**Agenda 10/6/06**

- Turn in thought papers to the TA for your discussion section
- Reminder: Midterm in 2 weeks, example questions similar to but not the same as what will be on midterm to be handed out next Friday
- Discuss question sets on website
- Lecture on Observation

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**Key ideas 10/6**

2.1 Observation and learning to see:

- Categorization, taxonomies, classification systems
- What ability does recognition require? Why?
- What are two important purposes of observational research?
- Underdetermination - what is that?
- What point do the examples of ambiguous figures, illusions, ambiguous language, etc serve to illustrate?
- How do expectations sometimes influence perception?
- How does context influence perception?
- When new entities are observed through instruments, when are scientists more inclined to think that a previously unobserved entity is real as opposed to an artifact of the instrument?

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**Key ideas 10/6**

2.2 Categories and Taxonomy:

- What is one of the important consequences of the precise way a scientist formulates or frames what he or she chooses to investigate?
- What’s the contrast between delineating and defining a phenomenon?
- What was the point of the contrast between studying “learning” and studying “memory”?
- What was the reasoning Goldberger used that led him to think that it was implausible that germs were causing pellagra? How did he test this? What was the reasoning behind this test?
- Why are specific categorization and taxonomic schemes sometimes controversial?
- How can categorization systems and taxonomies shape and influence our thinking and understanding?

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**Observation and Learning to See**

- Categories, taxonomies - - systematic, organized groupings of objects
- Recognizing objects requires the ability to categorize - - why would that be the case?
- Descriptive versus inferential data and/or analysis (not on web but a useful way to think about observational research - - as descriptive)
- Observational research plays a vital role in the development of scientific knowledge
  - Delineates the phenomenon of study
  - Helps to validate hypotheses and predictions

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**Observation and Learning to See**

- Underdetermination
  - what we see is determined by background knowledge and things we “bring to the table” - underdetermined by just the information reaching our sense modalities from the world
  - Does this mean that “we only see what we want to see”? Why or why not?
  - We need to interpret what is given to our sensory systems, make an effort to organize input, categorize, recognize.
  - We have to “learn to see” - - how can we illustrate this?
Could these lines be parallel?

How about these?

Muller Lyer Illusion

Seeing more than one thing

Seeing what isn’t possible

Ambiguities in Real Vision
Perception seems transparent

- But it relies on
  - The way in which the visual system is constructed
  - The effects of attention
  - What we have previously learned
  - What we expect to see
- It does not provide unmediated access to the world
- How can we determine what is really out there?

Identification

- Vision (hearing, smelling, etc.) requires more than mere registration of stimuli on our senses
- It requires that we identify what we see—recognize an object as a tree, a street, or a car
- We typically only recognize those things with which we are already familiar
- How, then, do we discover new things?
- We only recognize things in contexts where they are expected

Familiar objects are often hard to recognize when seen from a different perspective - 1

Familiar objects are often hard to recognize when seen from a different perspective - 2

The importance of context

Partial information

- We can often recognize things from partial information
- This can be good, but can it also mislead us?
Illusory contours

Why proofreading is hard

• We see what we expect to see and so mis errors
• This is especially truu when we have written the text and now what is suposed to be their.
• To xilinxatx, 1 oxn rxpxco xevey xrix lexetex of x sextexce xltb an x, anx xoy stxl xan xanxge xo xnad xt wixh sxme xltxcxtlx.

What do you see?

Social Psychology and Perception (you don’t have to memorize this)

• Asch experiments
• Kitty Genovese case
• Smoke-filled room study (Latane and darley)
• Counterattitudinal essays
• Cognitive dissonance (this was discussed in Argumentation section)

Extending observations with instruments

Instruments and Artifacts

• The use of instruments to make observations raises just as many problems (or more) than the use of our senses
  • Is the product of the instrument merely an artifact?
    – something made up by the instrument and not reflective of the world out there
  • As with basic perception, we must rely on
    – Multiple independent sources agreeing
    – The plausibility of what we claim to observe
    – Scientists are more inclined to think an entity is “real” and not an artifact if it helps explain the mechanisms by which previously observed phenomena occurs
Categories and Taxonomy

• How you choose to categorize objects, processes and phenomena will affect what you notice and measure, and what you fail to notice and measure
• Example: WHOART, learning and memory
• Delineating a phenomena: providing a working characterization when a precise definition isn’t available

Categories and Taxonomic Schemes

• Not always obvious, and often controversial, what the optimal way is to categories things
• It often depends on your purposes
• A given scheme may strike one as too arbitrary or difficult to use (see Jorge Luis Borges example for a humorous illustration of this idea)
• Such systems play a large role in shaping our thinking and understanding - - Consider: why would that be the case?

More examples on observation and perception

Count the f’s

• Federal fuses are the result of years of scientific study
• combined with the first-hand experience of fifty years.
• Federal fuses first-fifty

A problem not just for science

• What profession relies heavily on people’s reports of what they have seen?
• In law, the problem is known as the problem of eyewitness testimony
• It is compounded by the fact that after witnessing an event, one’s memory of the event may be affected by what else one learns, even by what questions one is asked

Count the f’s - 2

• Federal fuses are the result of years of scientific study
• combined with the first-hand experience of forty years.
Loftus on Eyewitness testimony

- Showed subjects a video in which there was a car accident at a stop sign
- Half the subjects later asked a question about a yield sign (“how fast was the blue car going when it went past the yield sign?”)
- Those who heard the misleading question were more likely to later remember the video as having a yield sign.
- In other studies, people “recalled” a conspicuous barn in a bucolic scene that contained no buildings at all, broken glass and tape recorders that were not in the scenes they viewed, a white instead of a blue vehicle in a crime scene, and Minnie Mouse when they actually saw Mickey Mouse.

I was certain, but I was wrong

- By Jennifer Thompson
- In 1984 I was a 22-year-old college student with a grade point average of 4.0, and I really wanted to do something with my life. One night someone broke into my apartment, put a knife to my throat and raped me. During my ordeal, some of my determination took an urgent new direction. I studied every single detail on the rapist’s face. I looked at his hairline; I looked for scars, for tattoos, for anything that would help me identify him. When and if I survived the attack, I was going to make sure that he was put in prison and he was going to rot. When I went to the police department later that day, I worked on a composite sketch to the very best of my ability. I looked through hundreds of noses and eyes and eyebrows and hairlines and nostrils and lips. Several days later, looking at a series of police photos, I identified my attacker. I knew this was the man. I was completely confident. I was sure.

I was certain, but I was wrong - 2

- I picked the same man in a lineup. Again, I was sure. I knew it. I had picked the right guy, and he was going to go to jail. If there was the possibility of a death sentence, I wanted him to die. I wanted to flip the switch. When the case went to trial in 1986, I stood up on the stand, put my hand on the Bible and swore to tell the truth. Based on my testimony, Ronald Junior Cotton was sentenced to prison for life. It was the happiest day of my life because I could begin to put it all behind me.

I was certain, but I was wrong - 3

- The man I was so sure I had never seen in my life was the man who was inches from my throat, who raped me, who hurt me, who took my spirit away, who robbed me of my soul. And the man I had identified so emphatically on so many occasions was absolutely innocent. Ronald Cotton was released from prison after serving 11 years. Bobby Poole pleaded guilty to raping me. Ronald Cotton and I are the same age, so I knew what he had missed during those 11 years. My life had gone on. I had gotten married, I had graduated from college, I worked. I was a parent. Ronald Cotton hadn’t gotten to do any of that. Mr. Cotton and I have now crossed the boundaries of both the terrible way we came to together and our racial difference (he is black and I am white) and have become friends. Although he is now moving on with his own life, I live with constant anguish that my profound mistake cost him so dearly. I cannot begin to imagine what would have happened had my mistaken identification occurred in a capital case. . . .