s	$::=$		Secret label
	$\mid$	$\mathcal{A}$	
	$\mid$	$\mathcal{B}$	
ℓ	$::=$		Label
	$\mid$	$\mathcal{P}$	
	$\mid$	s	
σ	$::=$		Base type
	$\mid$	uint_b	
	$\mid$	bool	
τ	$::=$		Type
	$\mid$	σ^ℓ	
	$\mid$	$\mathsf{uint}_b^\ell[\,]_n$	
e	$::=$		Expression
	$\mid$	n_b	
	$\mid$	x	
	$\mid$	$e_1 \oplus e_2$	
	$\mid$	$e_1 \; ? \; e_2 \; : \; e_3$	
	$\mid$	$e_1 > e_2$	
	$\mid$	$x[\,\overline{e_i}^{\,i\in 1..n}\,]$	
	$\mid$	$e_1 \oplus_s e_2$	
	$\mid$	$\mathbf{mux}_s \; e \; e_1 \; e_2$	
	$\mid$	$e_1 >_s e_2$	
	$\mid$	$e \rhd \ell$	
c	$::=$		Command
	$\mid$	$\tau \, x$	
	$\mid$	$x := e$	
	$\mid$	$\mathbf{for} \; x \; \in \; [n \ldots m] \; \mathbf{do} \; c$	
	$\mid$	$x[\,\overline{e_i}^{\,i\in 1..n}\,] := e$	
	$\mid$	$\mathbf{if} \; e \; c_1 \; c_2$	
	$\mid$	$\mathbf{out} \; e$	
	$\mid$	$c_1; c_2$	
Γ	$::=$		Type environment
	$\mid$	$\cdot$	
	$\mid$	$\Gamma, x : \tau$	

$\boxed{\ell_1 \sqsubseteq \ell_2}$

$$\frac{}{\ell \sqsubseteq \ell} \quad \text{L\_REFL}$$

$$\frac{}{\mathcal{P} \sqsubseteq s} \quad \text{L\_PS}$$

$$\frac{}{s_1 \sqsubseteq s_2} \quad \text{L\_SS}$$

$\boxed{\Gamma \vdash e : \tau \leadsto e'}$

$$\frac{}{\Gamma \vdash n_b : \mathsf{uint}_b^{\mathcal{P}} \leadsto n_b} \quad \text{S\_CONST}$$

$$\frac{\Gamma(x) = \tau}{\Gamma \vdash x : \tau \leadsto x} \quad \text{S\_VAR}$$

$$\frac{\Gamma \vdash e_i : \mathsf{uint}_b^{\mathcal{P}} \leadsto e_i'}{\Gamma \vdash e_1 \oplus e_2 : \mathsf{uint}_b^{\mathcal{P}} \leadsto e_1' \oplus e_2'} \quad \text{S\_PBINOP}$$

$$\frac{\Gamma \vdash e_i : \mathsf{uint}_b^{\mathcal{A}} \leadsto e_i'}{\Gamma \vdash e_1 \oplus e_2 : \mathsf{uint}_b^{\mathcal{A}} \leadsto e_1' \oplus_{\mathcal{A}} e_2'} \quad \text{S\_SBINOP}$$

$$\frac{\begin{array}{l}\Gamma \vdash e : \mathsf{bool}^{\mathcal{P}} \leadsto e' \\ \Gamma \vdash e_i : \tau \leadsto e_i'\end{array}}{\Gamma \vdash e\ ?\ e_1\ :\ e_2 : \tau \leadsto e'\ ?\ e_1'\ :\ e_2'} \quad \text{S\_PCOND}$$

$$\frac{\begin{array}{l}\Gamma \vdash e : \mathsf{bool}^{\mathcal{B}} \leadsto e' \\ \Gamma \vdash e_i : \tau \leadsto e_i'\end{array}}{\Gamma \vdash e\ ?\ e_1\ :\ e_2 : \tau \leadsto \mathbf{mux}_{\mathcal{B}}\ e'\ e_1'\ e_2'} \quad \text{S\_SCOND}$$

$$\frac{\Gamma \vdash e_i : \mathsf{uint}_b^{\mathcal{P}} \leadsto e_i'}{\Gamma \vdash e_1 > e_2 : \mathsf{bool}^{\mathcal{P}} \leadsto e_1' > e_2'} \quad \text{S\_PGT}$$

$$\frac{\Gamma \vdash e_i : \mathsf{uint}_b^{\mathcal{B}} \leadsto e_i'}{\Gamma \vdash e_1 > e_2 : \mathsf{bool}^{\mathcal{B}} \leadsto e_1' >_{\mathcal{B}} e_2'} \quad \text{S\_SGT}$$

$$\frac{\begin{array}{l}\Gamma \vdash x : \mathsf{uint}_b^{\ell}[\,]_n \leadsto x \\ \Gamma \vdash e_i : \mathsf{uint}_b^{\mathcal{P}} \leadsto e_i'\end{array}}{\Gamma \vdash x[\,\overline{e_i}^{\,i \in 1..n}\,] : \mathsf{uint}_b^{\ell} \leadsto x[\,\overline{e_i'}^{\,i \in 1..n}\,]} \quad \text{S\_AREAD}$$

$$\frac{\begin{array}{l}\Gamma \vdash e : \sigma^{\ell_1} \leadsto e' \\ \ell_1 \sqsubseteq \ell_2\end{array}}{\Gamma \vdash e : \sigma^{\ell_2} \leadsto e' \rhd \ell_2} \quad \text{S\_SUB}$$

$$\boxed{\Gamma \vdash c \rightsquigarrow c' \mid \Gamma'}$$

$$\frac{}{\Gamma \vdash \tau\, x \rightsquigarrow \tau\, x \mid \Gamma, x : \tau} \quad \text{C\_DECL}$$

$$\frac{\begin{array}{l}\Gamma(x) = \tau \\ \Gamma \vdash e : \tau \rightsquigarrow e'\end{array}}{\Gamma \vdash x := e \rightsquigarrow x := e' \mid \Gamma} \quad \text{C\_VASSGN}$$

$$\frac{\begin{array}{l}\Gamma, x : \mathsf{uint}_b^{\mathcal{P}} \vdash c \rightsquigarrow c' \mid \_ \\ x \notin \mathsf{modifies}(c)\end{array}}{\Gamma \vdash \mathbf{for}\ x\ \in\ [n \ldots m]\ \mathbf{do}\ c \rightsquigarrow \mathbf{for}\ x\ \in\ [n \ldots m]\ \mathbf{do}\ c' \mid \Gamma} \quad \text{C\_FOR}$$

$$\frac{\begin{array}{l}\Gamma \vdash x : \mathsf{uint}_b^{\ell}[\,]_n \rightsquigarrow x \\ \Gamma \vdash e_i : \mathsf{uint}_b^{\mathcal{P}} \rightsquigarrow e_i' \\ \Gamma \vdash e : \mathsf{uint}_b^{\ell} \rightsquigarrow e'\end{array}}{\Gamma \vdash x[\,\overline{e_i}^{\,i \in 1..n}\,] := e \rightsquigarrow x[\,\overline{e_i'}^{\,i \in 1..n}\,] := e' \mid \Gamma} \quad \text{C\_AWRITE}$$

$$\frac{\begin{array}{l}\Gamma \vdash e : \mathsf{bool}^{\mathcal{P}} \rightsquigarrow e' \\ \Gamma \vdash c_1 \rightsquigarrow c_1' \mid \_ \\ \Gamma \vdash c_2 \rightsquigarrow c_2' \mid \_\end{array}}{\Gamma \vdash \mathbf{if}\ e\ c_1\ c_2 \rightsquigarrow \mathbf{if}\ e'\ c_1'\ c_2' \mid \Gamma} \quad \text{C\_IF}$$

$$\frac{\Gamma \vdash e : \tau \rightsquigarrow e'}{\Gamma \vdash \mathbf{out}\ e \rightsquigarrow \mathbf{out}\ e' \mid \Gamma} \quad \text{C\_OUT}$$

$$\frac{\begin{array}{l}\Gamma \vdash c_1 \rightsquigarrow c_1' \mid \Gamma_1 \\ \Gamma_1 \vdash c_2 \rightsquigarrow c_2' \mid \Gamma'\end{array}}{\Gamma \vdash c_1; c_2 \rightsquigarrow c_1'; c_2' \mid \Gamma'} \quad \text{C\_SEQ}$$