CS 4630/5630 - Programming Language Translation
Exam 1 Concept Review

• Overview
  – Macro diagram
  – Micro view of phases we’ve covered

• Lexical Analysis
  – The abstract view of how regular expressions are transformed into working lexical analysis code.
    (Not the specifics, for instance of how to make a single NFA from a collection of DFAs.)
  – Understanding the two ways to implement a DFA.

• Parsing
  – Knowing how to do derivations
  – Understanding how derivations are related to parse trees
  – Understanding the relationships between the types of languages (Fig 3.29)
  – Predictive parsing (LL parsing, top-down parsing)
    * What does LL stand for?
    * Knowing the two ways to implement a predictive parser
    * Knowing the kinds of problems a grammar can have that make it unable to parse with a predictive parser.
    * Knowing the solutions to these problems.
      · Being able to compute FIRST, FOLLOW sets.
      · Being able to eliminate left recursion.
      · Being able to left factor.
    * Given a grammar, being able to construct an LL parsing table.
    * Given an LL parsing table, being able to parse an input.
    * Given a grammar, being able to construct a recursive descent parser.
  – Bottom-up parsing (LR parsing)
    * What does LR stand for?
    * Given a grammar and a parse table, being able to do a manual parse.
    * Given a grammar, being able to build the LR(0) DFA.
    * Given a grammar, being able to build the LR(1) DFA.
    * Given a LR(0) DFA, being able to build the parse table.
    * Given a LR(1) DFA, being able to build the parse table.