Lecture 4: Falsifiability

Wednesday, September 13, 2023

Your Teaching Fellows:

003/004:	Zahra Abolghasem	Bronwen Grocott
	Vasileia Karasavva	Ni An
010:	Thalia Lang	Malina Lemmons
	Ruoning Li	Irene Wen

Lectures: MWF 12:00 PM – 1:00 PM (003); 1:00 PM – 2:00 PM (004); 2:00 PM – 3:00 PM (010)
Office hours: Tuesdays 2:00 PM – 4:00 PM

ACAM Dialogues: Building Anti-Racism on Campus

The ACAM Dialogues is a series of workshop-style discussions, facilitated by and for students at UBC, based out of the Asian Canadian and Asian Migration Studies (ACAM) Program.

The cohort brings together students from various disciplines and degrees of skill or experience to collectively participate in monthly low-barrier discussion circles, events, and resource-sharing around the topics of anti-racism.

*All UBC students are welcome to apply

2023/4 Cohort Applications

DEADLINE: MONDAY, SEPT 18 @ 11:59 PM (PT)

MONTHLY MEETINGS: MONDAY @ 5:00 PM-6:30PM

acamdialogues.arts.ubc.ca

Term 1 Dates: Oct 16; Nov 6; Dec 4
Term 2 Dates: TBA

THE UNIVERSITY OF BRITISH COLUMBIA
Asian Canadian and Asian Migration Studies
Faculty of Arts

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Video game study

- Basic study design
  - 24 hours later, participants played competitive game with “partner”
  - Option to punish partner for losing
    - Blast loser with painful noise through headphones: 0 - 10

Bushman & Gibson, 2010

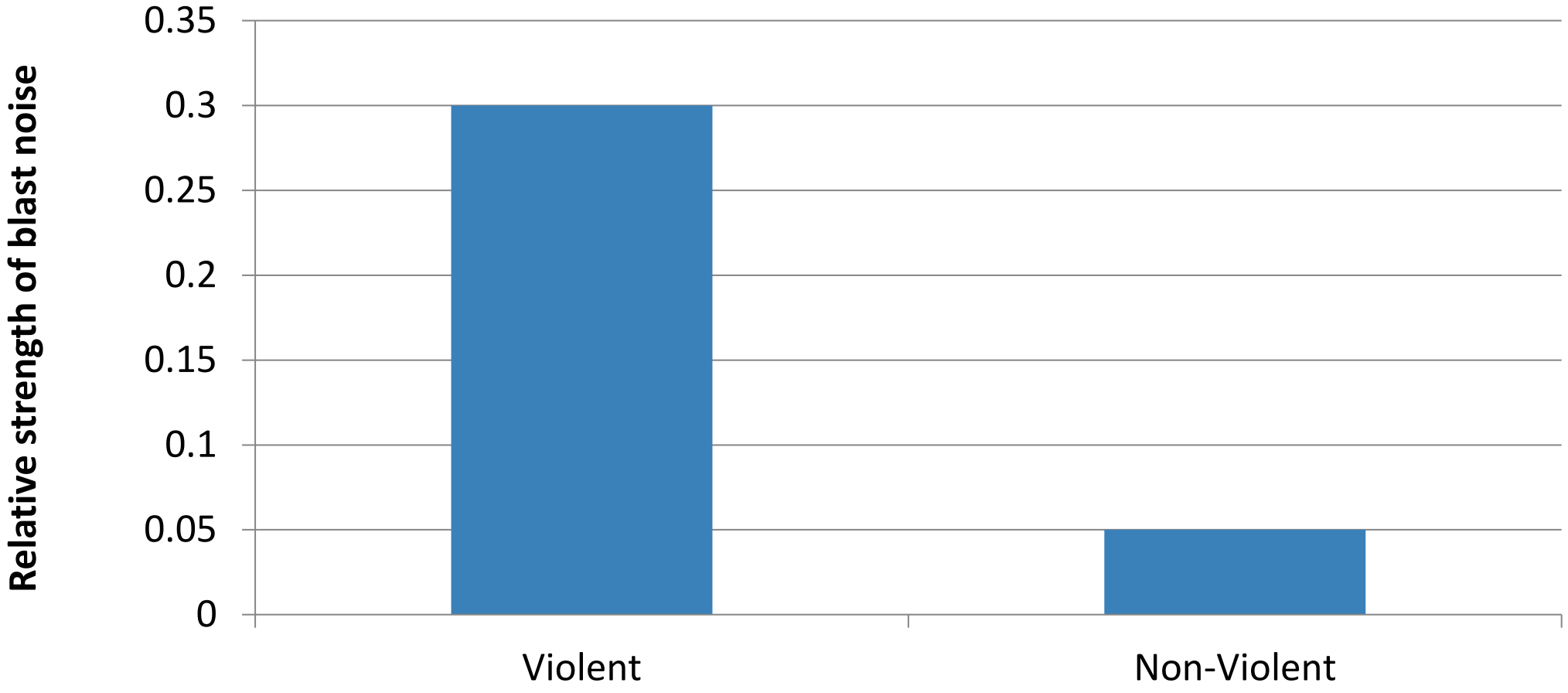
Collect Data…what now?

- Calculate average score on outcome variable for each group
- Compare averages
  - Use inferential statistics (wait until Chapter 13!)

- Prediction*
  - After 24 hours, participants who played a violent game will give a stronger blast to partners

Bushman & Gibson, 2010

Back to the study



Bushman & Gibson, 2010

What data ACTUALLY say

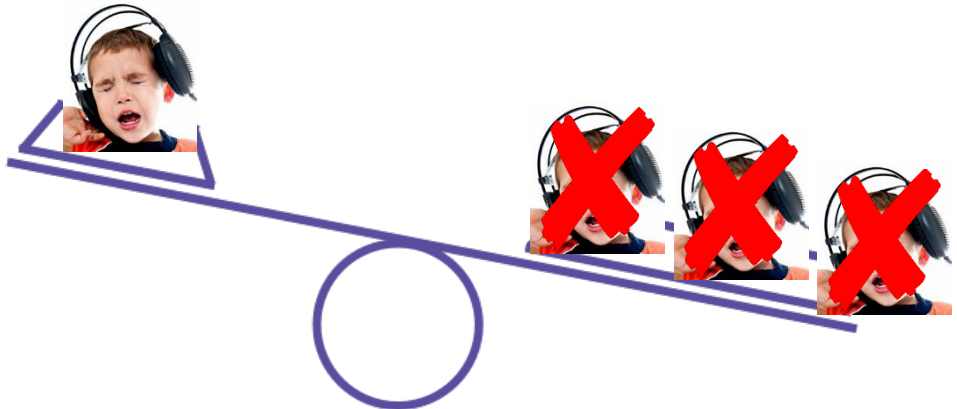
Data are (in)consistent with ✓ Hypotheses

support ✓

confirm ✗

(dis)prove ✗

Important to take the weight of the evidence



Learning objectives

By the end of this class, you should be able to

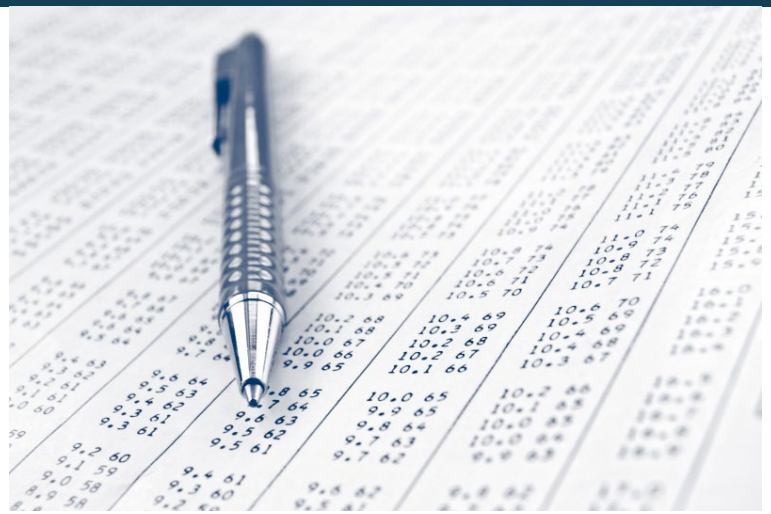
- Create an example of a falsifiable hypothesis and explain why it is falsifiable
- Explain the principle of parsimony
- Distinguish between more and less parsimonious theories
- Differentiate between essentialism and operationism
- Discuss how operational definitions are used to progress psychological science.
- Critically evaluate conclusions drawn from an example research study

Identifying "ways of knowing" in popular media

- Examples of "non-scientific" "ways of knowing"
- Examples of scientific "ways of knowing"

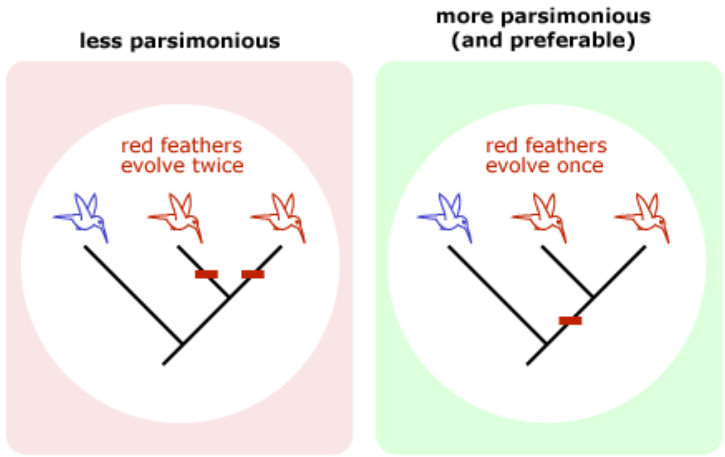
1. What are you being asked to believe?
2. What evidence is being given as support for this belief?
3. Are you being given all the evidence for and against this belief?
4. Is there more than one way to interpret the evidence for this belief? What are alternatives?
5. What additional evidence would help to evaluate these alternatives?
6. What conclusions are most reasonable?

What makes theories good?



Supported by data

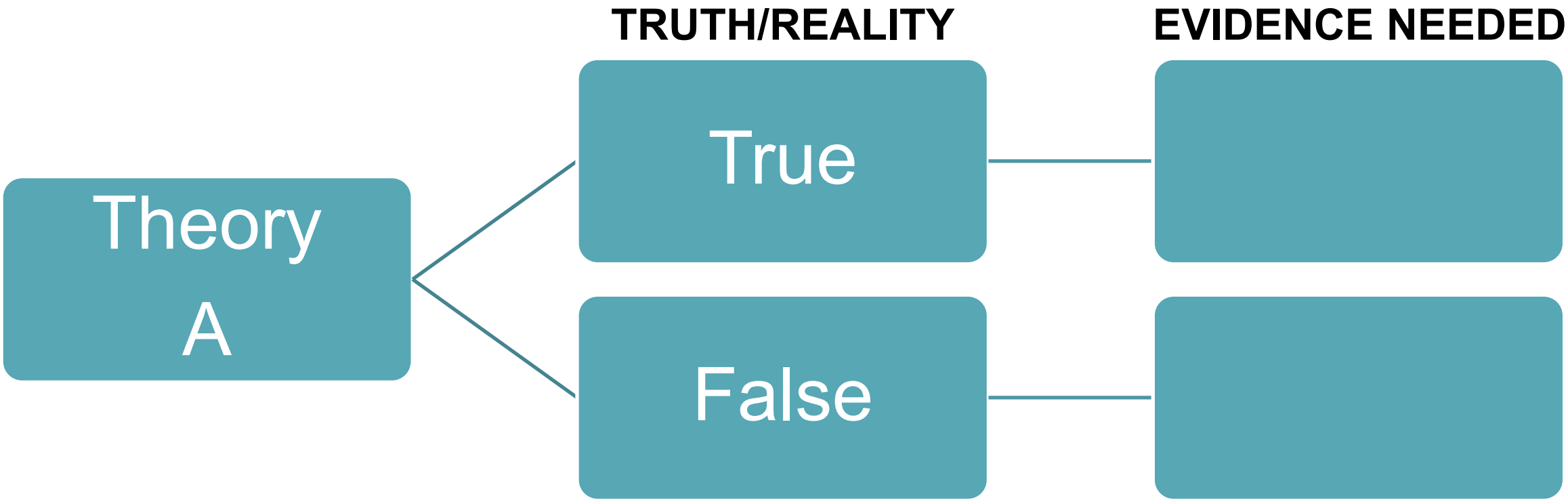
Falsifiable

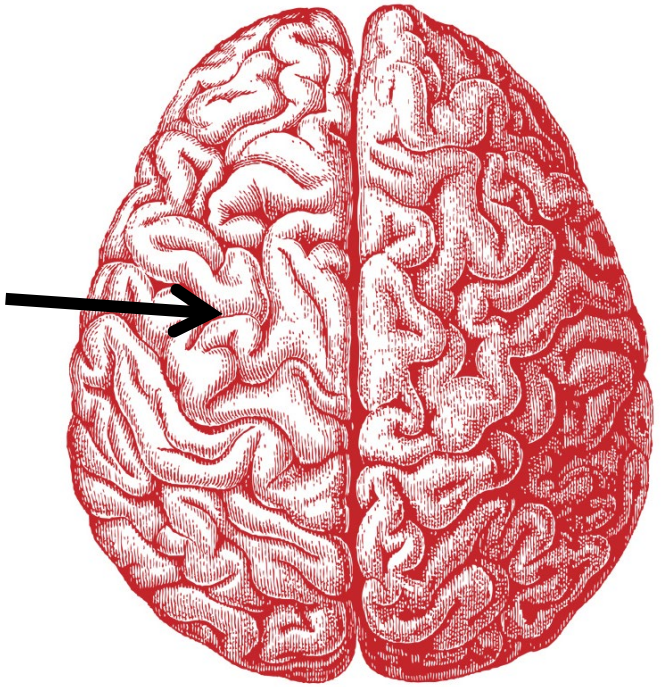


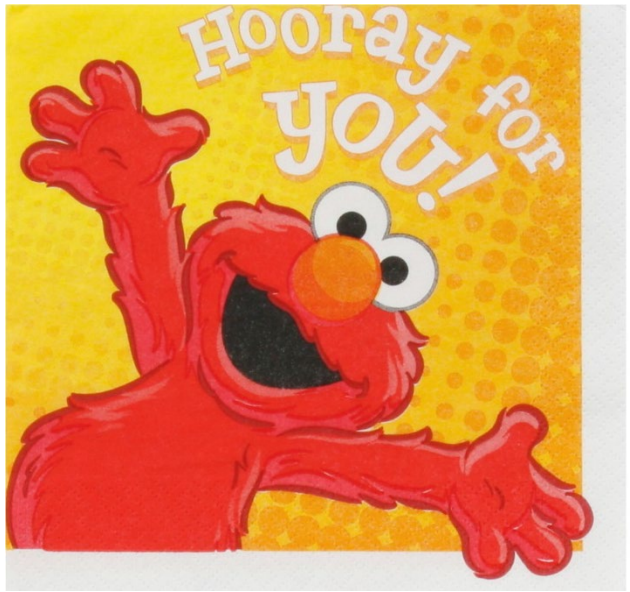
Parsimonious

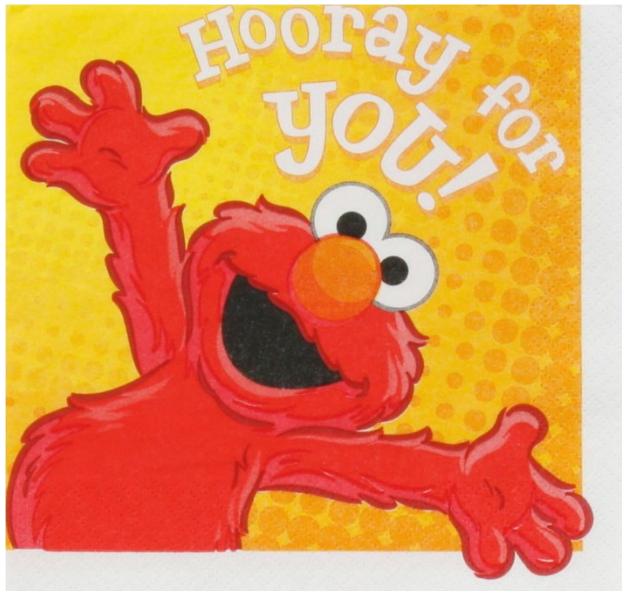
What makes theories good

- Falsifiability is ability for one to show a theory to be wrong
  - There can exist data that are inconsistent with a theory






Hooray for you!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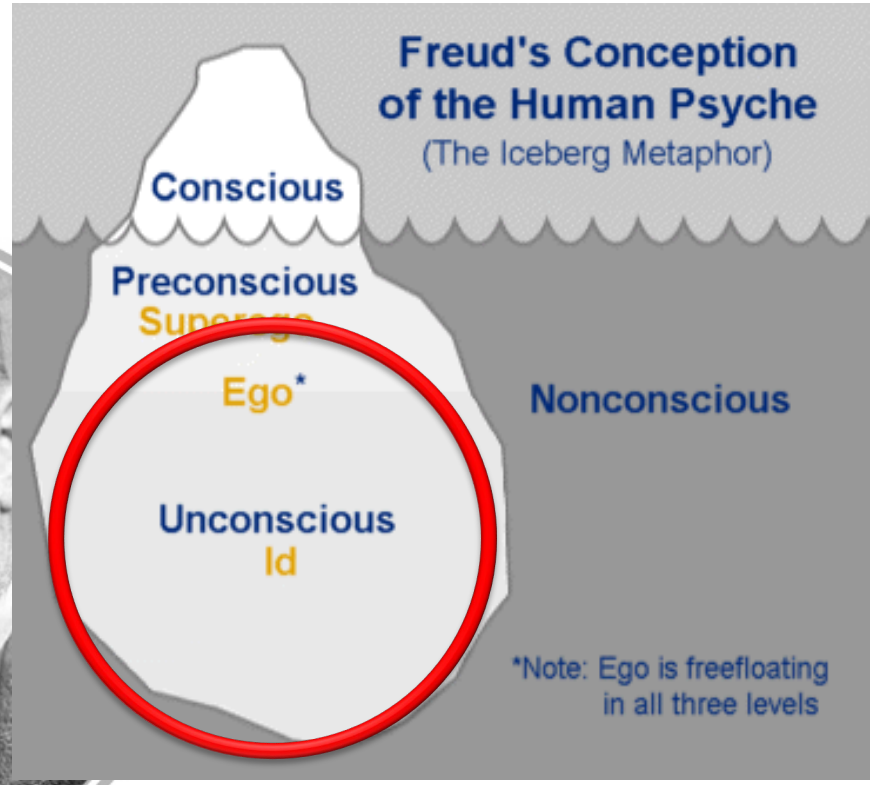
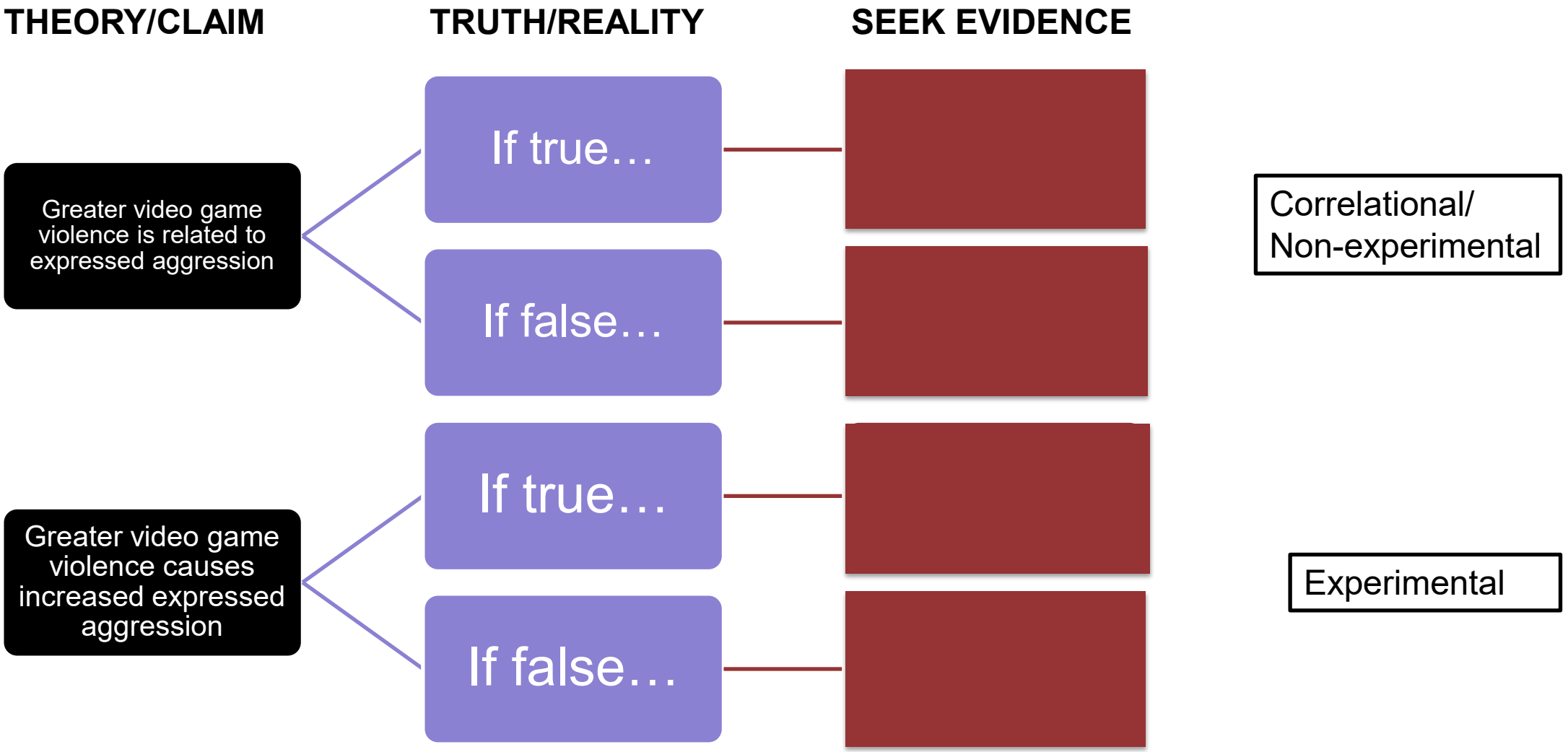

Freud's Conception
of the Human Psyche
(The Iceberg Metaphor)
Conscious
Preconscious
Ego*
Unconscious
Id
Nonconscious
*Note: Ego is freefloating
in all three levels

Falsifiability



Falsifiability

- Falsifiability can also be considered as a matter of degree

- Flip a coin 10 times
- Make 4 predictions of the coin when it first lands

- Which prediction is unfalsifiable?
  1. More heads than tails
  2. Heads every time, until someone looks, then “?”
  3. H T T T H T H H T H
  4. Heads ≠ Tails

2

Falsifiability

- Which prediction is the *most* falsifiable?
  1. More heads than tails
  2.
  3. H T T T H T H H T H
  4. Heads ≠ Tails

3

Falsifiability

- Which prediction is *less* falsifiable?
  1. More heads than tails
  2.
  3.
  4. Heads ≠ Tails

4

Good vs. Bad

Good Hypotheses

- Make predictions that exposes themselves to falsification
- Make specific predictions
  = Strong support

Bad Hypotheses

- Make predictions that are difficult to falsify
- Make general predictions
  = weak support