

1 Inference Rules

$\Gamma \vdash a \Rightarrow t$ means that under the assumptions Γ we can infer that term a has type t . These rules have Γ and a available as inputs and product t as an output.

$$\frac{}{\vdash 123 \Rightarrow \text{integer}} \text{infer integer literal}$$

$$\frac{}{x : t \vdash x \Rightarrow t} \text{infer known symbol}$$

$$\frac{\vdash x \Leftarrow t}{\vdash x : t \Rightarrow t} \text{infer type annotation}$$

$$\frac{x : t \vdash b \Rightarrow s}{\vdash \#(x : t = b) \Rightarrow t \rightarrow s} \text{infer function body}$$

$$\frac{\vdash f \Rightarrow a \rightarrow b \quad \vdash x \Rightarrow c \quad \vdash c \leq a}{\vdash f \ x \Rightarrow b} \text{infer application}$$

2 Checking Rules

$\Gamma \vdash a \Leftarrow t$ means that under the assumptions Γ , we can prove that term a has type t . These rules take Γ , a , and t as inputs and produce a boolean output. Either a has assumed type t or it doesn't.

$$\frac{\vdash x \Rightarrow s \quad s \leq t}{\vdash x \Leftarrow t} \text{check}$$

3 Subtype Rules

$a \leq b$ means that a type a satisfies the constraints of a type b .

$$\frac{}{\text{integer} \leq \text{integer}} \text{consistent integers}$$