


Inference to the Best Explanation

PHL 320
Critical Thinking
Lecture Five



This Week

- Learn the “method” of inference to the best explanation
- Learn the “recipe”
- Assess the quality of an argument
- Assess the quality of the evidence (for a particular conclusion)
- Learn the tool for the rest of the course

The Arguments

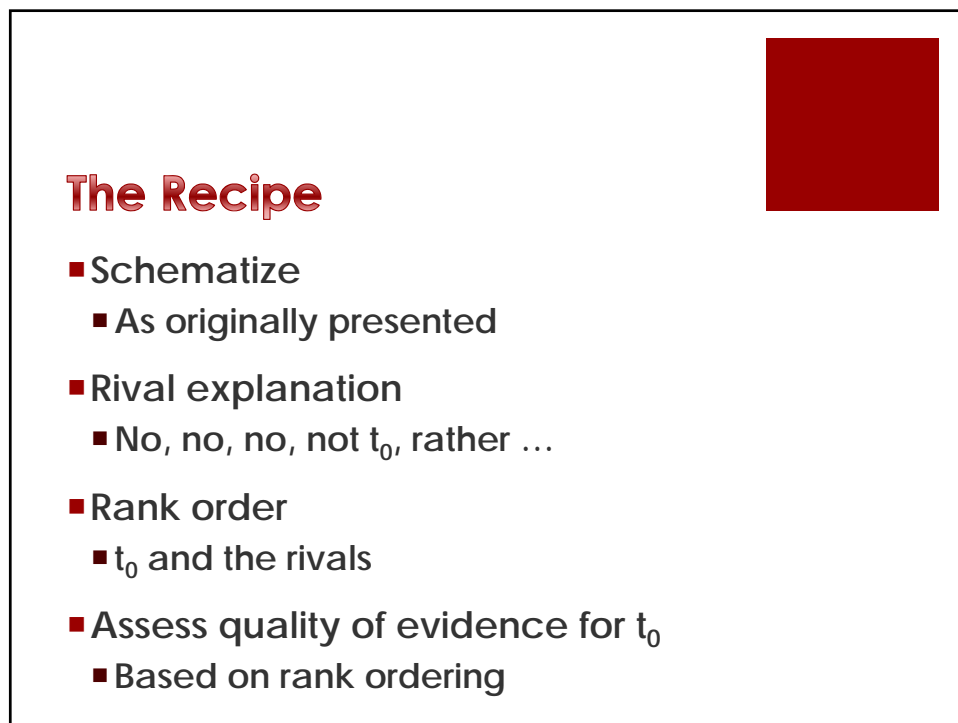
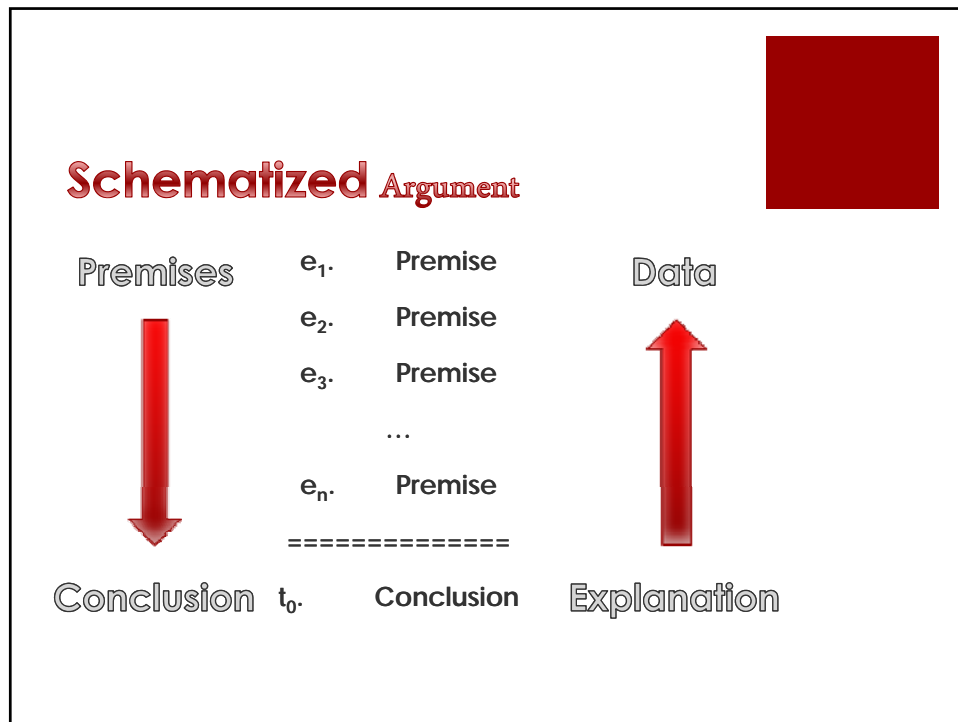


- Dick and Jane
- Academic dishonesty
- Expanding universe
- *New York Times*
- Napoleon
- Pink Martini

The Jargon



- Inference to the Best Explanation
- Inference
 - Argument
- Explanation
 - Story – what’s going on?
 - Account
- Best
 - More than one (explanation)
 - Hierarchy of explanations (ranking)



Dick and Jane



Dick's cheating on Jane. He told her he had to work late, but Sally saw his car at Joe's Bar. Not only that, he leers at other women, and the last three times she called him he didn't answer.

- Schematize
- Use the remaining three steps to assess the quality of the evidence

Dick and Jane



- e₁. Told her he had to work late
- e₂. Sally saw his car at Joe's Bar
- e₃. Leers at other women
- e₄. Didn't answer last three calls

=====

- t₀. Dick's cheating on Jane

Dick and Jane



- Rivals
 - t_1 . Worked late, loaned car to Sam, coincidence on calls
 - t_2 . Wanted some time with his buddies
- Ranking
- Assessment
 - Since there are better explanations of what happened, the evidence is weak
 - Since Dick's infidelity is the best explanation, the evidence is strong

Academic Dishonesty



Charley's take-home exam was word-for-word identical to Sarah's. Clearly, Charley copied it from Sarah. The guy's a loser, never comes to class, and doesn't know how to write very well.

- Schematize
- Use the remaining three steps to assess the quality of the evidence

Academic Dishonesty



e₁. Charley's take-home exam was word-for-word identical to Sarah's.

e₂. Charley is a loser

e₃. Rarely comes to class

e_n. Doesn't write very well

=====

t₀. Charley copied from Sarah

Academic Dishonesty



- Rivals

- t₁. Just a coincidence
- t₂. Sarah copied from Charley
- t₃. Both copied from web source
- t₄. Super ESP

- Ranking

- Assessment

- Since there are better explanations of what happened, the evidence is weak
- Since Charley's dishonesty is the best explanation, the evidence is strong

Expanding Universe



The light from virtually every galaxy is “red-shifted.” This shows that every galaxy is moving away from every other galaxy.

Therefore, the physical universe is expanding.

- Schematize
- Use the remaining three steps to assess the quality of the evidence

Expanding Universe



e_1 . The light from virtually every galaxy is “red-shifted.”

e_2 . Every galaxy is moving away from every other galaxy.

=====

t_0 . Physical universe is expanding.

Expanding Universe



- Rivals
 - t_1 . Something unknown in deep space is causing the red-shifting
 - t_2 . Mistaken interpretation of spectral analysis
- Ranking
- Assessment
 - Since there are better explanations of what happened, the evidence is weak
 - Since the expanding universe account is the best explanation, the evidence is strong

- e_1 . Forshufvud scanned valet's records.
 - e_2 . Records show 22 of 30 accepted signs of arsenic poisoning.
 - e_3 . Drawing shows edema – a symptom of arsenic.
 - e_4 . Forshufvud obtained six hair samples from last months of Napoleon's life.
 - e_5 . Analysis showed many hundreds of times more arsenic than normal for those times.
 - e_6 . Arsenic content appeared in waves.
 - e_7 . Waves match records' account of attacks, as well as account of wine ingestion from a particular source.
 - e_8 . When Napoleon's body was exhumed 19 years after death flesh was preserved.
 - e_9 . Arsenic is used to preserve flesh.
- =====
- t_0 . Napoleon was slowly poisoned to death.

