

CSC 340: Programming Language and Compilation  
Exercises: Parsing : LL(1)

---

1- Give the First and Follow sets for the following grammar:

$A \rightarrow BCD$

$B \rightarrow b | \epsilon$

$C \rightarrow c | \epsilon$

$D \rightarrow d$

2- Examples: 4.32, 4.33 (\*)

Construct the LL(1) parsing table for the following grammars:

a-  $E \rightarrow TE'$

$E' \rightarrow +TE' | \epsilon$

$T \rightarrow FT'$

$T' \rightarrow *FT' | \epsilon$

$F \rightarrow (E) | id$

b-  $S \rightarrow iEtSS' | a$

$S' \rightarrow eS | \epsilon$

$E \rightarrow b$

3- Exercise 4.4.1 (\*)

For each of the following grammars, devise predictive parsers and show the parsing tables. You may left-factor and/or eliminate left-recursion from your grammar first.

a-  $S \rightarrow 0S1 | 01$  with input 000111

b-  $S \rightarrow (L) | a$  And  $L \rightarrow L, S | S$  with input ((a,a),a,(a))

---

(\*) **Book:** "Compilers Principles, techniques, & tools", Alfred V. Aho, Monica S. Lam, Ravi Sethi, Jeffrey D. Ullman