

## 305 Lecture 24 - More Examples of Truth Trees

---

Brian Weatherson

July 15, 2020

# Plan

This lecture goes over some examples of truth trees.

## Associated Reading

Boxes and Diamonds, section 2.5.

## Examples to work On

Are these arguments valid?

$$\neg A \vee \neg B \vdash \neg(A \vee B)$$

$$\neg A \wedge \neg B \vdash \neg(A \vee B)$$

$$\neg(A \wedge B) \vdash \neg(A \vee B)$$

$$\neg(A \vee B) \vdash \neg(A \wedge B)$$



$\neg A \vee B, A \vdash B$

$$\neg A \vee B \vdash A \rightarrow B$$

$$A \rightarrow (B \rightarrow C) \vdash (A \vee B) \rightarrow C$$

$$A \rightarrow (B \rightarrow C) \vdash (A \wedge B) \rightarrow C$$

$$A \rightarrow C \vdash (A \vee B) \rightarrow C$$

$$A \rightarrow C \vdash (A \wedge B) \rightarrow C$$

$$(A \rightarrow C) \wedge (B \rightarrow C) \vdash (A \wedge B) \rightarrow C$$

$$(A \rightarrow C) \wedge (B \rightarrow C) \vdash (A \vee B) \rightarrow C$$



$$(A \rightarrow C) \vee (B \rightarrow C) \vdash (A \wedge B) \rightarrow C$$

$$(A \rightarrow C) \vee (B \rightarrow C) \vdash (A \vee B) \rightarrow C$$

$$(A \rightarrow (B \rightarrow C)) \rightarrow (B \rightarrow (A \rightarrow C))$$

$$A \rightarrow ((A \rightarrow B) \rightarrow B))$$

$$(A \rightarrow B) \rightarrow (A \rightarrow B)$$

$$(A \rightarrow (B \rightarrow C)) \rightarrow ((A \rightarrow B) \rightarrow (A \rightarrow C))$$

## For Next Time

- Do the week's assignment on trees and tables.
- Next week we start on *Odds and Ends*