Reasoning for Humans: Clear Thinking in an Uncertain World

PHIL 171

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Table of contents

Introduction

First Steps

1. Watch the introductory video.
2. Make sure you are signed up and can login to Piazza `https://piazza.com/umd/fall2020/phil171`.
3. Sign up for `https://app.tophat.com/e/601505` with join code 601505. *You must purchase the pro-subscription*.
4. Watch the video introducing the online tools we will use this semester (see `https://phil171.org/weeks/1/#watch-this`).
5. Read the course policies (`https://phil171.org/policies`) and syllabus (`https://umd.instructure.com/courses/1289360/assignments/syllabus`).
6. Answer the introductory quiz on Tophat: `https://app.tophat.com/e/601505/page/234795750`

First Steps

https://umd.instructure.com/courses/1289360/pages/first-steps?module_item_id=10222574

Grading

Participation	30%
Problem Sets	40%
Exam 1	10%
Exam 2	10%
Final Exam	10%

Online Tools

Course Website:	umd.instructure.com/courses/1279694
Online Notes:	text.phil171.org
Online Discussion:	https://piazza.com/umd/fall2020/phil171
Participation Questions:	https://app.tophat.com/e/601505

Topics

- Introduction (Reasoning, Arguments and Inferences)
- Logic
- Logic and Reasoning
- Probability
- Probabilistic Inference
- Other topics: Lottery Paradox, The Grue Paradox, Bayesian Epistemology, ...

Introduction to Reasoning

Reasoning

Reasoning is a "transition in thought, where some beliefs (or thoughts) provide the ground or reasons for coming to another"

J. Adler. *Introduction: Philosophical Foundations (Sections 1 - 4)*. in *Reasoning: Studies in Human Inference and its Foundations*, Cambridge University Press, 2008.

I need to make lunch for my daughter at 12:15.

Oh, I better put the slides on the website.

I need to make lunch for my daughter at 12:15.

~~Ok~~ **So**, I better put the slides on the website.

My keys are either in my office or locked in my car.

My keys are not in my office.

So, my keys are locked in my car.

Bill brought his backpack to class every day of the semester.

So, [probably] Bill will bring it to the next class.

What is the course about?

What are the rules or formal constraints that govern *rational* transitions in thought?

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What are the rules or formal constraints that govern *rational* transitions in thought?

What does it mean to be *rational* or *reasonable* as opposed to *irrational* or unreasonable?

Logic

Logic - Both a very old and very modern discipline

Question

Ann is looking at Bob, and Bob is looking at Charles. Ann is married and Charles is not married.

Question

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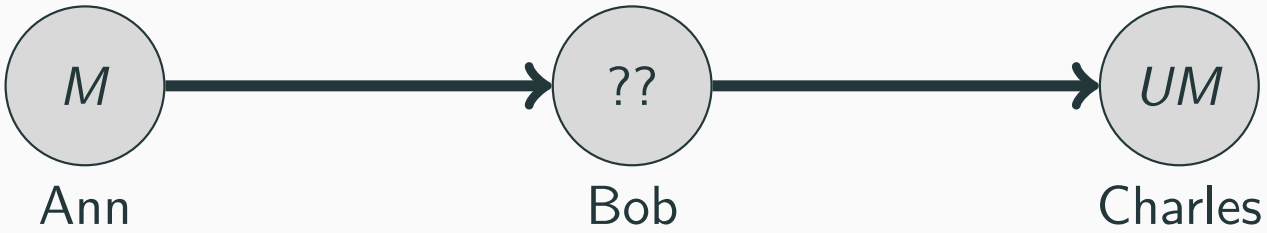
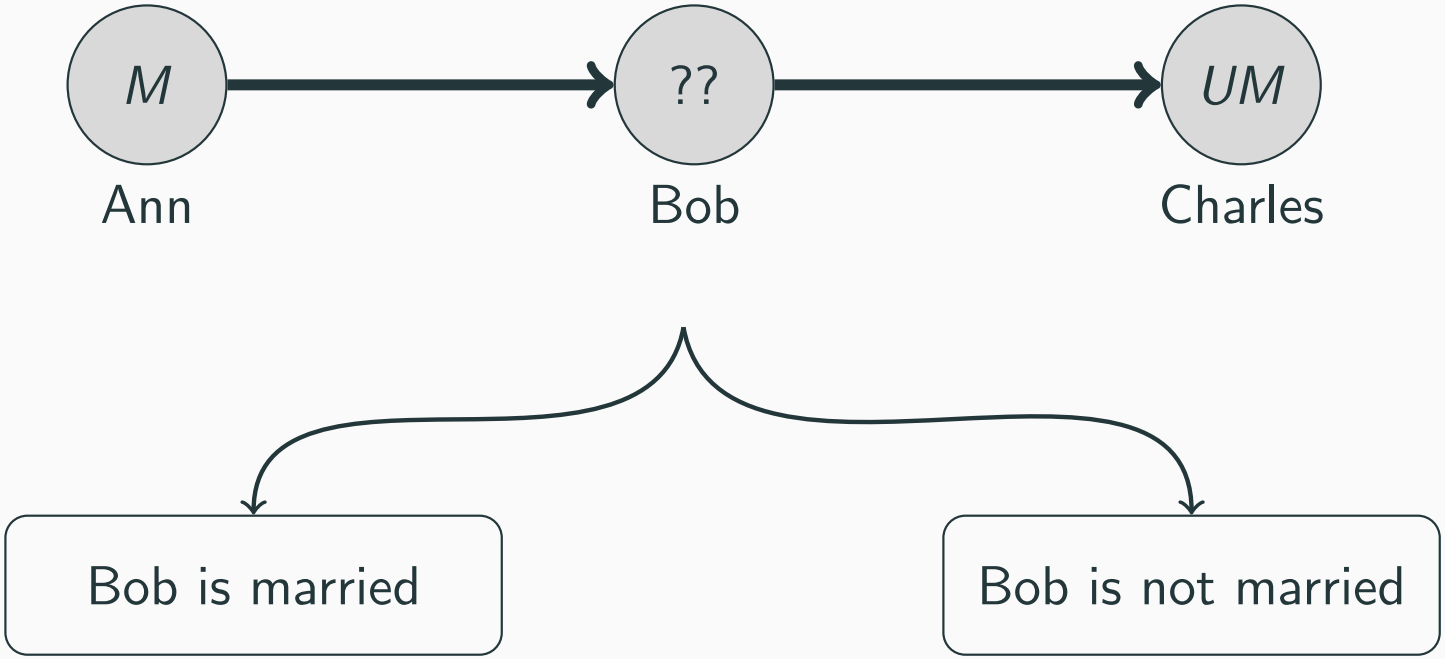
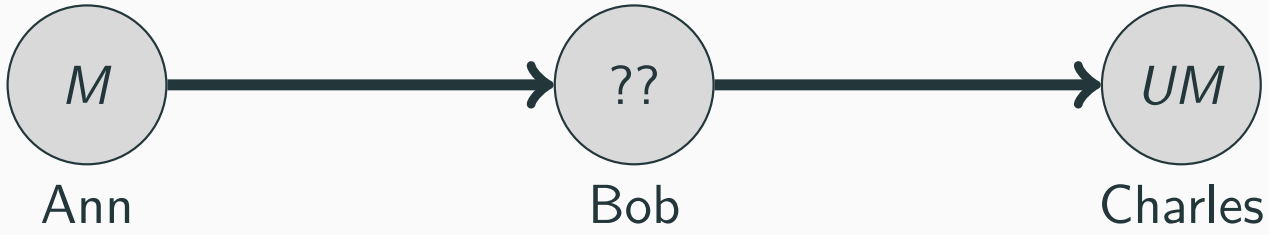


Is it true that a married person is looking at an unmarried person?

1. Yes.
2. No.
3. There is not enough information to answer this question.


M
??
UM
Ann
Bob
Charles
Bob is married
Bob is not married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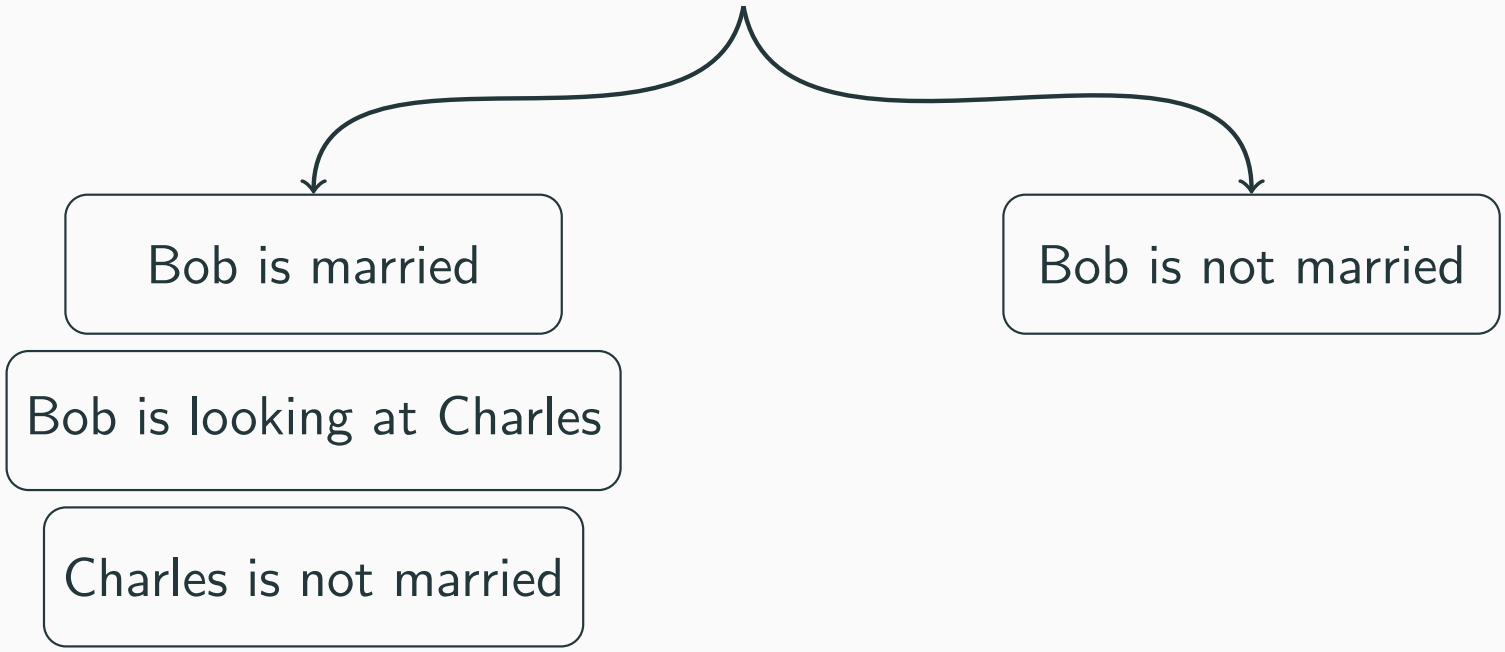
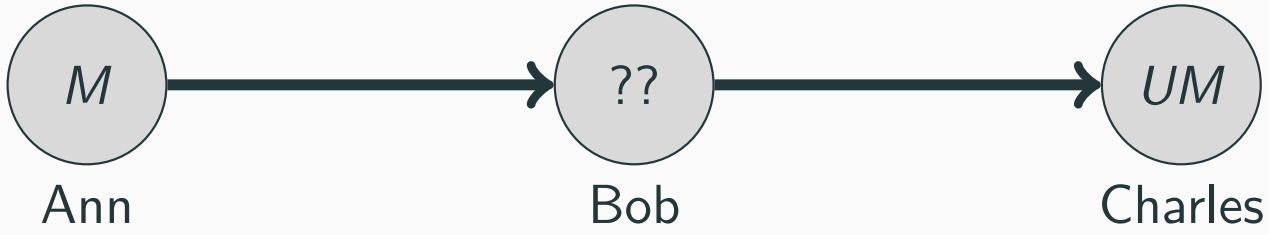

Bob is married
Bob is not married
Bob is looking at Charles
Charles is not married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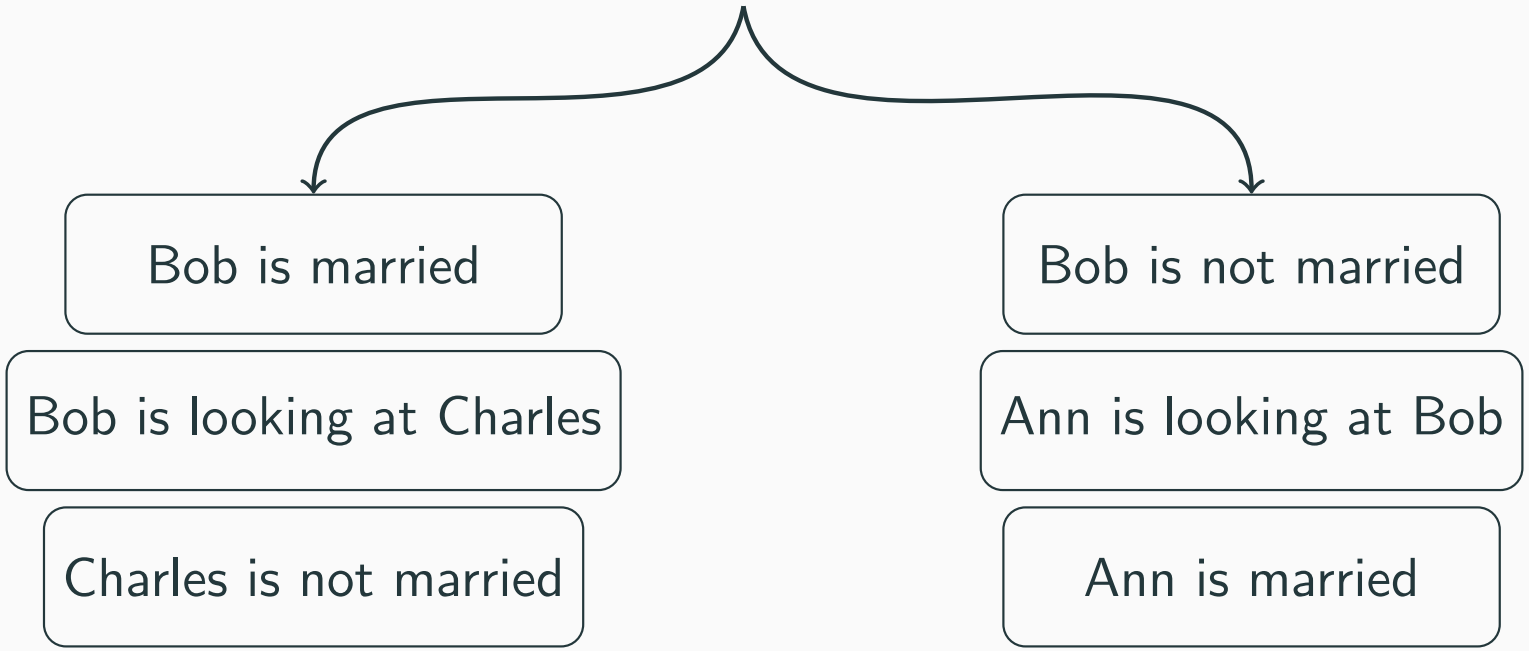
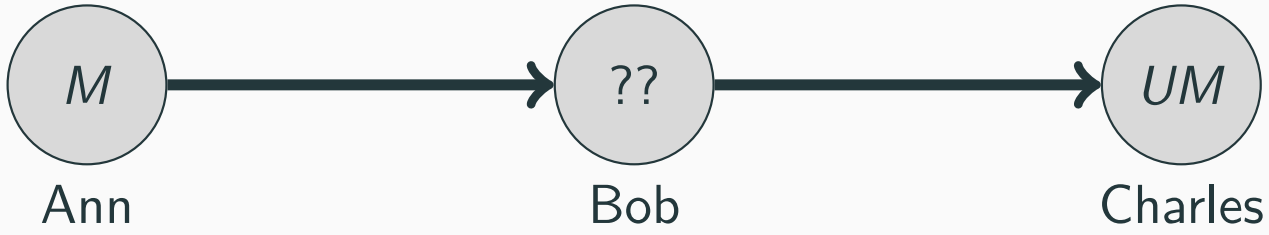

Bob is married
Bob is looking at Charles
Charles is not married
Bob is not married
Ann is looking at Bob
Ann is married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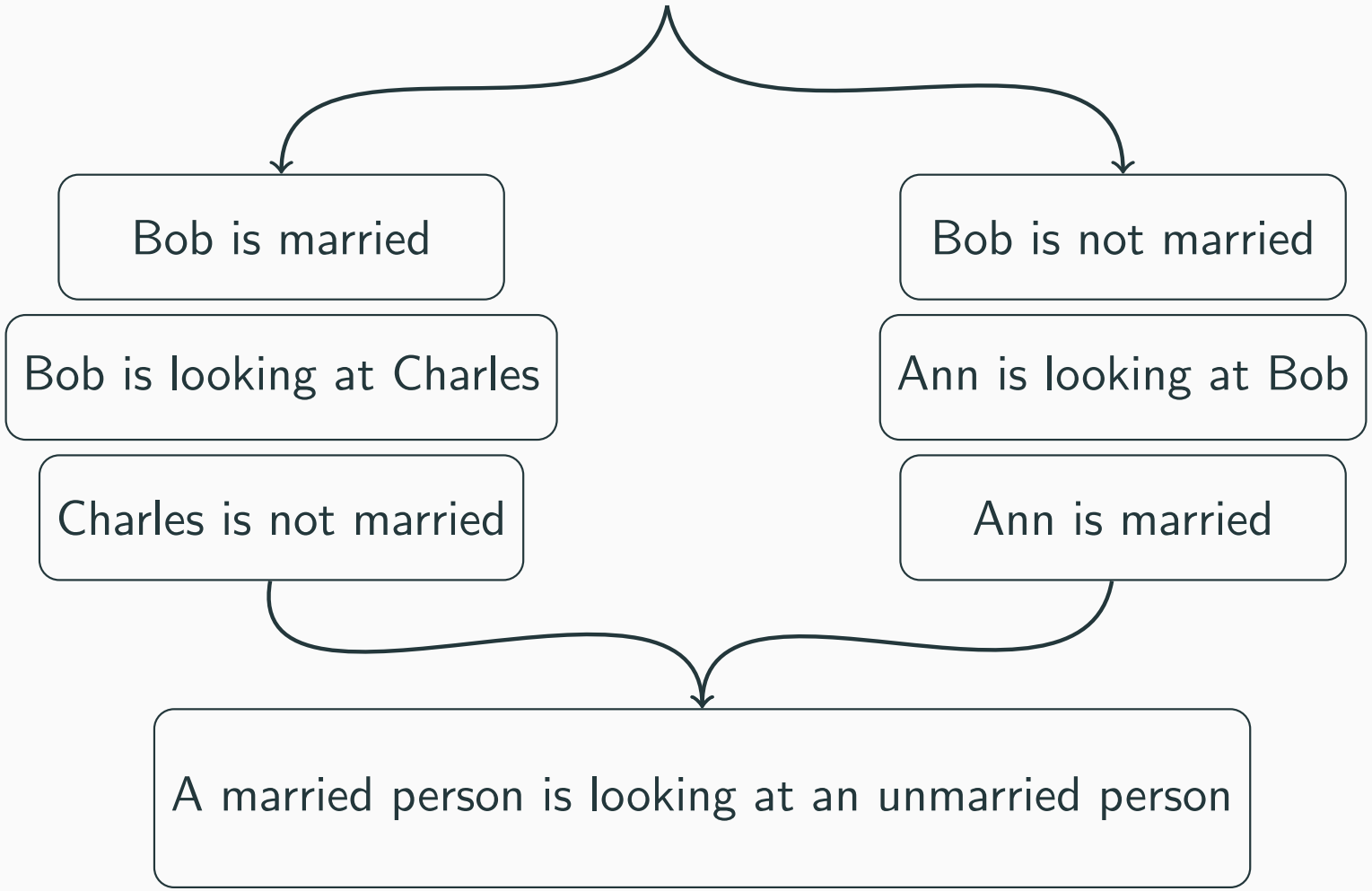
Bob is married
Bob is not married
Bob is looking at Charles
Ann is looking at Bob
Charles is not married
Ann is married
A married person is looking at an unmarried person

Logic

Logicians study under what circumstances a sentences **follows from** other sentences.

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Sentence 1 **follows from** sentence 2 if every time we use sentence 2 in a true way we could use sentence 1.

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Example: Every elephant moves *follows from* every animal hops.

Arguments

The word "argument" can mean several different things:

- ✓ Ann and Bob are having an argument.
- ✓ Ann is advancing the argument that such-and-such is true.
- ✓ The value of a function depends on the value of its arguments.

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One advances an argument by giving certain reasons designed to persuade the reader/hearer that a certain claim is correct.

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An **argument** is a list of statements, one of which is designated as the **conclusion**, and the rest of which are designated as **premises**.

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Conclusion Indicators

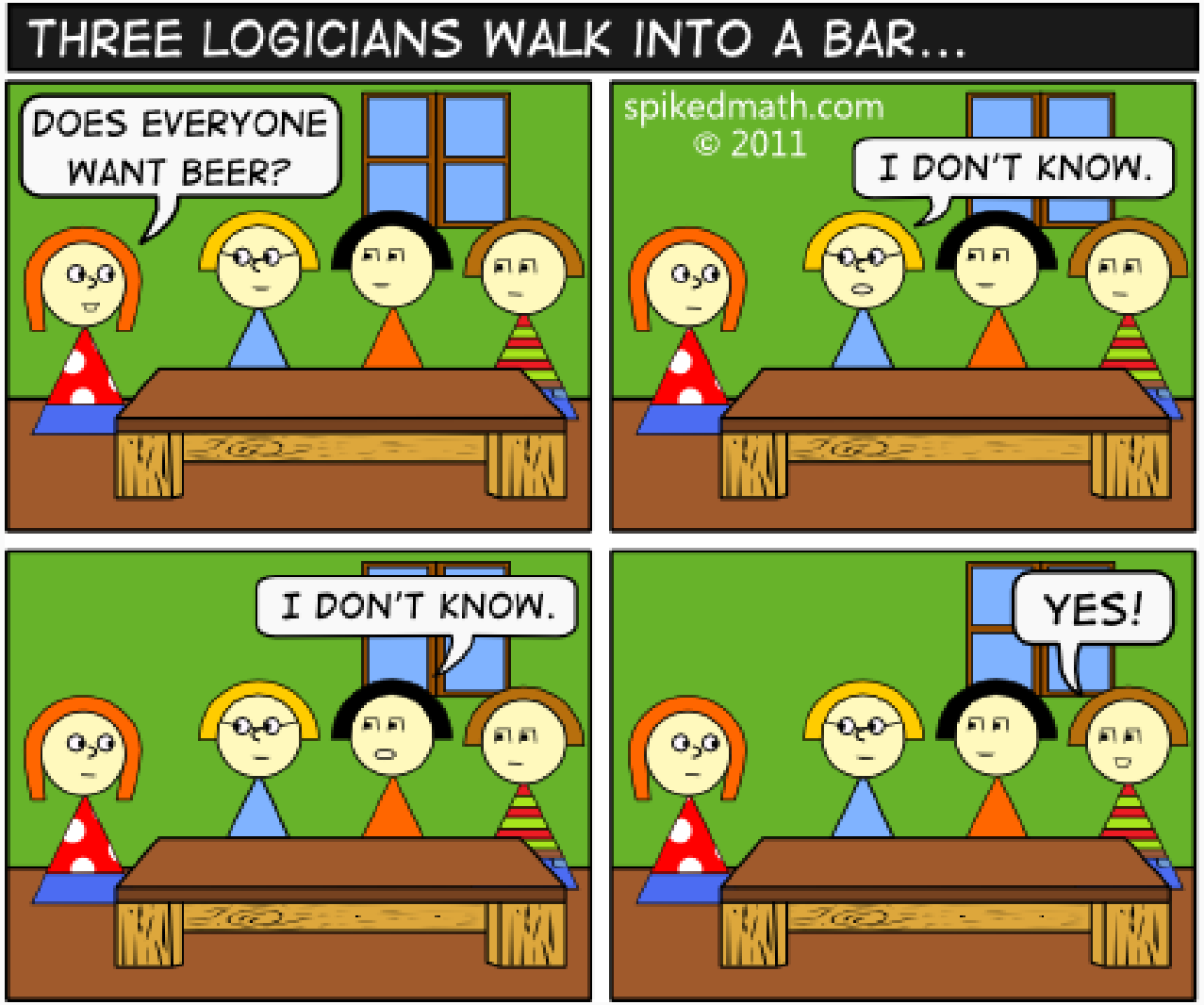
therefore hence for this reason

thus implies that entails that so

it must be that we may infer wherefore

it follows that we may conclude that

consequently as a result accordingly


THREE LOGICIANS WALK INTO A BAR...
DOES EVERYONE WANT BEER?
spikedmath.com
© 2011
I DON'T KNOW.
I DON'T KNOW.
YES!