PSYC 3530
Cognitive Psychology

Lecture 1: Introductions

Outline for today

- Introductions
- Review the syllabus and provide an overview of the course
- Brief introduction to Cognitive Psychology

Introductions

About me.

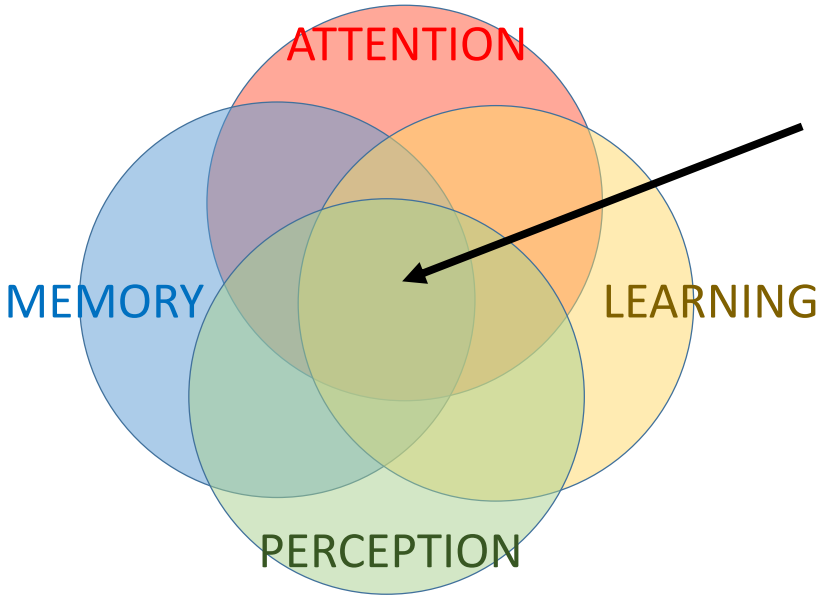
- You can call me Nick
- I'm a PhD student at the Graduate Center, CUNY

About me.

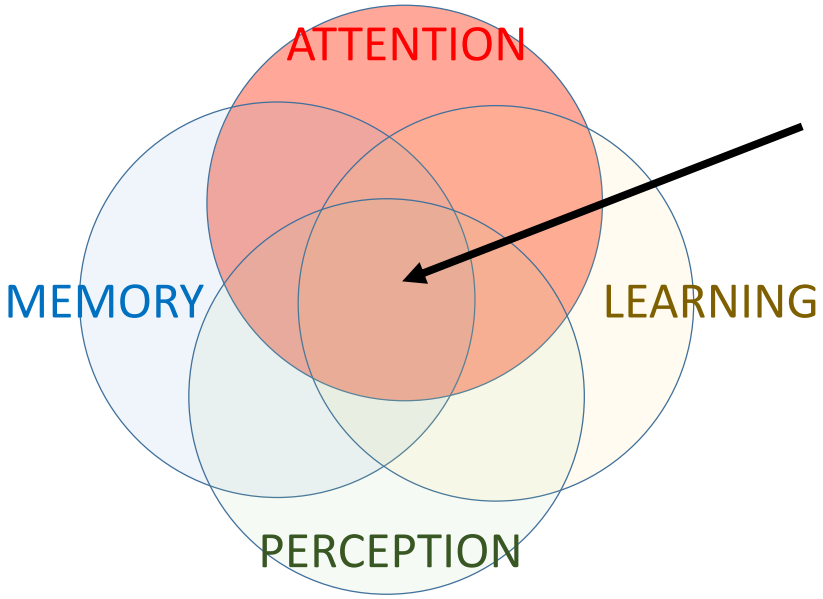
- I'm originally from Winnipeg, MB Canada
  - An 4 hour drive north of Fargo, ND

About me.

- I work with Dr. Matthew Crump, here at Brooklyn College
- I'm a cognitive psychologist
- I have a variety of research interests:
  - attention, memory, human performance, music cognition



My research would fall here



BUT…
with an emphasis on attention

About me.

Some questions that drive my research and interest me:

- How do we ignore “hard-to-ignore” things?
  - What color is this font: **BLUE**
- How does our experiences with the world change how we pay attention?
- How does the way we attend change how we see/hear (perceive) the world?

About you.

1. How many people have taken Intro to Cognitive Psychology?
2. How many people have taken Experimental Psychology?
3. What year would you consider yourself to be?
4. How many people have read a Psychology research article?

Course Overview

Course Overview

Contact Information:

Instructor: Nick Brosowsky

Email: nbrosowsky@gradcenter.cuny.edu

Office: James 4303D

Office Hours: by appointment

Course Website:

Blackboard

Course Materials

Required Textbook:

- Cognitive Psychology: Connecting Mind, Research, and Everyday Experience
  - 3rd or 4th Editions
  - E. Bruce Goldstein, Wadsworth, Cengage Learning
- Note: you do not need to buy the CogLab Manual

- I suggest renting the e-book version (~$30) from the Brooklyn College bookstore (link posted on course site)

Email Correspondence

The best way to reach me is by email:

nbrosowsky@gradcenter.cuny.edu

If you want to make sure your email doesn't slip past me (my inbox can get crowded), use this as your email subject:

PSYC 3530: [insert informative title here]

Grading & Evaluation

1. 3 Exams (15%, 20%, 20%)

2. Individual Presentation (15%)

3. QALMRI writing assignments (20%)

4. Attendance / Participation (10%)

5. Extra Credit (max. 5%)

QALMRI Assignments

1. 11 written QALMRIs
- 10 will count towards your grade
- Choose one of the assigned papers and complete a QALMRI
- Due the day before the presentation day (@ 11:59pm)

2. 1 individual presentation
- 10 minute presentation about an article
- Use the QALMRI as a basic framework, but the presentation will include more background information
  - Your job is to explain the article to the class
- Due the day before the presentation day (@ 11:59pm)

Daily Schedule

In order to be prepared for class you need to read the assigned material *before class*.

- I will post the required material on the course website
  - Under each date will be the required reading material to be completed before that class
  - Always a textbook chapter, but usually additional supplemental reading
- In-class lectures are designed to elaborate and help you understand the material you have already read

What is Cognitive Psychology?

What is Cognitive Psychology?

- Cognitive Psychology
  - The branch of psychology concerned with the scientific study of the mind
  - Cognition refers to the mental processes, such as perception, attention, and memory, that are what the mind does
  - Even the most simple cognitive tasks are actually quite complex and may involve many different aspects of cognition

What is Cognitive Psychology?

For example, “What is the capital of Vermont?”

What kinds of mental processes are required to answer that question?

What is Cognitive Psychology?

Cognition involves

- Perception
- Paying attention
- Remembering
- Distinguishing items in a category
- Visualizing
- Understanding and production of language
- Problem solving
- Reasoning and decision-making
  - All include “hidden” processes of which we may not be aware

Why study Cognitive Psychology?

- **Fundamental question:** What is the nature of the mind?

- **General Applications?**
  - Memory
  - Problem-solving
  - Reasoning
  - Decision-making, etc.

Why study Cognitive Psychology?

Specific Applications?

- Computer Science: How do we design intelligent systems?
- Sales: How are beliefs and desires created?
- Design: What makes an object easy to use?
- Mental Health: How can thoughts be reshaped to be more healthy?
- Teaching: How do people best learn?
- Law: What are the pitfalls of eye-witness testimony?

How do we study mental processes?

- How is it possible to study the inner workings of the mind when we can't really see the mind directly?

How do we study mental processes?

Donders (1868)

- How long does it take to make a decision?
  - How can we measure the mental processes required to make a simple decision?
- For example, how long does it take to decide to press one of two buttons?

How do we study mental processes?

Solution?

- Create a task that requires a simple decision and measure how long it takes

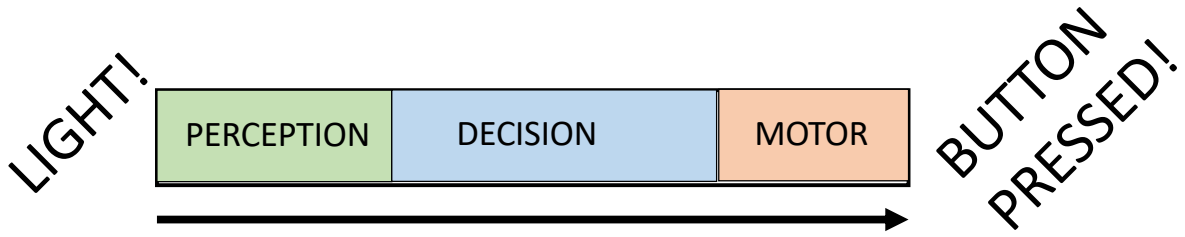
Choice reaction time task:

- If a light appears on the left side of the screen, press 1
- If a light appears on the right side of the screen, press 2

How do we study mental processes?

But wait… Is the "decision" process the only one needed to perform the task?

How do we measure *only* the decision process?



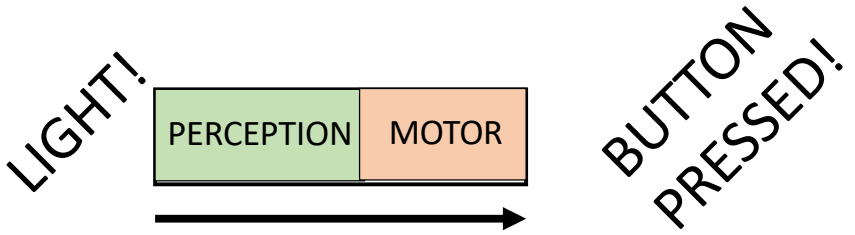
How do we study mental processes?

Two tasks (Donders, 1868):

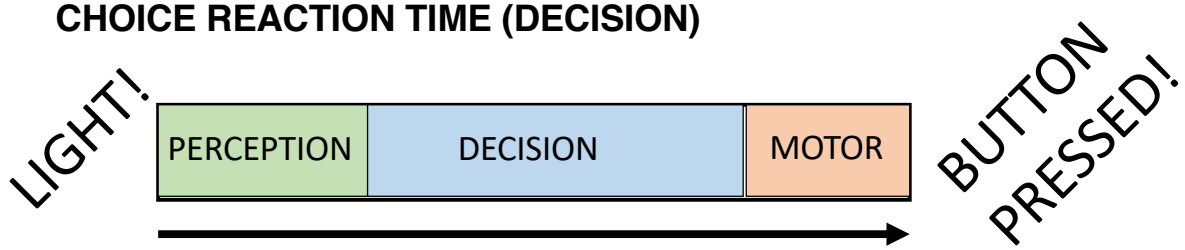
Simple reaction time task
- Only one button.
- As soon as you see the light, press the button

Choice reaction time task
- Two buttons
- If the light is on the left, press 1; if the light is on the right, press 2

SIMPLE REACTION TIME (NO DECISION)



CHOICE REACTION TIME (DECISION)



How do we study mental processes?

- Choice reaction time – simple reaction time = time it takes to decide which button to press
  - For example, if it takes you 700ms to make a response in the choice reaction time, and 500ms to make a response in the simple reaction time, we can infer that the decision processes take 200ms

Bottom-line:

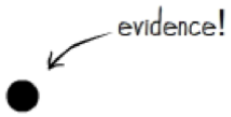
- Mental responses cannot be measured directly but can be inferred from the participant's behavior

How do we study mental processes?

- To understand complex cognitive behaviors:
  - Measure observable behavior
  - Make inferences about underlying cognitive activity
  - Consider what this behavior says about how the mind works

What Cognitive Psychologists do.

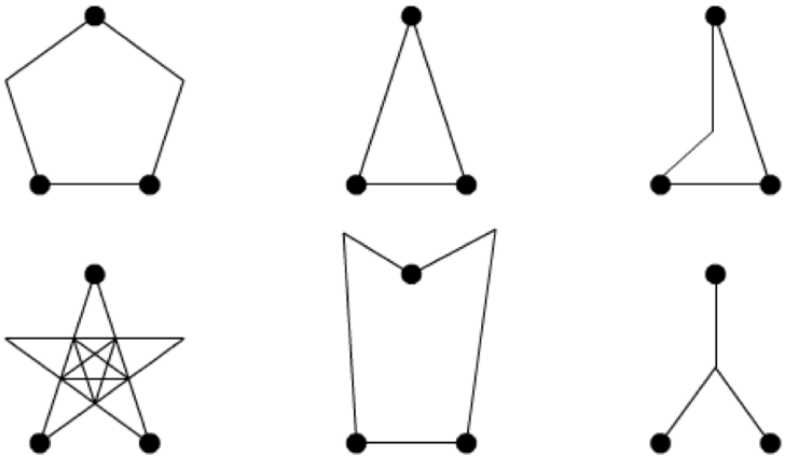
1. Create theories about how cognition works
2. Create experiments to provide data to test predictions made by the theories
3. Repeat steps 1 and 2



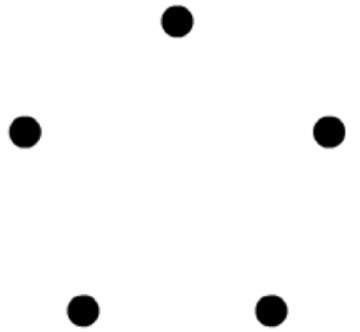
We perform an experiment, and it gives us evidence.

We perform more experiments, and they give us more evidence.

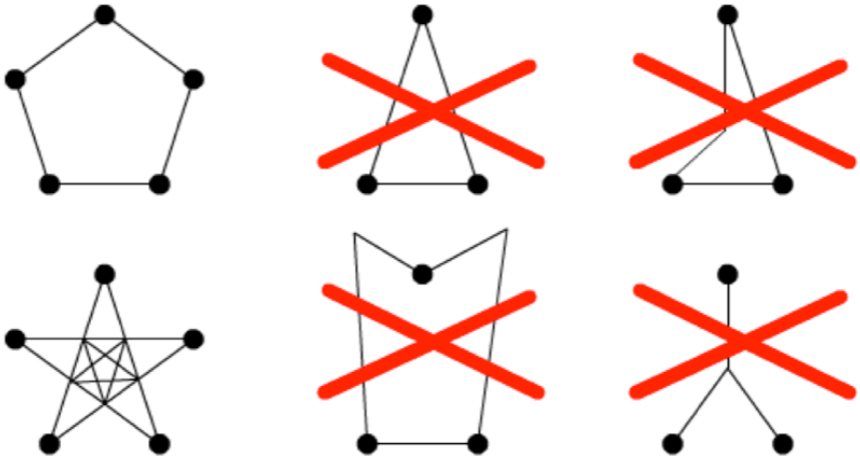
We can connect the dots of evidence and come up with a theory.



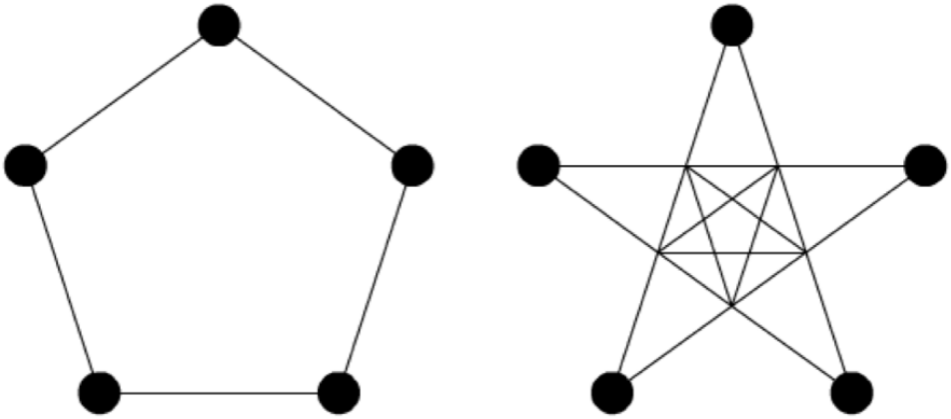
But there can be competing theories to explain the evidence



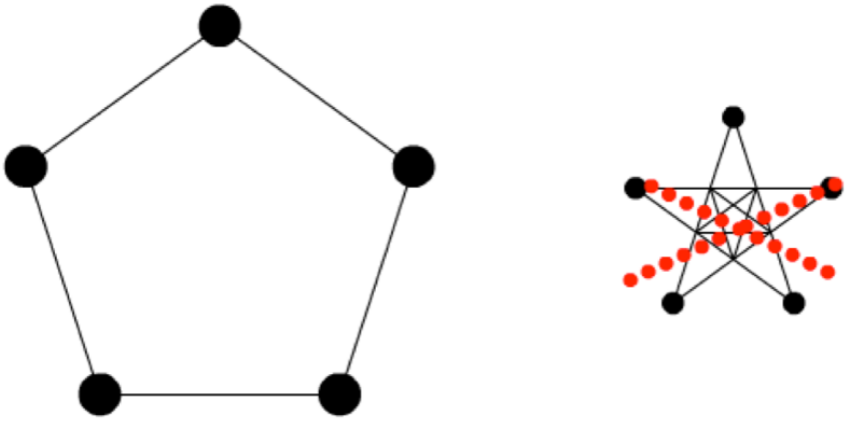
As we gather more evidence...



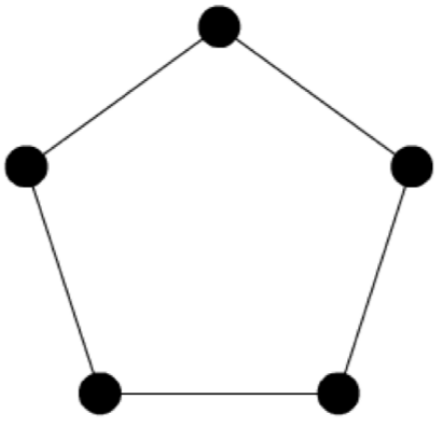
...we can eliminate the demonstrably incorrect theories



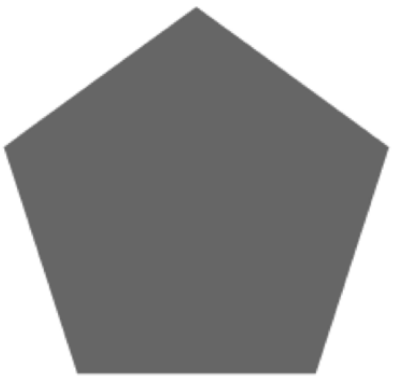
All theories make assumptions....



...but those that make fewer assumptions are more likely to be true.



So we tend to focus on the theory with the fewest assumptions.



This allows us to get as accurate a picture as we can.

It may not be completely accurate, but it's closer than the competing explanations.

In this course, we will…

1. Learn about the questions asked by cognitive psychologists
2. Learn about theories of cognitive processes
3. Learn about the evidence for these theories