

# A Little Bit of Logic

## Lecture 2

Phil 1000, Fall 2008  
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# Outline

- Review
  - Types of problems
  - Arguments: Components and Evaluation
- Logical Strength
  - Deductive validity
  - Inductive strength
- Fallacies
  - Top 5 List
  - Handout

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# Review

Syllabus is online: [hum.utah.edu/~bbenham](http://hum.utah.edu/~bbenham)

- What is philosophy?
- What are the three types of problems philosophy deals with?
- What is the difference between an opinion and an argument?
- What are the chief components of an argument?
- What is a good argument?
- What are two key criteria for a good argument?

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# Good Arguments

A **good argument** is one whose premises make the conclusion reasonable to believe or accept as true.

**Key criteria** for a good argument:

1. Premises must be true or acceptable
2. Premises must provide adequate logical strength (a.k.a., inferential support).

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## Is this a good argument?

1. Are the premises true or acceptable?
2. Do the premises provide adequate logical strength?

**P1:** At midnight a badly beaten body was found in the library of Mystery Mansion.

**P2:** Residents reported seeing the butler hurriedly leaving the library just before midnight.

**P3:** When interviewed, the butler was frightened.

**P4:** Blood was on the butler's cuff and he gave an implausible account of it.

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**C:** The butler did it.

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## Argument Example 3

If Bruce goes to the party with Alice, Georgia will be upset. If David goes to the party with Alice, Carla will be upset. So, either David will be upset or Georgia will be upset, because either David goes to the party with Alice, or Bruce does.

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## Standard Form of Example 3

If Bruce goes to the party with Alice, Georgia will be upset. If David goes to the party with Alice, Carla will be upset. So, either David will be upset or Georgia will be upset, because either David goes to the party with Alice, or Bruce does.

**P1:** If Bruce goes to the party with Alice, Georgia will be upset.

**P2:** If David goes to the party with Alice, Carla will be upset.

**P3:** Either David goes to the party with Alice, or Bruce does.

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**C:** Either David will be upset or Carla will be upset.

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## Is this a good argument?

B = Bruce goes to the party with Alice  
D = David goes to the party with Alice  
G = Georgia will be upset  
C = Carla will be upset

**P1:** If Bruce goes to the party with Alice, Georgia will be upset.

**P2:** If David goes to the party with Alice, Carla will be upset.

**P3:** Either David goes to the party with Alice, or Bruce does.

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**C:** Either David will be upset or Georgia will be upset.

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## Is this a good argument?

B = Bruce goes to the party with Alice  
D = David goes to the party with Alice  
G = Georgia will be upset  
C = Carla will be upset

P1: If B, then G.

P2: If D, Then C.

P3: Either D or B.

C: Either D or G.

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## Two Types of Inferential Support

- Deductive Validity
  - One in which the premises, if true, guarantee the conclusion to be true.
  - All or nothing: Valid or Invalid
  - Formal: Content is not important
- Inductive Strength
  - One in which the premises, if true, make it reasonable to accept the conclusion.
  - Probabilistic: Weak or Strong
  - Informal: Content is important

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## Common Forms

See Handout

### Deductive

Modus Ponens  
Modus Tollens  
Disjunctive Syllogism  
Dilemmas and *Reductios*

### Formal Fallacies:

Affirming the consequent  
Denying the antecedent

### Inductive

- Inductive Generalization
  - Enumeration
  - Statistical
- Argument by Analogy
- Inference to best explanation

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## Fallacies

See Handout

### Top 10 List of common mistakes in reasoning.

- Hasty Generalization
- False Dilemma
- Appeal to Popularity
- Begging the Question
- Slippery Slope
- Ad hominem
- Composition & Division
- Equivocation
- Loaded Language
- Straw Person\*

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## Reading Question/Assignment 2

Read Aquinas' "Five Ways" (p. 21; see schedule). Identify the argument in the "2<sup>nd</sup> way" and put it in standard form. Then evaluate the argument. In the end is this a convincing argument for the existence of God?

Typed; 1-2 pages maximum; double-sided okay.

Due in class on Tuesday.

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## Key concepts

- Logical Support
  - Deductive Validity
  - Inductive Strength
- Common forms of deductive and inductive arguments
- Some Fallacies

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