\vee_1(*, *, *, *)]$, $[\mathcal{S}^i(*, *)]$, $[\mathcal{S}^i_1(*, *, *, *)]$, $[\mathcal{S}^i_2(*, *, *, *, *)]$, $[\mathcal{T}(*)]$, **claims** $(*, *, *)$,
claims $_2(*, *, *)$, $\langle \text{proof} \rangle$, **proof**, $[[\text{Lemma } * : *]]$, $[[\text{Proof of } * : *]]$,
 $[[* \text{ lemma } * : *]]$, $[[* \text{ antilemma } * : *]]$, $[[* \text{ rule } * : *]]$, $[[* \text{ antirule } * : *]]$,
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** $_{\oplus}(*)$, $[\text{rule}_1(*, *)]$, $[\text{rule}(*, *)]$,
Rule tactic, **Plus** $(*, *)$, $[[\text{Theory } *]]$, $[\text{theory}_2(*, *)]$, $[\text{theory}_3(*, *)]$,
 $[\text{theory}_4(*, *, *, *)]$, **HeadNil''**, **HeadPair''**, **Transitivity''**, **Contra''**, **HeadNil**,
HeadPair, **Transitivity**, **Contra**, $[\text{T}'_E]$, **ragged right**,
ragged right expansion, $[\text{parm}(*, *, *)]$, $[\text{parm}^*(*, *, *)]$, $[\text{inst}(*, *)]$,
 $[\text{inst}^*(*, *)]$, $[\text{occur}(*, *, *)]$, $[\text{occur}^*(*, *, *)]$, $[\text{unify}(* = *, *)]$, $[\text{unify}^*(* = *, *)]$,
 $[\text{unify}_2(* = *, *)]$, $[\mathcal{L}_a]$, $[\mathcal{L}_b]$, $[\mathcal{L}_c]$, $[\mathcal{L}_d]$, $[\mathcal{L}_e]$, $[\mathcal{L}_f]$, $[\mathcal{L}_g]$, $[\mathcal{L}_h]$, $[\mathcal{L}_i]$, $[\mathcal{L}_j]$, $[\mathcal{L}_k]$, $[\mathcal{L}_l]$, $[\mathcal{L}_m]$,
 $[\mathcal{L}_n]$, $[\mathcal{L}_o]$, $[\mathcal{L}_p]$, $[\mathcal{L}_q]$, $[\mathcal{L}_r]$, $[\mathcal{L}_s]$, $[\mathcal{L}_t]$, $[\mathcal{L}_u]$, $[\mathcal{L}_v]$, $[\mathcal{L}_w]$, $[\mathcal{L}_x]$, $[\mathcal{L}_y]$, $[\mathcal{L}_z]$, $[\mathcal{L}_A]$, $[\mathcal{L}_B]$, $[\mathcal{L}_C]$,
 $[\mathcal{L}_D]$, $[\mathcal{L}_E]$, $[\mathcal{L}_F]$, $[\mathcal{L}_G]$, $[\mathcal{L}_H]$, $[\mathcal{L}_I]$, $[\mathcal{L}_J]$, $[\mathcal{L}_K]$, $[\mathcal{L}_L]$, $[\mathcal{L}_M]$, $[\mathcal{L}_N]$, $[\mathcal{L}_O]$, $[\mathcal{L}_P]$, $[\mathcal{L}_Q]$, $[\mathcal{L}_R]$,
 $[\mathcal{L}_S]$, $[\mathcal{L}_T]$, $[\mathcal{L}_U]$, $[\mathcal{L}_V]$, $[\mathcal{L}_W]$, $[\mathcal{L}_X]$, $[\mathcal{L}_Y]$, $[\mathcal{L}_Z]$, $[\mathcal{L}_?]$, **Reflexivity**, **Reflexivity** $_1$,
Commutativity, **Commutativity** $_1$, $\langle \text{tactic} \rangle$, **tactic**, $[[* \stackrel{\text{tactic}}{=} *]]$, $[\mathcal{P}(*, *, *)]$,
 $[\mathcal{P}^*(*, *, *)]$, $[\text{p}_0]$, **conclude** $_1(*, *)$, **conclude** $_2(*, *, *)$, **conclude** $_3(*, *, *, *)$,
conclude $_4(*, *)$, $[[* \stackrel{\circ}{=} *]]$, **RootVisible** $(*)$, $[\mathcal{A}]$, $[\mathcal{R}]$, $[\mathcal{C}]$, $[\mathcal{T}]$, $[\mathcal{L}]$, $[\{*\}]$, $[\ast]$, $[a]$, $[b]$,
 $[c]$, $[d]$, $[e]$, $[f]$, $[g]$, $[h]$, $[i]$, $[j]$, $[k]$, $[l]$, $[m]$, $[n]$, $[o]$, $[p]$, $[q]$, $[r]$, $[s]$, $[t]$, $[u]$, $[v]$, $[w]$, $[x]$,
 $[y]$, $[z]$, $[(\ast \equiv \ast \mid \ast := \ast)]$, $[(\ast \equiv^0 \ast \mid \ast := \ast)]$, $[(\ast \equiv^1 \ast \mid \ast := \ast)]$, $[(\ast \equiv^* \ast \mid \ast := \ast)]$,
Ded $(*, *)$, **Ded** $_0(*, *)$, **Ded** $_1(*, *, *)$, **Ded** $_2(*, *, *)$, **Ded** $_3(*, *, *, *)$,
Ded $_4(*, *, *, *)$, **Ded** $_4^*(*, *, *, *)$, **Ded** $_5(*, *, *)$, **Ded** $_6(*, *, *, *)$,
Ded $_6^*(*, *, *, *)$, **Ded** $_7(*, *)$, **Ded** $_8(*, *)$, **Ded** $_8^*(*, *)$, $[\mathcal{S}]$, $[\text{Neg}]$, $[\text{MP}]$, $[\text{Gen}]$,
rule div, **Ded**, $[\text{S1}]$, $[\text{S2}]$, $[\text{S3}]$, $[\text{S4}]$, $[\text{S5}]$, $[\text{S6}]$, $[\text{S7}]$, $[\text{S8}]$, $[\text{S9}]$, $[\text{S10}]$, **Repetition**,
 $[\text{A1}']$, $[\text{A2}']$, $[\text{A4}']$, $[\text{A5}']$, $[\text{Prop 3.2a}]$, $[\text{Prop 3.2b}]$, $[\text{Prop 3.2c}]$, $[\text{Prop 3.2d}]$,
 $[\text{Prop 3.2e}_1]$, $[\text{Prop 3.2e}_2]$, $[\text{Prop 3.2e}]$, $[\text{Prop 3.2f}_1]$, $[\text{Prop 3.2f}_2]$, $[\text{Prop 3.2f}]$,
 $[\text{Prop 3.2g}_1]$, $[\text{Prop 3.2g}_2]$, $[\text{Prop 3.2g}]$, $[\text{Prop 3.2h}_1]$, $[\text{Prop 3.2h}_2]$, $[\text{Prop 3.2h}]$,
 $[\text{Prop 3.2i}]$, $[\text{Prop 3.2j}_1]$, $[\text{Prop 3.2j}_2]$, $[\text{Prop 3.2j}]$, $[\text{Prop 3.2k}_1]$, $[\text{Prop 3.2k}_2]$,

[Prop 3.2k], [Prop 3.2l₁], [Prop 3.2l₂], [Prop 3.2l], [Prop 3.2m₁], [Prop 3.2m₂],
 [Prop 3.2m], [Prop 3.2n₁], [Prop 3.2n₂], [Prop 3.2n], [Prop 3.2o], [Prop 3.4a₁],
 [Prop 3.4a₂], [Prop 3.4a], [Prop 3.4b], [Prop 3.4c₁], [Prop 3.4c₂], [Prop 3.4c],
 [Prop 3.4d₁], [Prop 3.4d₂], [Prop 3.4d], [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

[* . . *], [* . : *], [* : : *], [* + 2 * *], [* : : *], [* + 2 * *];

Postassociative

[* , *];

Preassociative

[* ^B ≈ *], [* ^D ≈ *], [* ^C ≈ *], [* ^P ≈ *], [* ≈ *], [* = *], [* → *], [* = *], [* = *], [* = *], [* = *],
 [* ∈_T *], [* ⊆_T *], [* ^T *], [* ^S *], [* free in *], [* free in* *], [* free for * in *],
 [* free for* * in *], [* ∈_c *], [* < *], [* < ' *], [* ≤ ' *], [* = *], [* ≠ *], [* ^{var} *],
 [* # 0 *], [* # 1 *], [* # * *];

Preassociative

[¬ *];

Preassociative

[* ∧ *], [* ∨ *], [* ∼ *], [* ∧_c *];

Preassociative

[* ∨ *], [* || *], [* ∨̇ *];

Preassociative

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

Postassociative

$[* \Rightarrow *], [* \Rightarrow *], [* \Leftrightarrow *];$

Postassociative

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

Preassociative

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

Preassociative

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

Preassociative

$[* \# *];$

Preassociative

$[* \uparrow], [* \triangleright], [* \vee], [* +], [* -], [* *];$

Preassociative

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

Postassociative

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

Preassociative

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

Postassociative

$[* \oplus *];$

Postassociative

$[* ; *];$

Preassociative

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

Preassociative

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

Postassociative

$[* | *];$

Postassociative

$[* , *], [* [*] *];$

Preassociative

$[* \& *], [\rightarrow];$

Preassociative

$[* \\ *], [* \text{ linebreak}[4] *], [* \\ *], [* || *];]$