

Logiweb codex of opgave

Up Help

opgave, [$\overset{\circ}{*}$], RootVisible(*), A, R, C, T, L, {*}, $\bar{*}$, 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, $\langle * \equiv * \mid * := * \rangle$, $\langle * \equiv^0 * \mid * := * \rangle$, $\langle * \equiv^1 * \mid * := * \rangle$, $\langle * \equiv^* * \mid * := * \rangle$, Ded(*, *), Ded₀(*, *), Ded₁(*, *, *), Ded₂(*, *, *), Ded₃(*, *, *, *), Ded₄(*, *, *, *), Ded₄^{*}(*, *, *, *), Ded₅(*, *, *), Ded₆(*, *, *, *), Ded₆^{*}(*, *, *, *), Ded₇(*), Ded₈(*, *), Ded₈^{*}(*, *), S, Neg, MP, Gen, rule div, Ded, S1, S2, S3, S4, S5, S6, S7, S8, S9, S10, 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, Prop 3.2i, Prop 3.2j₁, Prop 3.2j₂, Prop 3.2j, Prop 3.2k₁, Prop 3.2k₂, 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(*), *^{hide}, MacroIndent(*), *', * = *, * ≠ *, *^{var}, *#⁰*, *#¹*, *#^{*}*, $\exists *: *$, $\forall *: *$, $\forall_{obj} *: *$, * ⇒ *, * ⇔ *, *##*, * ⊇ *, $\Pi *: *$, Begin**; **: End*; Last block line * >> *; Arbitrary >> *; * | *, →, * \ *, ***,

opgave

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

Preassociative

[opgave], [base], [bracket * end bracket], [big bracket * end bracket], [\$ * \$], [flush left [*]], [x], [y], [z], [[* ∞ *]], [[* ^{*} *]], [pyk], [tex], [name], [prio], [*], [T], [if(*, *, *)], [[* $\overset{*}{\Rightarrow}$ *]], [val], [claim], [⊥], [f(*)], [(*)^l], [F], [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], [so], [zip(*, *)], [assoc₁(*, *, *)], [(*)^P], [self], [[* $\overset{\cdot}{\equiv}$ *]], [[* $\overset{\cdot}{\equiv}$ *]], [[* $\overset{\cdot}{\equiv}$ *]],

$[[* \stackrel{\text{pyk}}{=} *]], [[* \stackrel{\text{tex}}{=} *]], [[* \stackrel{\text{name}}{=} *]], [\text{Priority table}(*)], [\tilde{\mathcal{M}}_1], [\tilde{\mathcal{M}}_2(*)], [\tilde{\mathcal{M}}_3(*)],$
 $[\tilde{\mathcal{M}}_4(*, *, *, *)], [\mathcal{M}(*, *, *)], [\tilde{\mathcal{Q}}_2(*, *, *)], [\tilde{\mathcal{Q}}_3(*, *, *, *)], [\tilde{\mathcal{Q}}^*(*, *, *)],$
 $[(*)], [(*)], [\text{display}(*)], [\text{statement}(*)], [(*)], [(*)], [\text{aspect}(*, *)],$
 $[\text{aspect}(*, *, *)], [(\ast)], [\text{tuple}_1(*)], [\text{tuple}_2(*)], [\text{let}_2(*, *)], [\text{let}_1(*, *)],$
 $[[* \stackrel{\text{claim}}{=} *]], [\text{checker}], [\text{check}(*, *)], [\text{check}_2(*, *, *)], [\text{check}_3(*, *, *)],$
 $[\text{check}^*(*, *)], [\text{check}_2^*(*, *, *)], [(*)], [(*)], [(*)], [\text{msg}], [[* \stackrel{\text{msg}}{=} *]], [<\text{stmt}>],$
 $[\text{stmt}], [[* \stackrel{\text{stmt}}{=} *]], [\text{HeadNil}'], [\text{HeadPair}'], [\text{Transitivity}'], [\perp], [\text{Contra}'], [\text{T}_E],$
 $[\text{L}_1], [\ast], [\text{A}], [\text{B}], [\text{C}], [\text{D}], [\text{E}], [\text{F}], [\text{G}], [\text{H}], [\text{I}], [\text{J}], [\text{K}], [\text{L}], [\text{M}], [\text{N}], [\text{O}], [\text{P}], [\text{Q}],$
 $[\text{R}], [\text{S}], [\text{T}], [\text{U}], [\text{V}], [\text{W}], [\text{X}], [\text{Y}], [\text{Z}], [(*) \mid * := *], [(*) \mid * := *], [\emptyset], [\text{Remainder}],$
 $[(*)^\vee], [\text{intro}(*, *, *, *)], [\text{intro}(*, *, *)], [\text{error}(*, *)], [\text{error}_2(*, *)], [\text{proof}(*, *, *)],$
 $[\text{proof}_2(*, *)], [\text{S}(*, *)], [\text{S}^1(*, *)], [\text{S}^\triangleright(*, *)], [\text{S}_1^\triangleright(*, *, *)], [\text{S}^E(*, *)], [\text{S}_1^E(*, *, *)],$
 $[\text{S}^+(*, *)], [\text{S}_1^+(*, *, *)], [\text{S}^-(*, *)], [\text{S}_1^-(*, *, *)], [\text{S}^*(*, *)], [\text{S}_1^*(*, *, *)],$
 $[\text{S}_2^*(*, *, *, *)], [\text{S}^\otimes(*, *)], [\text{S}_1^\otimes(*, *, *)], [\text{S}^\mp(*, *)], [\text{S}_1^\mp(*, *, *, *)], [\text{S}^\#(*, *)],$
 $[\text{S}_1^\#(*, *, *, *)], [\text{S}^{\text{i.e.}}(*, *)], [\text{S}_1^{\text{i.e.}}(*, *, *, *)], [\text{S}_2^{\text{i.e.}}(*, *, *, *, *)], [\text{S}^\vee(*, *)],$
 $[\text{S}_1^\vee(*, *, *, *)], [\text{S}^i(*, *)], [\text{S}_1^i(*, *, *)], [\text{S}_2^i(*, *, *, *)], [\text{T}(*)], [\text{claims}(*, *, *)],$
 $[\text{claims}_2(*, *, *)], [<\text{proof}>], [\text{proof}], [[\text{Lemma } * : *]], [[\text{Proof of } * : *]],$
 $[[* \text{ lemma } * : *]], [[* \text{ antilemma } * : *]], [[* \text{ rule } * : *]], [[* \text{ antirule } * : *]],$
 $[\text{verifier}], [\mathcal{V}_1(*)], [\mathcal{V}_2(*, *)], [\mathcal{V}_3(*, *, *, *)], [\mathcal{V}_4(*, *)], [\mathcal{V}_5(*, *, *, *)], [\mathcal{V}_6(*, *, *, *)],$
 $[\mathcal{V}_7(*, *, *, *)], [\text{Cut}(*, *)], [\text{Head}_\oplus(*)], [\text{Tail}_\oplus(*)], [\text{rule}_1(*, *)], [\text{rule}(*, *)],$
 $[\text{Rule tactic}], [\text{Plus}(*, *)], [[\text{Theory } *]], [\text{theory}_2(*, *)], [\text{theory}_3(*, *)],$
 $[\text{theory}_4(*, *, *)], [\text{HeadNil}''], [\text{HeadPair}''], [\text{Transitivity}''], [\text{Contra}''], [\text{HeadNil}],$
 $[\text{HeadPair}], [\text{Transitivity}], [\text{Contra}], [\text{T}_E], [\text{ragged right}],$
 $[\text{ragged right expansion }], [\text{parm}(*, *, *)], [\text{parm}^*(*, *, *)], [\text{inst}(*, *)],$
 $[\text{inst}^*(*, *)], [\text{occur}(*, *, *)], [\text{occur}^*(*, *, *)], [\text{unify}(* = *, *)], [\text{unify}^*(* = *, *)],$
 $[\text{unify}_2(* = *, *)], [\text{L}_a], [\text{L}_b], [\text{L}_c], [\text{L}_d], [\text{L}_e], [\text{L}_f], [\text{L}_g], [\text{L}_h], [\text{L}_i], [\text{L}_j], [\text{L}_k], [\text{L}_l], [\text{L}_m],$
 $[\text{L}_n], [\text{L}_o], [\text{L}_p], [\text{L}_q], [\text{L}_r], [\text{L}_s], [\text{L}_t], [\text{L}_u], [\text{L}_v], [\text{L}_w], [\text{L}_x], [\text{L}_y], [\text{L}_z], [\text{L}_A], [\text{L}_B], [\text{L}_C],$
 $[\text{L}_D], [\text{L}_E], [\text{L}_F], [\text{L}_G], [\text{L}_H], [\text{L}_I], [\text{L}_J], [\text{L}_K], [\text{L}_L], [\text{L}_M], [\text{L}_N], [\text{L}_O], [\text{L}_P], [\text{L}_Q], [\text{L}_R],$
 $[\text{L}_S], [\text{L}_T], [\text{L}_U], [\text{L}_V], [\text{L}_W], [\text{L}_X], [\text{L}_Y], [\text{L}_Z], [\text{L}_?], [\text{Reflexivity}], [\text{Reflexivity}_1],$
 $[\text{Commutativity}], [\text{Commutativity}_1], [<\text{tactic}>], [\text{tactic}], [[* \stackrel{\text{tactic}}{=} *]], [\mathcal{P}(*, *, *)],$
 $[\mathcal{P}^*(*, *, *)], [\text{p}_0], [\text{conclude}_1(*, *)], [\text{conclude}_2(*, *, *)], [\text{conclude}_3(*, *, *, *)],$
 $[\text{conclude}_4(*, *)], [[* \stackrel{\circ}{=} *]], [\text{RootVisible}(*)], [\text{A}], [\text{R}], [\text{C}], [\text{T}], [\text{L}], [\{*\}], [\bar{*}], [a], [b],$
 $[c], [d], [e], [f], [g], [h], [i], [j], [k], [l], [m], [n], [o], [p], [q], [r], [s], [t], [u], [v], [w], [x],$
 $[y], [z], [(*) \equiv * \mid * := *], [(*) \equiv^0 * \mid * := *], [(*) \equiv^1 * \mid * := *], [(*) \equiv^* * \mid * := *],$
 $[\text{Ded}(*, *)], [\text{Ded}_0(*, *)], [\text{Ded}_1(*, *, *)], [\text{Ded}_2(*, *, *)], [\text{Ded}_3(*, *, *, *)],$
 $[\text{Ded}_4(*, *, *, *)], [\text{Ded}_4^*(*, *, *, *)], [\text{Ded}_5(*, *, *)], [\text{Ded}_6(*, *, *, *)],$
 $[\text{Ded}_6^*(*, *, *, *)], [\text{Ded}_7(*, *)], [\text{Ded}_8(*, *)], [\text{Ded}_8^*(*, *)], [\text{S}], [\text{Neg}], [\text{MP}], [\text{Gen}],$
 $[\text{rule div}], [\text{Ded}], [\text{S1}], [\text{S2}], [\text{S3}], [\text{S4}], [\text{S5}], [\text{S6}], [\text{S7}], [\text{S8}], [\text{S9}], [\text{S10}], [\text{Repetition}],$
 $[\text{A1}'], [\text{A2}'], [\text{A4}'], [\text{A5}'], [\text{Prop 3.2a}], [\text{Prop 3.2b}], [\text{Prop 3.2c}], [\text{Prop 3.2d}],$
 $[\text{Prop 3.2e}_1], [\text{Prop 3.2e}_2], [\text{Prop 3.2e}], [\text{Prop 3.2f}_1], [\text{Prop 3.2f}_2], [\text{Prop 3.2f}],$
 $[\text{Prop 3.2g}_1], [\text{Prop 3.2g}_2], [\text{Prop 3.2g}], [\text{Prop 3.2h}_1], [\text{Prop 3.2h}_2], [\text{Prop 3.2h}],$
 $[\text{Prop 3.2i}], [\text{Prop 3.2j}_1], [\text{Prop 3.2j}_2], [\text{Prop 3.2j}], [\text{Prop 3.2k}_1], [\text{Prop 3.2k}_2],$
 $[\text{Prop 3.2k}], [\text{Prop 3.2l}_1], [\text{Prop 3.2l}_2], [\text{Prop 3.2l}], [\text{Prop 3.2m}_1], [\text{Prop 3.2m}_2],$
 $[\text{Prop 3.2m}], [\text{Prop 3.2n}_1], [\text{Prop 3.2n}_2], [\text{Prop 3.2n}], [\text{Prop 3.2o}], [\text{Prop 3.4a}_1],$
 $[\text{Prop 3.4a}_2], [\text{Prop 3.4a}], [\text{Prop 3.4b}], [\text{Prop 3.4c}_1], [\text{Prop 3.4c}_2], [\text{Prop 3.4c}],$

[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

[* . : *], [* . :₁ *], [* . :₂ *], [* +₂ *], [* : : *], [* +₂ * *];

Postassociative

[*, *];

Preassociative

[* ^B ≈ *], [* ^D ≈ *], [* ^C ≈ *], [* ^P ≈ *], [* ≈ *], [* = *], [* ⁺ *], [* ^t = *], [* ^{t*} = *], [* ^r = *], [* ∈_t *], [* ⊆_T *], [* ^T = *], [* ^s = *], [* free in *], [* free in* *], [* free for * in *], [* free for* * in *], [* ∈_c *], [* < *], [* <’ *], [* ≤’ *], [* = *], [* ≠ *], [*^{var}], [*#⁰ *], [*#¹ *], [*#* *];

Preassociative

[¬ *];

Preassociative

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

Preassociative

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

Preassociative

[∃ *; *], [∀ *; *], [∀_{obj} *; *];

Postassociative

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

Postassociative

[* : *], [* spy *], [*! *];

Preassociative

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

Preassociative

[λ * .*], [Λ * .*], [Λ *], [if * then * else *], [let * = * in *], [let * $\dot{=}$ * in *];

Preassociative

[*#*];

Preassociative

[*^I], [*[▷]], [*^V], [*⁺], [*⁻], [*^{*}];

Preassociative

[* @ *], [* ▷ *], [* ▹ *], [* ≫ *], [* ≳ *];

Postassociative

[* \vdash *], [* \Vdash *], [* i.e. *];

Preassociative

[\forall *: *], [Π *: *];

Postassociative

[* \oplus *];

Postassociative

[*; *];

Preassociative

[* proves *];

Preassociative

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

Postassociative

[* | *];

Postassociative

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

Preassociative

[*&*], [\rightarrow];

Preassociative

[* \\ *], [* linebreak[4] *], [* \\ *], [* || *];]

[opgave $\xrightarrow{\text{pyk}}$ “opgave”]

[* $\overset{\circ}{=}$ *]

[[x $\overset{\circ}{=}$ y] $\xrightarrow{\text{tex}}$ “

[#1/tex name/tex.

\stackrel{\circ}{=} {=} #2.

]”]

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

RootVisible(*)

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

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

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

A

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

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

R

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

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

C

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

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

T

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

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

L

[L $\xrightarrow{\text{tex}}$ “
L”]

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

{*}

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

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

$\overline{*}$

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

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

a

[*a* $\xrightarrow{\text{macro}}$ $\lambda t.\lambda s.\lambda c.\tilde{\mathcal{M}}_4(t, s, c, [[a \doteq \bar{a}]])$]

[*a* $\xrightarrow{\text{tex}}$ “
\mathit{a}”]

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

b

[*b* $\xrightarrow{\text{macro}}$ $\lambda t.\lambda s.\lambda c.\tilde{\mathcal{M}}_4(t, s, c, [[b \doteq \bar{b}]])$]

[*b* $\xrightarrow{\text{tex}}$ “
\mathit{b}”]

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

c

[*c* $\xrightarrow{\text{macro}}$ $\lambda t.\lambda s.\lambda c.\tilde{\mathcal{M}}_4(t, s, c, [[c \doteq \bar{c}]])$]

[$c \xrightarrow{\text{tex}}$ “
 $\backslash\mathit{c}$ ”]

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

d

[$d \xrightarrow{\text{macro}} \lambda t. \lambda s. \lambda c. \tilde{\mathcal{M}}_4(t, s, c, [[d \doteq \bar{d}]])$]

[$d \xrightarrow{\text{tex}}$ “
 $\backslash\mathit{d}$ ”]

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

e

[$e \xrightarrow{\text{macro}} \lambda t. \lambda s. \lambda c. \tilde{\mathcal{M}}_4(t, s, c, [[e \doteq \bar{e}]])$]

[$e \xrightarrow{\text{tex}}$ “
 $\backslash\mathit{e}$ ”]

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

f

[$f \xrightarrow{\text{macro}} \lambda t. \lambda s. \lambda c. \tilde{\mathcal{M}}_4(t, s, c, [[f \doteq \bar{f}]])$]

[$f \xrightarrow{\text{tex}}$ “
 $\backslash\mathit{f}$ ”]

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

g

[$g \xrightarrow{\text{macro}} \lambda t. \lambda s. \lambda c. \tilde{\mathcal{M}}_4(t, s, c, [[g \doteq \bar{g}]])$]

[$g \xrightarrow{\text{tex}}$ “
 $\backslash\mathit{g}$ ”]

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

h

[$h \xrightarrow{\text{macro}} \lambda t. \lambda s. \lambda c. \tilde{\mathcal{M}}_4(t, s, c, [[h \doteq \bar{h}]])$]

[$h \xrightarrow{\text{tex}}$ “
`\mathit{h}`”]

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

i

[$i \xrightarrow{\text{macro}} \lambda t. \lambda s. \lambda c. \tilde{\mathcal{M}}_4(t, s, c, [[i \doteq \bar{i}]])$]

[$i \xrightarrow{\text{tex}}$ “
`\mathit{i}`”]

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

j

[$j \xrightarrow{\text{macro}} \lambda t. \lambda s. \lambda c. \tilde{\mathcal{M}}_4(t, s, c, [[j \doteq \bar{j}]])$]

[$j \xrightarrow{\text{tex}}$ “
`\mathit{j}`”]

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

k

[$k \xrightarrow{\text{macro}} \lambda t. \lambda s. \lambda c. \tilde{\mathcal{M}}_4(t, s, c, [[k \doteq \bar{k}]])$]

[$k \xrightarrow{\text{tex}}$ “
`\mathit{k}`”]

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

l

[$l \xrightarrow{\text{macro}} \lambda t. \lambda s. \lambda c. \tilde{\mathcal{M}}_4(t, s, c, [[l \doteq \bar{l}]])$]

[$l \xrightarrow{\text{tex}}$ “
`\mathit{l}`”]

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

m

[$m \xrightarrow{\text{macro}} \lambda t. \lambda s. \lambda c. \tilde{\mathcal{M}}_4(t, s, c, [[m \doteq \bar{m}]])$]

[$m \xrightarrow{\text{tex}} \text{“}\backslash\text{mathit}\{m\}\text{”}$]

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

n

[$n \xrightarrow{\text{macro}} \lambda t. \lambda s. \lambda c. \tilde{\mathcal{M}}_4(t, s, c, [[n \doteq \bar{n}]])$]

[$n \xrightarrow{\text{tex}} \text{“}\backslash\text{mathit}\{n\}\text{”}$]

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

o

[$o \xrightarrow{\text{macro}} \lambda t. \lambda s. \lambda c. \tilde{\mathcal{M}}_4(t, s, c, [[o \doteq \bar{o}]])$]

[$o \xrightarrow{\text{tex}} \text{“}\backslash\text{mathit}\{o\}\text{”}$]

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

p

[$p \xrightarrow{\text{macro}} \lambda t. \lambda s. \lambda c. \tilde{\mathcal{M}}_4(t, s, c, [[p \doteq \bar{p}]])$]

[$p \xrightarrow{\text{tex}} \text{“}\backslash\text{mathit}\{p\}\text{”}$]

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

q

[$q \xrightarrow{\text{macro}} \lambda t. \lambda s. \lambda c. \tilde{\mathcal{M}}_4(t, s, c, [[q \doteq \bar{q}]])$]

[$q \xrightarrow{\text{tex}} \text{“}\backslash\text{mathit}\{q\}\text{”}$]

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

r

$[r \xrightarrow{\text{macro}} \lambda t. \lambda s. \lambda c. \tilde{\mathcal{M}}_4(t, s, c, [[r \doteq \bar{r}]])]$

$[r \xrightarrow{\text{tex}} “$
 $\backslash\text{mathit}\{r\}”]$

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

s

$[s \xrightarrow{\text{macro}} \lambda t. \lambda s. \lambda c. \tilde{\mathcal{M}}_4(t, s, c, [[s \doteq \bar{s}]])]$

$[s \xrightarrow{\text{tex}} “$
 $\backslash\text{mathit}\{s\}”]$

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

t

$[t \xrightarrow{\text{macro}} \lambda t. \lambda s. \lambda c. \tilde{\mathcal{M}}_4(t, s, c, [[t \doteq \bar{t}]])]$

$[t \xrightarrow{\text{tex}} “$
 $\backslash\text{mathit}\{t\}”]$

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

u

$[u \xrightarrow{\text{macro}} \lambda t. \lambda s. \lambda c. \tilde{\mathcal{M}}_4(t, s, c, [[u \doteq \bar{u}]])]$

$[u \xrightarrow{\text{tex}} “$
 $\backslash\text{mathit}\{u\}”]$

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

v

$[v \xrightarrow{\text{macro}} \lambda t. \lambda s. \lambda c. \tilde{\mathcal{M}}_4(t, s, c, [[v \doteq \bar{v}]])]$

$[v \xrightarrow{\text{tex}} “$
 $\backslash\text{mathit}\{v\}”]$

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

w

[$w \xrightarrow{\text{macro}} \lambda t. \lambda s. \lambda c. \tilde{\mathcal{M}}_4(t, s, c, [[w \doteq \bar{w}]])$]

[$w \xrightarrow{\text{tex}}$ “
 $\backslash\text{mathit}\{w\}$ ”]

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

x

[$x \xrightarrow{\text{macro}} \lambda t. \lambda s. \lambda c. \tilde{\mathcal{M}}_4(t, s, c, [[x \doteq \bar{x}]])$]

[$x \xrightarrow{\text{tex}}$ “
 $\backslash\text{mathit}\{x\}$ ”]

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

y

[$y \xrightarrow{\text{macro}} \lambda t. \lambda s. \lambda c. \tilde{\mathcal{M}}_4(t, s, c, [[y \doteq \bar{y}]])$]

[$y \xrightarrow{\text{tex}}$ “
 $\backslash\text{mathit}\{y\}$ ”]

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

z

[$z \xrightarrow{\text{macro}} \lambda t. \lambda s. \lambda c. \tilde{\mathcal{M}}_4(t, s, c, [[z \doteq \bar{z}]])$]

[$z \xrightarrow{\text{tex}}$ “
 $\backslash\text{mathit}\{z\}$ ”]

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

$\langle * \equiv * \mid * := * \rangle$

[$\langle x \equiv y \mid z := u \rangle \xrightarrow{\text{tex}}$ “

$\backslash\text{langle} \#1.$

$\{\backslash\text{equiv}\} \#2.$

$\mid \#3.$

{:=} #4.
\rangle ”]

[⟨*≡* | *:=*⟩^{pyk} “sub " is " where " is " end sub”]

⟨*≡⁰* | *:=*⟩

[⟨x≡⁰y|z:=u⟩^{tex} “
\rangle #1.
\equiv⁰ #2.
| #3.
{:=} #4.
\rangle ”]

[⟨*≡⁰* | *:=*⟩^{pyk} “sub zero " is " where " is " end sub”]

⟨*≡¹* | *:=*⟩

[⟨x≡¹y|z:=u⟩^{tex} “
\rangle #1.
\equiv¹ #2.
| #3.
{:=} #4.
\rangle ”]

[⟨*≡¹* | *:=*⟩^{pyk} “sub one " is " where " is " end sub”]

⟨*≡^{*}* | *:=*⟩

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

[⟨*≡^{*}* | *:=*⟩^{pyk} “sub star " is " where " is " end sub”]

Ded(*, *)

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

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

Ded₀(*, *)

[Ded₀(x, y) $\xrightarrow{\text{tex}}$ "
Ded_0(#1.
, #2.
)"]

[Ded₀(*, *) $\xrightarrow{\text{pyk}}$ "deduction zero " conclude " end deduction"]

Ded₁(*, *, *)

[Ded₁(x, y, z) $\xrightarrow{\text{tex}}$ "
Ded_1(#1.
, #2.
, #3.
)"]

[Ded₁(*, *, *) $\xrightarrow{\text{pyk}}$ "deduction one " conclude " condition " end deduction"]

Ded₂(*, *, *)

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

[Ded₂(*, *, *) $\xrightarrow{\text{pyk}}$ "deduction two " conclude " condition " end deduction"]

$\text{Ded}_3(*, *, *, *)$

$[\text{Ded}_3(x, y, z, u) \xrightarrow{\text{tex}} "$
 $\text{Ded}_3(\#1.$
 $, \#2.$
 $, \#3.$
 $, \#4.$
 $)]$

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

$\text{Ded}_4(*, *, *, *)$

$[\text{Ded}_4(x, y, z, u) \xrightarrow{\text{tex}} "$
 $\text{Ded}_4(\#1.$
 $, \#2.$
 $, \#3.$
 $, \#4.$
 $)]$

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

$\text{Ded}_4^*(*, *, *, *)$

$[\text{Ded}_4^*(x, y, z, u) \xrightarrow{\text{tex}} "$
 $\text{Ded}_4^*(\#1.$
 $, \#2.$
 $, \#3.$
 $, \#4.$
 $)]$

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

$\text{Ded}_5(*, *, *, *)$

$[\text{Ded}_5(x, y, z) \xrightarrow{\text{tex}} "$
 $\text{Ded}_5(\#1.$
 $, \#2.$

, #3.
)]

[Ded₅(* , * , *) $\xrightarrow{\text{pyk}}$ “deduction five " condition " bound " end deduction”]

Ded₆(* , * , * , *)

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

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

Ded₆^{*}(* , * , * , *)

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

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

Ded₇(*)

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

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

Ded₈(* , *)

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

, #2.
)”]

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

Ded_g^{*}(* , *)

[Ded_g^{*}(p, b) $\xrightarrow{\text{tex}}$ “
Ded.8^*(#1.
, #2.
)”]

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

S

[S $\xrightarrow{\text{stmt}}$ $\Pi \underline{a}: \underline{a} + 0 = \underline{a} \oplus \Pi \underline{a}, \underline{b}: \underline{a} \Rightarrow \underline{b} \vdash \underline{a} \vdash \underline{b} \oplus \Pi \underline{a}, \underline{b},$
 $\underline{c}: \underline{a} = \underline{b} \vdash \underline{a} = \underline{c} \vdash \underline{b} = \underline{c} \oplus \Pi \underline{x}, \underline{a}, \underline{b},$
 $\underline{c}: \langle \underline{b} \equiv \underline{a} \mid \underline{x}: = 0 \rangle \vdash \langle \underline{c} \equiv \underline{a} \mid \underline{x}: = \underline{x}' \rangle \vdash \underline{b} \vdash \underline{a} \Rightarrow \underline{c} \vdash \underline{a} \oplus \Pi \underline{a}: \underline{a} \cdot 0 = 0 \oplus \Pi \underline{a},$
 $\underline{b}: \underline{a}' = \underline{b}' \vdash \underline{a} = \underline{b} \oplus \Pi \underline{a}: \Pi \underline{b}: \neg \underline{b} \Rightarrow \neg \underline{a} \vdash \neg \underline{b} \Rightarrow \underline{a} \vdash \underline{b} \oplus \Pi \underline{a},$
 $\underline{b}: \text{Ded}(\underline{a}, \underline{b}) \vdash \underline{a} \vdash \underline{b} \oplus \Pi \underline{a}, \underline{b}: \underline{a} \cdot \underline{b}' = \underline{a} \cdot \underline{b} + \underline{a} \oplus \Pi \underline{a}, \underline{b}: \underline{a} = \underline{b} \vdash \underline{a}' = \underline{b}' \oplus \Pi \underline{x},$
 $\underline{a}: \underline{a} \vdash \forall \underline{x}: \underline{a} \oplus \Pi \underline{a}, \underline{b}: \underline{a} + \underline{b}' = \underline{a} + \underline{b}']$

[S $\xrightarrow{\text{tex}}$ “
S”]

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

Neg

[Neg $\xrightarrow{\text{proof}}$ Rule tactic]

[Neg $\xrightarrow{\text{stmt}}$ S $\vdash \Pi \underline{a}: \Pi \underline{b}: \neg \underline{b} \Rightarrow \neg \underline{a} \vdash \neg \underline{b} \Rightarrow \underline{a} \vdash \underline{b}$]

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

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

MP

[MP $\xrightarrow{\text{proof}}$ Rule tactic]

[MP $\xrightarrow{\text{stmt}}$ $S \vdash \Pi \underline{a}, \underline{b}: \underline{a} \Rightarrow \underline{b} \vdash \underline{a} \vdash \underline{b}$]

[MP $\xrightarrow{\text{tex}}$ “
MP”]

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

Gen

[Gen $\xrightarrow{\text{proof}}$ Rule tactic]

[Gen $\xrightarrow{\text{stmt}}$ $S \vdash \Pi \underline{x}, \underline{a}: \underline{a} \vdash \forall \underline{x}: \underline{a}$]

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

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

rule div

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

Ded

[Ded $\xrightarrow{\text{proof}}$ Rule tactic]

[Ded $\xrightarrow{\text{stmt}}$ $S \vdash \Pi \underline{a}, \underline{b}: \text{Ded}(\underline{a}, \underline{b}) \Vdash \underline{a} \vdash \underline{b}$]

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

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

S1

[S1 $\xrightarrow{\text{proof}}$ Rule tactic]

[S1 $\xrightarrow{\text{stmt}}$ $S \vdash \Pi \underline{a}, \underline{b}, \underline{c}: \underline{a} = \underline{b} \vdash \underline{a} = \underline{c} \vdash \underline{b} = \underline{c}$]

[S1 $\xrightarrow{\text{tex}}$ “
S1”]

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

S2

[S2 $\xrightarrow{\text{proof}}$ Rule tactic]

[S2 $\xrightarrow{\text{stmt}}$ $S \vdash \Pi \underline{a}, \underline{b}: \underline{a} = \underline{b} \vdash \underline{a}' = \underline{b}'$]

[S2 $\xrightarrow{\text{tex}}$ “
S2”]

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

S3

[S3 $\xrightarrow{\text{proof}}$ Rule tactic]

[S3 $\xrightarrow{\text{stmt}}$ $S \vdash \Pi \underline{a}: -0 = \underline{a}'$]

[S3 $\xrightarrow{\text{tex}}$ “
S3”]

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

S4

[S4 $\xrightarrow{\text{proof}}$ Rule tactic]

[S4 $\xrightarrow{\text{stmt}}$ $S \vdash \Pi \underline{a}, \underline{b}: \underline{a}' = \underline{b}' \vdash \underline{a} = \underline{b}$]

[S4 $\xrightarrow{\text{tex}}$ “
S4”]

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

S5

[S5 $\xrightarrow{\text{proof}}$ Rule tactic]

[S5 $\xrightarrow{\text{stmt}}$ $S \vdash \Pi \underline{a}: \underline{a} + 0 = \underline{a}$]

[S5 $\xrightarrow{\text{tex}}$ “
S5”]

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

S6

[S6 $\xrightarrow{\text{proof}}$ Rule tactic]

[S6 $\xrightarrow{\text{stmt}}$ $S \vdash \Pi \underline{a}, \underline{b}: \underline{a} + \underline{b}' = \underline{a} + \underline{b}'$]

[S6 $\xrightarrow{\text{tex}}$ “
S6”]

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

S7

[S7 $\xrightarrow{\text{proof}}$ Rule tactic]

[S7 $\xrightarrow{\text{stmt}}$ $S \vdash \Pi \underline{a}: \underline{a} \cdot 0 = 0$]

[S7 $\xrightarrow{\text{tex}}$ “
S7”]

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

S8

[S8 $\xrightarrow{\text{proof}}$ Rule tactic]

[S8 $\xrightarrow{\text{stmt}}$ $S \vdash \Pi \underline{a}, \underline{b}: \underline{a} \cdot \underline{b}' = \underline{a} \cdot \underline{b} + \underline{a}$]

[S8 $\xrightarrow{\text{tex}}$ “
S8”]

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

S9

[S9 $\xrightarrow{\text{proof}}$ Rule tactic]

[S9 $\xrightarrow{\text{stmt}}$ $S \vdash \Pi \underline{x}, \underline{a}, \underline{b}, \underline{c}: \langle \underline{b} \equiv \underline{a} \mid \underline{x}: = 0 \rangle \Vdash \langle \underline{c} \equiv \underline{a} \mid \underline{x}: = \underline{x}' \rangle \Vdash \underline{b} \vdash \underline{a} \Rightarrow \underline{c} \vdash \underline{a}$]

[S9 $\xrightarrow{\text{tex}}$ “
S9”]

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

S10

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

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

Repetition

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

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

A1'

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

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

A2'

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

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

A4'

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

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

A5'

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

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

Prop 3.2a

[Prop 3.2a $\xrightarrow{\text{stmt}}$ $S \vdash \Pi \underline{a}: \underline{a} = \underline{a}$]

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

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

Prop 3.2b

[Prop 3.2b $\xrightarrow{\text{stmt}}$ $S \vdash \Pi \underline{a}, \underline{b}: \underline{a} = \underline{b} \vdash \underline{b} = \underline{a}$]

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

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

Prop 3.2c

[Prop 3.2c $\xrightarrow{\text{stmt}}$ $S \vdash \Pi \underline{a}, \underline{b}, \underline{c}: \underline{a} = \underline{b} \vdash \underline{b} = \underline{c} \vdash \underline{a} = \underline{c}$]

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

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

Prop 3.2d

[Prop 3.2d $\xrightarrow{\text{stmt}}$ $S \vdash \Pi \underline{a}, \underline{b}, \underline{c}: \underline{a} = \underline{c} \vdash \underline{b} = \underline{c} \vdash \underline{a} = \underline{b}$]

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

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

Prop 3.2e₁

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

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

Prop 3.2e₂

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

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

Prop 3.2e

[Prop 3.2e $\xrightarrow{\text{stmt}}$ $S \vdash \Pi a, b, c: a = b \vdash a + c = b + c$]

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

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

Prop 3.2f₁

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

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

Prop 3.2f₂

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

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

Prop 3.2f

[Prop 3.2f $\xrightarrow{\text{stmt}}$ $S \vdash \Pi a: a = 0 + a$]

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

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

Prop 3.2g₁

[Prop 3.2g₁ $\xrightarrow{\text{tex}}$ “
Prop\ 3.2g.1”]

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

Prop 3.2g₂

[Prop 3.2g₂ $\xrightarrow{\text{tex}}$ “
Prop\ 3.2g.2”]

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

Prop 3.2g

[Prop 3.2g $\xrightarrow{\text{stmt}}$ $S \vdash \Pi \underline{a}, \underline{b}: \underline{a}' + \underline{b} = \underline{a} + \underline{b}'$]

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

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

Prop 3.2h₁

[Prop 3.2h₁ $\xrightarrow{\text{tex}}$ “
Prop\ 3.2h.1”]

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

Prop 3.2h₂

[Prop 3.2h₂ $\xrightarrow{\text{tex}}$ “
Prop\ 3.2h.2”]

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

Prop 3.2h

[Prop 3.2h $\xrightarrow{\text{stmt}}$ $S \vdash \Pi \underline{a}, \underline{b}: \underline{a} + \underline{b} = \underline{b} + \underline{a}$]

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

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

Prop 3.2i

[Prop 3.2i $\xrightarrow{\text{proof}}$ $\lambda c. \lambda x. \mathcal{P}(\lceil S \vdash$

$L_?$: Arbitrary \gg

$\underline{a}, \underline{b}, \underline{c}$

;

$L_?$: Block \gg

Begin

;

$L_?$: Arbitrary \gg

$\underline{a}, \underline{b}, \underline{c}$

Prpp 3

$\underline{b} \Rightarrow \underline{a} + \underline{c} = \underline{b} + \underline{c}$; Prop 3.2h $\gg \underline{a} + \underline{c} = \underline{c} + \underline{a}$; Prop 3.2h $\gg \underline{b} + \underline{c} = \underline{c} + \underline{b}$; $\underline{a} = \underline{b} \vdash$
 $\text{MP} \triangleright \underline{a} = \underline{b} \Rightarrow \underline{a} + \underline{c} = \underline{b} + \underline{c} \triangleright \underline{a} = \underline{b} \gg \underline{a} + \underline{c} = \underline{b} + \underline{c}$; S1 $\gg \underline{a} + \underline{c} = \underline{b} + \underline{c} \Rightarrow \underline{a} + \underline{c} =$
 $\underline{c} + \underline{a} \Rightarrow \underline{b} + \underline{c} = \underline{c} + \underline{a}$; $\text{MP} \triangleright \underline{a} + \underline{c} = \underline{b} + \underline{c} \Rightarrow \underline{a} + \underline{c} = \underline{c} + \underline{a} \Rightarrow \underline{b} + \underline{c} = \underline{c} + \underline{a} \triangleright \underline{a} + \underline{c} =$
 $\underline{b} + \underline{c} \gg \underline{a} + \underline{c} = \underline{c} + \underline{a} \Rightarrow \underline{b} + \underline{c} = \underline{c} + \underline{a}$; $\text{MP} \triangleright \underline{a} + \underline{c} = \underline{c} + \underline{a} \Rightarrow \underline{b} + \underline{c} = \underline{c} + \underline{a} \triangleright \underline{a} + \underline{c} =$
 $\underline{c} + \underline{a} \gg \underline{b} + \underline{c} = \underline{c} + \underline{a}$; Prop 3.2b $\triangleright \underline{b} + \underline{c} = \underline{c} + \underline{a} \gg \underline{c} + \underline{a} = \underline{b} + \underline{c}$; Prop 3.2e $\gg \underline{c} + \underline{a} =$
 $\underline{b} + \underline{c} \Rightarrow \underline{b} + \underline{c} = \underline{c} + \underline{b} \Rightarrow \underline{c} + \underline{a} = \underline{c} + \underline{b}$; $\text{MP} \triangleright \underline{c} + \underline{a} = \underline{b} + \underline{c} \Rightarrow \underline{b} + \underline{c} = \underline{c} + \underline{b} \Rightarrow$
 $\underline{c} + \underline{a} = \underline{c} + \underline{b} \triangleright \underline{c} + \underline{a} = \underline{b} + \underline{c} \gg \underline{b} + \underline{c} = \underline{c} + \underline{b} \Rightarrow \underline{c} + \underline{a} = \underline{c} + \underline{b}$;

$L_?$: $\text{MP} \triangleright \underline{b} + \underline{c} = \underline{c} + \underline{b} \Rightarrow \underline{c} + \underline{a} =$

$\underline{c} + \underline{b} \triangleright \underline{b} + \underline{c} = \underline{c} + \underline{b} \gg$

$\underline{c} + \underline{a} = \underline{c} + \underline{b}$

;

L_g : Block \gg

End

Ded \triangleright

$L_g \gg \underline{a} = \underline{b} \Rightarrow \underline{c} + \underline{a} = \underline{c} + \underline{b}]$, $p_0, c)$]

[Prop 3.2i $\xrightarrow{\text{stmt}}$ $S \vdash \Pi \underline{a}, \underline{b}, \underline{c}: \underline{a} = \underline{b} \vdash \underline{c} + \underline{a} = \underline{c} + \underline{b}$]

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

Prop\ 3.2i”]

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

Prop 3.2j₁

[Prop 3.2j₁ $\xrightarrow{\text{proof}}$ $\lambda c. \lambda x. \mathcal{P}(\lceil S \vdash$

$L_?$: Arbitrary \gg

$\underline{a}, \underline{b}$

S5; \gg

$\underline{a} + \underline{b} + 0 = \underline{a} + \underline{b}$; S5 $\gg \underline{b} + 0 = \underline{b}$; Prop 3.2i $\triangleright \underline{b} + 0 = \underline{b} \gg \underline{a} + \underline{b} + 0 =$

$\underline{a} + \underline{b}$; Prop 3.2d $\triangleright \underline{a} + \underline{b} + 0 = \underline{a} + \underline{b} \triangleright \underline{a} + \underline{b} + 0 = \underline{a} + \underline{b} \gg \underline{a} + \underline{b} + 0 = \underline{a} + \underline{b} + 0]$, $p_0, c)$]

[Prop 3.2j₁ $\xrightarrow{\text{stmt}}$ $S \vdash \Pi \underline{a}, \underline{b}: \underline{a} + \underline{b} + 0 = \underline{a} + \underline{b} + 0]$

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

Prop\ 3.2j.1”]

[Prop 3.2j₁ $\xrightarrow{\text{pyk}}$ “prop three two j one”]

Prop 3.2j₂

[Prop 3.2j₂ $\xrightarrow{\text{proof}}$ $\lambda c.\lambda x.\mathcal{P}(\lceil S \vdash$

$L_?$: Arbitrary \gg $\underline{a}, \underline{b}, \underline{c}$;

$L_?$: Block \gg Begin ;

$L_?$: Arbitrary \gg $\underline{a}, \underline{b}, \underline{c}$ $\underline{a} \dagger$

$\underline{b} + \underline{c} = \underline{a} + \underline{b} + \underline{c} \vdash S6 \gg \underline{a} + \underline{b} + \underline{c}' = \underline{a} + \underline{b} + \underline{c}'; S2 \triangleright \underline{a} + \underline{b} + \underline{c} =$

$\underline{a} + \underline{b} + \underline{c} \gg \underline{a} + \underline{b} + \underline{c}' = \underline{a} + \underline{b} + \underline{c}'; \text{Prop 3.2c} \triangleright \underline{a} + \underline{b} + \underline{c}' = \underline{a} + \underline{b} + \underline{c}' \triangleright \underline{a} + \underline{b} + \underline{c}' =$

$\underline{a} + \underline{b} + \underline{c}' \gg \underline{a} + \underline{b} + \underline{c}' = \underline{a} + \underline{b} + \underline{c}'; S6 \gg \underline{b} + \underline{c}' = \underline{b} + \underline{c}'; \text{Prop 3.2i} \triangleright \underline{b} + \underline{c}' =$

$\underline{b} + \underline{c}' \gg \underline{a} + \underline{b} + \underline{c}' = \underline{a} + \underline{b} + \underline{c}'; S6 \gg \underline{a} + \underline{b} + \underline{c}' = \underline{a} + \underline{b} + \underline{c}'; \text{Prop 3.2c} \triangleright \underline{a} + \underline{b} + \underline{c}' =$

$\underline{a} + \underline{b} + \underline{c}' \triangleright \underline{a} + \underline{b} + \underline{c}' = \underline{a} + \underline{b} + \underline{c}' \gg \underline{a} + \underline{b} + \underline{c}' = \underline{a} + \underline{b} + \underline{c}';$

$L_?$: Prop 3.2d $\triangleright \underline{a} + \underline{b} + \underline{c}' = \underline{a} + \underline{b} +$

$\underline{c}' \triangleright \underline{a} + \underline{b} + \underline{c}' = \underline{a} + \underline{b} + \underline{c}' \gg \underline{a} + \underline{b} + \underline{c}' = \underline{a} + \underline{b} + \underline{c}'$;

L_j : Block \gg End $\text{Ded} \triangleright$

$L_j \gg \underline{a} + \underline{b} + \underline{c} = \underline{a} + \underline{b} + \underline{c} \Rightarrow \underline{a} + \underline{b} + \underline{c}' = \underline{a} + \underline{b} + \underline{c}' \rceil, p_0, c)$

[Prop 3.2j₂ $\xrightarrow{\text{stmt}}$ $S \vdash \Pi \underline{a}, \underline{b}, \underline{c}: \underline{a} + \underline{b} + \underline{c} = \underline{a} + \underline{b} + \underline{c} \Rightarrow \underline{a} + \underline{b} + \underline{c}' = \underline{a} + \underline{b} + \underline{c}'$]

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

Prop\ 3.2j.2”]

[Prop 3.2j₂ $\xrightarrow{\text{pyk}}$ “prop three two j two”]

Prop 3.2j

[Prop 3.2j $\xrightarrow{\text{proof}}$ $\lambda c.\lambda x.\mathcal{P}(\lceil S \vdash$

$L_?$: Arbitrary \gg $\underline{a}, \underline{b}, \underline{c}$;

$L_?$: Block \gg Begin Prop 3

$\bar{y} + 0 = \bar{x} + \bar{y} + 0; \text{Prop 3.2j}_2 \gg \bar{x} + \bar{y} + \bar{z} = \bar{x} + \bar{y} + \bar{z} \Rightarrow \bar{x} + \bar{y} + \bar{z}' = \bar{x} + \bar{y} + \bar{z}';$

$L_?$: $S9 @ \bar{z} \triangleright \bar{x} + \bar{y} + 0 =$

$\bar{x} + \bar{y} + 0 \triangleright \bar{x} + \bar{y} + \bar{z} = \bar{x} + \bar{y} + \bar{z} \Rightarrow$

$\bar{x} + \bar{y} + \bar{z}' = \bar{x} + \bar{y} + \bar{z}' \gg \bar{x} + \bar{y} + \bar{z} = \bar{x} + \bar{y} + \bar{z}$;

L_c : Block \gg End $\text{Ded} \triangleright$

$L_c \gg \underline{a} + \underline{b} + \underline{c} = \underline{a} + \underline{b} + \underline{c} \rceil, p_0, c)$

[Prop 3.2j $\xrightarrow{\text{stmt}}$ $S \vdash \Pi \underline{a}, \underline{b}, \underline{c}: \underline{a} + \underline{b} + \underline{c} = \underline{a} + \underline{b} + \underline{c}$]

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

Prop\ 3.2j”]

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

Prop 3.2k₁

[Prop 3.2k₁ $\xrightarrow{\text{proof}}$ $\lambda c. \lambda x. \mathcal{P}(\lceil S \vdash$

$L_?$: Arbitrary \gg $\underline{a}, \underline{b}$ S7; \gg \blacksquare
 $\underline{a} \cdot 0 = 0$; S7 \gg $\underline{b} \cdot 0 = 0$; Prop 3.2a \gg $0 = 0$; Prop 3.2b $\triangleright \underline{b} \cdot 0 = 0 \gg 0 =$
 $\underline{b} \cdot 0$; Prop 3.2c $\gg \underline{a} \cdot 0 = 0 \Rightarrow 0 = \underline{b} \cdot 0 \Rightarrow \underline{a} \cdot 0 = \underline{b} \cdot 0$; $\underline{a} \cdot 0 = 0 \Rightarrow 0 = \underline{b} \cdot 0 \Rightarrow$
 $\underline{a} \cdot 0 = \underline{b} \cdot 0 \triangleright \underline{a} \cdot 0 = 0 \triangleright 0 = \underline{b} \cdot 0 \gg \underline{a} \cdot 0 = \underline{b} \cdot 0 \rceil, p_0, c]$

[Prop 3.2k₁ $\xrightarrow{\text{stmt}}$ $S \vdash \Pi \underline{a}, \underline{b}. \underline{a} = \underline{b} \vdash \underline{a} \cdot 0 = \underline{b} \cdot 0]$

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

[Prop 3.2k₁ $\xrightarrow{\text{pyk}}$ “prop three two k one”]

Prop 3.2k₂

[Prop 3.2k₂ $\xrightarrow{\text{proof}}$ $\lambda c. \lambda x. \mathcal{P}(\lceil S \vdash$

$L_?$: Arbitrary \gg $\underline{a}, \underline{b}, \underline{c}$;
 $L_?$: Block \gg Begin ;
 $L_?$: Arbitrary \gg $\underline{a}, \underline{b}, \underline{c}$ $\underline{a} \neq \blacksquare$
 $\underline{b} \Rightarrow \underline{a} \cdot \underline{c} = \underline{b} \cdot \underline{c} \vdash \underline{a} = \underline{b} \vdash \underline{a} = \underline{b} \Rightarrow \underline{a} \cdot \underline{c} = \underline{b} \cdot \underline{c} \triangleright \underline{a} = \underline{b} \gg \underline{a} \cdot \underline{c} = \underline{b} \cdot \underline{c}$; S8 $\gg \underline{a} \cdot \underline{c}' =$
 $\underline{a} \cdot \underline{c} + \underline{a}$; S8 $\gg \underline{b} \cdot \underline{c}' = \underline{b} \cdot \underline{c} + \underline{b}$; Prop 3.2e $\gg \underline{a} \cdot \underline{c} = \underline{b} \cdot \underline{c} \Rightarrow \underline{a} \cdot \underline{c} + \underline{a} = \underline{b} \cdot \underline{c} + \underline{a}$; $\underline{a} \cdot \underline{c} =$
 $\underline{b} \cdot \underline{c} \Rightarrow \underline{a} \cdot \underline{c} + \underline{a} = \underline{b} \cdot \underline{c} + \underline{a} \triangleright \underline{a} \cdot \underline{c} = \underline{b} \cdot \underline{c} \gg \underline{a} \cdot \underline{c} + \underline{a} = \underline{b} \cdot \underline{c} + \underline{a}$; Prop 3.2i $\gg \underline{a} =$
 $\underline{b} \Rightarrow \underline{b} \cdot \underline{c} + \underline{a} = \underline{b} \cdot \underline{c} + \underline{b}$; $\underline{a} = \underline{b} \Rightarrow \underline{b} \cdot \underline{c} + \underline{a} = \underline{b} \cdot \underline{c} + \underline{b} \triangleright \underline{a} \cdot \underline{c} = \underline{b} \cdot \underline{c} \gg \underline{b} \cdot \underline{c} + \underline{a} =$
 $\underline{b} \cdot \underline{c} + \underline{b}$; Prop 3.2c $\gg \underline{a} \cdot \underline{c} + \underline{a} = \underline{b} \cdot \underline{c} + \underline{a} \Rightarrow \underline{b} \cdot \underline{c} + \underline{a} = \underline{b} \cdot \underline{c} + \underline{b} \Rightarrow \underline{a} \cdot \underline{c} + \underline{a} =$
 $\underline{b} \cdot \underline{c} + \underline{b}$; $\underline{a} \cdot \underline{c} + \underline{a} = \underline{b} \cdot \underline{c} + \underline{a} \Rightarrow \underline{b} \cdot \underline{c} + \underline{a} = \underline{b} \cdot \underline{c} + \underline{b} \Rightarrow \underline{a} \cdot \underline{c} + \underline{a} =$
 $\underline{b} \cdot \underline{c} + \underline{b} \triangleright \underline{a} \cdot \underline{c} + \underline{a} = \underline{b} \cdot \underline{c} + \underline{a} \triangleright \underline{b} \cdot \underline{c} + \underline{a} = \underline{b} \cdot \underline{c} + \underline{b} \gg \underline{a} \cdot \underline{c} + \underline{a} = \underline{b} \cdot \underline{c} + \underline{b}$;
 $L_?$: $\underline{a} \cdot \underline{c} + \underline{a} = \underline{b} \cdot \underline{c} + \underline{b} \triangleright \underline{a} \cdot \underline{c}' =$
 $\underline{a} \cdot \underline{c} + \underline{a} \triangleright \underline{b} \cdot \underline{c}' = \underline{b} \cdot \underline{c} + \underline{b} \gg \underline{a} \cdot \underline{c}' = \underline{b} \cdot \underline{c}'$;
 L_i : Block \gg End Ded \triangleright \blacksquare
 $L_i \gg \underline{a} = \underline{b} \Rightarrow \underline{a} \cdot \underline{c} = \underline{b} \cdot \underline{c} \vdash \underline{a} = \underline{b} \Rightarrow \underline{a} \cdot \underline{c}' = \underline{b} \cdot \underline{c}' \rceil, p_0, c]$

[Prop 3.2k₂ $\xrightarrow{\text{stmt}}$ $S \vdash \Pi \underline{a}, \underline{b}, \underline{c}. \underline{a} = \underline{b} \Rightarrow \underline{a} \cdot \underline{c} = \underline{b} \cdot \underline{c} \vdash \underline{a} = \underline{b} \Rightarrow \underline{a} \cdot \underline{c}' = \underline{b} \cdot \underline{c}']$

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

[Prop 3.2k₂ $\xrightarrow{\text{pyk}}$ “prop three two k two”]

Prop 3.2k

[Prop 3.2k $\xrightarrow{\text{proof}}$ $\lambda c. \lambda x. \mathcal{P}(\lceil S \vdash$

$L_?$: Arbitrary \gg $\underline{a}, \underline{b}, \underline{c}$;

Prop 3.2l

[Prop 3.2l $\xrightarrow{\text{proof}}$ $\lambda c. \lambda x. \mathcal{P}(\ulcorner S \vdash$

$L_?$: Arbitrary \gg

\underline{a}

;

$L_?$: Block \gg

Begin

Prop 3

$0 = 0; \text{Prop 3.2l}_2 \gg 0 \cdot \bar{x} = 0 \Rightarrow 0 \cdot \bar{x}' = 0;$

$L_?: \quad S9 @ \bar{x} \triangleright 0 \cdot 0 = 0 \triangleright 0 \cdot \bar{x} = 0 \Rightarrow$

$0 \cdot \bar{x}' = 0 \gg$

$0 \cdot \bar{x} = 0$

;

L_c : Block \gg

End

Ded \triangleright

$L_c \gg 0 \cdot \underline{a} = 0], p_0, c)]$

[Prop 3.2l $\xrightarrow{\text{stmt}}$ $S \vdash \Pi \underline{a}: 0 \cdot \underline{a} = 0]$

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

Prop\ 3.2l”]

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

Prop 3.2m₁

[Prop 3.2m₁ $\xrightarrow{\text{proof}}$ $\lambda c. \lambda x. \mathcal{P}(\ulcorner S \vdash$

$L_?$: Arbitrary \gg

\underline{a}

S7; \gg]

$\underline{a}' \cdot 0 = 0; \text{Prop 3.2f} \gg 0 = 0 + 0; S7 \gg 0 = \underline{a} \cdot 0; \text{Prop 3.2e} \gg 0 = \underline{a} \cdot 0 \Rightarrow 0 + 0 =$
 $\underline{a} \cdot 0 + 0; 0 = \underline{a} \cdot 0 \Rightarrow 0 + 0 = \underline{a} \cdot 0 + 0 \triangleright 0 = \underline{a} \cdot 0 \gg 0 + 0 = \underline{a} \cdot 0 + 0; \text{Prop 3.2c} \gg$
 $0 = 0 + 0 \Rightarrow 0 + 0 = \underline{a} \cdot 0 + 0 \Rightarrow 0 = \underline{a} \cdot 0 + 0; 0 = 0 + 0 \Rightarrow 0 + 0 = \underline{a} \cdot 0 + 0 \Rightarrow 0 =$
 $\underline{a} \cdot 0 + 0 \triangleright 0 = 0 + 0 \triangleright 0 + 0 = \underline{a} \cdot 0 + 0 \gg 0 = \underline{a} \cdot 0 + 0; \text{Prop 3.2c} \gg \underline{a}' \cdot 0 = 0 \Rightarrow$
 $0 = \underline{a} \cdot 0 + 0 \Rightarrow \underline{a}' \cdot 0 = \underline{a} \cdot 0 + 0; \underline{a}' \cdot 0 = 0 \Rightarrow 0 = \underline{a} \cdot 0 + 0 \Rightarrow \underline{a}' \cdot 0 = \underline{a} \cdot 0 + 0 \triangleright \underline{a}' \cdot 0 =$
 $0 \triangleright \underline{a}' \cdot 0 = 0 \Rightarrow 0 = \underline{a} \cdot 0 + 0 \Rightarrow \underline{a}' \cdot 0 = \underline{a} \cdot 0 + 0 \gg \underline{a}' \cdot 0 = \underline{a} \cdot 0 + 0], p_0, c)]$

[Prop 3.2m₁ $\xrightarrow{\text{stmt}}$ $S \vdash \Pi \underline{a}: \underline{a}' \cdot 0 = \underline{t} \cdot 0 + 0]$

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

Prop\ 3.2m.1”]

[Prop 3.2m₁ $\xrightarrow{\text{pyk}}$ “prop three two m one”]

Prop 3.2m₂

[Prop 3.2m₂ $\xrightarrow{\text{proof}}$ $\lambda c. \lambda x. \mathcal{P}(\ulcorner S \vdash$

$L_?$: Arbitrary \gg

$\underline{a}, \underline{b}$

;

$L_?$: Block \gg

Begin

;

$L_?$: Arbitrary \gg

$\underline{a}, \underline{b}$

\underline{a}' ;

$\underline{b} = \underline{a} \cdot \underline{b} + \underline{b} \vdash S8 \gg \underline{a}' \cdot \underline{b}' = \underline{a}' \cdot \underline{b}' + \underline{a}'; \text{Prop 3.2e} \gg \underline{a}' \cdot \underline{b} = \underline{a} \cdot \underline{b} + \underline{b} \Rightarrow$

$\underline{a}' \cdot \underline{b} + \underline{a}' = \underline{a} \cdot \underline{b} + \underline{b} + \underline{a}'; \underline{a}' \cdot \underline{b} = \underline{a} \cdot \underline{b} + \underline{b} \Rightarrow \underline{a}' \cdot \underline{b} + \underline{a}' = \underline{a} \cdot \underline{b} + \underline{b} + \underline{a}' \triangleright \underline{a}' \cdot \underline{b} =$

$\underline{a} \cdot \underline{b} + \underline{b} \gg \underline{a}' \cdot \underline{b} + \underline{a}' = \underline{a} \cdot \underline{b} + \underline{b} + \underline{a}'; S6 \gg \underline{b} + \underline{a}' = \underline{b} + \underline{a}'; \text{Prop 3.2g} \gg$

$\underline{b}' + \underline{a} = \underline{b} + \underline{a}'$; Prop 3.2d $\triangleright \underline{b} + \underline{a}' = \underline{b} + \underline{a}' \triangleright \underline{b}' + \underline{a} = \underline{b} + \underline{a}' \gg \underline{b} + \underline{a}' =$
 $\underline{b}' + \underline{a}$; Prop 3.2h $\gg \underline{b}' + \underline{a} = \underline{a} + \underline{b}'$; Prop 3.2c $\triangleright \underline{b} + \underline{a}' = \underline{b}' + \underline{a} \triangleright \underline{b}' + \underline{a} =$
 $\underline{a} + \underline{b}' \gg \underline{b} + \underline{a}' = \underline{a} + \underline{b}'$; Prop 3.2i $\triangleright \underline{b} + \underline{a}' = \underline{a} + \underline{b}' \gg \underline{a} \cdot \underline{b} + \underline{b} + \underline{a}' =$
 $\underline{a} \cdot \underline{b} + \underline{a} + \underline{b}'$; S8 $\gg \underline{a} \cdot \underline{b}' = \underline{a} \cdot \underline{b} + \underline{a}$; Prop 3.2e $\triangleright \underline{a} \cdot \underline{b}' = \underline{a} \cdot \underline{b} + \underline{a} \gg \underline{a} \cdot \underline{b}' + \underline{b}' =$
 $\underline{a} \cdot \underline{b} + \underline{a} + \underline{b}'$; Prop 3.2d $\triangleright \underline{a} \cdot \underline{b}' + \underline{b}' = \underline{a} \cdot \underline{b} + \underline{a} + \underline{b}' \triangleright \underline{a} \cdot \underline{b} + \underline{b} + \underline{a}' =$
 $\underline{a} \cdot \underline{b} + \underline{a} + \underline{b}' \gg \underline{a} \cdot \underline{b} + \underline{b} + \underline{a}' = \underline{a} \cdot \underline{b}' + \underline{b}'$; Prop 3.2c $\triangleright \underline{a}' \cdot \underline{b} + \underline{a}' =$
 $\underline{a} \cdot \underline{b} + \underline{b} + \underline{a}' \triangleright \underline{a}' \cdot \underline{b} + \underline{b} + \underline{a}' = \underline{a} \cdot \underline{b}' + \underline{b}' \gg \underline{a}' \cdot \underline{b} + \underline{a}' = \underline{a} \cdot \underline{b}' + \underline{b}'$;

$L_?$: Prop 3.2c $\triangleright \underline{a}' \cdot \underline{b}' = \underline{a}' \cdot \underline{b}' +$

$\underline{a}' \triangleright \underline{a}' \cdot \underline{b} + \underline{a}' = \underline{a} \cdot \underline{b}' + \underline{b}' \gg \underline{a}' \cdot \underline{b}' = \underline{a} \cdot \underline{b}' + \underline{b}'$

L_o : Block \gg

End

; Ded \triangleright

$L_o \gg \underline{a}' \cdot \underline{b} = \underline{a} \cdot \underline{b} + \underline{b} \Rightarrow \underline{a}' \cdot \underline{b}' = \underline{a} \cdot \underline{b}' + \underline{b}'$, p_0, c]

[Prop 3.2m₂ $\xrightarrow{\text{stmt}}$ S $\vdash \Pi \underline{a}, \underline{b}: \underline{a}' \cdot \underline{b} = \underline{a} \cdot \underline{b} + \underline{b} \Rightarrow \underline{a}' \cdot \underline{b}' = \underline{a} \cdot \underline{b}' + \underline{b}'$]

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

Prop \ 3.2m.2”]

[Prop 3.2m₂ $\xrightarrow{\text{pyk}}$ “prop three two m two”]

Prop 3.2m

[Prop 3.2m $\xrightarrow{\text{proof}}$ $\lambda c. \lambda x. \mathcal{P}([S \vdash$

$L_?$: Arbitrary \gg

$\underline{a}, \underline{b}$

;

$L_?$: Block \gg

Begin

Prop 3

$0 = \bar{x} \cdot 0 + 0$; Prop 3.2m₂ $\gg \bar{x}' \cdot \bar{y} = \bar{x} \cdot \bar{y} + \bar{y} \Rightarrow \bar{x}' \cdot \bar{y}' = \bar{x} \cdot \bar{y}' + \bar{y}$;

$L_?$: S9 @ $\bar{y} \triangleright \bar{x}' \cdot 0 = \bar{x} \cdot 0 + 0 \triangleright \bar{x}' \cdot \bar{y} =$

$\bar{x} \cdot \bar{y} + \bar{y} \Rightarrow \bar{x}' \cdot \bar{y}' = \bar{x} \cdot \bar{y}' + \bar{y} \gg \bar{x}' \cdot \bar{y} = \bar{x} \cdot \bar{y} + \bar{y}$

;

L_c : Block \gg

End

Ded \triangleright

$L_c \gg \underline{a}' \cdot \underline{b} = \underline{a} \cdot \underline{b} + \underline{b}$, p_0, c]

[Prop 3.2m $\xrightarrow{\text{stmt}}$ S $\vdash \Pi \underline{a}, \underline{b}: \underline{a}' \cdot \underline{b} = \underline{a} \cdot \underline{b} + \underline{b}$]

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

Prop \ 3.2m”]

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

Prop 3.2n₁

[Prop 3.2n₁ $\xrightarrow{\text{proof}}$ $\lambda c. \lambda x. \mathcal{P}([S \vdash$

$L_?$: Arbitrary \gg

\underline{a}

S7; \gg

$\underline{a} \cdot 0 = 0$; Prop 3.2l $\gg 0 \cdot \underline{a} = 0$; Prop 3.2c $\triangleright \underline{a} \cdot 0 = 0 \triangleright 0 \cdot \underline{a} = 0 \gg \underline{a} \cdot 0 = 0 \cdot \underline{a}$, p_0, c]

[Prop 3.2n₁ $\xrightarrow{\text{stmt}}$ S $\vdash \Pi \underline{a}: \underline{a} \cdot 0 = 0 \cdot \underline{a}$]

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

Prop\ 3.2n_1"]

[Prop 3.2n₁ $\xrightarrow{\text{pyk}}$ "prop three two n one"]

Prop 3.2n₂

[Prop 3.2n₂ $\xrightarrow{\text{proof}}$ $\lambda c.\lambda x.\mathcal{P}([S \vdash$

L_?: Arbitrary \gg $\underline{a}, \underline{b}$;

L_?: Block \gg Begin ;

L_?: Arbitrary \gg $\underline{a}, \underline{b}$ \underline{a} ;

$\underline{b} = \underline{b} \cdot \underline{a} \vdash S8 \gg \underline{a} \cdot \underline{b}' = \underline{a} \cdot \underline{b} + \underline{a}$; Prop 3.2e $\triangleright \underline{a} \cdot \underline{b} = \underline{b} \cdot \underline{a} \gg \underline{a} \cdot \underline{b} + \underline{a} =$

$\underline{b} \cdot \underline{a} + \underline{a}$; Prop 3.2b \triangleright Prop 3.2m $\gg \underline{b} \cdot \underline{a} + \underline{a} = \underline{b}' \cdot \underline{a}$; Prop 3.2c $\triangleright L_e \triangleright \underline{b} \cdot \underline{a} + \underline{a} =$

$\underline{b}' \cdot \underline{a} \gg \underline{a} \cdot \underline{b} + \underline{a} = \underline{b}' \cdot \underline{a}$;

L_?: Prop 3.2c $\triangleright \underline{a} \cdot \underline{b}' =$

$\underline{a} \cdot \underline{b} + \underline{a} \triangleright \underline{a} \cdot \underline{b} + \underline{a} = \underline{b}' \cdot \underline{a} \gg \underline{a} \cdot \underline{b}' = \underline{b}' \cdot \underline{a}$;

L_f: Block \gg End $\text{Ded} \triangleright$

L_f $\gg \underline{a} \cdot \underline{b} = \underline{b} \cdot \underline{a} \Rightarrow \underline{a} \cdot \underline{b}' = \underline{b}' \cdot \underline{a}$], p₀, c)]

[Prop 3.2n₂ $\xrightarrow{\text{stmt}}$ $S \vdash \Pi \underline{a}, \underline{b}: \underline{a} \cdot \underline{b} = \underline{b} \cdot \underline{a} \Rightarrow \underline{a} \cdot \underline{b}' = \underline{b}' \cdot \underline{a}$]

[Prop 3.2n₂ $\xrightarrow{\text{tex}}$ "

Prop\ 3.2n_2"]

[Prop 3.2n₂ $\xrightarrow{\text{pyk}}$ "prop three two n two"]

Prop 3.2n

[Prop 3.2n $\xrightarrow{\text{proof}}$ $\lambda c.\lambda x.\mathcal{P}([S \vdash$

L_?: Arbitrary \gg $\underline{a}, \underline{b}$;

L_?: Block \gg Begin Prop 3

$0 = 0 \cdot \bar{x}$; Prop 3.2n₂ $\gg \bar{x} \cdot \bar{y} = \bar{y} \cdot \bar{x} \Rightarrow \bar{x} \cdot \bar{y}' = \bar{y}' \cdot \bar{x}$;

L_?: S9 $\text{@} \bar{y} \triangleright \bar{x} \cdot 0 = 0 \cdot \bar{x} \triangleright \bar{x} \cdot \bar{y} =$

$\bar{y} \cdot \bar{x} \Rightarrow \bar{x} \cdot \bar{y}' = \bar{y}' \cdot \bar{x} \gg \bar{x} \cdot \bar{y} = \bar{y} \cdot \bar{x}$;

L_c: Block \gg End $\text{Ded} \triangleright$

L_c $\gg \underline{a} \cdot \underline{b} = \underline{b} \cdot \underline{a}$], p₀, c)]

[Prop 3.2n $\xrightarrow{\text{stmt}}$ $S \vdash \Pi \underline{a}, \underline{b}: \underline{a} \cdot \underline{b} = \underline{b} \cdot \underline{a}$]

[Prop 3.2n $\xrightarrow{\text{tex}}$ "

Prop\ 3.2n"]

[Prop 3.2n $\xrightarrow{\text{pyk}}$ "prop three two n"]

Prop 3.2o

[Prop 3.2o $\xrightarrow{\text{proof}} \lambda c. \lambda x. \mathcal{P}([S \vdash$

$L_?$: Arbitrary \gg

$\underline{a}, \underline{b}, \underline{c}$

;

$L_?$: Block \gg

Begin

;

$L_?$: Arbitrary \gg

$\underline{a}, \underline{b}, \underline{c}$

$\underline{a} \nmid$

$\underline{b} \vdash \text{Prop 3.2k} \gg \underline{a} = \underline{b} \Rightarrow \underline{a} \cdot \underline{c} = \underline{b} \cdot \underline{c}; \underline{a} = \underline{b} \Rightarrow \underline{a} \cdot \underline{c} = \underline{b} \cdot \underline{c} \triangleright \underline{a} = \underline{b} \gg \underline{a} \cdot \underline{c} =$

$\underline{b} \cdot \underline{c}; \text{Prop 3.2n} \gg \underline{a} \cdot \underline{c} = \underline{c} \cdot \underline{a}; \text{Prop 3.2n} \gg \underline{b} \cdot \underline{c} = \underline{c} \cdot \underline{b}; \text{Prop 3.2c} \gg \underline{a} \cdot \underline{c} =$

$\underline{b} \cdot \underline{c} \Rightarrow \underline{b} \cdot \underline{c} = \underline{c} \cdot \underline{b} \Rightarrow \underline{a} \cdot \underline{c} = \underline{c} \cdot \underline{b}; \underline{a} \cdot \underline{c} = \underline{b} \cdot \underline{c} \Rightarrow \underline{b} \cdot \underline{c} = \underline{c} \cdot \underline{b} \Rightarrow \underline{a} \cdot \underline{c} = \underline{c} \cdot \underline{b} \triangleright \underline{a} \cdot \underline{c} =$

$\underline{b} \cdot \underline{c} \triangleright \underline{b} \cdot \underline{c} = \underline{c} \cdot \underline{b} \gg \underline{a} \cdot \underline{c} = \underline{c} \cdot \underline{b}; S1 \gg \underline{a} \cdot \underline{c} = \underline{c} \cdot \underline{b} \Rightarrow \underline{a} \cdot \underline{c} = \underline{c} \cdot \underline{a} \Rightarrow \underline{c} \cdot \underline{a} = \underline{c} \cdot \underline{b};$

$L_?$: $\underline{a} \cdot \underline{c} = \underline{c} \cdot \underline{b} \Rightarrow \underline{a} \cdot \underline{c} = \underline{c} \cdot \underline{a} \Rightarrow$

$\underline{c} \cdot \underline{a} = \underline{c} \cdot \underline{b} \triangleright \underline{a} \cdot \underline{c} =$

$\underline{c} \cdot \underline{b} \triangleright \underline{a} \cdot \underline{c} = \underline{c} \cdot \underline{a} \gg$

$\underline{c} \cdot \underline{a} = \underline{c} \cdot \underline{b}$

;

L_i : Block \gg

End

Ded \triangleright

$L_i \gg \underline{a} = \underline{b} \Rightarrow \underline{c} \cdot \underline{a} = \underline{c} \cdot \underline{b}], p_0, c)]$

[Prop 3.2o $\xrightarrow{\text{stmt}} S \vdash \Pi \underline{a}, \underline{b}, \underline{c}: \underline{a} = \underline{b} \vdash \underline{c} \cdot \underline{a} = \underline{c} \cdot \underline{b}]$

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

Prop\ 3.2o”]

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

Prop 3.4a₁

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

Prop\ 3.4a_1”]

[Prop 3.4a₁ $\xrightarrow{\text{pyk}}$ “prop three four a one”]

Prop 3.4a₂

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

Prop\ 3.4a_2”]

[Prop 3.4a₂ $\xrightarrow{\text{pyk}}$ “prop three four a two”]

Prop 3.4a

[Prop 3.4a $\xrightarrow{\text{stmt}} S \vdash \Pi \underline{a}, \underline{b}, \underline{c}: \underline{a} \cdot \underline{b} + \underline{c} = \underline{a} \cdot \underline{b} + \underline{a} \cdot \underline{c}]$

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

Prop\ 3.4a”]

[Prop 3.4a $\xrightarrow{\text{pyk}}$ “prop three four a”]

Prop 3.4b

[Prop 3.4b $\xrightarrow{\text{stmt}}$ $S \vdash \Pi a, b, c: \underline{b} + \underline{c} \cdot \underline{a} = \underline{b} \cdot \underline{a} + \underline{c} \cdot \underline{b}$]

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

[Prop 3.4b $\xrightarrow{\text{pyk}}$ “prop three four b”]

Prop 3.4c₁

[Prop 3.4c₁ $\xrightarrow{\text{tex}}$ “
Prop\ 3.4c.1”]

[Prop 3.4c₁ $\xrightarrow{\text{pyk}}$ “prop three four c one”]

Prop 3.4c₂

[Prop 3.4c₂ $\xrightarrow{\text{tex}}$ “
Prop\ 3.4c.2”]

[Prop 3.4c₂ $\xrightarrow{\text{pyk}}$ “prop three four c two”]

Prop 3.4c

[Prop 3.4c $\xrightarrow{\text{stmt}}$ $S \vdash \Pi a, b, c: \underline{a} \cdot \underline{b} \cdot \underline{c} = \underline{a} \cdot \underline{b} \cdot \underline{c}$]

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

[Prop 3.4c $\xrightarrow{\text{pyk}}$ “prop three four c”]

Prop 3.4d₁

[Prop 3.4d₁ $\xrightarrow{\text{tex}}$ “
Prop\ 3.4d.1”]

[Prop 3.4d₁ $\xrightarrow{\text{pyk}}$ “prop three four d one”]

Prop 3.4d₂

[Prop 3.4d₂ $\xrightarrow{\text{tex}}$ “
Prop\ 3.4d.2”]

[Prop 3.4d₂ $\xrightarrow{\text{pyk}}$ “prop three four d two”]

Prop 3.4d

[Prop 3.4d $\xrightarrow{\text{stmt}}$ S ⊢ Πa, b, c: a + c = b + c ⇒ a = b]

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

[Prop 3.4d $\xrightarrow{\text{pyk}}$ “prop three four d”]

Block₁(* , * , *)

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

[Block₁(* , * , *) $\xrightarrow{\text{pyk}}$ “block one " state " cache " end block”]

Block₂(*)

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

[Block₂(*) $\xrightarrow{\text{pyk}}$ “block two " end block”]

*^{hide}

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

[*^{hide} $\xrightarrow{\text{pyk}}$ “" hide”]

MacroIndent(*)

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

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

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

*'

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

[*' $\xrightarrow{\text{pyk}}$ “" suc”]

* = *

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

[* = * $\xrightarrow{\text{pyk}}$ “" equal ”]

* ≠ *

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

[* ≠ * $\xrightarrow{\text{pyk}}$ “" unequal ”]

*^{var}

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

[*^{var} $\xrightarrow{\text{pyk}}$ “" is object var”]

#⁰

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

[*#⁰* $\xrightarrow{\text{pyk}}$ “avoid zero ”]

#¹

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

[*#¹* $\xrightarrow{\text{pyk}}$ “avoid one ”]

#^{}*

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

[*#^{*}* $\xrightarrow{\text{pyk}}$ “avoid star ”]

∃*: *

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

[∃*: * $\xrightarrow{\text{pyk}}$ “exist " indeed ”]

∀*: *

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

[∀*: * $\xrightarrow{\text{pyk}}$ “for all " indeed ”]

$\forall_{\text{obj}} * : *$

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

[$\forall_{\text{obj}} * : * \xrightarrow{\text{pyk}}$ “for all objects " indeed "”]

$* \Rightarrow *$

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

[$* \Rightarrow * \xrightarrow{\text{pyk}}$ “" imply "”]

$* \Leftrightarrow *$

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

[$* \Leftrightarrow * \xrightarrow{\text{pyk}}$ “" if and only if "”]

$* \# *$

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

[$* \# * \xrightarrow{\text{pyk}}$ “" avoid "”]

$* \supseteq *$

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

[$* \supseteq * \xrightarrow{\text{pyk}}$ “" object modus ponens "”]

$\prod * : *$

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

\colon #2.”]

[Π *: * $\xrightarrow{\text{pyk}}$ “for all terms " indeed ""]

Begin *; * : End; *

[Begin b; l : End; p $\xrightarrow{\text{name}}$ “

Begin \, #1.

; #2.

: End ; #3.”]

[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 \csgname 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 *; * : End; * $\xrightarrow{\text{pyk}}$ “block " line " end block ""]

Last block line * \gg * ;

[Last block line a \gg i ; $\xrightarrow{\text{name}}$ “

Last \ block \ line \, #1.

\gg #2.

\, ; ”]

[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 \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 * >> *; $\xrightarrow{\text{pyk}}$ “because " indeed " end line”]

Arbitrary >> *; *

```

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

```

```

[Arbitrary >> i; p  $\xrightarrow{\text{tex}}$  “
\newline \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
$:\}\makebox [0.4\textwidth ][l]{\$Arbitrary{\}\gg{\}\}\quad
\parbox [t]{0.4\textwidth }\{\$#1.
\$\hfill \makebox [0mm][l]{\quad ;}}#2.”]

```

[Arbitrary >> *; * $\xrightarrow{\text{pyk}}$ “any term " end line ”]

* | *

```

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

```

[* | * $\xrightarrow{\text{pyk}}$ “" alternative ”]

→

```

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

```

[$\xrightarrow{\text{pyk}}$ “evaluates to”]

* \ \ *

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

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

[* \ \ * $\xrightarrow{\text{pyk}}$ “" safe row ""]

* \| \ *

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

[* \| * $\xrightarrow{\text{pyk}}$ “" divides ""]

*The pyk compiler, version 0.grue.20060417+ by Klaus Grue
GRD-2006-06-21.UTC:07:46:29.118507 = MJD-53907.TAI:07:47:02.118507
= LGT-4657592822118507e-6*