TYPE SAFETY

- type safe programming languages protect its own abstractions.
- type safe programs cannot go wrong.
- no run-time errors
- but exceptions are fine.
- small step semantics cannot get stuck.
- type safety is proven at language design time.

RELATIVE TYPE-SAFETY OF LANGUAGES

NOT SAFE

BPCL family : C , C++

casts, unions, pointer arithmetic.

ALMOST SAFE

Algol family, Pascal, Ada.

dangling pointers
(deallocated memory may be referenced again).

SAFE

- dynamically typed: Lisp, Smalltalk, JavaScript.
- statically typed: OCaml, Haskell, Java.