

Philosophy 240: Symbolic Logic
Fall 2008
Mondays, Wednesdays, Fridays: 9am - 9:50am

Hamilton College
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Class 1: Arguments (§1.1)

I. Introduction to the class

Hand out syllabi.

Show website.

Handout crib sheets.

Discuss tests: I will not allow make-up tests.

Compensatory material at the final will be provided; I will average the two grades.

Hand out paper assignments.

Some research will be required.

Hand out course bibliography.

II. Defining 'Logic'

Consider the following pair of definitions:

A: Logic is the study of argument.

B: Arguments are what logic studies.

There is a circularity here, which makes the definitions unhelpful.

This circularity is a formal result.

We study formal results, in logic.

Now, replace B., above, with:

B': An argument is a set of statements, called premises, intended to establish a specific point, called the conclusion.

B' is a better definition.

It is not circular.

It reduces an term to be defined to simpler ones.

An alternative description of logic: logic is the rules of reasoning.

A big philosophical question: Is logic descriptive, representing how we actually reason?

Or is it prescriptive, setting out rules for good reasoning?

Before we can start to answer this question, we have to see what logic looks like, at least a bit.

Here is another definition: a 'proposition', or a 'statement', is a declarative sentence that has a truth value.

We will consider only two truth values: true and false.

There are logics with more than two truth values.

The most interesting logics have three, or infinitely many.
In this course, we will mostly study two-valued, or bivalent, logic.
But, we will look at three-valued logics a little bit.

III. Separating Premises from Conclusions

Our first task is to analyze arguments, indicating their structures and separating premises from conclusions.

Consider the following argument: ‘We may conclude that eating meat is wrong. This may be inferred from the fact that we must kill to get meat. And killing is wrong.’

The conclusion is: ‘Eating meat is wrong.’
The premises are: ‘We must kill to get meat. Killing is wrong.’
Note the elimination of certain words: these are indicators.
When formally representing arguments, we omit indicators.

Here are some conclusion indicators:

- therefore,
- we may conclude that
- we may infer that
- entails that
- hence
- thus
- consequently
- so
- it follows that
- implies that
- as a result.

Here are some premise indicators:

- since
- because
- for
- in that
- may be inferred from
- given that
- seeing that
- for the reason that
- inasmuch as
- owing to

‘And’ often indicates the presence of an additional premise.

We (partially) formally represent the argument in the following manner:

- P1: We must kill to get meat.
- P2: Killing is wrong.
- C: Eating meat is wrong.

A few guidelines and tips:

The order of the premises is unimportant.

The number of premises is unimportant: you may combine or separate premises, at times.

Sometimes, a sentence may contain both a premise and a conclusion, and so must be divided.

Natural language is inexact, and non-formulaic.

Not all sentences will contain indicators.

You will have to judge from the content of the propositions which are premises and which are conclusions.

The best way to determine premises and conclusions is to determine what the main point is, and then look to see what supports that point.

Many arguments contain irrelevant, extraneous information.

Many arguments contain implicit information; these are called 'enthymemes'.

IV. Exercises A. Represent the following arguments in premise/conclusion form.

1. The psychological impact and crisis created by the birth of a defective infant is devastating. Not only is the mother denied the normal tension release from the stress of pregnancy, but both parents feel a crushing blow to their dignity, self-esteem, and self-confidence. In a very short time, they feel grief for the loss of the normal, expected child, anger at fate, numbness, disgust, waves of helplessness and disbelief.

2. Neither a borrower nor a lender be,
For loan oft loses both itself and friend,
And borrowing dulls the edge of husbandry.

3. If a piece of information is not "job relevant," then the employer is not entitled qua employer to know it. Consequently, since sexual practices, political beliefs, associational activities, etc., are not part of the descriptions of most jobs, that is, since they do not directly affect one's job performance, they are not legitimate information for an employer to know in the determination of the hiring of a job applicant.

V. Solutions

Answers to Exercise A.

1. Premise 1: Not only is the mother denied the normal tension release from the stress of pregnancy, but both parents feel a crushing blow to their dignity , self-esteem, and self-confidence.
 Premise 2: In a very short time, they feel grief for the loss of the normal, expected child, anger at fate, numbness, disgust, waves of helplessness and disbelief.
 Conclusion The psychological impact and crisis created by the birth of a defective infant is devastating.

2. Premise 1: Loan oft loses both itself and friend.
 Premise 2: Borrowing dulls the edge of husbandry.
 Conclusion: Neither a borrower nor a lender be.

3. Premise 1: If a piece of information is not "job relevant," then the employer is not entitled qua employer to know it.
 Premise 2: Sexual practices, political beliefs, associational activities, etc., are not part of the descriptions of most jobs, that is, they do not directly affect one's job performance,
 Conclusion: They are not legitimate information for an employer to know in the determination of the hiring of a job applicant.