

Dependent Types and Theorem Proving: Introduction to Dependent Types

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March 2021

- 1 Intro: greetings, prerequisites, learning outcomes, plan of lectures, F*
- 2 General idea
- 3 First-class types
 - What does “first-class” mean?
 - Computing with types
- 4 Dependent functions
 - Example: typesafe printf
 - How to express polymorphism
 - Implicit arguments and how to read function signatures
- 5 Dependent pairs
 - Example: everybody loves filling forms
- 6 Inductive families
 - Example: length-indexed lists
 - Example: enforcing protocols
- 7 Refinement types
- 8 Exercises

