CS 5510
Programming Languages

Fall 2016

Instructor: Matthew Flatt

TA: William Hatch
Course Details

http://www.eng.utah.edu/~cs5510/
Lectures are Online

After today, all slide presentations are online
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• Watch the videos before class
Lectures are Online

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• Watch the videos before class

• Class is for more examples and homework solutions
  ○ a.k.a. “recitation”
  ○ guideline: no new material introduced in class
Programming Language Concepts

This course teaches concepts in two ways:
Programming Language Concepts

This course teaches concepts in two ways:

By implementing interpreters

- new concept ⇒ new interpreter
Programming Language Concepts

This course teaches concepts in two ways:

By implementing *interpreters*

- new concept $\Rightarrow$ new interpreter

By using *Racket* and variants

- we don’t assume that you already know Racket
Interpreters

An **interpreter** takes a program and produces a result

- DrRacket
- x86 processor
- desktop calculator
- **bash**
- Algebra student
Interpreters

An **interpreter** takes a program and produces a result

- DrRacket
- x86 processor
- desktop calculator
- `bash`
- Algebra student

A **compiler** takes a program and produces another program

In the terminology of programming languages, someone who translates Chinese to English is a compiler, not an interpreter.
Racket and plai-typed

Lisp ➔ Scheme ➔ Racket
Racket and plai-typed

Lisp ➔ Scheme ➔ Racket

Racket is

• a programming language
• a family of programming languages
• a language for creating programming languages
Racket and plai-typed

Lisp ➔ Scheme ➔ Racket

Racket is

• a programming language

• a family of programming languages

• a language for creating programming languages

... including plai-typed
Racket and \textit{plai-typed}

\textbf{Lisp $\Rightarrow$ Scheme $\Rightarrow$ Racket}

\textbf{Racket} is

• a programming language

• a family of programming languages

• a language for creating programming languages

... including \textit{plai-typed}

\textbf{Racket $\Rightarrow$ plai-typed $\Leftarrow$ ML}

PLAI = \textit{Programming Languages: Application and Interpretation}, the textbook
plai-typed

See quick-ref.rkt
Homework 0

- Create handin account
- Racket/plai-typed warm-up exercises

Due Friday, August 26