Philosophy 3141: The Theory of Knowledge Spring 2008 Lory Lemke

I. Logical Form.

An argument is made up of one or more premises and a conclusion. The premises provide reasons for accepting the conclusion. See the following examples:

(a) David is a student, since he is enrolled in this course and anybody enrolled in this course is a student.
(b) Stefan is a student and he is intelligent, so it is likely that he will do well in school.
(c) David is a student, all students have ID's; so David has an ID.

Each argument has two distinct premises and a conclusion. There are also two types of arguments: deductive arguments offer conclusive support for their conclusions; whereas inductive arguments offer only partial support. For a valid deductive argument, if all the premises are true, then the conclusion must be true. For a strong inductive argument, if all the premises are true, then the conclusion is likely to be true. Of course, this allows any valid, or strong, argument to have false premises and conclusions. This means that even if David and Stefan are not students, the above three arguments remain valid and strong, respectively. In what follows, we will concentrate only on deduction. To actually prove its conclusion to be true, a deductive argument must be valid and all of its premises true: this is a sound deductive argument. Soundness = validity + true premises. Consider the following examples:

(d) 1. If Lory is a human being, then Lory is mortal.
2. Lory is a human being.
3. Therefore, Lory is mortal.

(e). 1. If this is a biology class, then Lory is our teacher.
2. This is a biology class.
3. Therefore, Lory is our teacher.

(f) 1. If Lory is the Dean, then Lory works on campus.
2. Lory works on campus.
3. Therefore, Lory is the Dean of UMM.

(g) 1. If Lory lives in NY City, then Lory lives in NY State.
2. Lory doesn't live in NY State.
3. Therefore, Lory doesn't live in NY City.

(h) 1.If you're a UMM grad, then you've already taken Philosophy 3141.
2. You haven't already taken Philosophy 3141.
3. Therefore, you aren't a UMM graduate.

(i) 1.If you are a UMM grad, then you're not now taking Philosophy 3141.
2. You are not a UMM graduate.
3. Therefore, you are now taking Philosophy 3141.

Every premise has a content (or meaning) and a form. The first premises of arguments (d) through (i) are all different in content because each describes something different about your teacher and being a UMM graduate, but they all have an identical form: if P, then Q. This sentence form is called a conditional. In order to determine whether a sentence is true or not, we need to know its content, but to determine the validity of an argument (which is a set of sentences), we need to know only the form of each sentence. This means that for purposes of determining validity, all the first premises in (d) through (i) are identical!

As distinct sentences may have the same form, distinct arguments may have the same form. To determine the form of the above arguments you need to recognize the conditional in the first premise and then note whether the second premise asserts or denies the antecedent (which follows the 'if') or the consequent (which follows the 'then') of the first premise. The six arguments above exhibit 4 different forms. For example, arguments (d) and (e) have the same form. You should be able to see that any argument with this form is valid. In other words, no matter what sentences are substituted for P and Q, if is it true that 'if P then Q' and also true that 'P', then there is no doubt that 'Q' must be true. It should now be clear why the validity of arguments is distinct from the truth value of premises and conclusions. Validity depends upon the form of premises and conclusions, not their truth value.

The following are the two valid argument forms exhibited in (d) through (i) and one new form is also included:

Modus Ponens	Modus Tollens	Hypothetical Syllogism
1. If P, then Q.	1. If P, then Q.	1. If P, then Q.
2. P.	2. not-Q.	2. If Q, then R.
3. Therefore, Q.	3. Therefore, not-P.	3. Therefore, If P, then R.

These three argument forms are among the most commonly used in everyday reasoning. For example, if I put a bag of water in my freezer, which is set at 20 degrees F., then, with sufficient time, it will freeze (note that this is a conditional with an antecedent and a consequent.) However, if after sufficient time, it does not freeze, then I know that the antecedent is false. Since the antecedent has two parts, it was water that I put in the freezer and the freezer was working so that the internal temperature was 20 degrees F., then we know that at least one part must be false. This is a modus tollens reasoning. Similarly, with the same conditional, if we know that the antecedent is true, then we know that the bag will freeze. This is a modus ponens reasoning. If we also add another conditional, if the bag of water will freeze, then I can use it later to ice my sprained ankle, then we get the logical conclusion that if I put a bag of water in my freezer, then I can use it later to ice my sprained ankle. This is simply stringing together a linked (i.e., the antecedent and consequent of different conditionals are identical) series of conditionals. This is a hypothetical syllogism reasoning!

We all have learned to perform this reasoning well in our everyday lives, but what logic teaches us is that this reasoning works not because of what we know about ice and sprained ankles, but simply because of the form of the reasoning (which in the this case means how one uses conditionals and their parts).

*** Four Questions after I. Logical Form.

1. In each argument (a) through (c), what are the 2 premises and conclusion in each and identify each as deductive or inductive. Give reasons.
2. In each argument (d) through (i), which are valid or invalid and which are sound or unsound. Give reasons.
3. Spell out the form of the two invalid argument forms that you have identified from (d) through (i) using "if P, then Q" as the first premise. (They are common fallacies!)
4. Construct two new arguments of your own using the Hypothetical Syllogism form. One with all true premises and the other with at least one false premise. Please specify which premises are true and false.

II. Doing Philosophy With Logic.

One of the most important types of premises that we will use in this class are conditionals of the form 'if P, then Q.' You will need to learn three important things about them.

1. The only way to falsify a conditional of the form 'If P, then Q' is to show that the antecedent is true and the consequent is false. Any other combination of truth values for the antecedent and consequent (even showing the antecedent to be false!) leaves the conditional true. For example, 'If Lemke is your teacher, then this is not a philosophy class.' is false, but if we switch the antecedent and consequent, the conditional is true. However, it is useless in constructing any sound arguments like modus ponens or modus tollens. Try it, you'll always get a false second premise.

2. The antecedent of a conditional is a sufficient condition for the consequent, and the consequent is a necessary condition for the antecedent. This means that if a conditional is true, then the truth of the antecedent is <u>sufficient</u> to insure the truth of the consequent and the truth of the consequent is <u>necessary</u> for the truth of the antecedent. For example, 'If I am living, then I have air to breath.' expresses the fact that air is necessary for being alive and being alive is sufficient to having air to breathe.

3. The typical way for a philosopher to show a conditional to be false is by constructing a counterexample story that shows the antecedent to be true and the consequent to be false. Take the following conditional: "If a person has a Ph.D., then that person is a faculty member of UMM." This conditional is shown to be false by a "counterexample story" of a person who satisfies the antecedent, i.e. has a Ph. D., but does not satisfy the consequent, i.e., is not a faculty member of UMM. This shows that merely having a Ph. D. is not sufficient to be on the faculty here. Of course, this leaves open the possibility that having a Ph.D. is necessary, e.g., because it is a job requirement, for being on the faculty. To show this alternative to be false, you need another counterexample story of a faculty member at UMM who does not have a Ph.D. This would show that having a Ph.D. is not necessary to be on the faculty here.

*** Three Questions after II. Doing Philosophy With Logic.

7. The following is a counterexample story: Marty is a friend in the physics department. Marty is a scientist, but likes to read philosophy. In fact, reading philosophy is Marty's main hobby. Now, if it is true that whoever likes philosophy is a philosopher, then Marty is a philosopher. But Marty is not a philosopher. Marty's reading philosophy is just for pleasure, it does not lead Marty to think or write anything philosophical. Even in conversation, Marty is unable say anything about philosophy except which books are pleasant to read and which are not. Please answer the following:

a. This story is a counterexample to what definition of philosophy. State the definition as precisely as you can in the form of a conditional.
b. Extract, explain, and evaluate the argument in this counterexample story (hint: the conclusion is the claim that the definition you outline in (a) is false).
c. Does this counterexample show that the definition of philosopher given is not sufficient or not necessary (it can only do one or the other.)

8. Examine this argument:

1. If LL is your philosophy teacher, then you are taking Philosophy 3141.
2. If you are taking Philosophy 3141, then you are using a textbook written by LL.
3. Therefore, If LL is your philosophy teacher, then you are using a textbook written by LL.

Is this argument valid? If so, what is its form? Is this argument sound?

9. A young philosopher by the name of Ino Alofit has proposed the following definition of philosophy using what is called a biconditional:

x is a philosopher iff x integrates all fields of thought.

A biconditonal of the form "p iff q" is equivalent to the following two conditionals: "if p, then q" and "if q, then p." Compose two counterexample stories to this definition: one showing it to be insufficient and the other showing it to be unnecessary. Next, it is your time to be a bit creative: please revise this definition so that it avoids both of your counterexamples.

III. Extractions.

To extract an argument from a text involves locating and restating each premise and the conclusion of the argument in clear and accurate terminology. To explain the argument involves giving the author's rationale for each of the premises. In some cases the rationales are clear from the text. In other cases one may have to "read between the lines" to figure out what probably motivated the author to accept the premise. To successfully do this, you need to take the point of view of the author of the argument. To evaluate the argument involves (a) stating whether the argument is logically valid and, if you can, name its logical form and (b) stating whether you believe that the premises are true or false and giving reasons to support your belief.

Read the following passage. It offers a clear argument for a conclusion. To extract it, you will need to leave out some extra words in order to get at the heart of what is argued for and you will need to have logical forms in mind in order to "reshape" this argument into such a form:

> Because philosophy is unique, the history of philosophy is unique. A historian of medicine does not *qua* historian practice medicine; but one cannot write the history of philosophy without philosophizing. The interpreter of a past philosopher is bound to present and offer reasons for his thoughts, and to expound and evaluate his arguments. But offering reasons for philosophical conclusions, and evaluating the logic of philosophical arguments, is itself a full-blooded philosophical activity. Hence, while a historian of painting

need not be a painter, a historian of philosophy cannot but be a philosopher. (The Oxford Illustrated History of Western Philosophy, by Anthony Kenny, Oxford U.P.,1997, p. v.)

Extraction: 1. If an historian of philosophy presents and offers reasons for his philosophical thoughts and expounds and evaluates philosophical arguments, then an historian of philosophy is a philosopher.
2. An historian of philosophy presents and offers reasons for his philosophical thoughts and expounds and evaluates philosophical argument.
3. Therefore, an historian of philosophy is a philosopher.

Explanation: Premise 1 expresses the view that offering reasons for one's own philosophical thoughts and expounding and evaluating philosophical arguments are defining characteristics of philosophical activity. This certainly seems plausible. This does not say that merely offering reasons and making arguments means that you are a philosopher, because mathematicians do this as well. But to do this with philosophical thoughts seems surely characterize philosophers. If so, it follows that for whoever does this activity, e.g., a type of historian, they are philosophers as well. Premise 2. expresses the view that whenever historians of philosophy write they present an interpretation and in doing so, they present and offer reasons for their philosophical thoughts. Also, since philosophers use arguments, an historian must present them and in doing so expound and evaluate them or their interpretations of them. This is a fundamental feature of historical work.

Evaluation: It is valid: the conclusion follows from the two premises by MP. However, the argument is not sound because the second premise is false. A case for this can be made by advancing the following counterexample story. Paul is an historian of medieval philosophy. He reads a lot of medieval philosophy and reports the views of the philosophers whom he reads. He does this by direct quote and he leaves nothing out. He expresses no philosophical thoughts of his own. Furthermore, in reporting the arguments of other philosophers he merely mentions them but does not expound them or evaluate them. His historical procedure is to be a mere reporter of the philosophical views of others. Of course, this results in a rather boring work which reads just like the original text, but in his defense he claims that at least it is accurate and uncontaminated by his own prejudices.

*** Assignment after III. Extractions.

Do the following three extractions: What is Maclachlan's argument is the first paragraph on p. xii and in the first whole paragraph on p. xiv. Extract, explain, and evaluate each argument. For the third, there is an extended argument for foundationalism in chapter 1. Machlachlan considers four sources of knowledge and argues that sense perception is the "basis" of all the others (hence, the foundational structure of sources of knowledge). This will requires you to locate his reasons in different sections of this chapter and bring them together into one argument. Imagine that an editor says to Machlachlan that at the end of this chapter he must summarize his argument for foundationalism. You are Machlachlan. What would he write? This is your extraction. Also follow it by a brief explanantion, then your evaluation.