Vellore Institute of Technology, Chennai

School of Computer Science and Engineering

BCSE307L – Compiler Design

Digital Assignment – Module 2

Derivation

1. Perform leftmost derivation and draw parse tree.

   S→A1B
   A→0A | ϵ
   B→0B | 1B | ϵ

   Output string: 1001

2. Perform leftmost derivation and draw parse tree.

   S→0S1 | 01 Output string: 000111

3. Perform rightmost derivation and draw parse tree.

   E→E+E | E*E | id | (E) | -E

   Output string: id + id * id

Ambiguous Grammar

4. S→ aS | Sa | ϵ (output string: aaaa)
5. S→ aSbS | bSaS | ϵ (output string: abab)

Left Recursion & Left Factoring

6. A→Abd | Aa | a

   B→Be | b

7. A→AB | AC | a | b
8. S→iEtS | iEtSeS | a

Top Down Parsing

9. S→E
   E→ idTF
   F→ +idF | €
   T→ (E) | €

Bottom Up Parsing

10. S→aABe
    A→ Abc | b
    B → d

    Reduce a string abbcde to Start symbol using LR(0), SLR (1), LALR (1) and CLR (1)