

data  $\_ \vdash \_ : \text{Context} \rightarrow \text{Type} \rightarrow \text{Set}$  where

Var :  $\forall \{ \Gamma \ A \} \rightarrow A \in \Gamma \rightarrow \Gamma \vdash A$

-- subtyping

Sub :  $\forall \{ \Gamma \ A \ B \} \rightarrow \Gamma \vdash A \rightarrow A \leq : B \rightarrow \Gamma \vdash B$

-- lambda function and application

Lambda :  $\forall \{ \Gamma \ A \ B \} \rightarrow \Gamma , A \vdash B \rightarrow \Gamma \vdash A \Rightarrow B$

App :  $\forall \{ \Gamma \ A \ B \} \rightarrow \Gamma \vdash A \Rightarrow B \rightarrow \Gamma \vdash A \rightarrow \Gamma \vdash B$

-- command

Skip :  $\forall \{ \Gamma \} \rightarrow \Gamma \vdash \text{comm}$

Seq :  $\forall \{ \Gamma \} \rightarrow \Gamma \vdash \text{comm} \rightarrow \Gamma \vdash \text{comm} \rightarrow \Gamma \vdash \text{comm}$

NewVar :  $\forall \{ \Gamma \} \rightarrow \Gamma , \text{intvar} \vdash \text{comm} \rightarrow \Gamma \vdash \text{comm}$

Assign :  $\forall \{ \Gamma \} \rightarrow \Gamma \vdash \text{intacc} \rightarrow \Gamma \vdash \text{intexp} \rightarrow \Gamma \vdash \text{comm}$

-- intexp

Lit :  $\forall \{ \Gamma \} \rightarrow \mathbb{Z} \rightarrow \Gamma \vdash \text{intexp}$

Neg :  $\forall \{ \Gamma \} \rightarrow \Gamma \vdash \text{intexp} \rightarrow \Gamma \vdash \text{intexp}$

Plus :  $\forall \{ \Gamma \} \rightarrow \Gamma \vdash \text{intexp} \rightarrow \Gamma \vdash \text{intexp} \rightarrow \Gamma \vdash \text{intexp}$