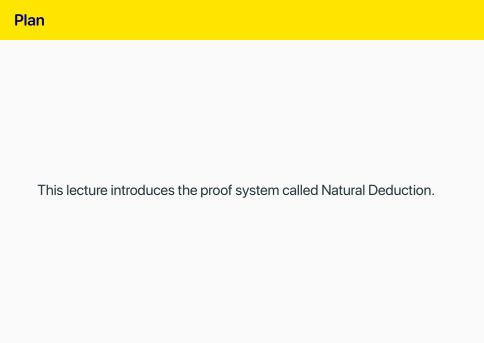
# 305 Lecture 4.4 - Introducing Natural Deduction

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# **Associated Reading**

forall x, chapter 15.



• A proof system that looks like reasoning in natural language

#### **What is Natural Deduction**

- A proof system that looks like reasoning in natural language
- Every step is an inference that conforms to one of a small number of good rules.

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- · The results feel more philosophically significant.
- The length of proofs grows more or less linearly with the complexity of the argument, not exponentially.
- The method can be generalised well beyond basic propositional logic.

## **Tables, Trees and Proofs**

- The last two advantages are really advantages of natural deduction over tables.
- They aren't really advantages over trees.



• This is a one-way method; it can't be used to prove invalidity.

#### **Disadvantages**

- This is a one-way method; it can't be used to prove invalidity.
- Constructing proofs is hard.

#### **For Next Time**

• We will look at 16.1, on the idea of a proof.