Pattern Matching

Nate Foster

Spring 2019

Today's music: *Let It Go* by Idina Menzel

A0

- The exercises ask you to implement several simple functions

- Mostly designed to get used to writing (compiling, testing, etc.) code in Ocaml

- Also introduces the standard harness we distributed with each assignment (Makefile, check*.sh scripts, etc.)

- Staff can give you the "gist" at consulting hours over the next few days.

- Due next Friday

Level Up!

- Next week, Anna Fang and other senior members of the staff will begin offering weekly, *optional* enrichment sessions on a variety of topics
  - git
  - Shell tools
  - Makefiles
  - Study strategies
  - Graduate School
- Thursday, Feb 7th @ 7-8pm, Gates 310

Instant Access Textbook
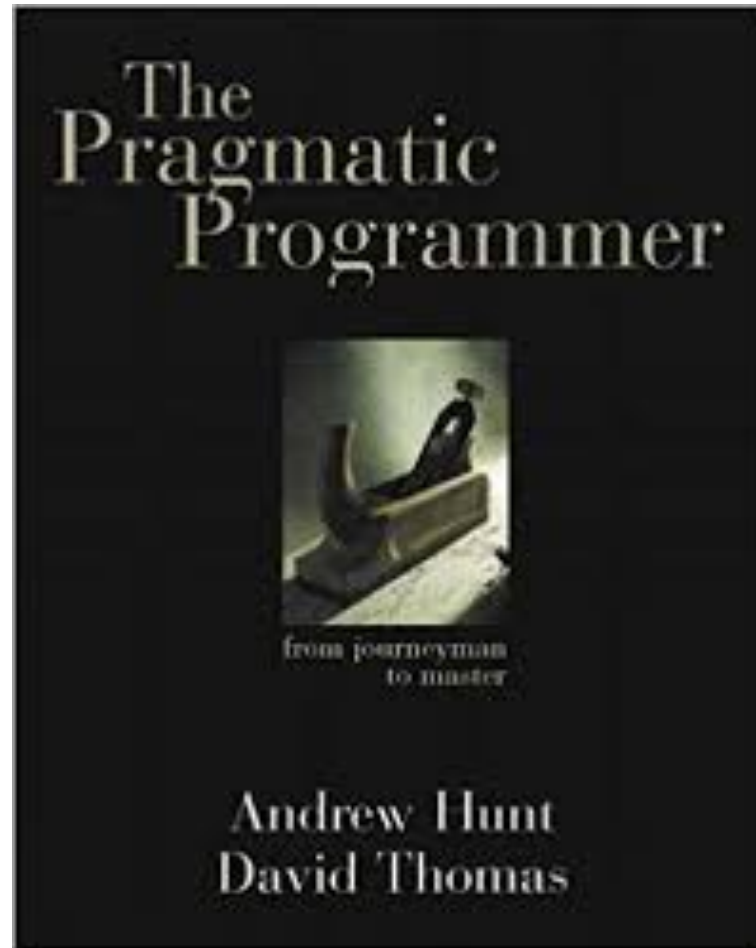
You'll be writing an essay on this text book… due part-way through the semester.

Textbook vs. lecture

CS 3110
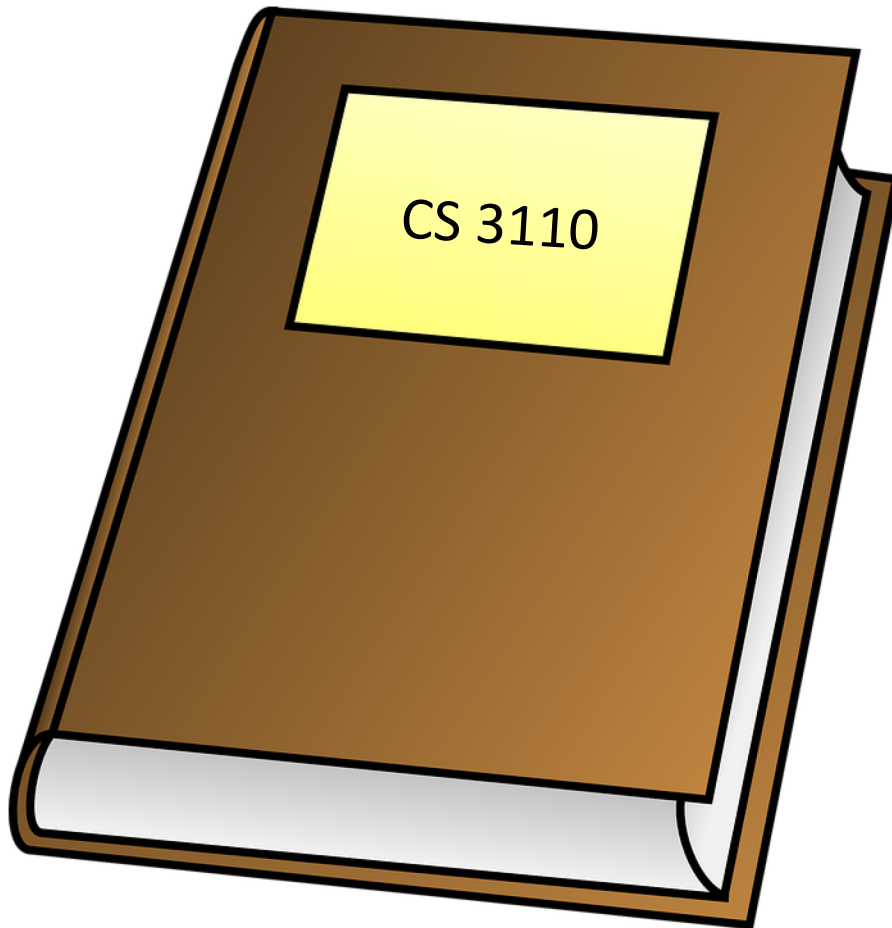
PRIMARY

summary

Search

- Website
- Textbook
- Discourse

Section & lecture attendance

about **1%** each: incentive not penalty

Review

Previously in 3110:

- Expressions, definitions

- Scope

- Functions

Today:

- Data types for collections: lists, records, tuples
- **Pattern matching**

Collections

	Homogenous elements	Heterogenous elements
Fixed number of elements		Tuples and records
Unbounded number of elements	Lists	

LISTS

List implementation

- Immutable: can't change elements
- Singly-linked:
  - Good for sequential access of short-to-medium length lists (say, up to 10k)
  - Data structures are tools: none is perfect
- Terminology: nil and cons (from Lisp)
- Next lecture: we'll see the implementation

RECORDS

TUPLES

Records

vs.

Tuples

by name

vs.

by position

Records and tuples

- New kind of definition: type definition
- New kinds of types: record types, tuple types

Collections

	Homogenous elements	Heterogenous elements
Fixed number of elements		Tuples and records
Unbounded number of elements	Lists	

Syntax and semantics: all in the textbook

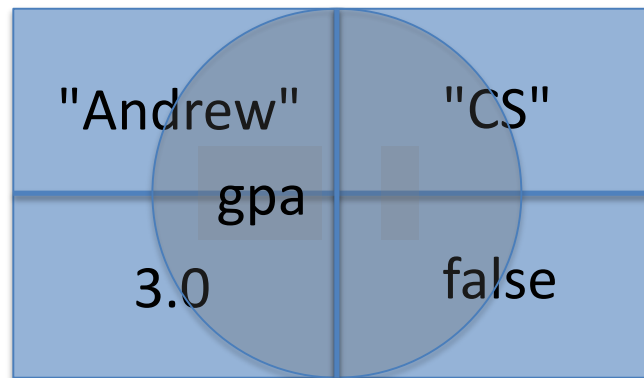# PATTERN MATCHING

Deconstructing data

Data:

"Andrew"	"CS"
3.0	false

Patterns:

gpa

gpa

gpa
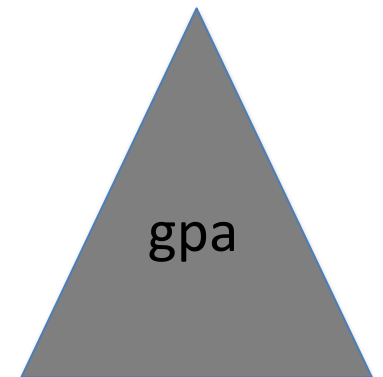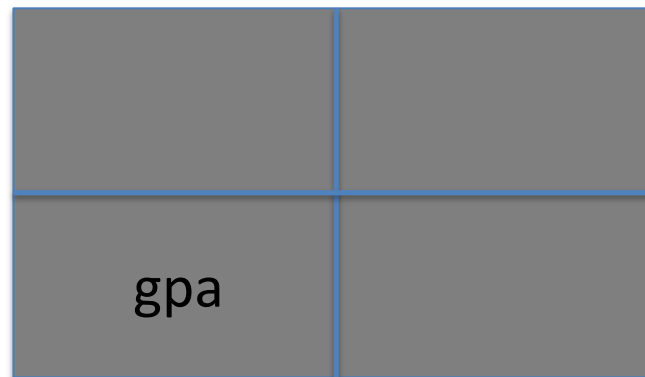
Deconstructing data

Pattern does not match data

Deconstructing data

Pattern does match data
Extracts gpa

Upcoming events

- [Now] A0 is out!

- [Thu] Foster OH @ 1:15-2:15 in Gates 432

- [Fri] Recitations 2 & 3 due on CMS

This is incredible.

THIS IS 3110