

# CSCI 447 – Fall 2000

## LR Parsing

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**Due Date:** Monday, December 11, 2000

1. Consider the following grammar:

1:  $E \rightarrow (L)$

2:  $E \rightarrow \mathbf{a}$

3:  $L \rightarrow L, E$

4:  $L \rightarrow E$

- Construct the DFA of LR(0) items for this grammar
- Construct the LR(0) parsing table. Is this grammar LR(0)? Explain.
- Construct the SLR(1) parsing table.
- Trace the parsing of  $((\mathbf{a}), \mathbf{a}, (\mathbf{a}, \mathbf{a})) \mathbf{\$}$ . At each step, show the parsing stack, the remaining input, and the parsing action.

2. Given the following grammar

1:  $stmtlist \rightarrow stmt ; stmtlist$

2:  $stmtlist \rightarrow stmt$

3:  $stmt \rightarrow \mathbf{s}$

- Construct the DFA of LR(0) items for this grammar
- Construct the LR(0) parsing table. Is this grammar LR(0)? Explain.
- Construct the SLR(1) parsing table.
- Trace the parsing of  $\mathbf{s ; s ; s \mathbf{\$}}$ . At each step, show the parsing stack, the remaining input, and the parsing action.