

In a certain place, all the inhabitants are either Knights or Knaves. Knights always tell the truth and Knaves never tell the truth.

You meet two inhabitants, A and B. A says "Exactly one of us is a knight." B says "A is a knight." What, if anything, can you infer from this?

## CONDITIONALS

Wednesday, 29 January

#### Phílosophy Spríng 2014 Speaker Seríes

"Are Psychopaths Responsible?"



Walter Sínnott-Armstrong, Chauncey Stíllman Professor of Practical Ethics Duke University Thursday, January 30, 2014 at 7:00 PM MCOM 353

Abstract: Psychopaths are less than 1% of the population but commit over 30% of the violent crime in our country. They are widely misunderstood, but new studies (including some brain scans) have taught us a lot about what makes them tick. This new information points towards innovative psychiatric treatments and raises question about whether they should be held legally responsible.

This program was made possible in part by grants from Humanities Texas, the state affiliate of the National Endowment for the Humanities as well as from the Ethics Center at Texas Tech University.





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#### CLASS ANNOUNCEMENTS

- No office hours Thursday
- Class website: <u>http://joelvelasco.net/teaching/2310</u>
- MUST have a new copy of the book/software

 You are really paying for your own software license and registration ID

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#### Both a and b are in the same column as c:

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- Contractions and all the

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Contractions and a Constant

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- SameCol(a,c) ^ SameCol(b,c)
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  - BackOf(a,b) ^ (BackOf(b,c) ∨ BackOf(b,d))

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Either a and b are both small or are both large:

(Small(a) ^ Small(b)) ∨ (Large(a) ^ Large(b))

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- A connective is <u>truth-functional</u> if the truth or falsity of compound sentences is completely determined by the truth values of the constituents.
- Today we will introduce two new truth-functional connectives to our formal language.
- The first is called the <u>material conditional</u>, designated with the symbol →.
- If A and B are sentences, then  $A \rightarrow B$  is a sentence.

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- If Alice is tall then Bill is:  $A \rightarrow B$
- Bill is tall if Alice is:  $A \rightarrow B$
- If Bill and Alice are both tall, then neither Charlie nor David are:  $(B \land A) \rightarrow \neg(C \lor D)$

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Alice will go only if Tom does:

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- Alice will go only if Tom does:
  - $A \rightarrow T$

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- Alice will go only if Tom does:
  - $A \rightarrow T$
  - ¬T→¬A

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- Alice will go only if Tom does:
  - $A \rightarrow T$
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- Alice will go unless Tom does

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  - ¬A→T
  - Think "Alice will go (IF NOT) Tom

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• Truth table for the material conditional:

A	В	$A \rightarrow B$
TRUE	TRUE	TRUE
TRUE	FALSE	FALSE
FALSE	TRUE	TRUE
FALSE	FALSE	TRUE

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In FOL, if the consequent is true, then the conditional is always true.

•  $A \rightarrow B$  just means either A is false or B is true

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- 'A only if B' is roughly 'B is necessary for A':  $A \rightarrow B$

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 $P \rightarrow Q$ 

• If P, then Q:

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If P, then Q:A only if B:

 $P \rightarrow Q$  $A \rightarrow B \text{ or } \neg B \rightarrow \neg A$ 

If P, then Q:  $P \rightarrow Q$ A only if B:  $A \rightarrow B$  or  $\neg B \rightarrow \neg A$ P if Q:  $Q \rightarrow P$ 

- If P, then Q:
- A only if B:
- P if Q:
- Unless B, A:

 $P \rightarrow Q$   $A \rightarrow B \quad \text{or} \quad \neg B \rightarrow \neg A$   $Q \rightarrow P$   $\neg B \rightarrow A$ 

- If P, then Q:
- A only if B:
- P if Q:
- Unless B, A:
- P if not Q:

 $P \rightarrow Q$   $A \rightarrow B \quad \text{or} \quad \neg B \rightarrow \neg A$   $Q \rightarrow P$   $\neg B \rightarrow A$   $\neg Q \rightarrow P$ 

- If P, then Q:
- A only if B:
- P if Q:
- Unless B, A:
- P if not Q:
- A is necessary for B:

 $P \rightarrow Q$   $A \rightarrow B \quad \text{or} \quad \neg B \rightarrow \neg A$   $Q \rightarrow P$   $\neg B \rightarrow A$   $\neg Q \rightarrow P$   $B \rightarrow A \quad \text{or} \quad \neg A \rightarrow \neg B$ 

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- A only if B:
- P if Q:
- Unless B, A:
- P if not Q:
- A is necessary for B:
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