α
x
i

$\sigma,\ \tau$ ::=
- α
- 1
- $\sigma \times \tau$
- $\sigma \rightharpoonup \tau$

$V,\ W,\ M,\ N$ ::=
- x
- $\star$
- $\langle V_1, V_2 \rangle$
- $\pi_i(V)$
- $\mathbf{return}\ V$
- $M\ \mathbf{to}\ x.N$
- $\lambda x.N$
- $V\ W$

Γ ::=
- $\Gamma, M : \sigma$
- $\Gamma, M : \sigma, \Gamma'$

terminals ::=
- λ
- $\vdash^p$
- $\vdash^v$
- $\times$
- $\rightharpoonup$
- $\langle$
- $\rangle$
- $\star$
- π

formula ::=
- *judgement*
- $formula_1 \quad .. \quad formula_i$

Jtype ::=
- $\Gamma \vdash^v V : \sigma$
- $\Gamma \vdash^p M : \sigma$

judgement ::=
- *Jtype*

user_syntax ::=
- α
- x
- i
- σ
- V
- Γ

| *terminals*
| *formula*

$\boxed{\Gamma \vdash^{v} V : \sigma}$

$$\frac{}{\Gamma, x : \sigma, \Gamma' \vdash^{v} x : \sigma}\ \text{V\_VAR}$$

$$\frac{}{\Gamma \vdash^{v} \star : 1}\ \text{V\_UNIT}$$

$$\frac{\Gamma \vdash^{v} V_1 : \sigma_1 \quad \Gamma \vdash^{v} V_2 : \sigma_2}{\Gamma \vdash^{v} \langle V_1, V_2 \rangle : \sigma_1 \times \sigma_2}\ \text{V\_PAIR}$$

$$\frac{\Gamma \vdash^{v} V : \sigma_1 \times \sigma_2}{\Gamma \vdash^{v} \pi_i(V) : \sigma_i}\ \text{V\_PROJ}$$

$$\frac{\Gamma, x : \sigma \vdash^{p} N : \tau}{\Gamma \vdash^{v} \lambda x.N : \sigma \multimap \tau}\ \text{V\_LAM}$$

$\boxed{\Gamma \vdash^{p} M : \sigma}$

$$\frac{\Gamma \vdash^{v} V : \sigma \multimap \tau \quad \Gamma \vdash^{v} W : \sigma}{\Gamma \vdash^{p} V\ W : \tau}\ \text{P\_APP}$$

$$\frac{\Gamma \vdash^{v} V : \sigma}{\Gamma \vdash^{p} \mathbf{return}\ V : \sigma}\ \text{P\_RETURN}$$

$$\frac{\Gamma \vdash^{p} M : \sigma \quad \Gamma, x : \sigma \vdash^{p} N : \tau}{\Gamma \vdash^{p} M\ \mathbf{to}\ x.N : \tau}\ \text{P\_SEQ}$$

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Definition rules:         8 good    0 bad
Definition rule clauses: 17 good    0 bad
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