

Subtyping

$$BT = mt : mt$$

$$| (nd \text{ num} : nd$$

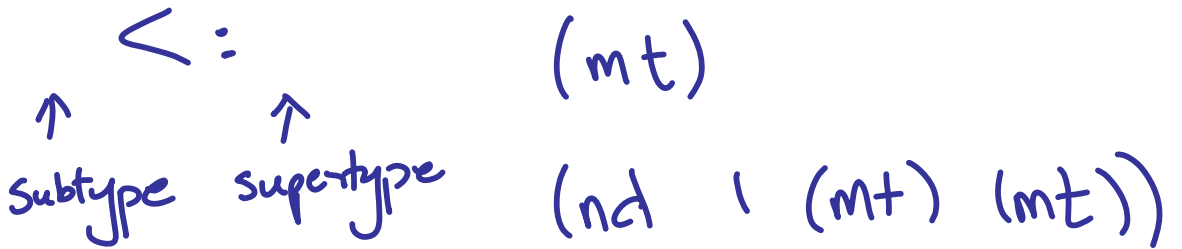
$$BT$$

$$BT)$$

$$\underline{BT = mt \cup nd}$$

$$mt <: BT$$

$$nd <: BT$$



$$mt <: mt \cup nd$$

$$nd <: mt \cup nd$$

$$\begin{array}{l}
 (n \ n \ \rightarrow \ n) \\
 (s \ s \ \rightarrow \ s)
 \end{array}
 \cap$$

$$(S \cap T) <: s$$

$$(S \cap T) <: T$$

$$(n \rightarrow n) \cup (s \rightarrow s)$$

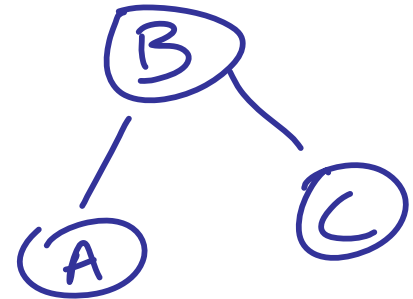
$$(n \cup s) \rightarrow (n \cup s)$$

class A extends B {...} $A \leq B$

$$x \in A \Rightarrow x \in B$$

$$A \subseteq B$$

$$\exists x \in B \text{ st. } x \notin A$$



class C extends ~~B~~ {...}

{ f: T, ... }

$$\{f_i: \tau, \dots\}$$

with $\{f_1: \tau_1, \dots, f_k: \tau_k\} \triangleright \{f_1: \tau_1, \dots, f_k: \tau_k, f_{k+1}: \tau_{k+1}, \dots, f_n: \tau_n\}$

$$\{f_i: \tau_i, \dots\} <: \{f_i: \tau'_i, \dots\} \quad \text{depth}$$

$$\tau_i <: \tau'_i$$

$$(S_1 \rightarrow T_1) <: (S_2 \rightarrow T_2)$$

$$T_1 <: T_2 \quad S_2 <: S_1$$