

## Philosophy 6340

### Formalizing arguments

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#### Overview

The point of the formalization is for you to extract an argument from the text that captures something of real importance in it, so that you can fully engage with the author's ideas.

- You want to make it valid, because invalid arguments aren't terribly interesting (unless they are inductive, but this is philosophy, so that's not much of an issue).
- You want that validity to be easy to see, so we don't have to waste our time wondering about it.
- You want the premises to be easy to understand, so that we can really think about whether or not they are true.
- You don't want extra stuff, because that isn't helpful, but you don't want to make it too short, because then you can't really evaluate if it is a good argument.
- This is something for *you* to benefit from; you only turn it in so that I can help you improve. Use your judgment to try to achieve all of these goals.

#### Requirements

You should turn in a formalization of the *main* argument in the paper. A formalization meets these criteria:

- It is valid, not merely trivially valid, and not circular.
  - Trivially valid arguments are ones whose premises and conclusions are not logically related, but where either the premises are all necessarily false, or the conclusion is necessarily true (such arguments are guaranteed to satisfy the ordinary definition of validity: "If the premises were true, the conclusion would have to be true as well," but they aren't interesting).
  - The sort of validity I'm interested in here is validity in virtue of logical form: the logical structure of the argument is what makes it valid, and not facts about the truth of the various parts of the argument.
- It includes no premises such that, were they omitted, no argument or sub-argument you give would be logically affected.
- It's fine to add premises where they are unstated but necessary for the author's argument to work.
- Please try to capture the argument the author intended to make – use a bit of charity and a bit of faithfulness to the text.
- Please express the premises and conclusions in your own words, although it's fine to use the author's technical terms if this is unavoidable (but where the author uses technical terms that mean the same as technical terms we are using in the class, please use *our* terms, not theirs).

Please make the logical structure of your arguments as transparent as possible.

- One way to do this is to use symbols for your connectives and operators. This isn't necessary if you use consistent natural language terms that mean the same thing (e.g. "and" for & or ^, "not" for ~).
- I don't mind overuse of parentheses if it makes it easier to see what falls in the scope of what.
- Finally, when you use sentences (or fragments) to express a proposition, please use the *same* sentence to express the same proposition in every case.

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- E.g. if you are writing an argument that has the *modus ponens* format (If A then B, A, therefore B), please use the exact same language to replace A in every place, and B in every place.
- I know this looks redundant and dumb, but it makes life easier for everyone.

Make your arguments easy to read when possible.

- Your premises should look a lot like English sentences that a normal person could read.
  - In other words, if the premises says, “Fred was a jerk to Mary,” just say *that*, not something awful like “jerk(Fred, Mary).”
- Avoid unnecessary invention of terminology.
- Avoid unnecessary acronyms.
- Try to avoid very complicated logic when you can. Most arguments can be reduced to iterations of a few simple argument types. Do that! It’s so much easier for everyone to think about.
- Try to avoid quantifiers and modal operators. You might not be able to in every case, but I bet you can most of the time.

Your arguments must be presented in the following format: each premise must be numbered sequentially. Any conclusions must be clearly marked as conclusion, either by a line above them (see example below) or by starting with a word such as “Thus” or “Therefore.” You can have multiple arguments, where the conclusion to one is a premise for another. For example:

1. Premise one
2. Premise two
3. Thus, first conclusion
4. If first conclusion, then second conclusion.
5. Thus, second conclusion.

#### A real example

OK, all of you have read Descartes first meditation a million times, so I’ll formalize that so you can see the sort of thing I’m looking for.

1. If (A sometimes deceives us and when A is not deceiving us, we cannot tell that A is not) then we can't tell whether anything A presents as true is true or not
2. If we can't tell whether something is true or not, then it is doubtful
3. Thus, if (A sometimes deceives us and when A is not deceiving us, we cannot tell that A is not), then anything A presents to us as true is doubtful
4. If something is doubtful, then we should not believe it
5. Thus, if (A sometimes deceives us and when A is not deceiving us, we cannot tell that A is not), then we should not believe anything A presents to us as true
6. Our senses sometimes deceive us [in dreams], and when they are not deceiving us we cannot tell that they are or not.
7. Thus, we should not believe anything our senses present to us as true.

Here’s a version of the above that is even more careful (it changes the consequent to

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premise 1 to be more explicit about what it is saying); also I'm using symbols in this one just to show what that looks like:

1. (A sometimes deceives us & when A is not deceiving us, we cannot tell that A is not) -> (A presents X as true -> we can't tell whether X is true or not)
2. Same as above
3. Thus, (A sometimes deceives us & when A is not deceiving us, we cannot tell that A is not) -> (A presents X as true -> X is doubtful)
4. Same as above
5. Thus, (A sometimes deceives us & when A is not deceiving us, we cannot tell that A is not) -> (A presents X as true -> we should not believe X)
6. Same as above
7. Thus, our senses present X as true -> we should not believe X.

You use your own judgment about which is easier to read and think about.

If you wanted to be *super* careful, you should put in the caveat at the end of 1 "anything A presents to us as true is doubtful as long as don't have knowledge of it in some other way," and then add to 6 that we don't have knowledge of the stuff our senses present to us in other ways.

[A note on Descartes interpretation: I'm not a Descartes scholar. So take what I say with a grain of salt. But to help you understand the above formalization, I read the first meditation as purely about justification, or what is permissible to believe, not about knowledge (he never mentions knowledge at all). I apologize to all of my undergrad teachers who told me that it was about knowledge. Further, I think the dream argument, which is what I formalize, is the important one in the first meditation; Descartes does use an argument about God to say that we shouldn't believe stuff about math and logic, but this seems like a weaker argument and more peripheral to what he's really interested in (there is no evil demon argument in this meditation – the evil demon is only mentioned as a way to help yourself think of what you should doubt). Finally, note that Descartes never explicitly says premise 1, but it's heavily implied by the first argument for skepticism he brings up and rejects – that our senses deceive us about small objects and those far away]