

Slide 1

Administrivia

- None (except to remind you again about Homework 1).

Slide 2

Minute Essay From Last Lecture

- Almost everyone seemed in favor of having more classes like Wednesday's. So, we'll do that — but it will work better if most people keep up with reading assignments.

Propositional Logic — Building Blocks for Proof Sequences

Slide 3

- Equivalence rules (two-way), p. 23. Notice that these *can* be applied to parts of wffs.
Example: "Implication" says that if we have $P \rightarrow Q$ we can replace it with $P' \vee Q$, or vice versa.
- Inference rules (one-way), p. 24. Notice that these *cannot* be applied to parts of wffs.
Example: "Modus ponens" says if we have $P \rightarrow Q$ on one line, and P on another, we can write down a new line Q .

Propositional Logic — Building Blocks for Proof Sequences, Continued

Slide 4

- "Deduction method": To show that P_1, P_2, \dots, P_n guarantee conclusion $R \rightarrow Q$, we can show that P_1, P_2, \dots, P_n, R guarantee Q (Why? See problem 45, section 1.2.)
- Derived inference rules, p. 31. Notice that many of these are proved as problems, and you should only use them for later problems. (E.g., okay to use the results of problem 23 in problem 25, but not vice versa.)

Propositional Logic — A Few More Examples

- Justification for deduction method: Show that $(P_1 \wedge P_2) \rightarrow (Q \rightarrow R)$ is equivalent to $(P_1 \wedge P_2 \wedge Q) \rightarrow R$.
- Section 1.2 problems 25 (review), 34.

Slide 5

Minute Essay

- None — sign in.

Slide 6