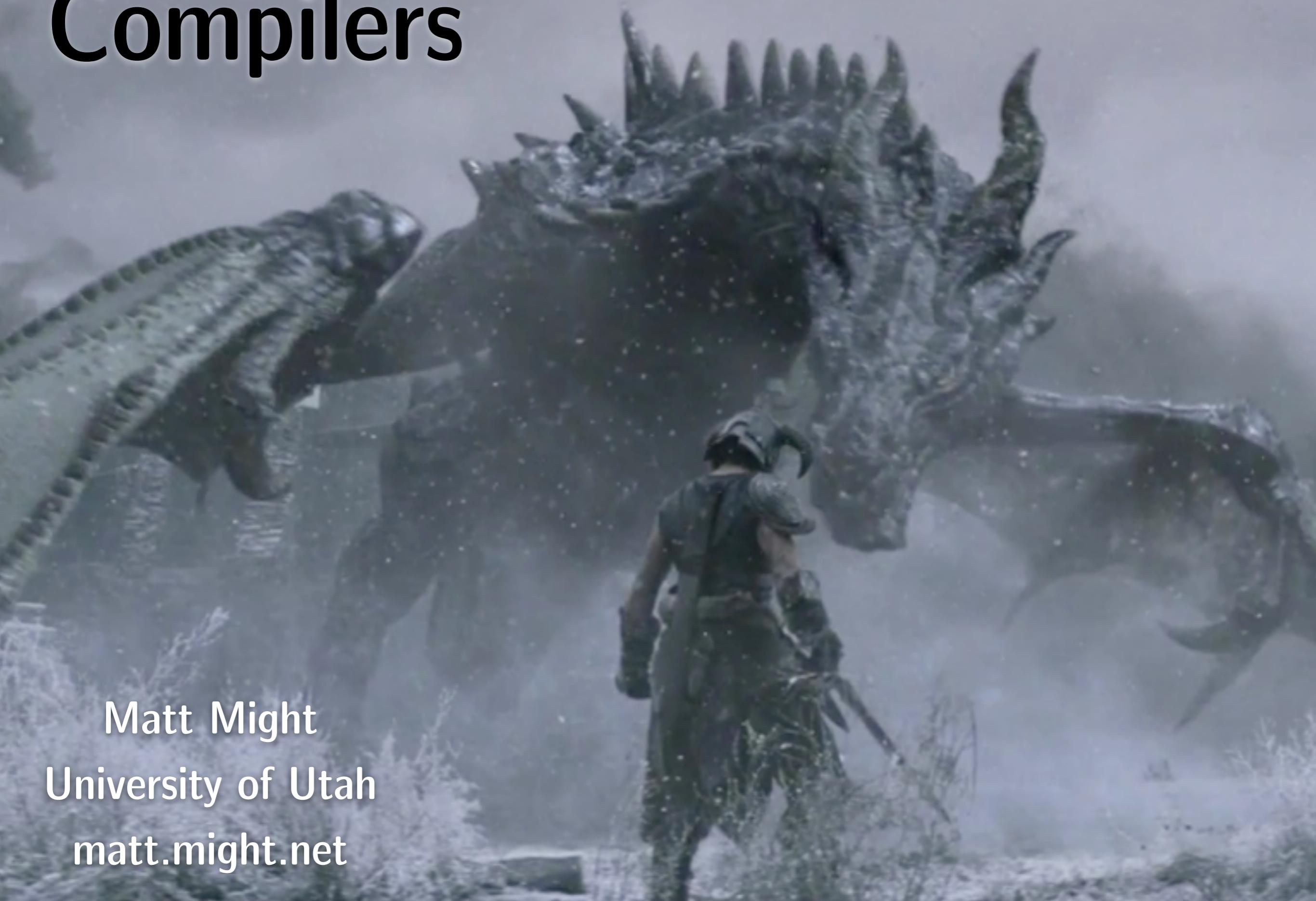


# Compilers



Matt Might  
University of Utah  
[matt.might.net](http://matt.might.net)

**Why are you here?**

You will code better.

A Rystkalleøgipger!



**How!?**



You get secret weapons.



Functional programming



Racket



Parsing with derivatives



Turing-complete macros



Structural pattern-matching



Continuation-passing style



**2x**

**2x**

**2x**

**2x**

**2x**

**2x**

**2x**

64X

You'll do it right.

(PHP)

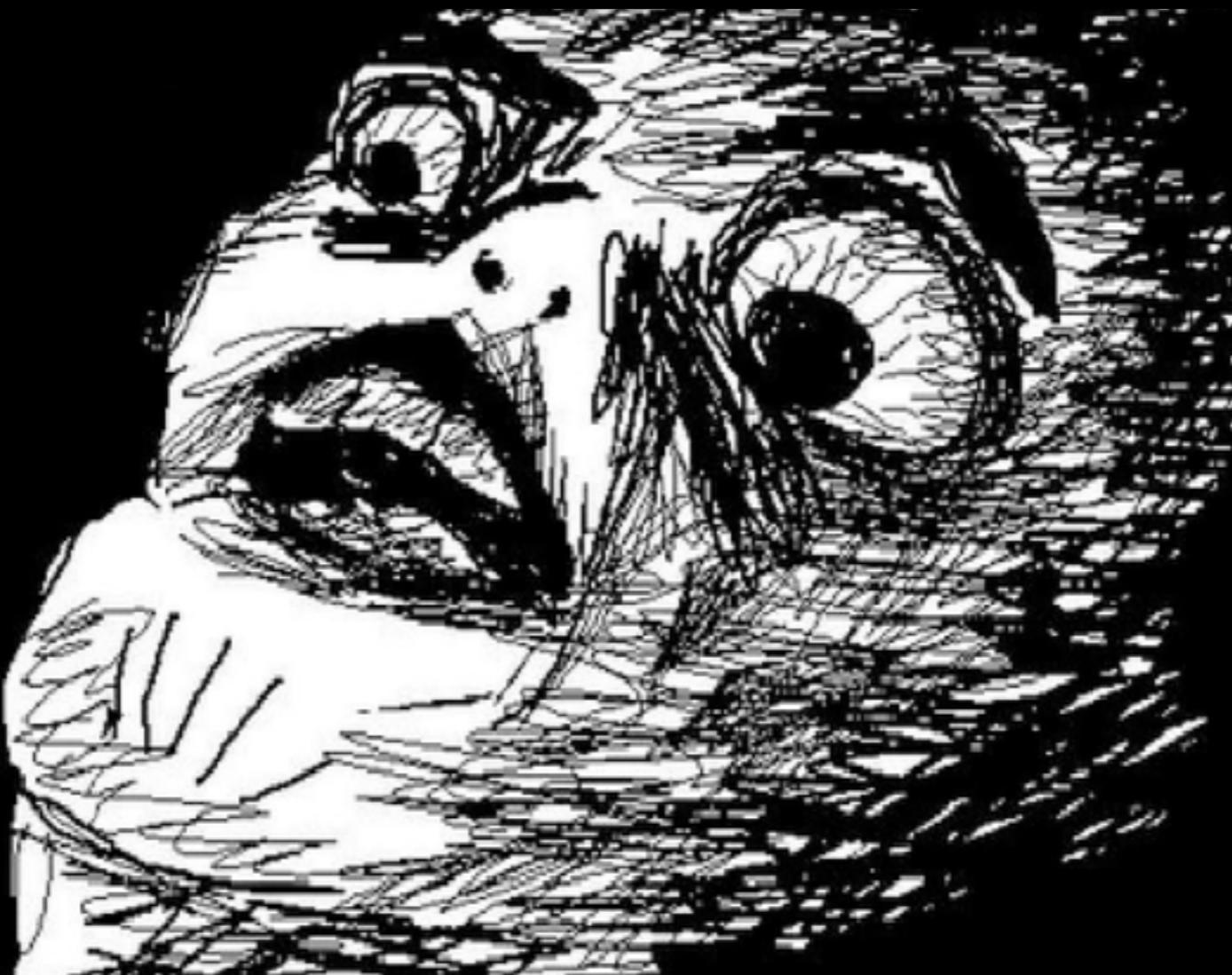
# **Difficulty**

I want you to get an A.

**But, this class is hard.**

**6 weeks later...**

He wasn't kidding.



We are all going to die.

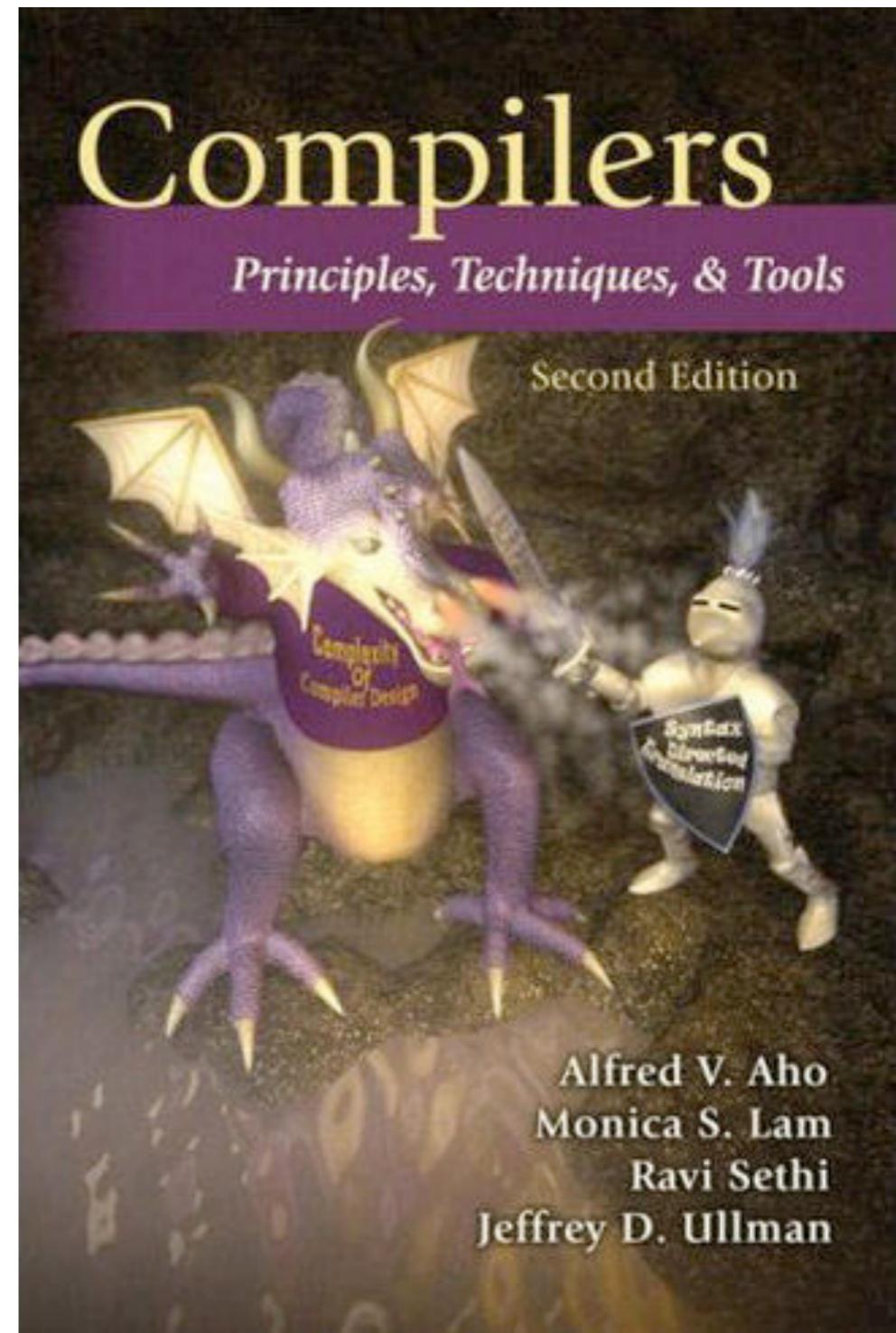
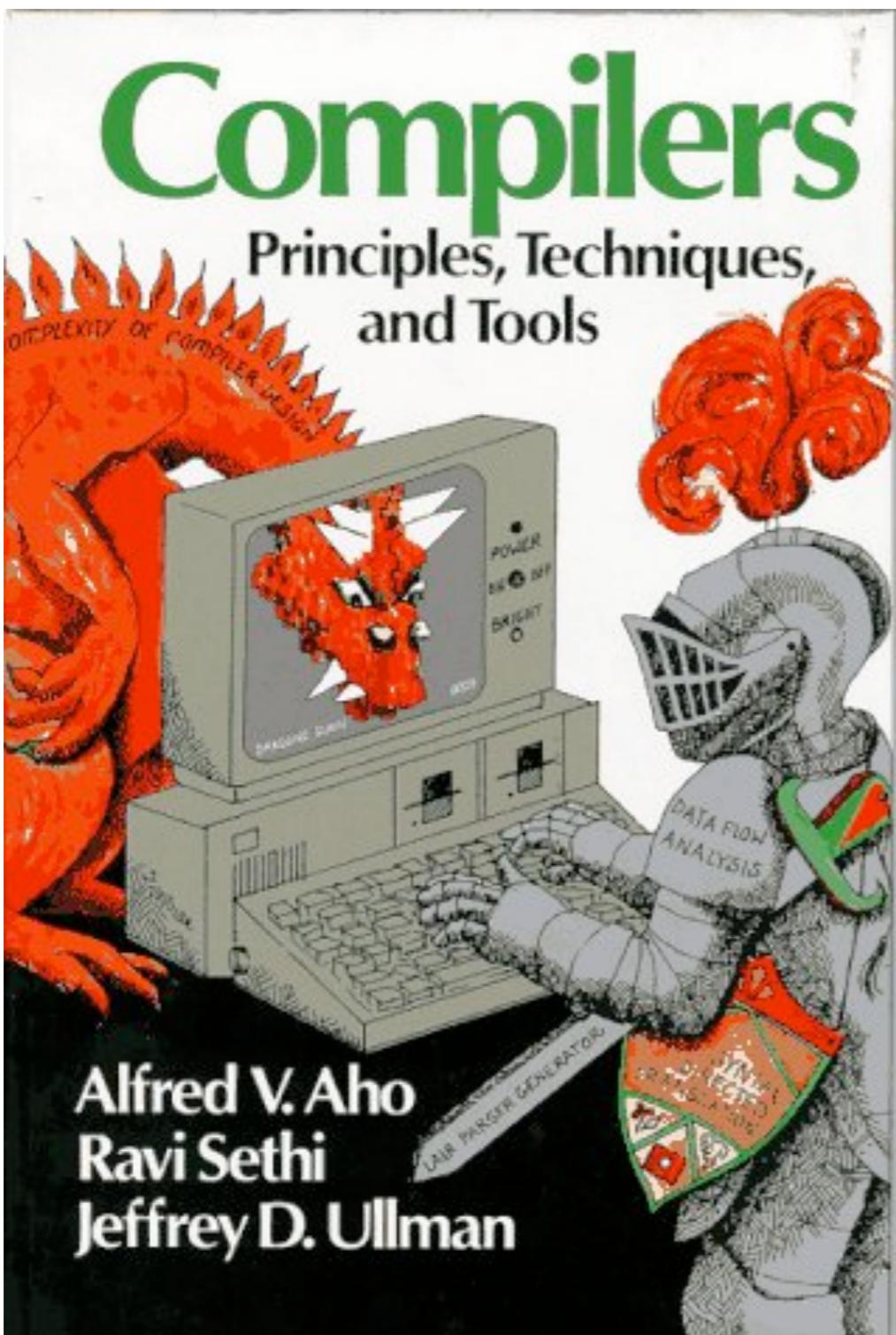
**Hard, but not cruel.**

**Optimizing knowledge/\$.**

# Menu

- Lexical analysis
- Syntactic analysis
- Semantic analysis
- Transformation++
- Static analysis
- Optimization
- Code generation
- Register allocation
- Garbage collection
- Virtual machines

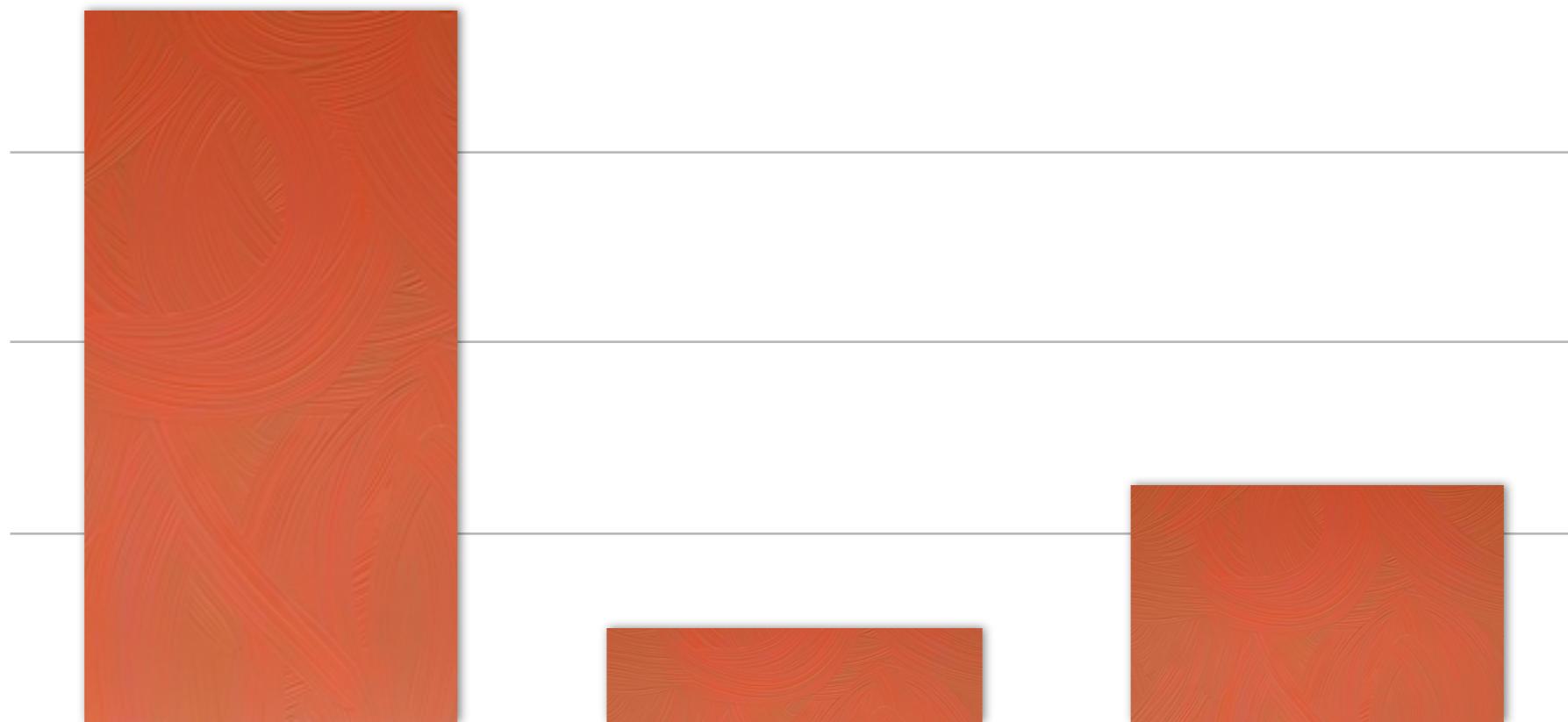
No textbook



blog.might.net

# Grades

---



meh.



**Why did they fail?**

# Why did they fail?

- Quit halfway through the class
- Copied an assignment off web
- Copied prior student's assignment
- 30 minutes late to each class
- Did not know the truth table for not
- Hired me to do their assignment (by accident)

# Grading

- About 5-6 projects
- 3-4 in-class exams
- Optional final exam
- First “exam”: Jan 26!

**max(Projects,Exams)**

# WARNING

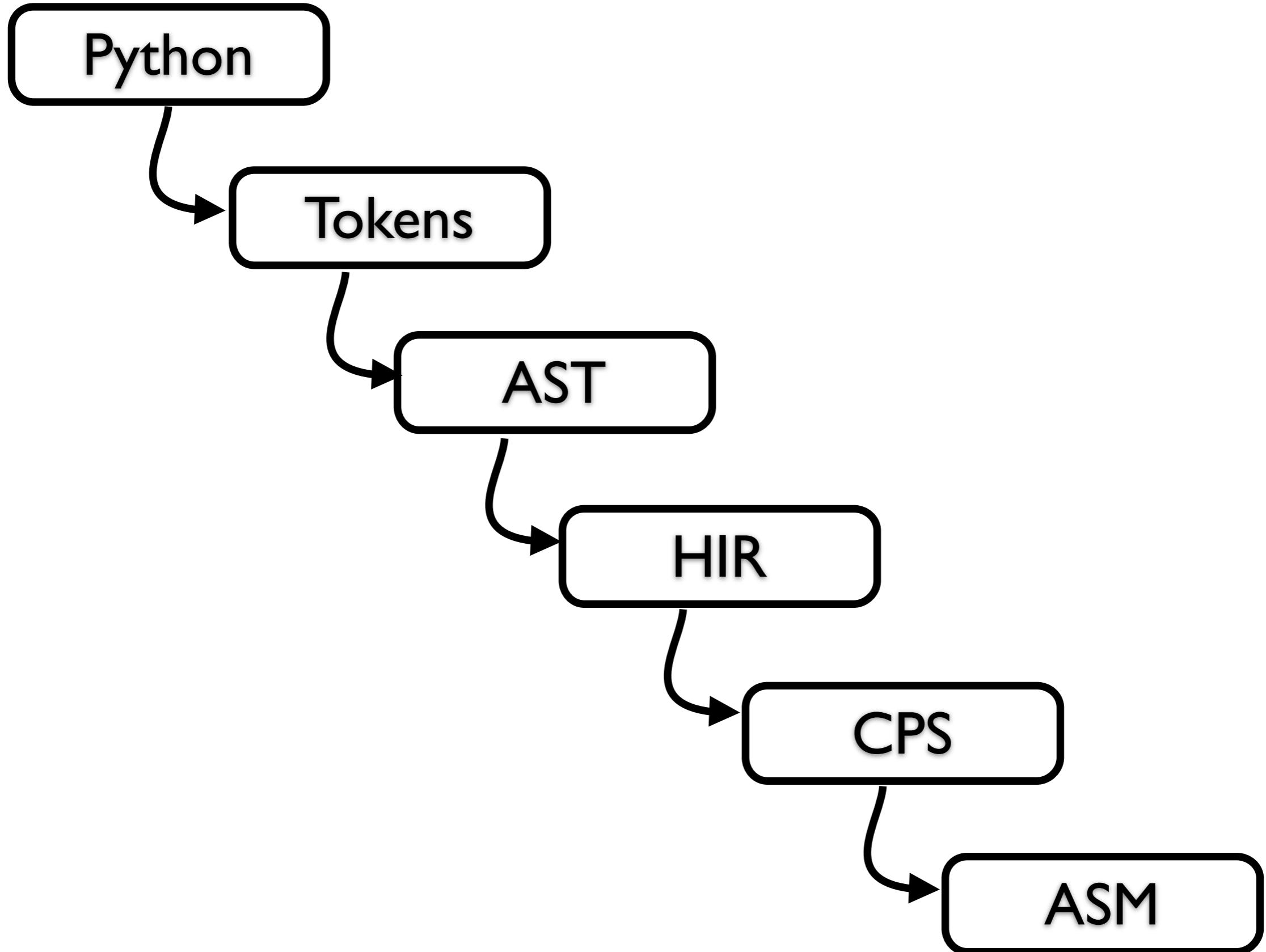
The final exam is evil.



# Projects?

Also evil.





What language?

# Not recommended

- Java, C#
- Python
- C, C++



# Recommended

- Racket
- OCaml / SML
- Scala
- Haskell

# Supported

- Racket

# Prerequisites

**3100 or 4400**

# Self-test

- Write recursive factorial
- Write tail-recursive factorial
- Write binary-search-tree insert
- Write binary-search-tree delete

# Collaboration

**You can work in pairs!**

# Cheating

vulcan.ucombinator.org

**First assignment?**

# **Learn Python 3.4**

# Learn Racket

# Learn Racket

A word on travel

A dramatic painting depicting a massive, dark-colored dragon breathing a powerful stream of fire from its mouth. The dragon's body is covered in scales and it has a long, spiny tail. In the foreground, a knight in full armor on a white horse charges towards the dragon, holding a long lance. The scene is set against a backdrop of dark, smoky clouds and distant mountains.

Questions?