

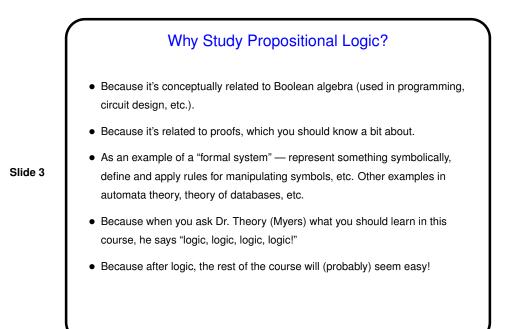
 Minute Essay From Last Lecture

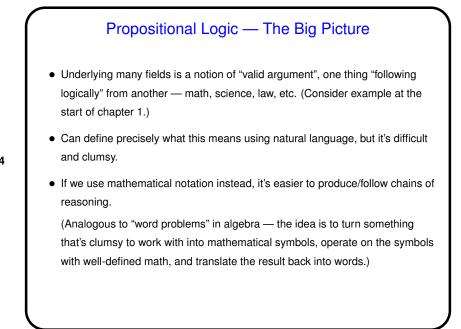
 • Question: What have you liked/disliked about previous math courses?

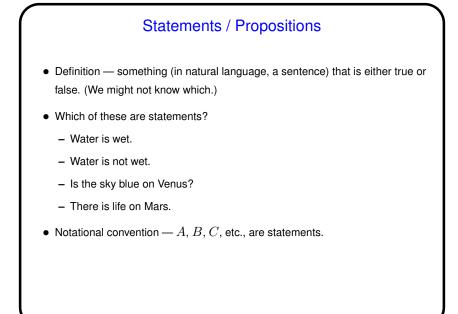
 • Answers indicate that people like/dislike different things! some "only if it applies to something I care about", some "I like math", some "I hate proofs" ...

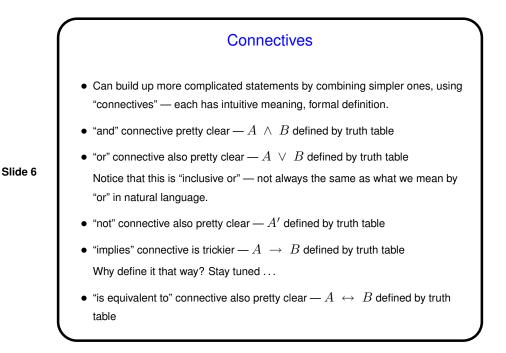
 Slide 2

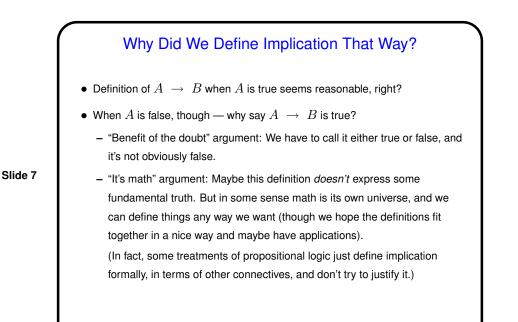
 Notice that this is "discrete math" as opposed to the kind of "continuous math" involved in calculus.





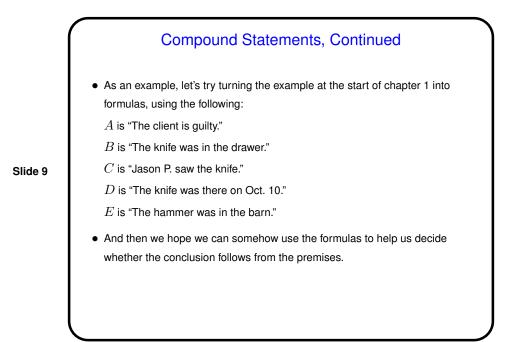






Compound Statements / Well-Formed Formulas

- Natural-language equivalents of statements joined by connectives:
 - Water is wet and grass is green.
 - If Jo(e) is a CS major, Jo(e) must take this course.
- We can "nest" connectives, e.g., $(A \land B)'$.
- We can define a notion of "well-formed formula" (wff) based on this (formal definition should be recursive, and we'll do that later) — basically, a "sensible" combination of statement letters, connectives, and parentheses.
- Notational convention P, Q, \dots for wffs.
- We can use truth tables to figure out truth values for wffs. (How many rows do we need?) Let's do an example ...



More Definitions • Some wffs are always true — "tautologies". Examples? • Some wffs are always false — "contradictions". Examples? • We can talk about two wffs P and Q being "equivalent" — $P \leftrightarrow Q$ is a tautology. Write $P \Leftrightarrow Q$. Table of common equivalences on p. 8. Additional widely-used equivalences — "De Morgan's Laws".

