

# Towards dependent types

Possible issues:

- Distinct type variables may be *dependent* on one another!
  - ▶  $(a : \text{Type}) \rightarrow (x : a) \rightarrow x = x$
  - ▶ Can't always swap argument order!
    - ★  $(n : \text{Nat}) \rightarrow (- : \text{Fin } n) \rightarrow \text{Fin } (\text{S } n)$
- Functions in type signatures not always bijective
  - ▶  $\text{fromList} : (l : \text{List } a) \rightarrow \text{Vect } (\text{length } l) a$
  - ▶  $(l : \text{List } a) \rightarrow \text{Vect } (\text{length } l) a \succeq^? \text{Vect } 10 a$
- Pervasive use of implicit arguments