

# What is Logic?

Phil 201.02 — Spring 2009

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## Outline

- 1 What is Logic?
- 2 Why Study Logic?

## Announcements

For 01.20

- 1 If you need a special permission number, see me after class
- 2 The plan for today:
  - Get an idea of what this class is about
  - Go over syllabus and get clear on how the class is going to work

## A Short Answer

And More Questions

### Answer

Logic is the science of correct **inference**

Important Questions:

- 1 What exactly is meant by *inference*?
- 2 What **kind** of science?
  - Let's consider each of these questions in turn

# What is an Inference?

## Premises and Conclusions

### Inference

- Moving from some **premises** to a **conclusion** is called an **inference**
- We makes many inferences everyday, often without realizing it:

### An Example Inference

- 1 If I touch the hot stove burner it will hurt really bad (Premise)
- 2 I should avoid doing things that hurt really bad (Premise)
- 3 I should avoid touching the hot stove burner (Conclusion)

# What is Inference?

## The Good & the Bad

- But, not all inferences are created equal

### Inference 1

- 1 All humans are mortal
- 2 Socrates is human
- 3 So, Socrates is mortal

### Inference 2

- 1 Some politicians are corrupt
- 2 Al Gore is a politician
- 3 So, Al Gore is corrupt

- Inference 1 seems **correct**, while Inference 2 seems **incorrect**

# Inference & Argumentation?

## Questions About Inference

### Questions About Inference

- 1 What makes some inferences correct and others incorrect?
  - 2 What, if any, patterns do inferences adhere to?
  - 3 Can inferences be decomposed into smaller ones? If so, which ones?
- Over the course of the semester we will develop answers to all of these questions

# What is Inference?

## More on Inference

- Not all inferences are correct
  - The example we just considered makes this clear
- What is it that makes one inference better than another?
- Lots of things might influence whether or not you're an inference seems correct:
  - How believable the premises are
  - How insulting the conclusion is
  - How much you respect the opinion of its proponent
  - How attractive you find its proponent
  - How much you care
  - And so on . . .

# Inference

## Objective Criteria

- In this class we will study a more objective criterion for judging the correctness of an inference
- This will open up a different way of looking at **arguments**
  - Instead of being verbal abuse or name calling, an argument can be seen as the presentation of an inference with the intent to convince the audience of the inference's conclusion
- This opens up a different way of **evaluating** arguments:
  - An argument should not be counted as convincing unless it is supported by a correct inference

# What Kind of Science?

## Logic is an Abstract Science

- What kind of science is Logic?
  - Logic is an **abstract** science like mathematics or economics
  - Logic is not a physical science like biology, chemistry or neuroscience
  - Abstract sciences deal with abstract **patterns**
  - Physical sciences deal with observable real-world events and substances

# Inference

## Summary

### Summary

- 1 Logic is the science of **correct inference**
  - 2 Inference is a move from one or more **premises** to a **conclusion**
  - 3 We will think of arguments as inferences and evaluate them with the same objective criterion we will develop for evaluating inferences
- A Monty Python skit crystalizes these points nicely: [here](#)

# The Focus of Phil 201

## Intro Logic

- Phil 201 is an introduction to classical **theory** of correct inference
- The primary goal is for you to learn the leading theory of what makes inferences correct or incorrect
- The primary goal is **not** to train you to better recognize correct inferences when you encounter them in everyday life
  - That is the goal of Phil 101
- However, that skill will be **improved** by taking this class

## Why Study Logic?

What's the Point of Logical Theory?

- Is there any point to learning the **logical theory** other than improving practical reasoning skills?
- Yes
  - Science and rational progress presuppose that there are objective standards for evaluating arguments
  - The concepts of logical theory are responsible for the modern computer & numerous revolutions in the cognitive sciences
    - Artificial Intelligence
    - Linguistics
    - Psychology
    - Philosophy
    - The social sciences
  - So, knowing some logical theory is just part of being a modern educated human!

## Homework

Already!

Yes, you already have a homework assignment. But, it's quite easy.

### Homework 1

Due by class on **Tuesday 01.27**:

- ① Purchase the textbook/software bundle (again, **don't** get it used)
- ② Read the introduction (pp.1-10) of the textbook and pp.1-12 of the software manual
- ③ **Do exercises 1.1, 1.2, 1.3, 1.4**