Recap
Looking Back

• Programs are data
  ○ Interpreters, typecheckers, etc. take as input
  ○ Parsers, random generators, etc. produce as output

• Meta-language vs Object-language
  ○ plai, plai/gc2, and plaitypus as meta-languages
  ○ AE, WAE, FI WAE, FnWAE, FWAE, FAE, RCFAE, BFAE, RFAE, KFAE, EFAE, MFAE, TFAE, TBFAE, TPFAE, TRCFAE, TIFAE, TLFAE
  (18, count ’em!)
  ○ Wrote programs in (almost) all of them, quite different styles!

• Different languages share common concepts
  ○ Variables and scope, arithmetic, functions, recursion, state, control, memory management, types, etc.
  ○ Implemented them to better understand them
  ○ Often multiple strategies for the same concept!
Looking Forward

• You should now have a good understanding of the building blocks of languages
  ◦ Should be easier to pick up new languages throughout your career; new veneer on familiar ideas
  ◦ Should be able to compare and evaluate languages critically

• You should now be able to identify "language" problems when you see them
  ◦ Remember: code is data!
  ◦ Even if you don’t build languages for a living, these problems show up!
  ◦ Data formats, APIs, etc. are really languages in disguise!
Thanks!