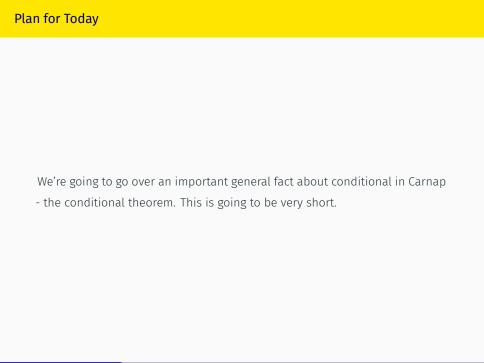
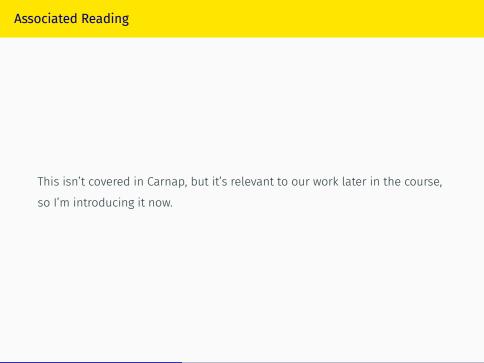
305 Lecture 11 - The Conditional Theorem

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The Conditional Theorem

These two things are equivalent in Carnap for any A, B, C.

- 1. $A, B \vdash C$
- 2. $A \vdash B \rightarrow C$

This is somewhat intuitive, though it's worth going over why it is so.

Argument for 1 to 2 (Informal)

- · Assume we have a proof from A, B to C
- Now imagine a proof that starts with A, then has 'Show: $B \to C'$ followed by an assumption of B.
- Whatever you did in the first proof to get to *C*, you can repeat in the second proof.
- · So eventually, you'll get C.
- · So you can now use 'Conditional Derivation' to get B o C.

Argument for 2 to 1

- Assume that from A we have a proof of $B \rightarrow C$
- · Continue that proof for one more line with premise B.
- Then use MPP on the last two lines to get C.
- · And now you've got a proof with premises A, B and conclusion C.

Metalogic

- · The last two slides were super-duper informal.
- · But the basic arguments were sound.
- · And this is how you prove results in metalogic.
- You aren't trying to prove that some particular things are true, you're trying to prove general things about the nature of what can be proven.
- We're not going to do much metalogic in this course, but it's worth knowing about.

