PHIL 2510: LOGIC

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Lecture 1, 2/9/2013

For next time: Read Restall, Chapters 1-3

○ **Today: (1) Course Guide and any questions about coursework/requirements. (2) An intro to *propositions* and *validity*.**

Logic and reasoning

○ We reason about things.

○ What to do, where to go, what's appropriate/inappropriate, what beliefs to accept or reject.

○ Are U.S. led airstrikes on Syria something we should endorse?

○ Logic = the study of reasoning; in particular the study of what makes good reasoning good.

Beliefs and reasoning

○ Beliefs are fundamental to reasoning.

  ○ When you draw a conclusion, you form a belief in that conclusion. Furthermore, you draw the conclusions you do on the basis of other things you believe.

    ○ "U.S. led airstrikes against Syria should not be endorsed because the U.S. has rushed to war on false pretenses in the past, for example in Iraq."

Beliefs, propositions, and sentences

○ Restall uses 'proposition' as a general term for *the things we believe*.

○ He says that the term is not especially important. 'Statement' or 'claim' might do equally well (in English). But the distinction between *sentences* and propositions is important.

Beliefs, propositions, and sentences

○ If I ask you about your beliefs, I'll get sentences back in reply. These, we'll say, *express* propositions, the propositions you believe.

○ Not every sentence expresses a proposition and we use sentences to do more than express the things we believe. They can express feelings or desires or wishes. They can be used exclaim or ask a question.

Declarative sentences

○ "Go away!" "Please pass the salt." "Hello." "What is the capital of Tanzania?" "Ouch!"

○ Declarative sentences = those that express propositions.

Arguments

○ *When* should we draw a conclusion (come to believe some particular proposition)?

○ When there are good reasons for doing so. These 'good reasons' are just more propositions. Those that *support* the conclusion, or from which the conclusion *follows*.

○ An argument = a bunch of propositions, one of which – the conclusion – is said to follow from these others – the premises.

Arguments

- If dogs bark then Dan has a million dollars in his pocket.

- Dogs bark.

- So Dan has a million dollars in his pocket.

- Not a good argument.

- But notice something: If the premises *were* true, then the conclusion *would have to be*.

Validity

- Arguments with this feature are called *valid* arguments.

- Restall: An argument is valid if and only if it is impossible for the premises to be true while the conclusion is false.

- We have just seen that validity does not suffice to make an argument good.

- What's missing?

Soundness

- An argument is *sound* just in case it is valid and its premises are (all) true.

- To characterize an argument as valid is to say something about the *relationship* between the premises and conclusion of an argument. It is *not* to say that the premises are true or that the conclusion is. The validity of an argument does *not* guarantee the truth of its premises or conclusion.

Another valid argument

- All ballerinas are in bad shape.

- Anyone who is in bad shape can bench press at least 250 lbs.

- So, all ballerinas can bench press 250 lbs.

Validity and form

○ Validity is a matter of the *form* or *structure* of an argument as opposed to the *contents* of the propositions that serve as its premises and conclusion.

○ If dogs bark then Dan has a million dollars in his pocket

○ Dogs bark

○ So Dan has a million dollars in his pocket

Validity and form

- If p, then q

- q

- So, p.

- Any argument with this structure/form is valid.

- Formal logic = the study of valid argument forms.

A last wrinkle

- Validity is just *one* kind of premises-to-conclusion support.

- Suppose I argue that the french fries I'll have for lunch at McDonalds today won't poison me on the grounds that none of the french fries I've had in the past from there have poisoned me.

- That's an argument.

- Perhaps even a good one. But not valid.