CS480
Translators
Test Review
Chap. 1 - 4.3 (4.4.1-4.4.3?)
Test 1 Review

• Characteristics common to all translators
• Construct an expression tree
• Polish and Reverse polish notation
• Construct a DFA from a regular expression
• Change a NFA to a DFA w/ subset construction
• Syntax vs. Semantics
• Why would a lexical analyzer peek at a character
• Purpose of Symbol Table(s)
• The purpose of a token vs. a lexeme
• What is the purpose of Lex
• Transforming a Grammar
• Ambiguity and Derivations
Expression Tree Example

- Provide the expression tree, and provide the polish and reverse polish notation.

8 / 4 * 6 ^ 3 / 12 − 2 * 9 + 8
Example Question for DFAs

- Suppose comments are defined by a two character sequence, a slash followed by a star, as in the C convention of /* whatever */. Comments can contain any text, including the star symbol and slash, just not the two character sequence that ends the comment. So /****/ is a legal comment, but */ is not. Write a DFA recognizing legal comments.
Example Question for NFA to DFA

• Using subset construction, create a DFA from this NFA

Figure 3.30: NFA for Exercise 3.6.4
Quiz #4

- Consider $S \rightarrow SS^+ | SS^* | a$ and string $aa+a^*$
  - Give a leftmost derivation
  - Give a rightmost derivation
  - Is the grammar ambiguous or unambiguous, why?

- For each grammar below, left factor and/or remove left recursion first.
  - (a) $S \rightarrow SS^+ | SS^* | a$
  - (b) $S \rightarrow 0S1 | 01$
  - (c) $S \rightarrow S(S)S | \varepsilon$