

305 Lecture 4.4 - Introducing Natural Deduction

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Plan

This lecture introduces the proof system called Natural Deduction.

Associated Reading

forall x, chapter 15.

What is Natural Deduction

- A proof system that looks like reasoning in natural language

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- Every step is an inference that conforms to one of a small number of good rules.

Advantages

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- 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.

Disadvantages

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- Constructing proofs is hard.

For Next Time

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