

On Theory-Writing

POSC 3410 – Quantitative Methods in Political Science

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Goal for Today

Discuss how to organize and write a theory for an original paper.

Theory as a Form of Syllogism

Good theories are akin to an extended syllogism.

- If A, then B
- If B, then C
- Therefore, if A, then C

A Simple Example

1. If I sleep through my alarm, I cannot take the final.
2. If I don't take the final, I will not pass this class.

Therefore, if I sleep through my alarm, I will not pass this class.

Consistency

Do note: if I accept the premises, I must accept the conclusion.

- Otherwise, I've contradicted myself.

Likewise: if I accept the premises that underpin your theory's prediction, I'm going to accept it if your theory's prediction is consistent with the results from your analysis.

Logical Fallacies to Note

Avoid committing the following in writing your theories.

- Composition/division fallacy
- Ecological fallacy
- Equivocation (i.e. ambiguity)
- Slippery slope
- Tautology

When in Doubt...

strawman
Misrepresenting someone's argument to make it easier to attack.

false cause
Thinking that a lack of personal relationship between things means that one is the cause of the other.

slippery slope
Assuming that if we allow it to happen, then I will automatically happen too. Because if it doesn't happen, then I will happen.

ad hominem
Showing your opponent's character or personal habits as an attempt to undermine their argument.

special pleading
Making the problem or making an exception when a rule is applied to the facts.

loaded question
Asking a question that has an assumption built into it that it can't be answered without repeating the guilty.

the gambler's fallacy
Assuming that some event is statistically independent, given what has happened in the past.

bandwagon
Appealing to popularity, or the fact that many believe in something, as an alternative form of evidence.

appeal to authority
Using the authority of an authority whose expertise is not relevant to the issue.

composition/division
Assuming that what is true about part of something is also true about the whole, or vice versa.

no true scotsman
Assuming that someone called an expert in a field is immune to criticism or flaws of an argument.

genetic
Assuming that just because something is old or has a long history, it is therefore better or more valuable.

black-or-white
When the alternative sides are presented as the only possibilities, when in fact many possibilities exist.

begging the question
An unclear argument in which the conclusion is included in the premise.

appeal to nature
Making the argument that because something is "natural" it is therefore safe, positive, desirable, good, or ideal.

anecdotal
Using personal experience or an isolated example instead of a solid argument, especially to describe statistics.

the texas sharpshooter
Drawing a picture that shows a set of arguments, or finding patterns in it, a posteriori.

middle ground
Saying that a compromise, or middle path, between two positions must be the truth.

the fallacy of emotion
Misrepresenting an emotional response as evidence of a solid or rational argument.

tu quoque
Assuming that you are right because you are not the only one who is wrong.

burden of proof
Saying that the burden of proof lies not with the person making the claim, but with someone else to disprove.

personal incredulity
Saying that you are right because something is difficult to believe or understand.

ambiguity
Using double meanings or ambiguous language to mislead or misrepresent the truth.

plato socrates aristotle

thou shalt not commit logical fallacies

Logical fallacies are flaws in reasoning. Strong arguments are made of logical fallacies, while arguments that are weak tend to use logical fallacies to appear stronger than they are. They're the tricks or shortcuts of thought, and they're often very subtly used by politicians, the media, and others to fool people. Don't be fooled! This poster has been designed to help you identify and call out faulty logic whenever it may need to apply. Inevitably, you'll find it in the relevant fallacy to which it refers. Inevitably, you'll find it in the relevant fallacy to which it refers. Inevitably, you'll find it in the relevant fallacy to which it refers.

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...check the poster.

Think Formally

Formally outlining your theory (i.e. using “math”) is arguably the most effective path to theory-writing.

- Surprise: it may also be the most difficult/with highest learning curve.

There’s an unmistakable precision to a formal model done well.

- Even the simpler ones do well.

The Classic Case of Turnout

Consider this classic puzzle. Assume:

- Citizens are rational (i.e. “self-interested” with structured preferences).
- Citizens are expected utility maximizers (i.e. trying to get most benefit at the least cost).
- All activity carries some form of cost (e.g. transaction, opportunity)

Then why does *anyone* vote?

A Formal Model of Individual Turnout

Simply: citizens vote when the benefit outweighs the cost. Our terms:

- R_i : net reward individual receives from voting.
- B_i : benefit individual receives from success of most preferred candidate.
- C_i : cost incurred from voting.
- P_i : probability an individual casts deciding vote.

The expected utility calculation follows:

$$R_i = (P_i * B_i) - C_i$$

The individual does not vote when $R_i < 0$.

A Formal Model of Individual Turnout

Let's insert some values.

- $B_i = 1$ (i.e. max utility for winning candidate)
- $C_i = .04$ (i.e. voting takes about an hour from your day)
- $P_i = .001$ (i.e. Florida in 2000, $\frac{1}{537}$)

Therefore:

$$R_i = (.001 * 1) - .04 = .001 - .04 = -.039$$

It is irrational for any one person to vote.

- Yet, so many people do. Why?

A Formal Model of Individual Turnout

Riker and Ordeshook (1968): There must be some kind of “expressive” utility to voting that’s not captured in this formula.

- i.e. $R_i = (P_i * B_i) - C_i + D_i$.
- Let D_i be the utility a citizen gets from contributing his/her vote, doing his/her democratic duty, etc.
- There are, no doubt, several creative ways to empirically test this theory.

Do note: we’ve better solved a puzzle of turnout, but said nothing about elections, campaigns, socialization effects, etc.

- The model is a map...

Don't Lose Sight of Institutions and Context

Consider this Condorcet voting situation among three people about a hypothetical foreign policy quagmire. There are three options:

1. Surge (S)
2. Withdraw (W)
3. Stay the course (SQ)

A Hypothetical Foreign Policy Quagmire

A is desperate for a change of strategy.

- $S > W > SQ$

B is a dove.

- $W > SQ > S$

C is patient, but hawkish.

- $SQ > S > W$

A Hypothetical Vote

Assume the three voters decide first among S or W.

- S beats W because A and C outnumber B.

They next decide on S or SQ.

- SQ beats S because B and C outnumber A.

B, the opportunistic dove, introduces W again.

- W beats SQ because A and B outnumber C.

Arrow's Impossibility Theorem

This is an example of Arrow's impossibility theorem.

- i.e. no rank-order voting system can be designed to satisfy all "fairness" criteria for social choice.

In other words, the rules matter.

- Institutions shape what behavior is permissible, possible.

Think Strategically

Related: think of most behavior you observe as strategic.

- i.e. two or more actors are behaving rationally in pursuit of some scarce good, mindful that everyone is doing the same.

Avoid the “Robinson Crusoe fallacy”

- i.e. thinking rationally while forgetting about a strategic context.

Outline Your Argument

See the forest for the trees first and outline your argument.

- Use sentence fragments if you need it.
- Carefully outline your claim.

An Example from My Own Work

Consider my 2017 *CMPS* article:

1. Disputed territory is the most war-prone issue in the international system.
2. It influences the domestic political processes of the state.
3. This influences individual-level political attitudes as well.
4. The first real effect of disputed territory is fear of external rival.
5. Citizens offset this fear by looking to the state leader to provide for them.
6. This “providing” is more than symbolic; citizens want aggressive means to security.
7. Citizens will want to empower the state leader to quickly provide this.
8. Citizens will see institutional rivals/process as hindrances to this goal.
9. Citizens will want a form of government in which the leader can rule by discretion.

Therefore, disputed territory leads citizens to want a form of government in which the leader can rule by discretion.

How Do I Know if My Theory is Good?

1. Does your theory answer the question? (Recall: “models”)
2. Is your theory causal?
3. Can we test it on new data?
4. How general is your theory?
5. How parsimonious is your theory?
6. How new is your theory?
7. How “nonobvious” is your theory?

Conclusion

Theory-writing is the hardest part of political science, but these tips should help.

- Think of it as an extended form of a syllogism.
- *Carefully* bullet-point your intuition before fleshing it out in paragraph form.
- Think formally and be mindful of the rules and strategic context.
- Parsimony is a virtue.
- Take proper nouns out of it.
- Don't let data drive your theory.

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