

Types !!!

	Strong	Not
Static	C, Haskell, Java	C, C++
Not	Python, Ruby	Assembly

Structural	Nominal
Python	C, Java

Common Types (Constructors)

\top (top): supertype of everything
 \perp (bottom): subtype of everything
 1 (unit): singleton
 $(pair)^*$: let (a,b) is pair in ...
 first & second

Common Types

Σ (Sum): types with cases (all are known)
 \emptyset (void): uninhabitable type
 $\tau \dots$ (oparam): types with cases (some are known)
 (record): types with
 fields

Common Types

\rightarrow (function): functions
 Ref (reference): mutable value
 $[\]$ (arrays): list of references

Parameterized Types

$\text{Foo}(T)$ 'a list
 $\text{Foo}(T \text{ is } \text{Comp}(T))$ — F-banded poly

Rules

Integer : *
 List : * \rightarrow *

Dependent Types

$\text{Vec}_n \mathbb{Z}$
 $\text{append} : \forall T : *, m, n : \mathbb{N}, \text{Vec}_m T \times \text{Vec}_n T \rightarrow \text{Vec}_{m+n} T$