Soc 5: Evaluation of Evidence
Lecture 5: Inductive Research
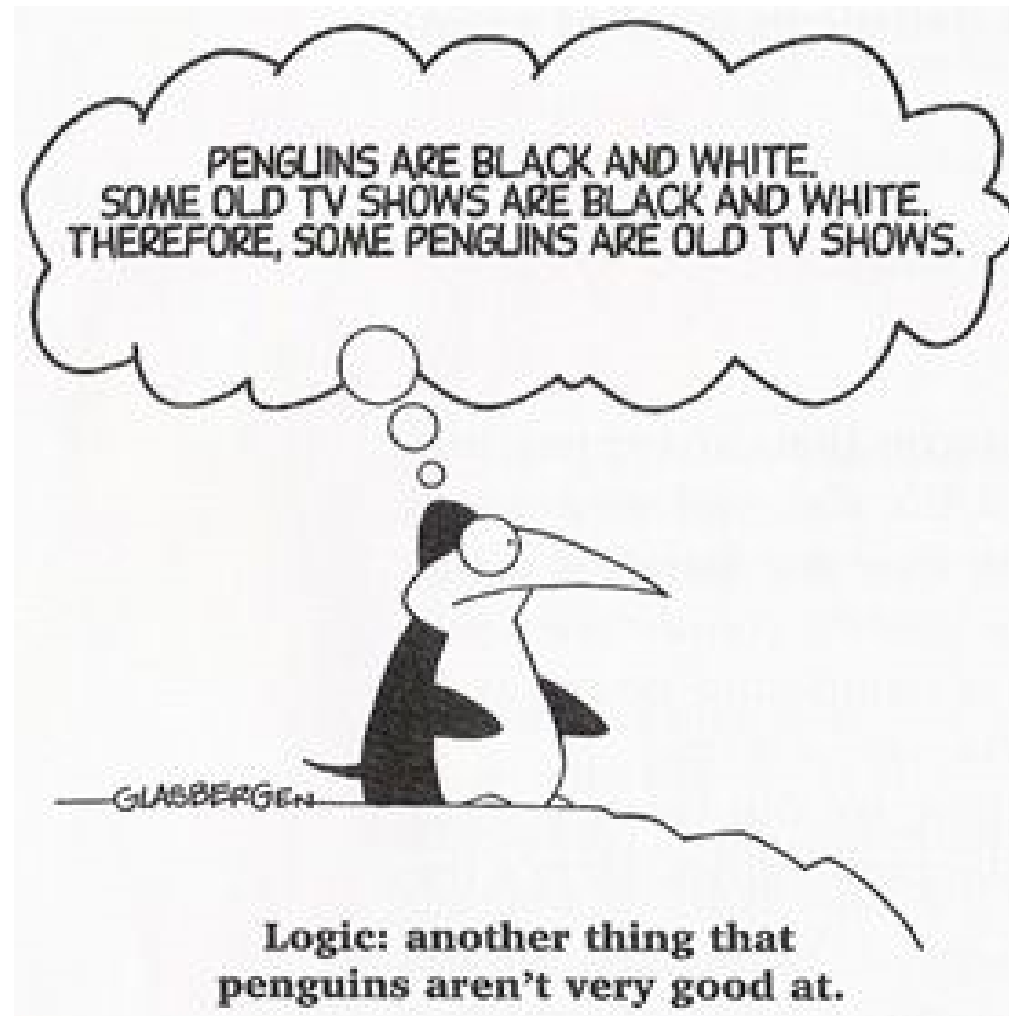
Course Outline

1. Sociology & Social Science — Sept 3, 5, 10

2. **Research Design** — **Sept 12-26**

3. MIDTERM – Review & In-Class Exam — Oct 3 & 8

4. Ways to Gather and Analyze Data — Oct 1, 10-Nov 26

5. Ethics — Dec 3

6. Review — Dec 5

7. FINAL EXAM — Dec 17

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Today's Agenda

- Finish up Moderators/Interaction
- Inductive Research
- Becker Example
- Grounded Theory
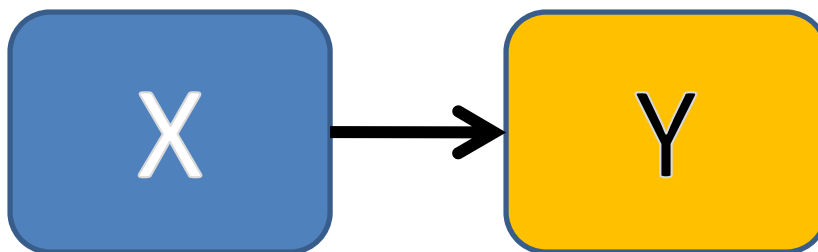
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(More) Varieties of Concepts/Variables

- **<u>Dependent variables</u>** – the facts to be explained (Y)

- **<u>Independent variables</u>** – the properties of events, people, and places (X) – that are used to explain the dependent variables (X→Y)

- **<u>Moderators</u>** – variables that alter the impact of X on Y

  (X → Y if Z=0, X ➜ Y if Z=1)

- **<u>Mediators</u>** – variables that are logically/ causally in-between X & Y (X→Z→Y)

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Interaction Effect (a.k.a. Moderator Variable)
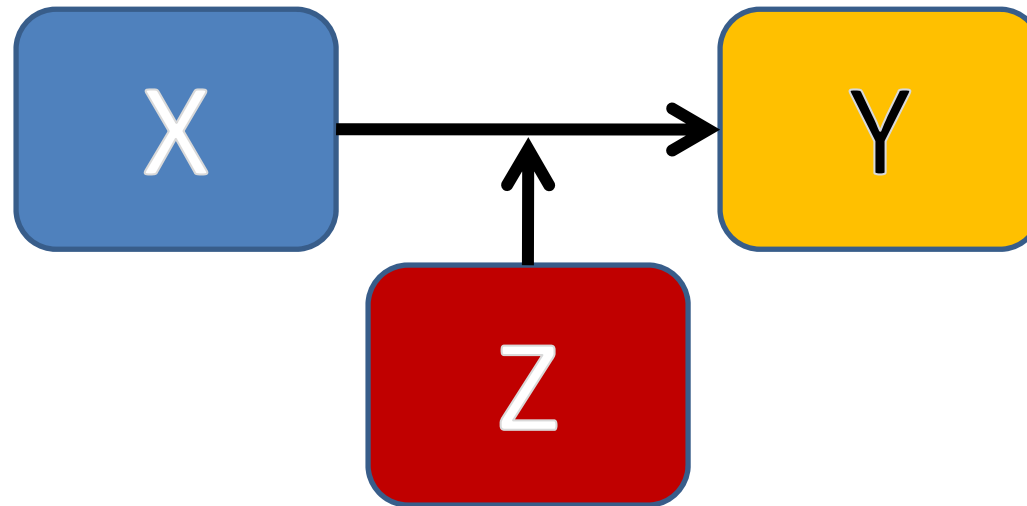
Z is present/high:

Z is absent/low:

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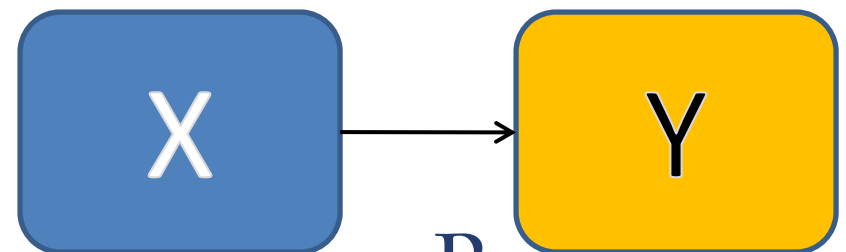
But college benefits most those who are least likely to attend college.


```
┌─────────────────┐              ┌─────────────────┐
│    Education    │─────────────▶│     Income      │
└─────────────────┘         ▲    └─────────────────┘
                            │
                  ┌─────────┴─────────┐
                  │   Probability of  │
                  │  going to college │
                  └───────────────────┘
```

Jennie E. Brand and Yu Xie. 2010. Who benefits most from college? Evidence for negative selection in heterogeneous economic returns to higher education. *American Sociological Review*, 75: 273-302.

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Variation in the Effect of College by Class

- Jennie Brand and Yu Xie test the idea that "individuals who are least likely to obtain a college education benefit the most from college."

- They use data on young men and women followed for several decades.

- They estimate the probability of attending college based on test scores, family income, quality of high school, etc...

- Then, they look to see if the effect of actually graduating from college is different for those most likely and least likely to have gone to college.

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Variation in the Effect of College by Class

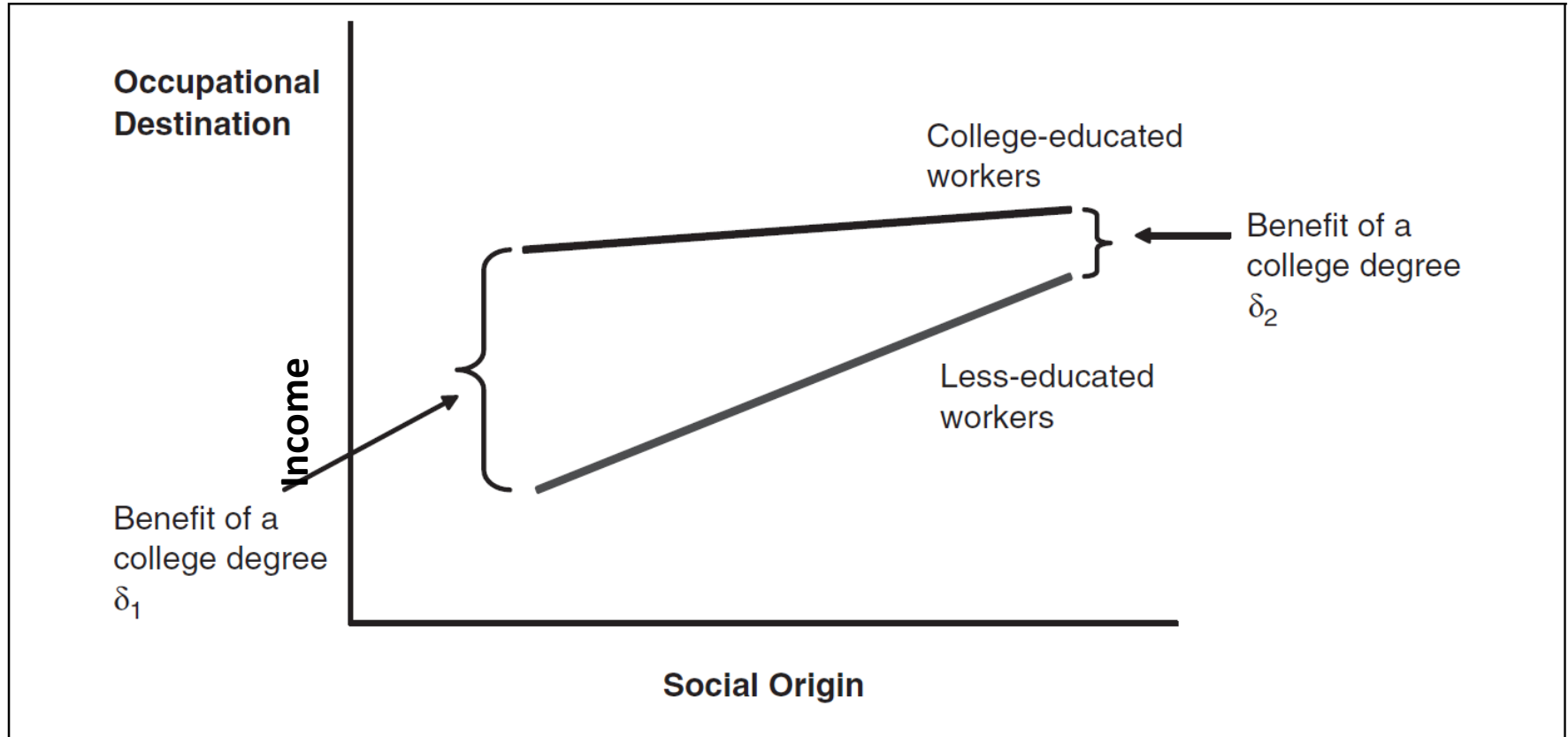**Figure 1.** Hypothetical Model: Origin, Education, and Destination

Jennie E. Brand and Yu Xie. 2010. Who benefits most from college? Evidence for negative selection in heterogeneous economic returns to higher education. *American Sociological Review*, 75: 273-302.

Variation in the Effect of College by Class

- Men and women who were least likely to go to college actually benefit the most.

- The effect of college on wages at several different ages is larger for those who were least likely to attend.

- This doesn't mean they <u>earned</u> more than those most likely to attend; it just means they <u>benefited</u> more (the <u>increase in earnings</u> due to college was greater).
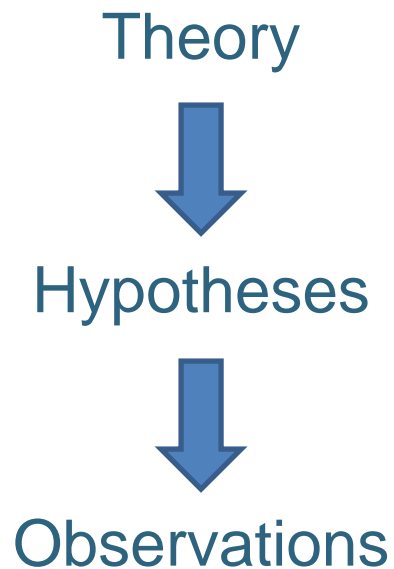
- This is strong evidence against ability bias.

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2 Modes: Deduction & Induction

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2 Models of Inquiry

Deduction

From general to specific:

Theory

⬇

Hypotheses

⬇

Observations

Induction

From specific to general:

Observations

⬇

Find regular patterns

⬇

Generalized explanations

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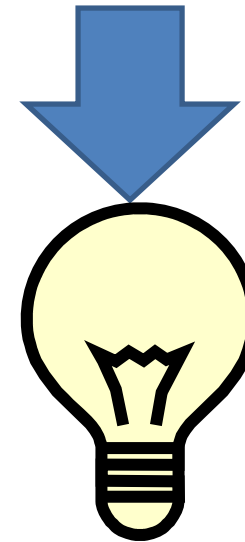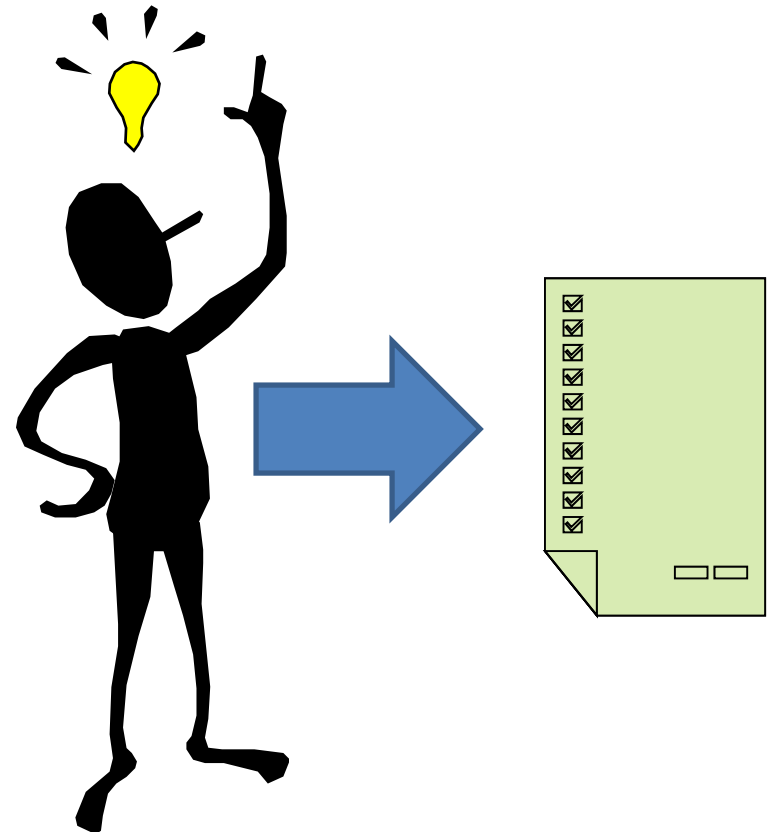UNIVERSITY OF CALIFORNIA
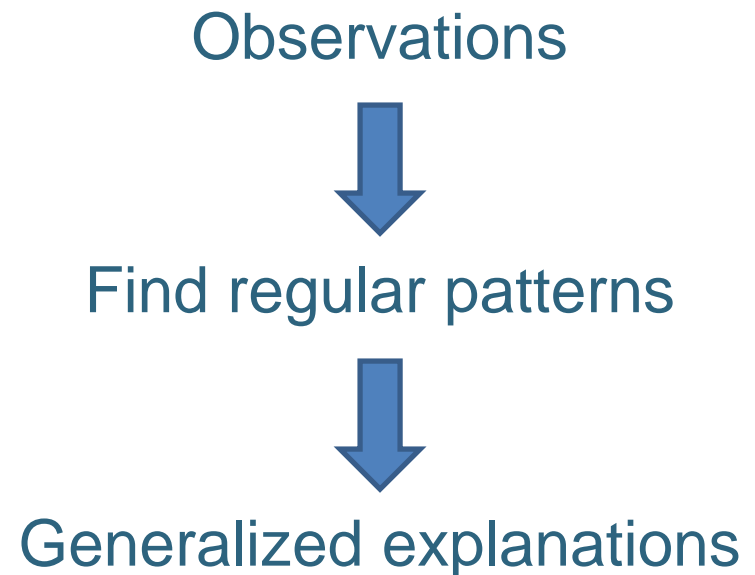
Inductive Theory Building

- Interview several people who support a particular political candidate to discover what they have in common.

- Then formulate a theory about support for that candidate.

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Deductive Theory Testing

- Our theory might suggest the candidate's appeal was based in racial bigotry.

- We might test that theory through a survey in which we determine whether prejudiced people were more likely to support the candidate that the nonprejudiced.

Researcher has idea/hypothesis – tests using survey.

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The Wheel of Science (simplified version)

Theories

Hypotheses

Observations

Empirical Generalizations

Induction

Deduction

The Quiz

SOC 5 Lecture 5

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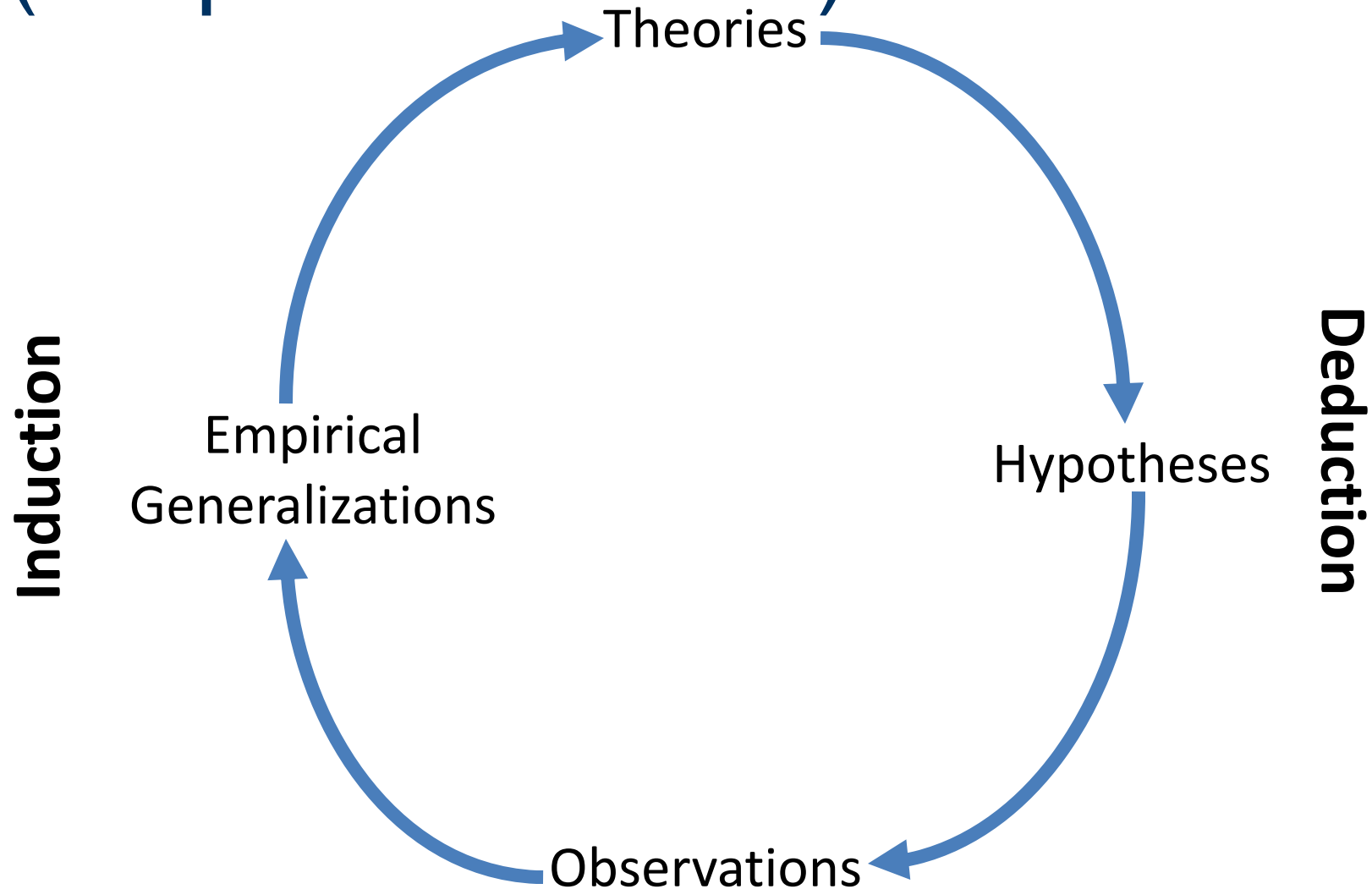
Howard Becker. 1953. "On becoming a marihuana user." *AJS*.

Questions to Ponder

- Why can we say that Becker's article takes an inductive sociological approach?

- What role does theory play in his argument?

- In what ways does he provide an example of pure inductive research, and in what way does he deviate from pure induction?

- How might a researcher build on Becker's findings to study drug users today?

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Questions to Ponder (I)

- Why can we say that Becker's article takes an inductive sociological approach?

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Questions to Ponder (II)

- What role does theory play in his argument?

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Questions to Ponder (III)

- In what ways does he provide an example of pure inductive research, and in what way does he deviate from pure induction?
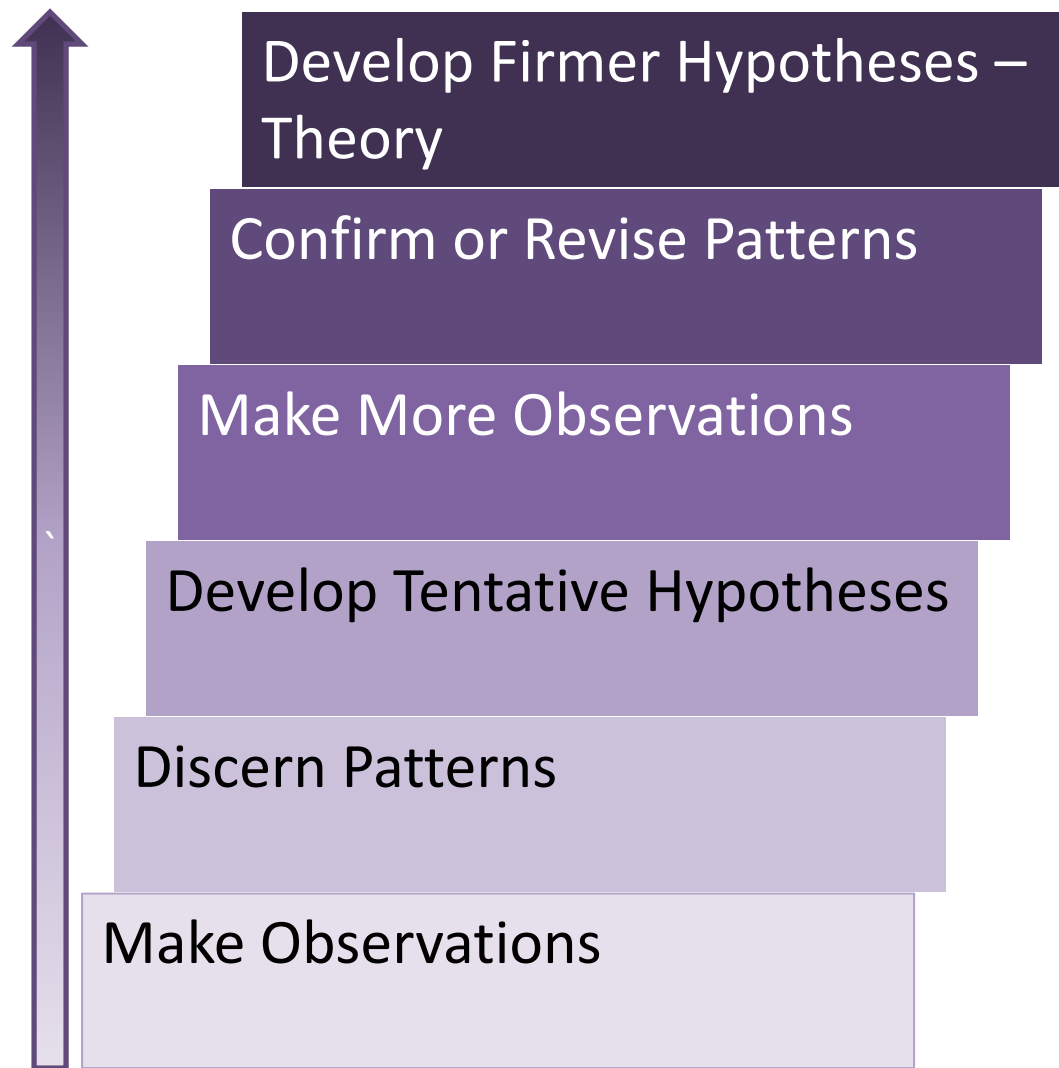
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Questions to Ponder (IV)

- How might a researcher build on Becker's findings to study drug users today?

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Grounded Theory

- One type of inductive approach to building theories from empirical data.

  – Start with observations, develop codes and categories, and then build a generalized model or theory based on evidence.

  – Usually used as a heuristic, rather than a strict rule.

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Climbing the Inductive Hill

Develop Firmer Hypotheses – Theory

Confirm or Revise Patterns

Make More Observations

Develop Tentative Hypotheses

Discern Patterns

Make Observations

The goal is to move up from specific, concrete observations to more general, abstract theory.

Iteration is critical.

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Iterating
## (while climbing the inductive hill)

- State the question

- Make observations

- Analyze – detect patterns

- Form hypotheses

- Test hypotheses by making more observations

- Analyze new data – same or different patterns?

- …..

- Draw conclusions
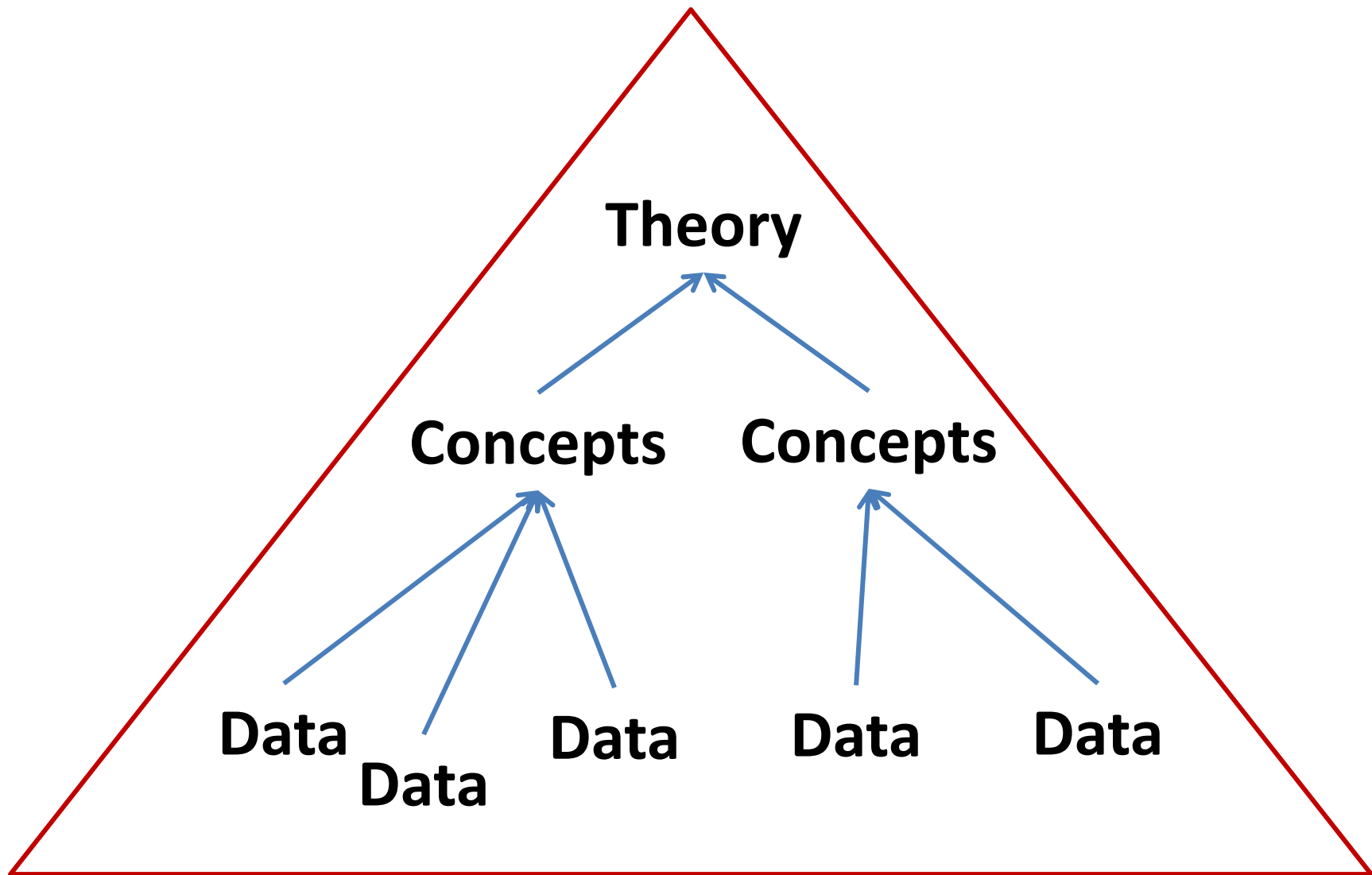
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Steps in Grounded Theory

1. Begin data collection *without* theoretical preconceptions.

2. Create codes and concepts from the data using constant comparison.

3. Generate theory through memo writing.

4. Do "theoretical sampling" of data to refine concepts and emerging theories.

5. Integrate findings and emergent theory into existing literature.

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Steps in Grounded Theory: Iterations

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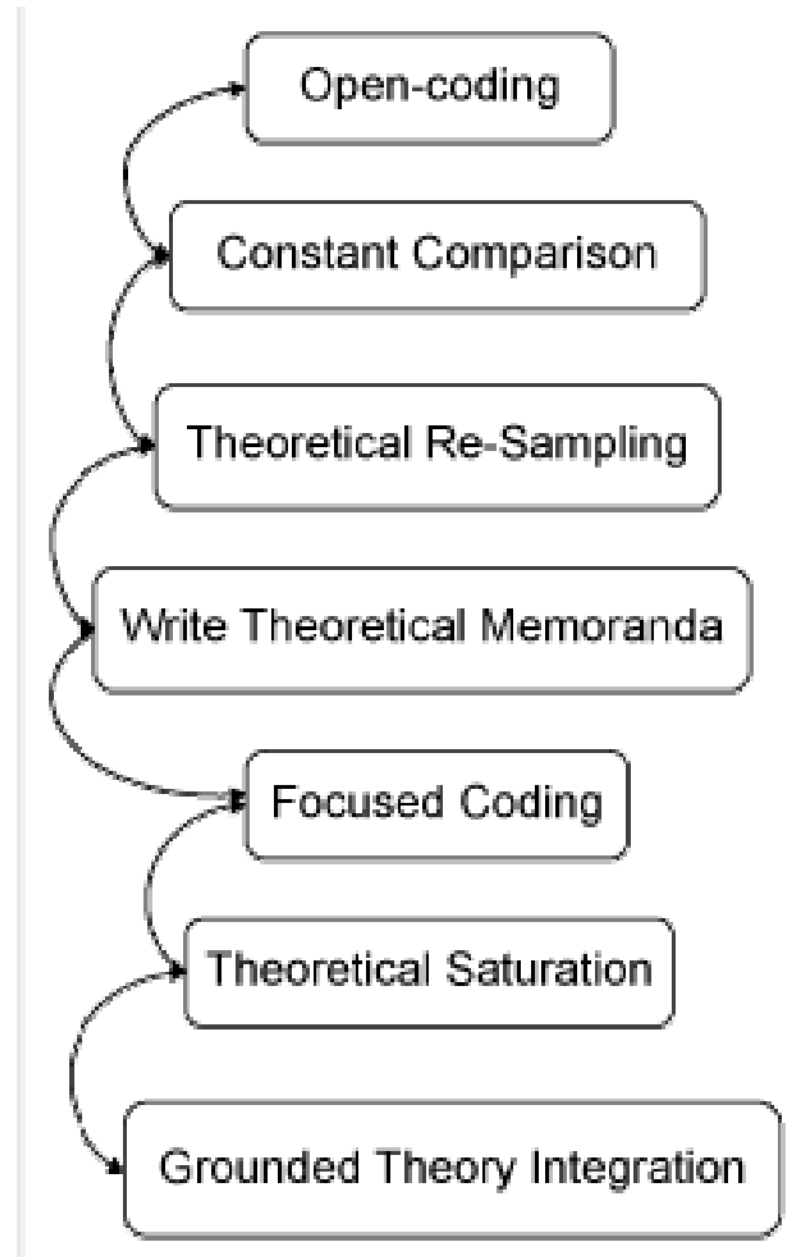
Moving from Data to Theory

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Coding and Codes in GT

- **Coding**: Labelling, categorizing, and sorting data to organize them and let you see patterns.

- **A code**: A word (or short phrase) that identifies a concept (an attribute of a social unit), a process, an event, or some other phenomenon of interest.
    - Open coding: Codes developed as you look through the data.
    - [vs. Closed coding: Codes established prior to data analysis.]
    - Focused coding: classifying and assigning meaning to pieces of data for analysis
    - Axial or selective coding: identifying core concepts

- Note these terms are distinct from the more general qualitative coding terms in the textbook: attribute, index, analytic (GT coding terms are all analytic codes)

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Is Becker using Grounded Theory?

- What aspects of Becker's study comport with the grounded theory method?

- What aspects of Becker's study differ from the tenets of grounded theory?

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Reading for Next Lecture

- Arthur L. Stinchcombe. 1968. The logic of scientific inference. Chapter 2 in *Constructing Social Theories*. Chicago: University of Chicago Press.
  - A little dry, but a very important overview
- Crabb, Peter B. and Deb L. Marciano. 2011. "Representations of Material Culture and Gender in Award-Winning Children's Books: A 20-Year Follow-Up." Journal of Research in Childhood Education 25(4): 390-398.
  - Short research study using a deductive logic