

305 Lecture 4.3 - More Examples of Truth Trees

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Plan

This lecture goes over some more examples of truth trees.

Associated Reading

Boxes and Diamonds, section 2.5.

Not Many Slides

- This lecture is different to most.
- I'm not going to be talking over the slides.
- Instead, I've posted 8 different videos going over 8 examples.

Examples

- a. $\neg A \vee \neg B \vdash \neg(A \vee B)$
- b. $\neg A \wedge \neg B \vdash \neg(A \vee B)$
- c. $\neg(A \wedge B) \vdash \neg(A \vee B)$
- d. $\neg(A \vee B) \vdash \neg(A \wedge B)$
- e. $\neg A \vee B, A \vdash B$
- f. $\neg A \vee B \vdash A \rightarrow B$
- g. $A \rightarrow (B \rightarrow C) \vdash (A \vee B) \rightarrow C$
- h. $A \rightarrow (B \rightarrow C) \vdash (A \wedge B) \rightarrow C$

Other Examples for You (or discussion)

1. $A \rightarrow C \vdash (A \vee B) \rightarrow C$
2. $A \rightarrow C \vdash (A \wedge B) \rightarrow C$
3. $(A \rightarrow C) \wedge (B \rightarrow C) \vdash (A \wedge B) \rightarrow C$
4. $(A \rightarrow C) \wedge (B \rightarrow C) \vdash (A \vee B) \rightarrow C$
5. $(A \rightarrow C) \vee (B \rightarrow C) \vdash (A \wedge B) \rightarrow C$
6. $(A \rightarrow C) \vee (B \rightarrow C) \vdash (A \vee B) \rightarrow C$
7. $(A \rightarrow (B \rightarrow C)) \rightarrow (B \rightarrow (A \rightarrow C))$
8. $A \rightarrow ((A \rightarrow B) \rightarrow B)$
9. $(A \rightarrow B) \rightarrow (A \rightarrow B)$
10. $(A \rightarrow (B \rightarrow C)) \rightarrow ((A \rightarrow B) \rightarrow (A \rightarrow C))$

For Next Time

We will start a unit on part IV of forall x, on natural deduction.