Lecture 40

CSE 331

May 8, 2020

All you need to know about final…

note @753

Final exam post

I'll start off with some generic comments:

- If you have **three or more exams scheduled on May 11,** please contact me **NO later than 5 PM on Wednesday, MAY 6.** *If you*
- The final exam will be based on all the material we will see in class up to (and including) NP-completeness of k-colorability (we'll
  - In case you want a head-start, we will cover Sections 8.1-8.4 and Section 8.7 in the textbook. For the rest, the schedule pag
- This is a take-home exam with a specific time limit (3 hours), due to the distance learning constraints. Make sure you are in a quie trouble when taking photos.
- The exam will be from **3:30 pm to 6:30 pm ET** on Monday, **May 11**. Note that you're given 2.5 hours for the exam (which would b
- If your time zone is too different (non-US), let me know. I'm aware of 5 students in Indian and Chinese Time Zones (from @522) ar
- Questions will be sent by email to you at exactly **3:30 pm ET**. The email will contain a link to a pdf file in UB Box.
- **The most important thing is uploading your solutions in a proper way.** All else will NOT matter if you don't do this properly. **P**
  - You will combine all you have in a single pdf file. The first two pages of this pdf file should be as follows:
    - The first page is a paper with your name and UB email address. This has to be hand-written.
    - The second page has a photo of your UB id (NOT license, NOT passport).

UPLOADING SOLUTIONS

note @723

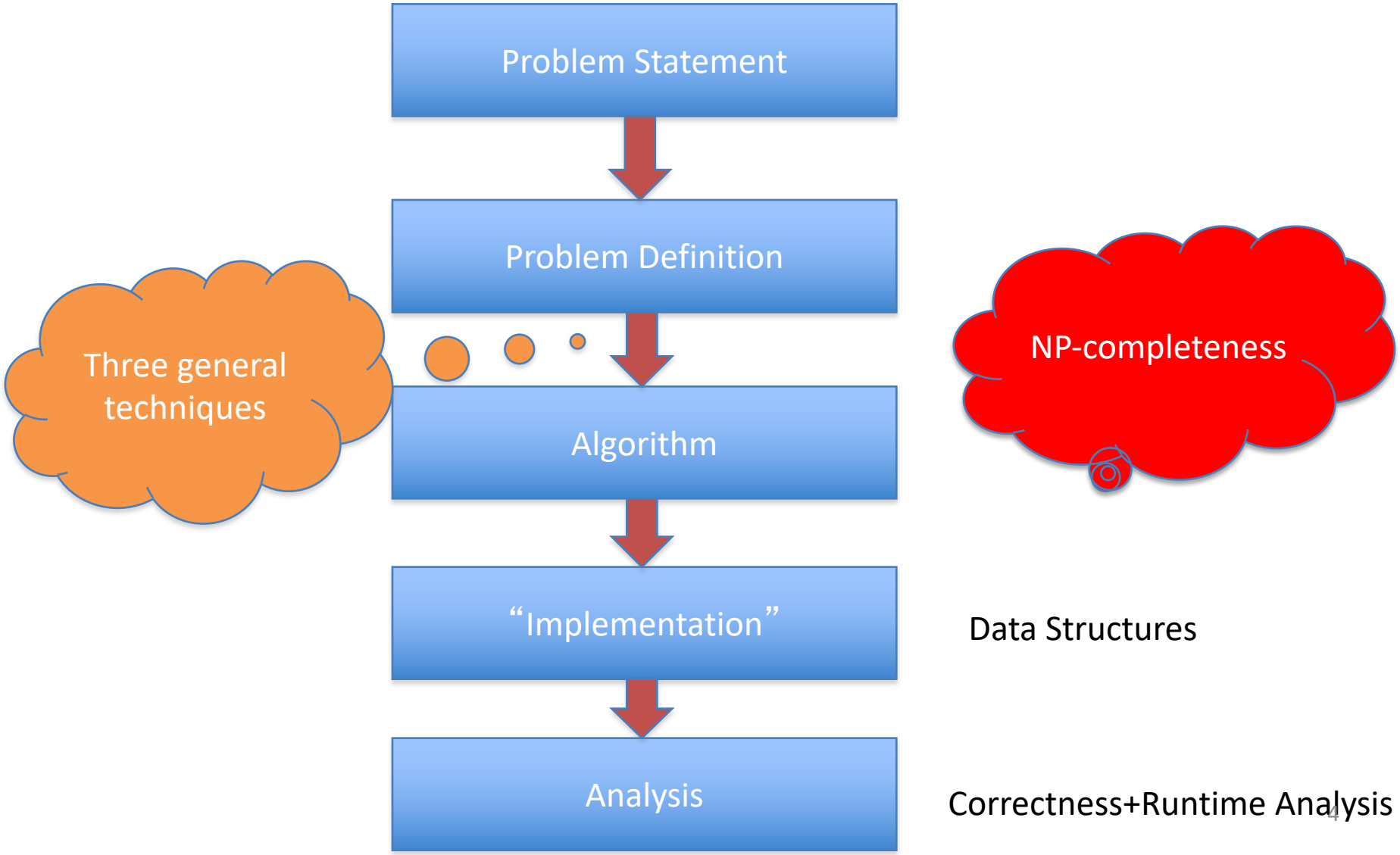
Uploading your solutions in the final exam and quiz 2

Quiz 2 and final exam will be take-home exams with specific time limits. You'll access the questions by a link that will be sent to your emails.

- The best setting for this kind of exam is classical paper-pencil. That means you should have some blank paper sheets and answer questions on paper.
  - You should clearly mark the question number for each answer you give. I'll make the questions numbered and without any sub-parts, to ease your job.
  - After you're done, you will take photos of the papers. Note that you'll have two additional pages at the beginning (the page with your hand-written name-UB
  - The most crucial thing is to combine those photos in a single pdf that has 'good' size and resolution. After a long and careful thinking process, I recommend
    1. Use your smartphone to combine everything and then email/send the pdf to your computer. There are scanning apps available for this purpose, both fo to login though (by gmail, facebook, or adobe account). You can take the photos in this app and create a single combined pdf. Then send this pdf to yo avoid those---I don't want you to end up practicing today successfully but failing in the exam day since the trial period expires by then).
    2. Transfer the photos to your computer and create the pdf by your computer. In our experience, the easiest way to do this is basically creating an MS Wo separate page. Then you'll save as pdf and Word will give you a pdf with 'good' size and resolution.
  - (There are other ways to create the combined pdf file, but you should be careful with the size and resolution requirements and use those on your own risk.)
  - In the end, you just submit the pdf to AutoLab; see more details in the "Quiz 2" and "Final exam" (will be posted soon) posts.
  - It's highly recommended that you use ONLY ONE SIDE of the paper. It's very likely that you'll have more adrenaline at the end of the exam, so you may forge a situation.

You can also type their solutions in a text editor and then convert all to pdf, if you want (and include those two pages at the beginning). However, it's likely that some qu which will be hard to do in an editor under the time pressure. Also, it'll distract you, so we do NOT recommend this.

High level view of CSE 331



Now relax…

Randomized algorithms

What is different?

Algorithms can toss coins and make decisions

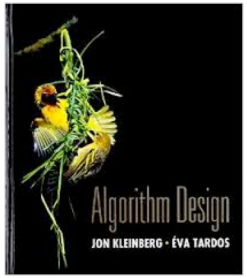
http://calculator.mathcaptain.com/coin-toss-probability-calculator.html

A Representative Problem

Hashing

Further Reading

Chapter 13 of the textbook



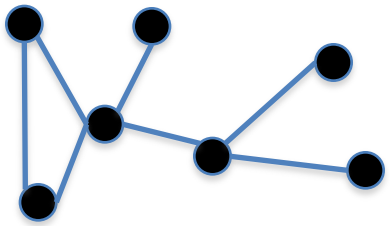
CSE 432: Randomized Algorithms Analysis and Design!

Approximation algorithms

What is different?

Algorithms can output a solution that is say 50% as good as the optimal

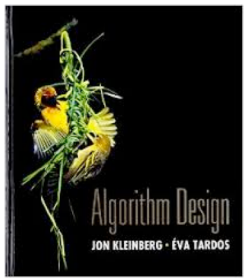
A Representative Problem



Vertex Cover

Further Reading

Chapter 12 of the textbook



Online algorithms

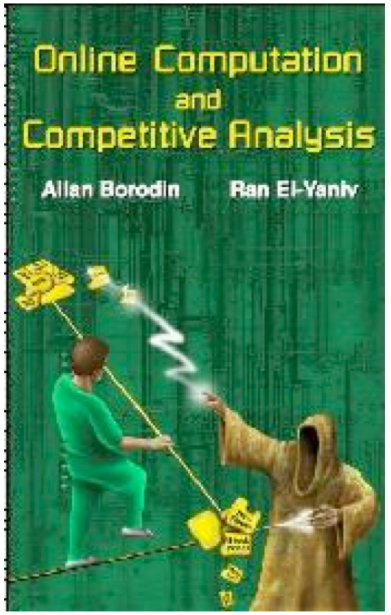
What is different?

Algorithms have to make decisions before they see all the input

A Representative Problem

Secretary Problem

Further Reading



Data streaming algorithms

https://www.flickr.com/photos/midom/2134991985/

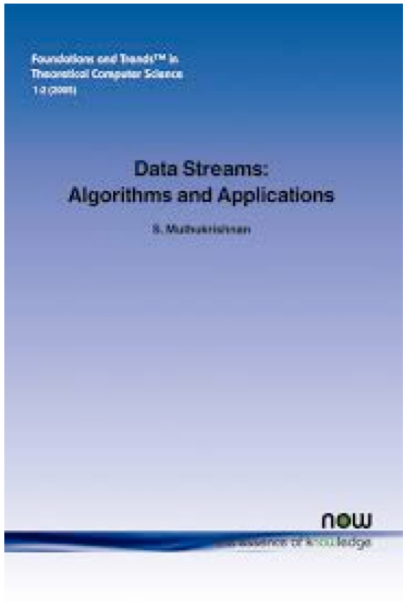
What is different?

One pass on the input with severely limited memory

A Representative Problem

Compute the top-10 source IP addresses

Further Reading



Distributed algorithms

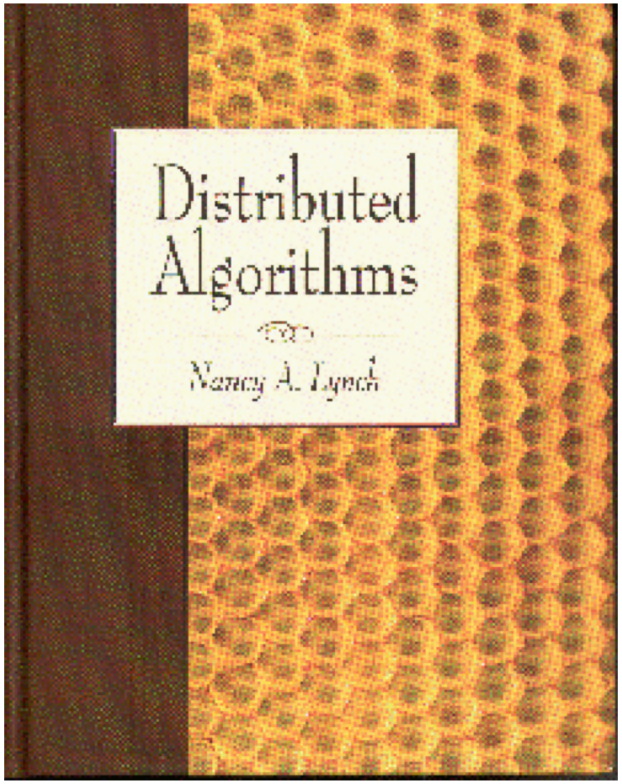
What is different?

Input is distributed over a network

A Representative Problem

Consensus

Further Reading



Beyond-worst case analysis

What is different?

Analyze algorithms in a more instance specific way

A Representative Problem

Intersect two sorted sets

Further Reading

http://timroughgarden.org/f14/f14.html

Algorithms for Data Science

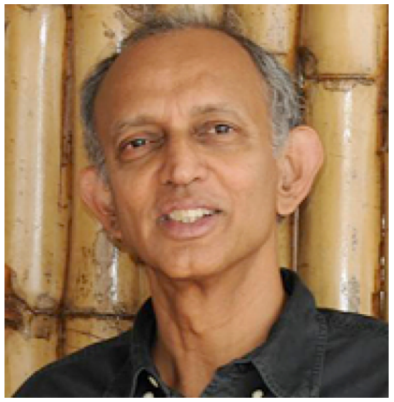
What is different?

Algorithms for non-discrete inputs

A Representative Problem

Compute Eigenvalues

Further Reading



https://www.cs.cornell.edu/jeh/book.pdf

Algorithms and Society

What is different?

Measuring and correcting for harms caused by Algorithms

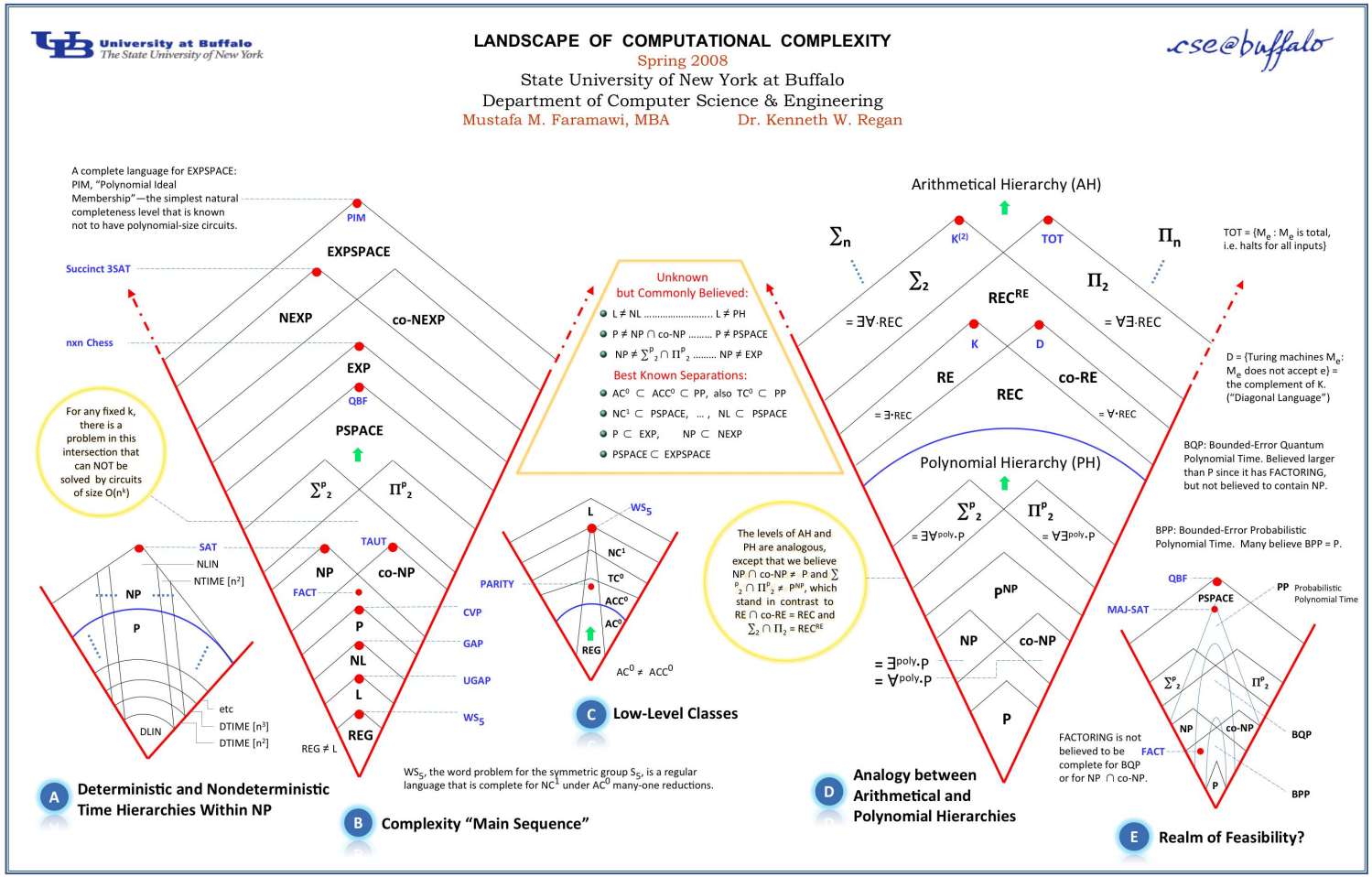
A Representative Problem

Bias in ML

Further Reading

CSE 410 by Atri Rudra

Anything > NP and < undecidability?



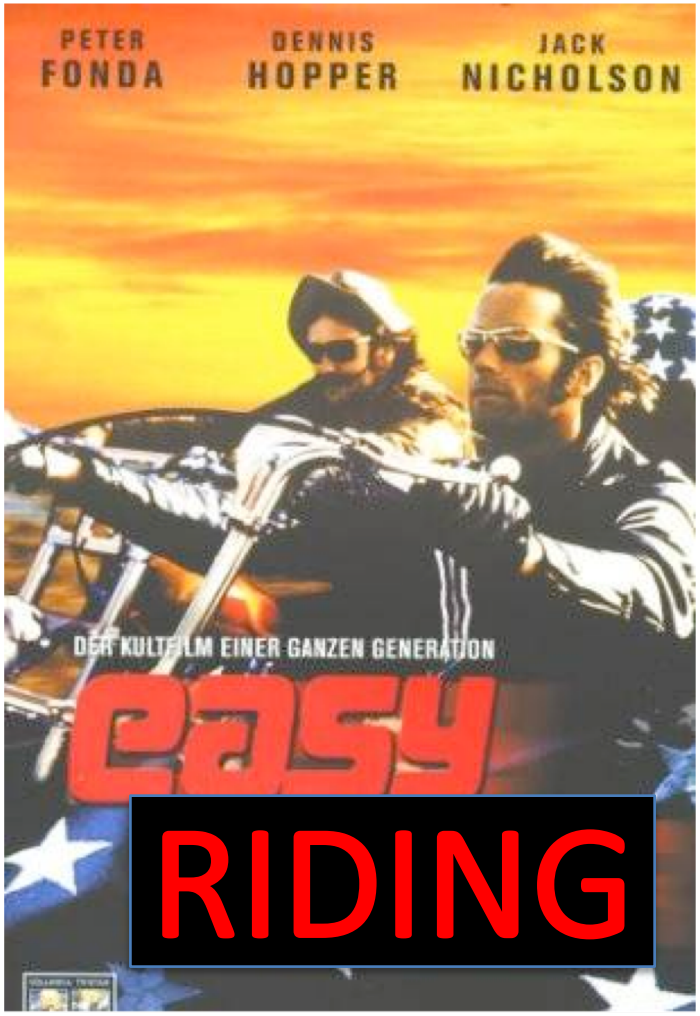
CSE 396

Introduction to the Theory of Computation

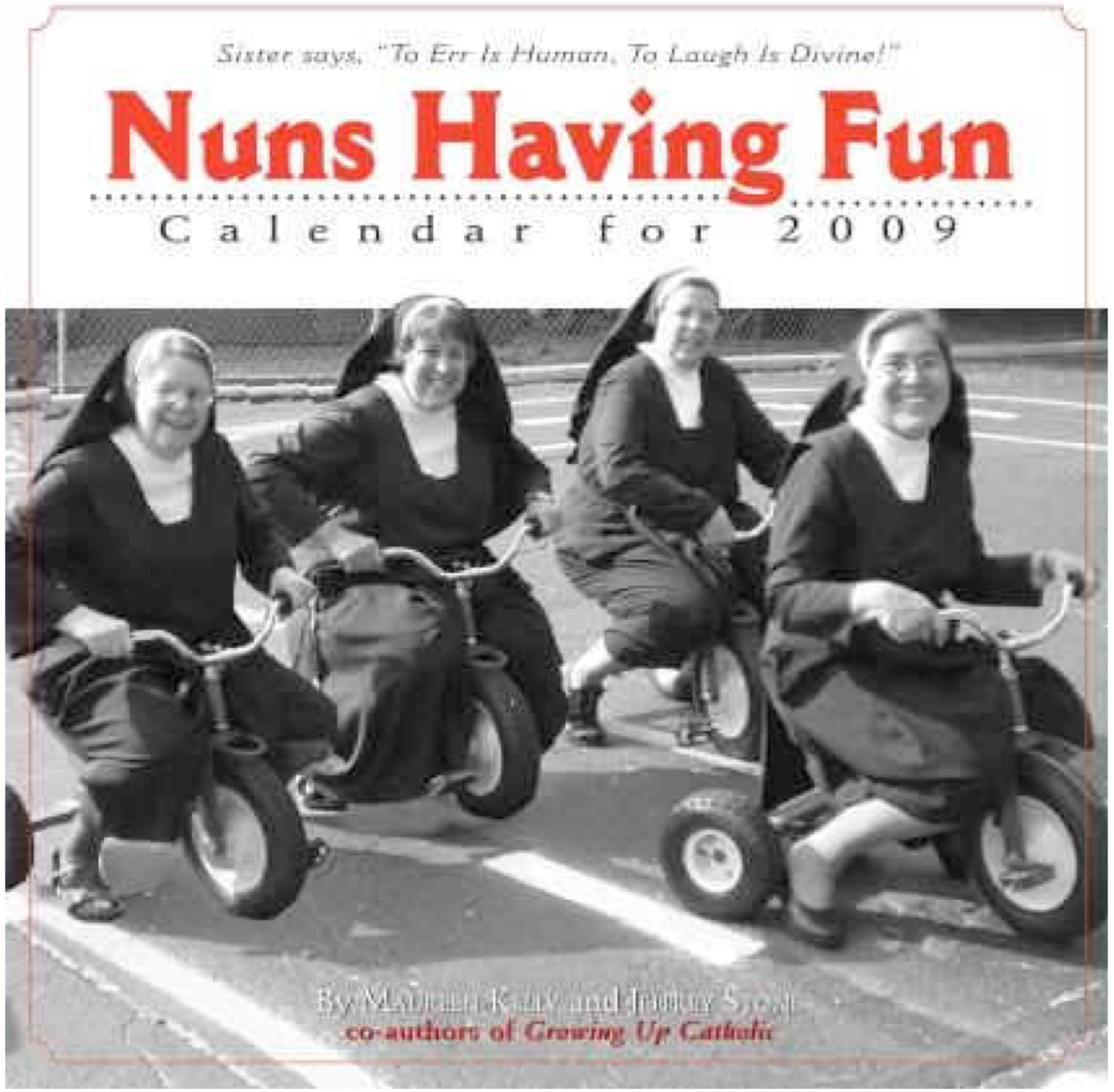
Q & A session

Whatever your impression of the 331

IT WAS



Hopefully it was fun!



Thanks!

Except of course the final exam