### Lecture Outline

**Heuristics and Social Influence**
- Types of heuristics
- Stereotypes as base rates
- Dilution Effect
- Other cognitive errors

### Heuristics

**Definition:**
Rules or principles that allow people to make social inferences rapidly and with reduced effort

- Mental shortcuts
- Rules of thumb

### Social Inference

**Social Inferences:** 3 stages
1. Determine (ir)relevant information
2. Sample social information
3. Combine and integrate information

### History of Cognitive Errors

- **Up to 1960's**
  - People use formal statistical rules to make social inferences
- **Around 1960**
  - People use formal statistical rules, but imperfectly
- **Around 1970**
  - People don't use formal statistical rules at all

### Kahneman & Tversky

**Proposed 3 main ideas:**
1. People rely on heuristics to make social inferences
2. Heuristics simplify the process of making social inferences
3. Heuristics sometimes lead to faulty reasoning

### Representative Heuristic

**Definition:**
Categorizations made on the basis of similarity between instance and category members

**Is using this heuristic always bad?**

**NO**

An instance that IS a category member will share features with other category members.

**But...............**

### Representative Heuristic

**Similarity does not ensure category membership**

**Category**
- People romantically interested in you
- Features of Category Members
  - Talk with you when together
  - Laugh at your jokes

**New Instance**
- Features of New Instance
  - Talk with you when together
  - Laugh at your jokes
Relying solely on similarity will often lead to incorrect categorizations.

**Base Rate Study**
Kahneman & Tversky (1973)

**Purpose:**
1. Show that people use the representative heuristic to make social inferences.
2. Show that people fall prey to the “Base Rate Fallacy.”

**Base Rate Fallacy**
Definition: when people do not take prior probabilities into account when making social inferences.

Example of base rate:
- 50% of babies are girls
- 50% are boys

If you estimate that your chances of having a girl is 65%, you are not using base rates to make your judgment.

**Base Rate Study**
Kahneman & Tversky (1973)

**Procedure:**
1. Participants given following instructions:

**Manipulation:** Prior probability (base rate)
- 1/2 participants told of the 100 people with 30% engineers and 70% lawyers.
- 1/2 participants told of the 100 people with 70% engineers and 30% lawyers.

**Competing Predictions:**
1. People use the representative heuristic to make social inferences.
   - Inferences will be based solely on similarity of target to category members.
   - Base rates (70%-30%) will be ignored.

2. People use formal statistical rules to make social inferences.
   - Inferences will be based on similarity of target to category members AND base rates (70%-30%).

**Results:**
Participants in the 30% condition judged Jack just as likely to be an engineer as participants in the 70% condition.

Which prediction does this support? Why?

**Conclusions:**
People use the representative heuristic when making social inferences.
People do not use base rates when making social inferences.
When asked: "Suppose that you are given no information whatsoever about an individual chosen at random from the sample. What is the probability that this man is one of the engineers?"

Result: People used base rates when given no case information

Conclusion #2:
People use base rates when no case information is given
People do not use base rates when case information IS given

Stereotypes as Base Rates
Kahneman & Tversky's study showed that base rates only influenced social inferences in the ABSENCE of case information

Locksley et al. (1980) wanted to see if the same is true for stereotypes.

Purpose: Test whether stereotypes act as base rates

Stereotype: Men are more assertive than women

Predictions:
1. When case information absent: sex stereotypes bias judgments of assertiveness
2. When case information present: sex stereotypes do not bias judgments of assertiveness

Procedures:
Step 1: Participants read about 6 targets
Step 2: Participants rated each target's assertiveness

"How often person behaves assertively in daily life" (0 - 100% of the time)

Targets:
2 Targets = name only (Susan and Paul)

Targets:
2 Targets = name plus case information that was diagnostic of assertiveness
Example: Diagnostic case information

The other day Nancy was in a class in which she wanted to make several points about the readings being discussed. But another student was dominating the class discussion so thoroughly that she had to abruptly interrupt this student in order to break into the discussion and express her own views.

Example: Non-diagnostic case information

Yesterday Tom went to get his hair cut. He had an early morning appointment because he had classes that day. Since the place where he gets his hair cut is near campus, he had no trouble getting to class on time.

Locksley et al.'s Conclusion:
Diagnostic case information reduces people's reliance on base rates
Non-diagnostic information does not reduce people's reliance on base rates

Dilution Effect:
Locksley's study is not consistent with the dilution effect
Dilution Effect: the tendency for non-diagnostic information to weaken the effect of base rates on social inferences

Recap
Diagnostic information: information that is relevant to a judgment
GPA is diagnostic of success in graduate school

Recap
Non-Diagnostic information: information that is irrelevant to a judgment
Eating pizza for dinner is non-diagnostic of success in graduate school

Purpose: Demonstrate that non-diagnostic information reduces effect of stereotypes on judgments

Assertiveness Study
Locksley et al. (1980)

Targets:
2 Targets = name plus case information that was non-diagnostic of assertiveness

Dilution Effect
Locksley et al. (1980)

Dilution Effect
The tendency for non-diagnostic information to weaken the effect of base rates on social inferences

Shock Study
Nisbett, Zukier, & Lemley (1981)

Purpose: Demonstrate that non-diagnostic information reduces effect of stereotypes on judgments

Recap
Diagnotic information: information that is relevant to a judgment
GPA is diagnostic of success in graduate school
Pilot Study
Assessed stereotypes of college majors.
Engineering majors tolerate more electrical shock than music majors.

Main Study
Step 1: Read study about pain suppressant
Step 2: Read vignette of two people in pain suppressant study
Step 3: Rate how much shock each tolerated in the study.

Prediction
Major only:
big difference in shock tolerance, with engineer tolerating more

Major plus non-diagnostic information:
small or no difference in shock tolerance

Shock Study
Nisbett, Zukier, & Lemley (1981)

Note: The taller the bar, the more stereotypes influenced judgments of shock tolerance.

Assertiveness Study vs. Shock Study
Locksley et al. vs. Nisbett et al.
Locksley: Non-diagnostic = generally useless
Got a hair cut
Nisbett: Non-diagnostic = generally useful
Parent’s occupation

What caused the discrepancy?
Clearly-irrelevant information

Not diagnostic of: particular judgment nor of judgments in general

Pseudo-irrelevant information

Not diagnostic of particular judgment, but is diagnostic of judgments in general

Bill H. Study
Hilton & Fein, 1989

Purpose: Test whether this distinction can reconcile discrepant results

Pilot Study: Assessed stereotypes of college majors
Pre-med majors perceived as more competitive than social work majors

Main Study:

Step 1: Participants read about Bill H.

Step 2: Participants rated his assertiveness

Manipulations:

1. College major:
   - pre-med
   - social work

2. Type of information
   - clearly irrelevant
   - pseudo-irrelevant

Predictions:

1. Clearly-irrelevant information will NOT weaken stereotyping

2. Pseudo-irrelevant information WILL weaken stereotyping

Conclusion:

Pseudo-irrelevant information dilutes stereotyping, but clearly-irrelevant information does not
This clears up the discrepancy

Summary

People use prior probabilities when:
- no case information given
- clearly-irrelevant case information given

People do not use prior probabilities when:
- diagnostic case information given
- pseudo-irrelevant case information given
Other Cognitive Errors and Biases
- Sample Size
- Regression
- Conjunction Fallacy
- Illusory Correlation
- Confirmation bias
- Availability Heuristic

Sample Size
Failure to take sample size into account when making social inferences

\[
\text{Pop.} = 1000 \quad N_1 = 900 \quad N_2 = 20
\]

Regression
Observed score = true ability + chance
Whenever scores are influenced by chance, observed scores will over- or underestimate one's true ability

Regression to the Mean
- People don't realize that......
- Very high observed score lower next time
- Very low observed score higher next time

Conjunction Fallacy
False belief that two events have greater chance of co-occurring than either event by itself

Conjunction Fallacy
Tversky & Kahneman (1983)

Linda is 31 years old, single, outspoken, and very bright. She majored in philosophy. As a student, she was deeply concerned with issues of discrimination and social justice, and also participated in anti-nuclear demonstrations. Which of the following alternatives is more probable?

A) Linda is a bank teller
B) Linda is a bank teller and active in the feminist movement

Conjunction Fallacy
Bank Teller Study
Kahneman & Tversky (1983)

Most participants picked

If you picked , you have fallen prey to the conjunction fallacy

It is not possible for two events to be more probable than one of the events by itself

Illusory Correlation
Covariation Model
Two events must co-vary to be seen as cause-effect
Steps of detecting Co-variation

Illusory Correlation
When people overestimate how strongly two events are correlated
Occur when one or more steps needed to assess co-variation goes wrong
Illusory Correlation

What might go wrong?

Biased Sample

People often fail to realize that their sample is biased

Confirmation Bias

What might go wrong?

Confirmation biases in hypothesis testing

People often seek information that confirms rather than disconfirms their original hypothesis

Arthritis Study
Redelmeier & Tversky (1996)

Common Belief: Arthritis associated with changes in weather

Followed 18 arthritis patients for 15 months

2 x per month assessed:
- pain and joint tenderness
- weather

Correlated pain/tenderness with weather

Arthritis Study
Redelmeier & Tversky (1996)

Results:
- Correlation between pain and weather near ZERO!!! in this study
- Patients saw correlation that did not exist
- Why? Confirmation biases in hypothesis testing........

Arthritis Study
Redelmeier & Tversky (1996)

Noticed when bad weather and pain co-occurred, but failed to notice when they didn’t.

- Better memory for times that bad weather and pain co-occurred.
- Worse memory for times when bad weather and pain did not co-occur

Availability Heuristic

Tendency for people to make judgments of frequency on basis of how easily examples come to mind.

Arthritis Study
Redelmeier & Tversky (1996)

Availability Heuristic

Works when frequency correlated with ease of coming up with examples

But, sometimes frequency not correlated with ease of coming up with examples

The Letter "R" study
Tversky & Kahneman (1973)

Asked participants: "Is letter R more likely to be the 1st or 3rd letter in English words?"

Most said R more probable as 1st letter

Reality: R appears much more often as the ___ letter, but easier to think of words where R is ____ letter

(you fill in the correct answers)