



Critical Thinking & Innovation

JAKE CHANDLER

Wrapping things up



WHAT WE'VE LEARNED

Arguments (Weeks 1- 2)

- Arguments: claims (premises) put forward as reasons to believe a further claim (conclusion)
- Possible structural features:
 - Premises can provide support jointly or independently
 - Arguments can be chained
- Good arguments have two features (building analogy):
 - True premises
 - Premises that support the conclusion
- Arguments can be objected to by attacking 3 different points:
 - Premises
 - Conclusion
 - Support connection

Arguments (Weeks 1- 2)

- Arguments can be presented clearly using:
 - Standard form
 - Argument diagrams (for complex structures incl. counterarguments)
- Reconstructing an argument found "in the wild" can be tricky:
 - Poor signposting (lack of indicators)
 - Missing claims (implicit premises or conclusions)
- OK, so how do you decide whether an argument is good or not?
- In particular: how can you tell if the premises support the conclusion?

Deductive reasoning (Weeks 3-5)

- Gold standard for support: deductive validity (truth premises would guarantee truth of conclusion).
- Some arguments are valid merely because of their "form"
- Two levels of description of argument form:
 - Sentential (how complex sentences are constructed from atomic ones, using connectives)
 - Subsentential (how the atomic sentences are themselves constructed)
- We can use special notation to clearly express form
 - Sentential logic (connectives, sentence letters, brackets)
 - Predicate logic (predicate letters, variables, quantifiers, etc.)

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Deductive reasoning (Weeks 3-5)

- How do you show that an argument is deductively valid?
- To show that a sentential form is valid is easy: truth tables
- This method exploits truth functionality of connectives
- Given this, we only need to consider the possible combinations of truth values of the atomic sentences and check, for each, that we don't have true premises but a false conclusion
- We can use tables to establish common formal validities (e.g. Modus Ponens) and invalidities (e.g. Affirming the Consequent)

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Probabilistic reasoning (Weeks 6-8)

- A weaker standard of support: inductive validity (truth of premises would render the truth of the conclusion probable)
- Understanding this requires basic concepts of probability, which can be introduced informally using Venn diagrams
- Sentences and their combinations are representable by shapes containing all possible situations in which they are true
- The probability of A : the proportion of total space that A occupies
- The conditional probability of A given B : the proportion of B that A occupies
- Inductive validity can be understood as a high conditional probability of the conclusion given the premises

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Probabilistic reasoning (Weeks 6-8)

- Inductively valid arguments are defeasible and come in various strengths, unlike deductively valid ones
- Deductively valid arguments are the strongest possible inductively valid arguments
- How do you show that an argument is inductively valid?
- Calculate the relevant conditional probability using Bayes' Theorem
- Although assessing probabilities is crucial to assessing arguments, we are naturally bad at this!

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Probabilistic reasoning (Weeks 6-8)

- A whole range of common mistakes have been studied:
 - Base Rate fallacy
 - Prosecutor's fallacy
 - Conjunction fallacy
 - etc.
- It's thought these can be rationalised as stemming from reliance on automatic cognitive shortcuts called "heuristics":
 - Likelihood
 - Representativeness
 - etc.
- By being aware of these pitfalls and resisting your cognitive autopilot, you can make better judgments on important issues!

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Confirmation bias and search (Weeks 9-10)

- One major issue affecting both deductive and probabilistic reasoning: confirmation bias.
- This involves a tendency to selectively disregard arguments that undermine our prior beliefs
- Confirmation bias has been argued to have evolved because of its social functions:
 - Enhancing persuasive ability
 - Enforcing a cognitive division of labour
- Confirmation bias has also been linked to overconfidence
- Overconfidence occurs when people are less likely to be right than their level of confidence suggests (mis-calibration)

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Confirmation bias and search (Weeks 9-10)

- Overconfidence has also been thought to have social functions (inflating perceived competence)
- Both confirmation bias and overconfidence can be mitigated (e.g. "consider the opposite")
- Confirmation bias and related biases has been thought to be amplified by one of our most common means of gathering information: internet search
- Bias can creep in at a number of points, including in the filtering of information by search engines
- Two ingredients have been claimed to render Google search results biased:
 - PageRank
 - Personalisation

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ESSAY WRITING

- A good argumentative essay provides a well informed defense of a claim that
 - (1) answers the set question
 - (2) is well-reasoned
 - (3) is clear
 - (4) is honest and charitable
- Appropriate level of ambition: a small but appreciable critical contribution to the issue
- “Well informed” = familiar with the key materials (lectures, set readings)
- You are *not* required to read beyond this (but may if you wish)

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(1) Answer the question

- Make sure that you read the question slowly and carefully
- A great essay that is off-topic won't get great marks
- If a question has multiple parts, don't miss any of them out!
- Pay careful attention to the choice of words and phrases used

Why might the use of internet search engines be thought to exacerbate biases in human reasoning?

 - ✗ Why might the use of *social media* be thought to exacerbate biases in human reasoning?

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(1) Answer the question (ctd)

- Pay attention to focus: Mere mention of an issue or theory isn't an invitation to write *everything* you know about the topic

Why might the use of internet search engines be thought to exacerbate biases in human reasoning?

 - ✗ How search engines introduce opportunities for companies to manipulate internet users into seeing some kinds of content rather than others
- It can be OK to curtain off certain relevant aspects of the question, as long as you justify this
 - ✓ Three main theories of this phenomenon can be found in the literature. Two or these have arguably been discredited in recent years, so I will focus my discussion on the third, which remains popular but, so I will argue, has a number of problematic features.

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(2) Reason well

- You want to convince any reasonable reader
- They won't be onboard if you make objectionable claims
- If a claim you make could *reasonably be taken to be* contentious:
 - Provide sensible reasons to endorse it
 - Counter any obvious reasons there may be to reject it
- Some claims that obviously fall in this category
 - Your target claim (or else, why write about it?)
 - Any claim that is actually challenged in the literature (so if you find yourself saying "I disagree", then you have to back this up)
- If you can't do this, you have a problem

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Signpost your argument structure

- Always proceed from a detailed plan
- Never include any distracting irrelevant material
- Make use of sections (and possibly subsections for longer essays)
 - ✓ 1. Introduction
 - 2. Confirmation bias
 - 3. Persuasion
 - 3.1. Presentation
 - 3.2. Criticisms
 - 4. The cognitive division of labour
 - 4.1. Presentation
 - 4.2. Criticisms
 - 5. Concluding comments

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(3) Be clear

- So you have a solid argument supporting your target claim; now you want to communicate it effectively
- Pryor (2012): assume **your reader is lazy, stupid and mean**
- Key points
 - Signpost your argument structure
 - Watch your language
 - Define and illustrate

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Signpost your argument structure (ctd)

- At various key points (e.g. at the beginning or end of a section), **summarise** what you are about to do or what has been achieved
 - ✓ I will begin by situating the problem in its historical context, before reviewing three classical responses, each of which will be found to either beg the question or rely on dubious premises.
 - ✓ Having shown that James hasn't provided a sufficient reason to believe that his main claim is true, I will now demonstrate that, although van Cleeve's objection to James ultimately fails, it can be modified so as to yield a successful counter.

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Signpost your argument structure (ctd)

- Make use of **paragraphs** within sections: one idea, one paragraph
- Within paragraphs, make generous use of **discourse markers**:
 - Premise: Because, Due to the fact that, Since,...
 - Conclusion: So, As a result, Therefore, Thus, Consequently, Hence,...
 - Enumeration: First / Firstly, Second / Secondly,..., Next, Last, Finally, In addition, Moreover, Furthermore,...
 - Contrast: However, Nevertheless, Nonetheless, Still, Although, Yet, Despite, in spite of, While, Whereas,...
- If you feel comfortable doing so, you can present arguments in **standard form**, making **all premises explicit**

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Watch your language

- Avoid unnecessary jargon and try to stick to **plain English**: Don't intimidate or alienate your reader! (Pryor: "If you wouldn't say it [in conversation], don't write it.")
 - ✗ The ``invisible God'' is not to be understood as God invisible to the senses, but as God non-thematizable in thought and nonetheless as non-indifferent to the thought which is not thematization...
 - ✗ For ethnology to live, its object must die. But the latter revenges itself by dying for having been ``discovered'', and defies by its death the science that wants to take hold of it. Doesn't every science live on this paradoxical slope to which it is doomed by the evanescence of its object in the very process of its apprehension, and by the pitiless reversal this dead object exerts on it?

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Watch your language

- Be **careful and consistent** in your choice of words: Philosophers are very sensitive to small differences in meaning!
- Be **concise and to-the-point**: You don't want to tire your reader!
- Use **short, well punctuated and grammatically correct** sentences: Short of this, things will be hard to process!
 - ✗ If the said God does not really exist then such a person will have nothing but loss like those in pleasure or luxury however Pascal's posits that if the God does indeed exist the person essentially stands to kind of receive infinite gains which is represented by an afterlife and an avoidance of eternal punishment.

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Define and illustrate

- Provide **definitions** of any technical terms or ordinary terms that are being used in a non-standard way:
 - ✓ By a ``possible world'', we do not literally mean to refer to a concrete world that is possible; rather we are referring to a way that the world could have been
- Make ample use of **examples** to illustrate any complex claims or definitions:
 - ✓ A connective is truth-functional when the truth value of the inputs to that connective determine that of the resulting complex sentence. So the connective ``not'', for example, is truth functional, because ``Not A'' is true when A is false and false when A is true.

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(4) Be honest and charitable

- Present the views of others as **accurately** and **charitably** as possible
 - Ambiguous or unclear? Consider a few different reasonable interpretations
 - Obvious missing premise? Provide it for them
- Why so?
 - (1) it is **courteous**
 - (2) it **maximises impact**, ensuring your discussion is as effective as it could be
- **Don't plagiarise** (pass off other people's ideas as your own)

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Last but not least...

- **Revise** your 1st draft!!
 - Give yourself a few days of distance to view things afresh
 - Read it out loud (seriously!)
 - Run it through a spelling and grammar checker

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Workflow

- **Understand** exactly what is asked of you
- **Survey** the reading and try to identify and map out all (and only) the lines of argument bearing on the question
- **Scrutinise** *all* the claims you find in these lines of argument and **add** any further decent lines of support or attack you can think of
- **Weigh up** the resulting evidence and assess which answer to the question is supported by the considerations considered
- **Organise** into an **essay plan** the various chains of reasoning that lead to this answer
- **Write up** the plan into a 1st draft, including introduction and conclusion, that would enable a reader to follow the reasoning

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References

- Pryor, J. (2012). Guidelines on Writing a Philosophy Paper. <http://www.jimpryor.net/teaching/guidelines/writing.html>

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"That's all Folks!"

