



University of Pittsburgh

Introduction

CS 2001: Research Topics in Computer Science
Fall 2019

Dietrich School of Arts and Sciences
Department of Computer Science



Administrivia



Research Topics in Computer Science

- CS 2001
- Monday/Tuesday 1:00 - 2:15PM, F ? - ? (rarely)
- 6516 Sennott Square

Instructor

- Professor Taieb Znati
- znati@cs.pitt.edu
- 6137 Sennott Square
- Office Hours: If my door is open

**Email me your Friday
schedules so that we
can pick a reserved
make-up time**

<http://www.cs.pitt.edu/~znati/courses/cs2001>



So how is this course scheduled anyway?

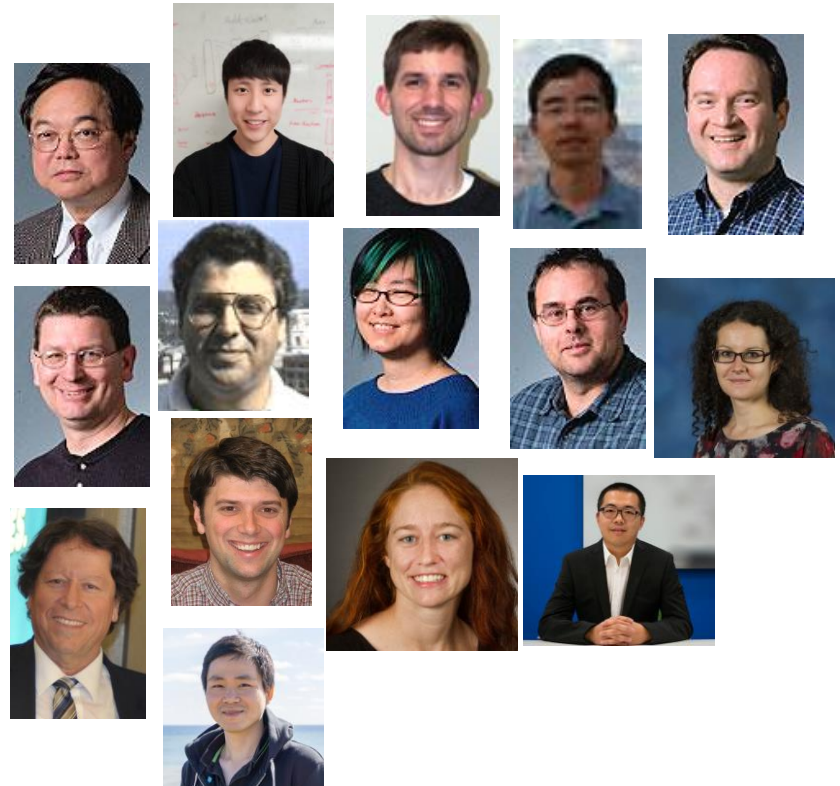
Two distinct sections..

Part I:

- What **is** research?
- How do I **understand** research?
- How do I **evaluate** the research of others?
- How do I **do** my own research?
- How can I **communicate** my exciting new results to others?

The goal here is to prepare you for success in our program

Part II:

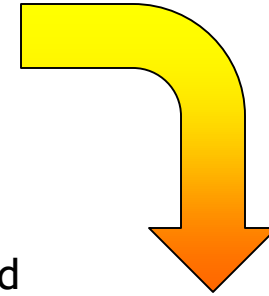


The goal of the first part of the course is to prepare you to do research



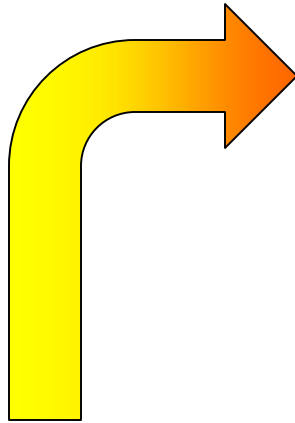
Research papers

- How to read and understand
- How to critique
- How to write*



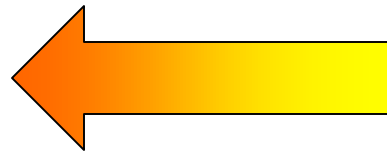
Tools of the trade...

- University computing environment
- Statistical processing
- Scripting and plotting
- Paper writing



Communication

- What makes a good talk?
- What makes a bad talk?
- Advertisements vs. book reports



Goals for today...



1. Quick introductions to one another
2. What is a PhD?
3. Why do a PhD?
4. Getting a PhD at Pitt

Who are you guys?



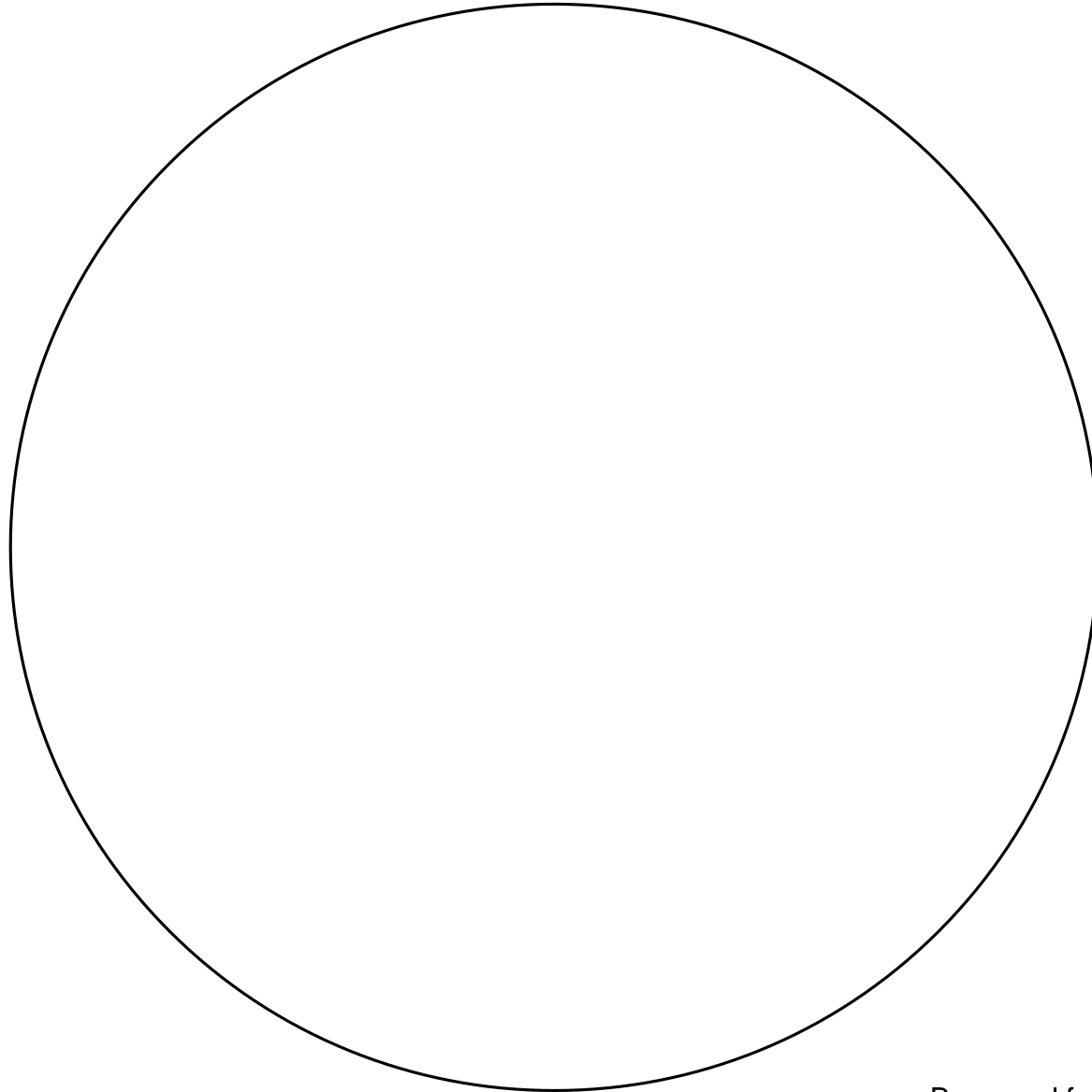
Let's get to know one another...

- Your name
- Why Pitt?
- Research interests
- Anything else?

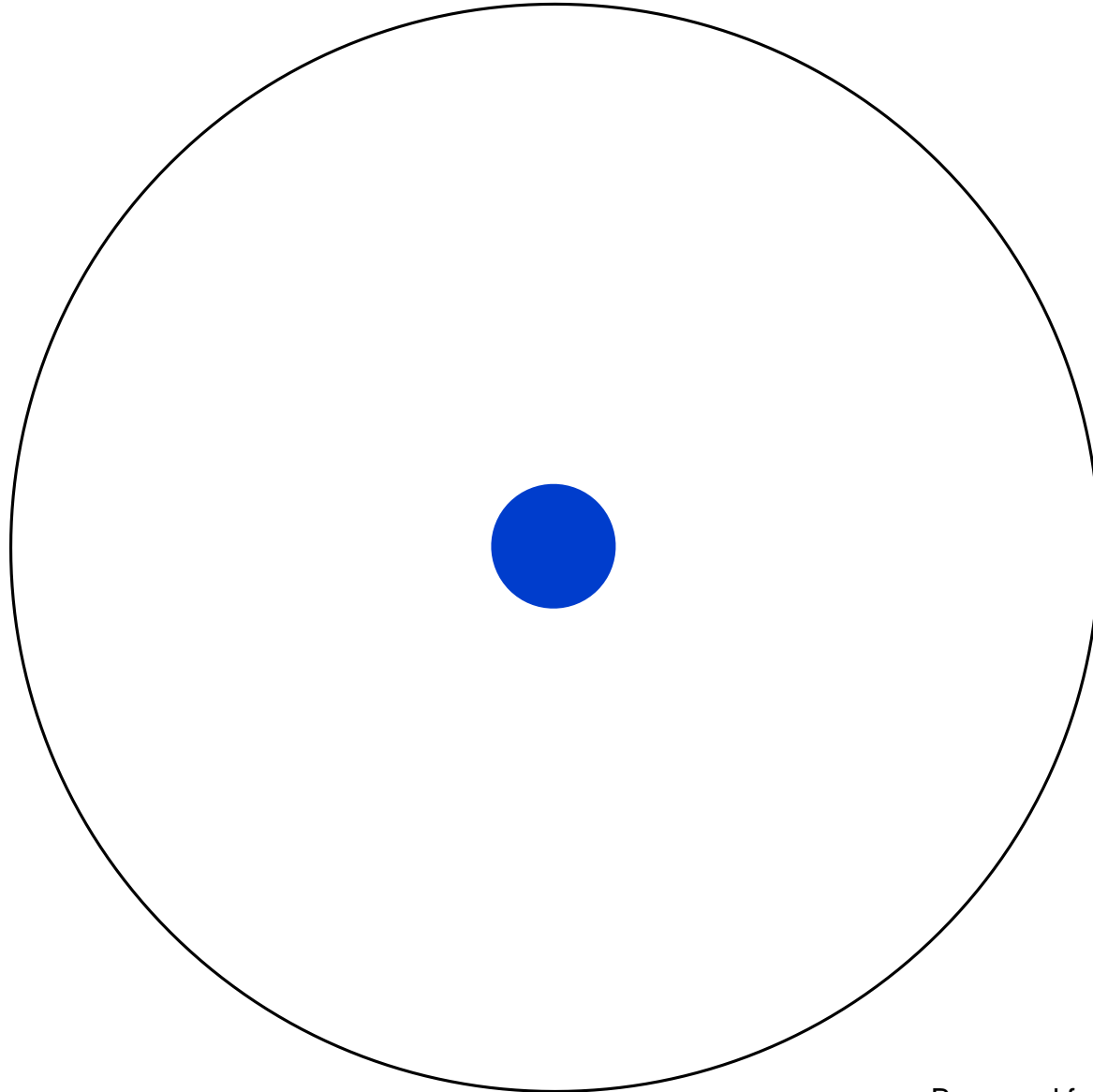
"I have no idea..." is a perfectly fine answer!



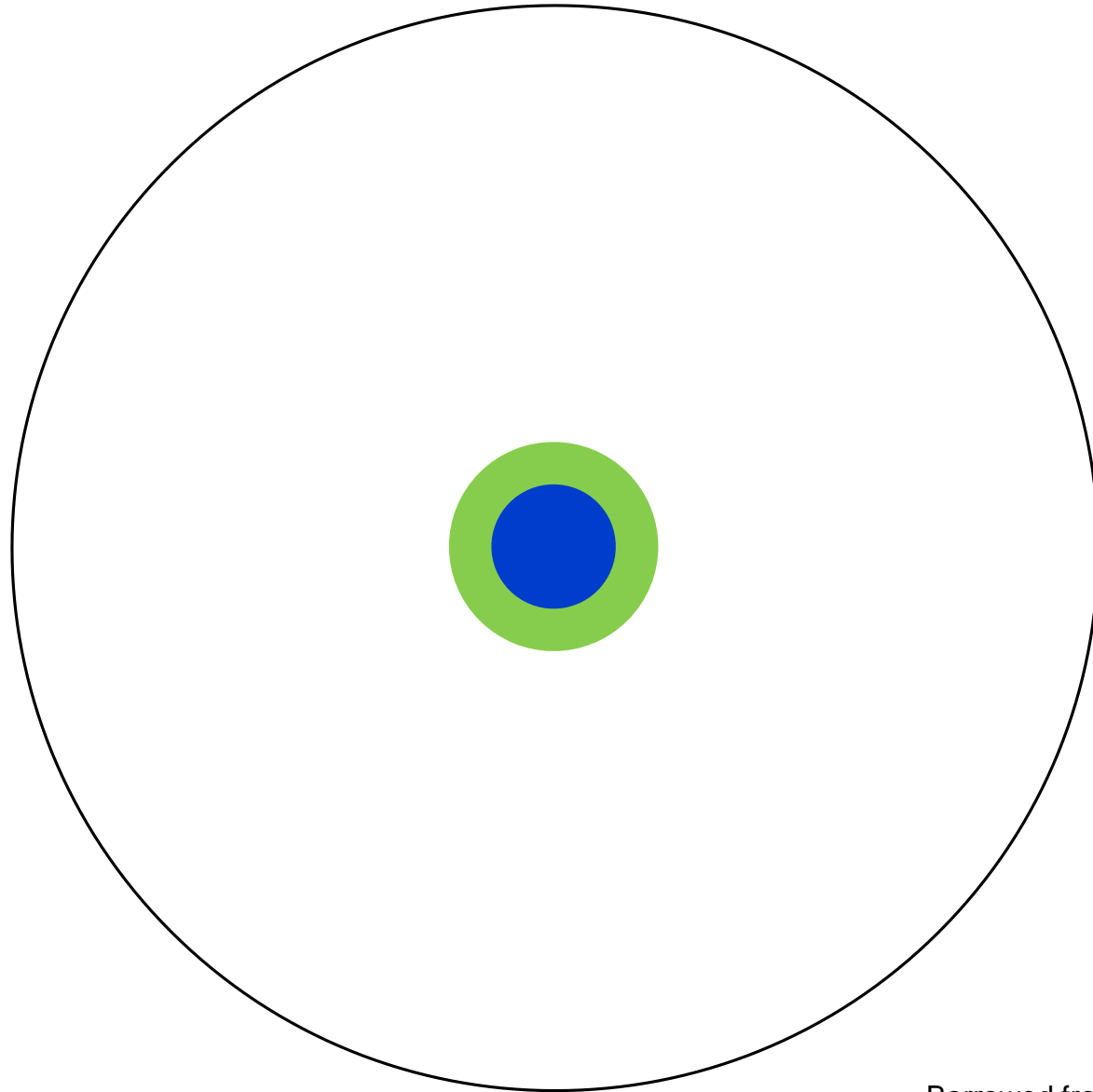
What is a PhD?



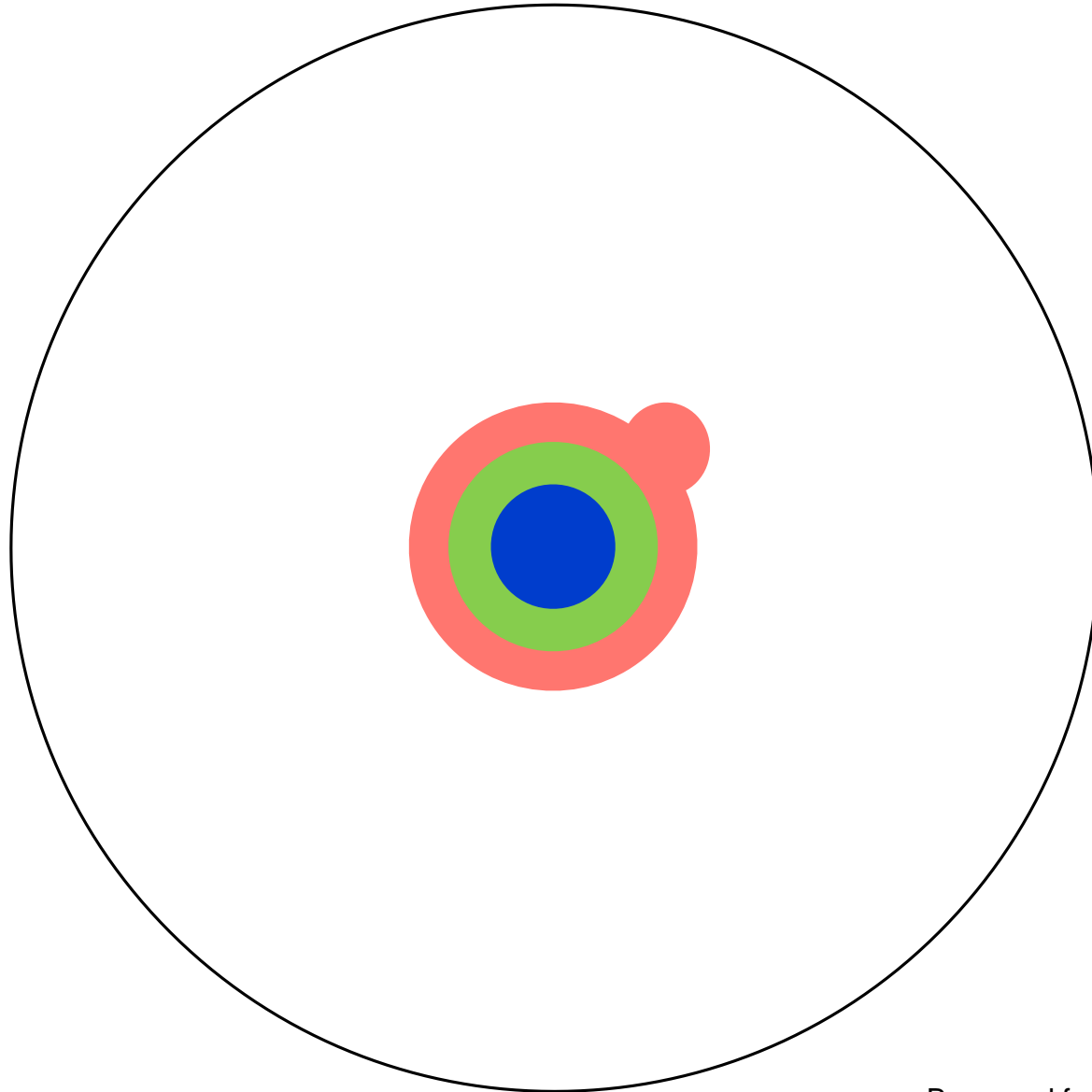
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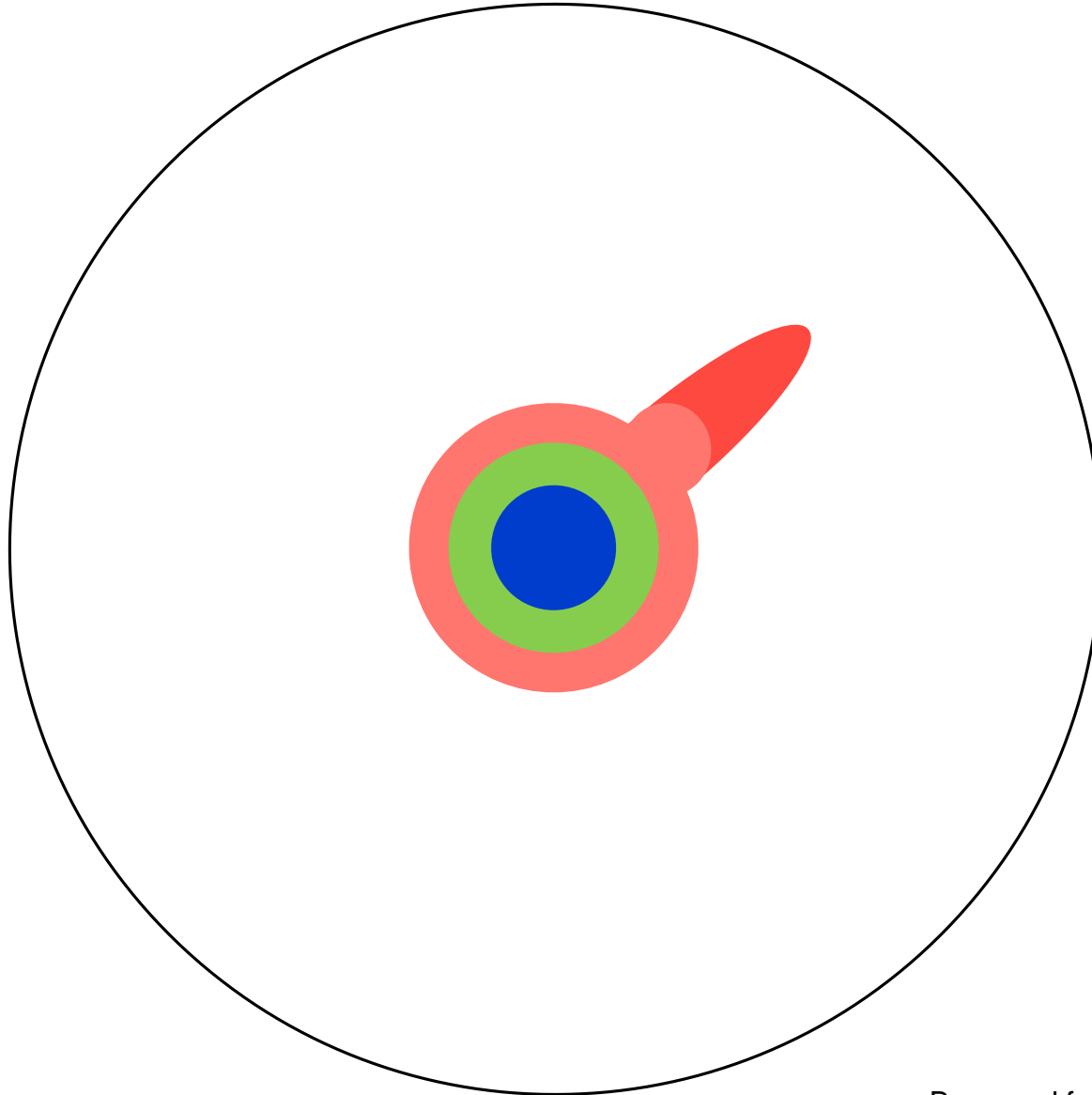
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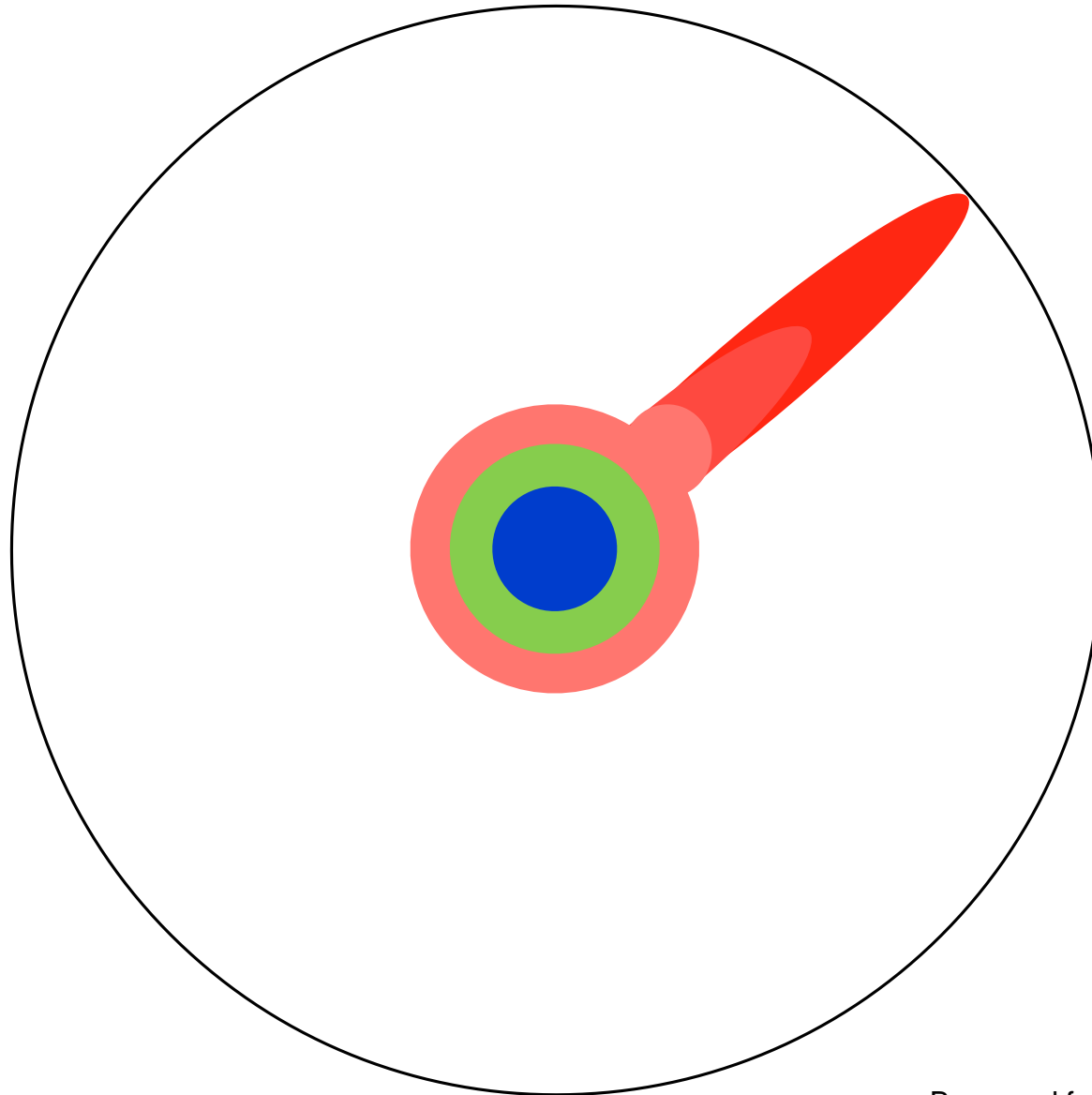
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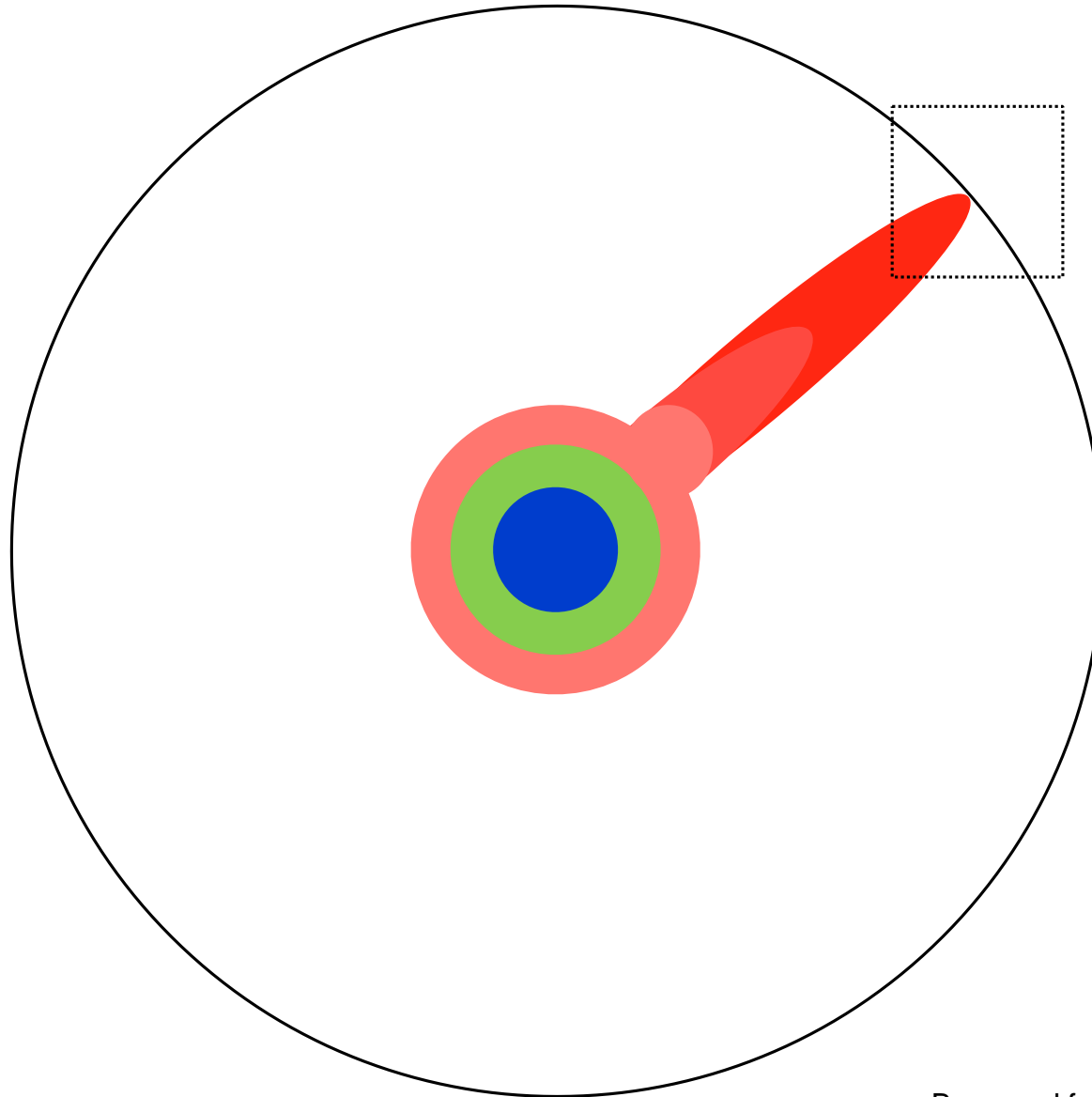
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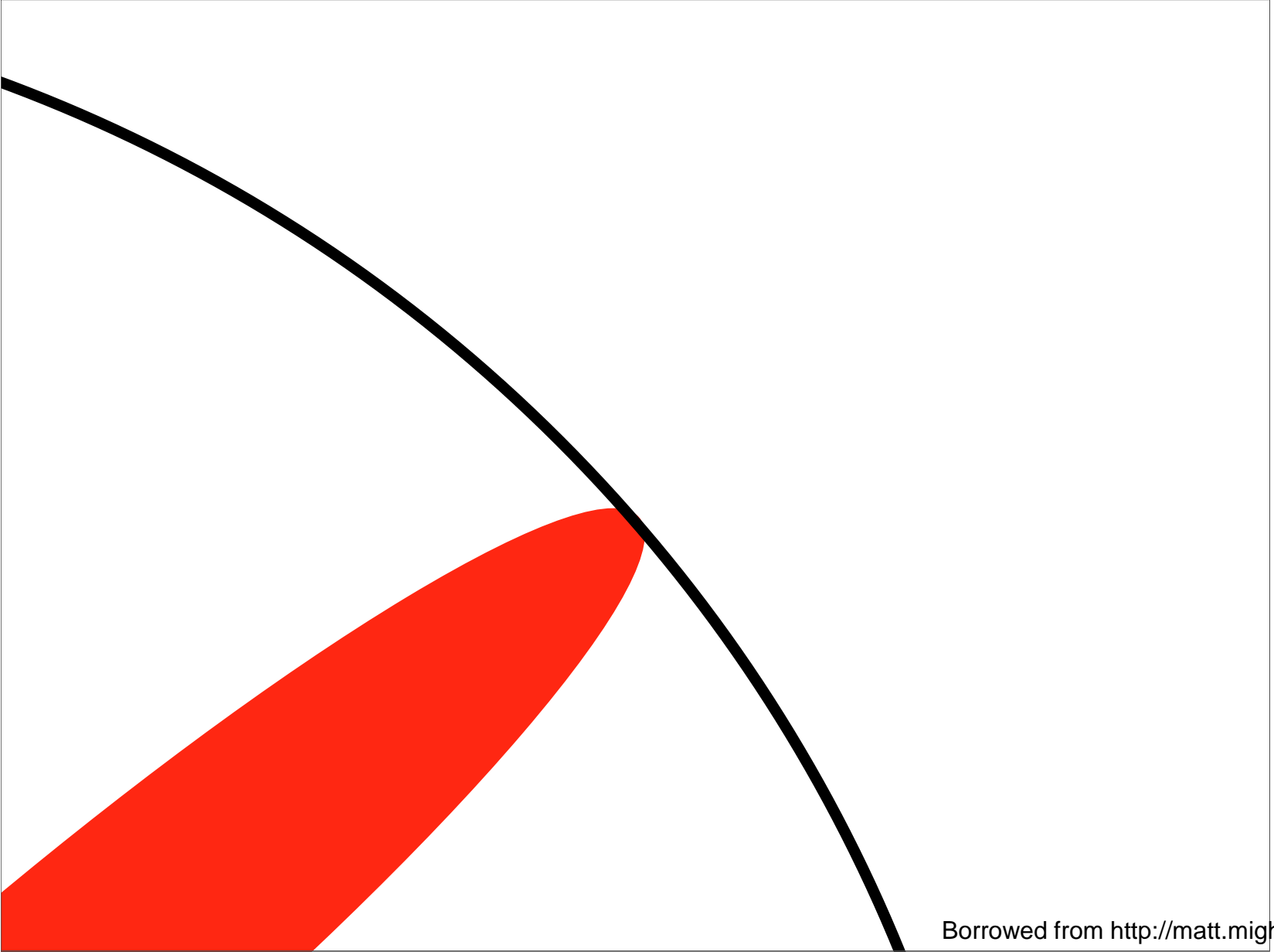
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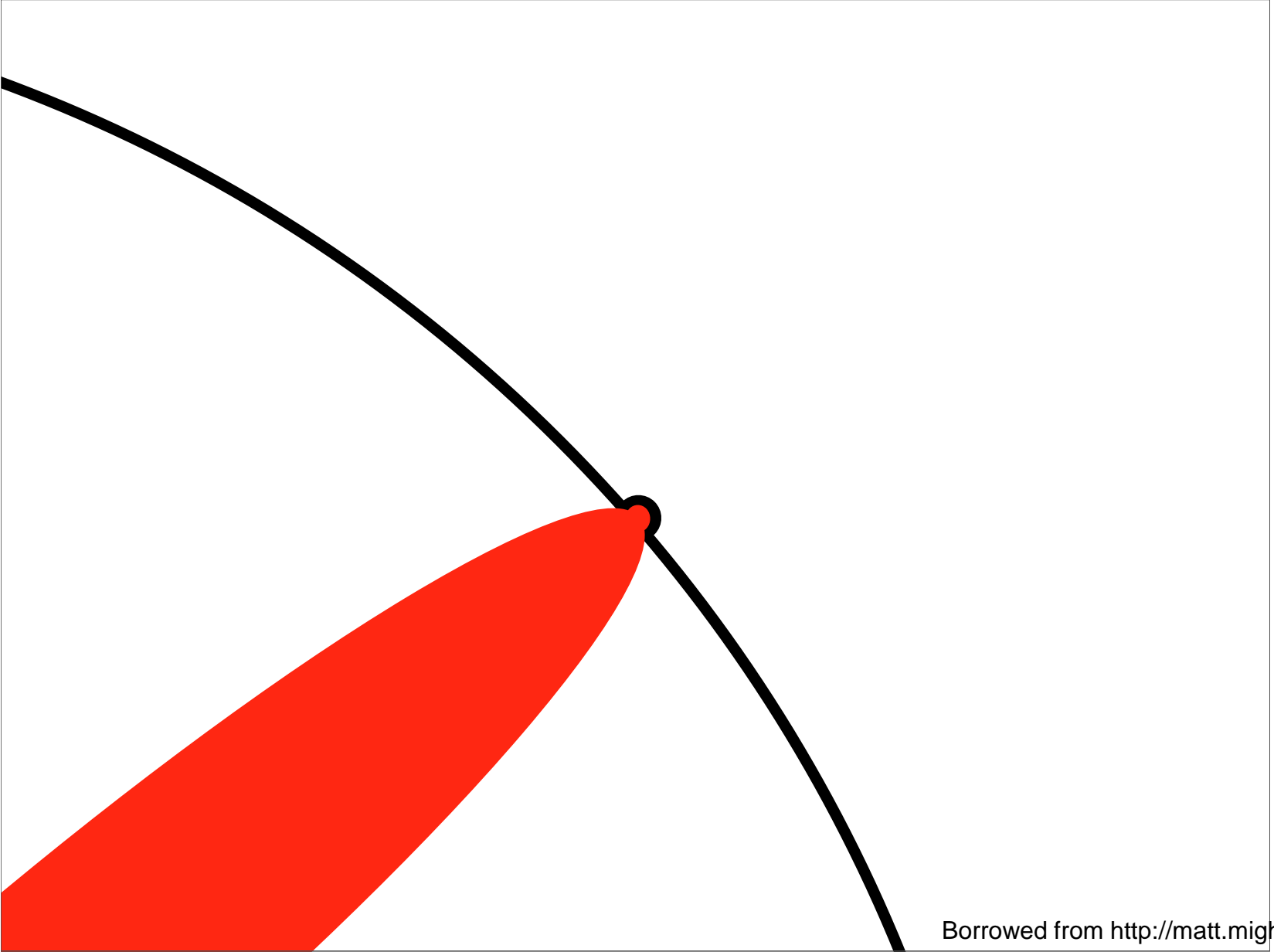
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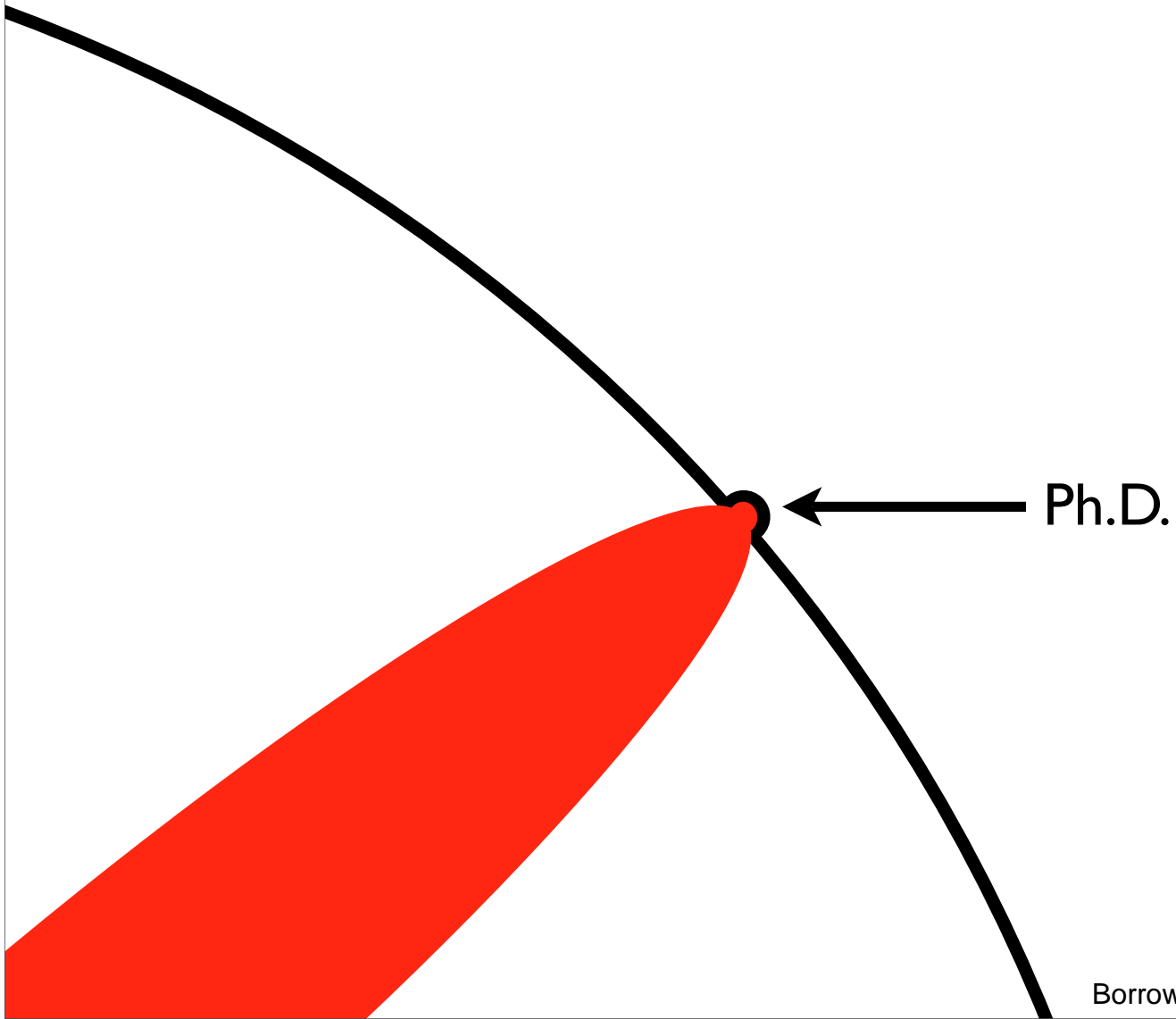
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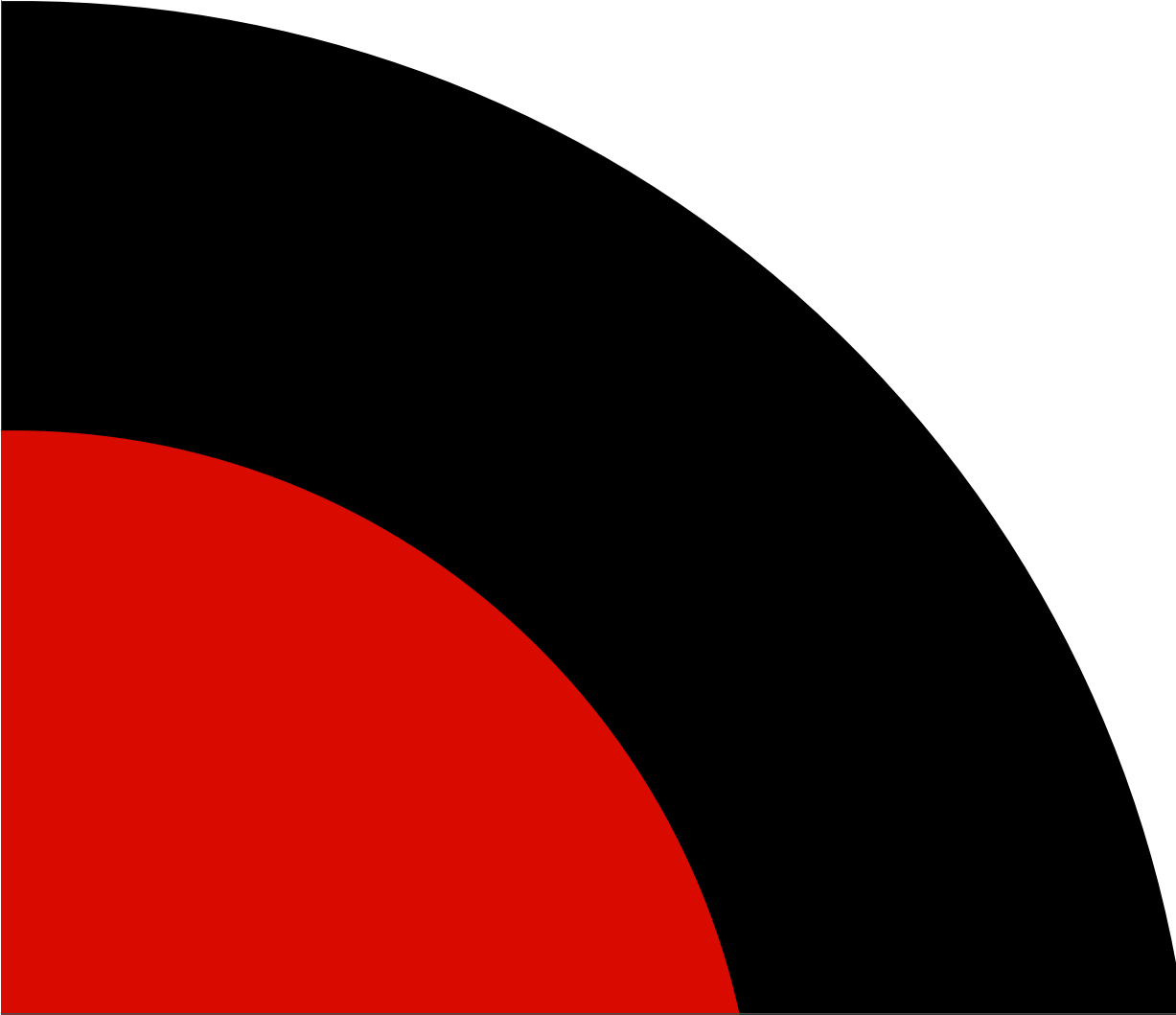
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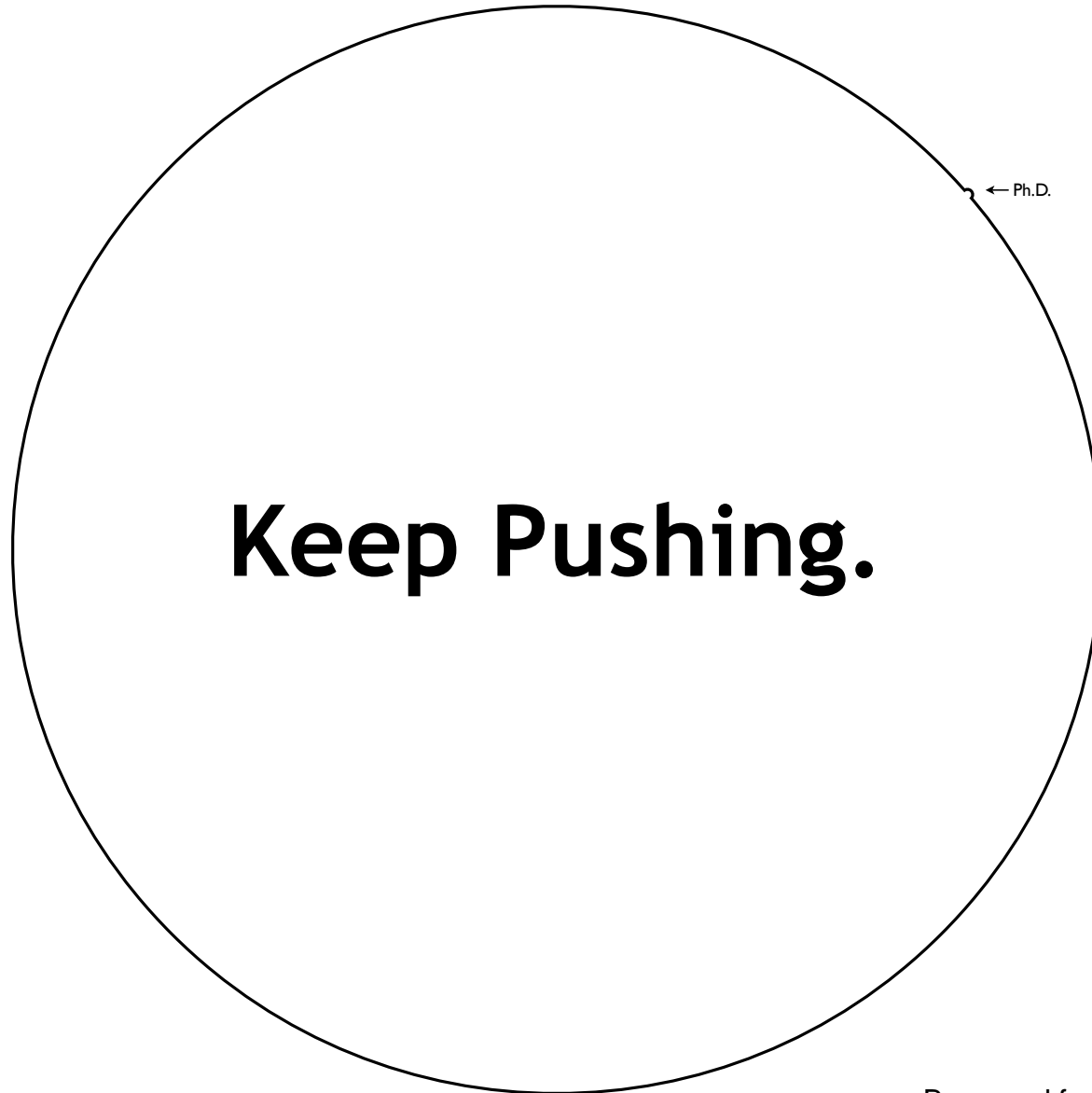
What is a PhD?



What is a PhD?



What is a PhD?





So... What *is* a PhD?

A PhD is a process!

A demoralizing process at times...

- So much has been done already, how do I keep up?
- What **new** problem should I be solving?
- Solving this problem is **way harder** than I thought it would be...
- Why doesn't my code (or code that I've borrowed) work?!
- Why do my papers keep getting rejected?

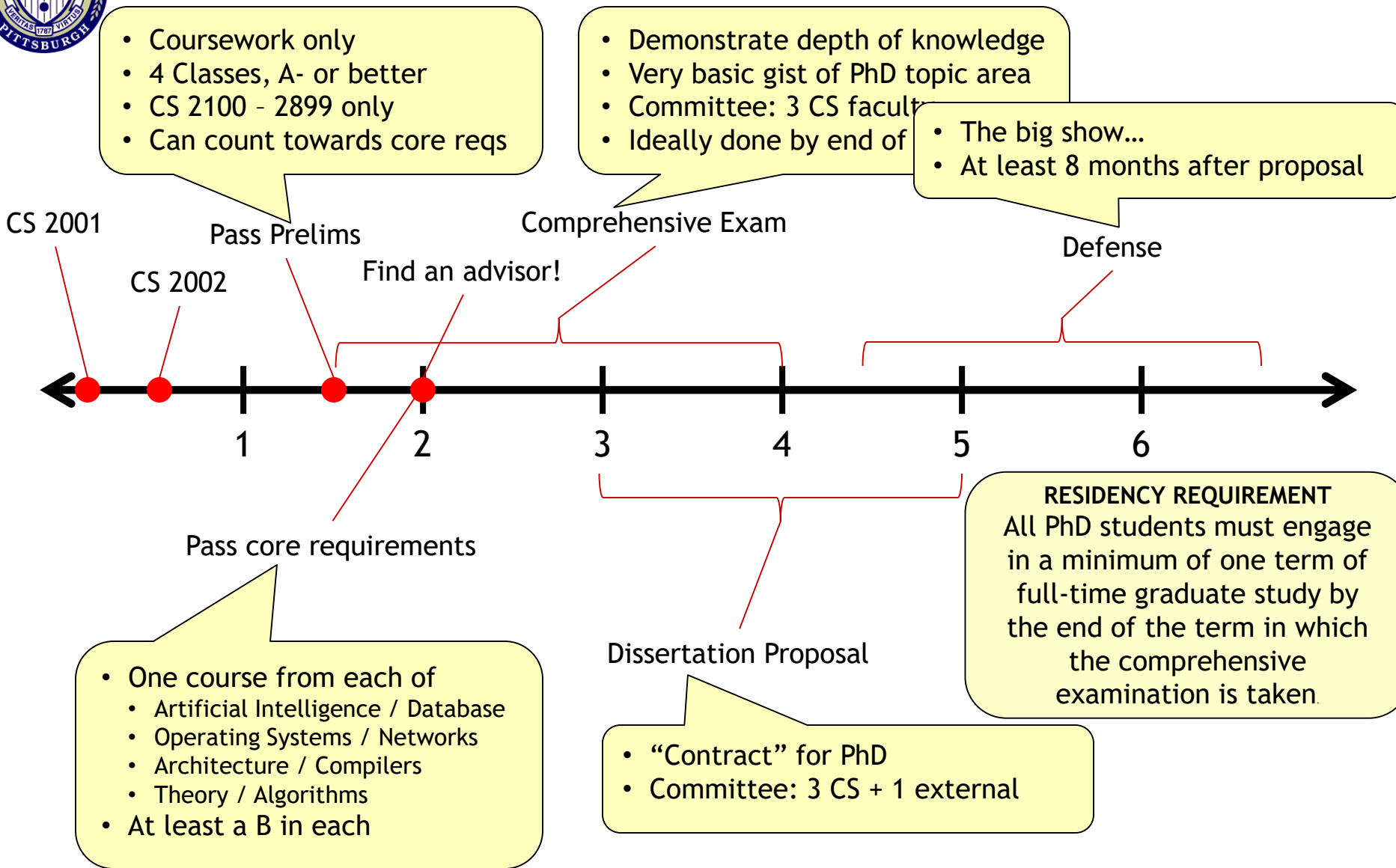
But a process that will educate you greatly

- Problem identification and solving
- Persistence and hard work
- Clear (written and spoken) communication skills
- Team work, management, and mentoring

So why would anyone do a PhD?



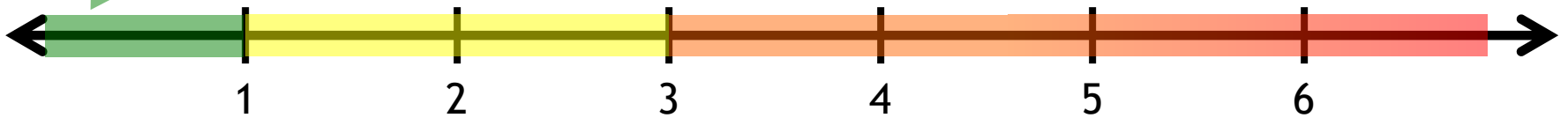
The (Abridged) PhD Timeline at Pitt



Tips for Success



- Work hard to finish course requirements
- Identify research areas/professors of interest
- Begin reading papers & discussing area



Tips for making the most of meetings...



When reading/experimenting:

- Take notes on the papers
- Write down questions and interesting problems
- Write up preliminary results

During the meeting:

- Take notes!
- Ask questions: It's OK to be confused
- Agree on next steps, desirable outcomes



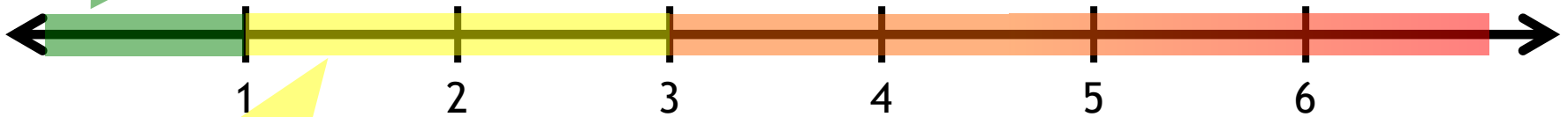
After a meeting:

- Reflect on meeting “minutes”
- Develop a plan for meeting expectations
- Pop-in or exchange email to address small problems between meetings

Tips for Success



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- Begin reading papers & discussing area



- Attend group meetings
- Read several papers per week
- Research! Develop your niche.
- Work on time management skills



How do I choose an advisor?!

Key points: **research interest** and **fit**

You are unlikely to finish a PhD that you aren't interested in...

- Use CS2001 to get to know faculty whose work seems interesting
- Take courses and seminars in these areas
- Read papers, make sure you're interested in recent developments

You will be working **very closely** with your advisor

- Do you prefer “hands on” or “hands off” advising?
- Can you take direction/criticism from this person?
- Use CS2002 and course projects to test fit!

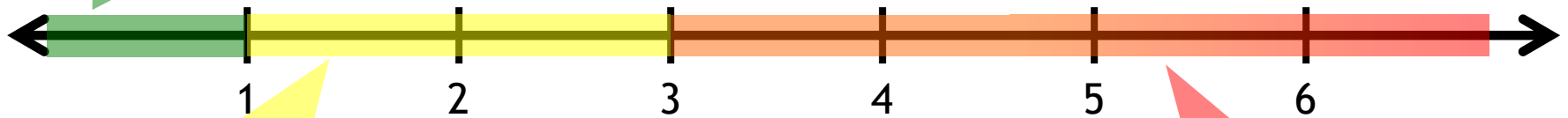
Choosing an advisor is a **big** decision...

Tips for Success



- Work hard to finish course requirements
- Identify research areas/professors of interest
- Begin reading papers & discussing area

- More than smarts: Persistence!
- Time management should become an art...
- Identify larger open problem, not just many small “neat” problems
- writing, Writing, WRITING



- Attend group meetings
- Read several papers per week
- Research! Develop your niche.
- Work on time management skills

- Good thesis or great thesis?
- To defend, you must be an expert. Are you?
- Resist the temptation to take a job before you defend. This is a recipe for disaster.



Welcome to the program!