

University of Nevada, Las Vegas Computer Science 456/656 Fall 2020

Assignment 6: Due Wednesday December 2, 2020

Name: .....

You are permitted to work in groups, get help from others, read books, and use the internet. Your answers must be written in a pdf file and emailed to the graudate assistant, Shekhar Singh [shekhar.singh@unlv.edu](mailto:shekhar.singh@unlv.edu) by 23:59 December 2. Your file must not exceed 10 megabytes, and must print out to at most 8 pages.

Here is my construction of Example 7 of the handout “Simple LALR Parsers.”

|  | ACTION |    |    |    |    |     | GOTO |      |    |
|--|--------|----|----|----|----|-----|------|------|----|
|  | x      | +  | -  | *  | (  | )   |      | eof  | E  |
| 1. $E \rightarrow x_2$                 | 0      | s2 |    | s7 |    | s11 |      |      | 1  |
| 2. $E \rightarrow E +_3 E_4$           | 1      |    | s3 | s5 | s9 |     |      | halt |    |
| 3. $E \rightarrow E -_5 E_6$           | 2      |    | r1 | r1 | r1 |     | r1   | r1   |    |
| 4. $E \rightarrow -_7 E_8$             | 3      | s2 |    | s7 |    | s11 |      |      | 4  |
| 5. $E \rightarrow E *_9 E_{10}$        | 4      |    | r2 | r2 | s9 |     | r2   | r2   |    |
| 6. $E \rightarrow (_{11} E_{12})_{13}$ | 5      | s2 |    | s7 |    | s11 |      |      | 6  |
|  | 6      |    | r3 | r3 | s9 |     | r3   | r3   |    |
|  | 7      | s2 |    | s7 |    | s11 |      |      | 8  |
|  | 8      |    | r4 | r4 | r4 |     | r4   | r4   |    |
|  | 9      | s2 |    | s7 |    | s11 |      |      | 10 |
|  | 10     |    | r5 | r5 | r5 |     | r5   | r5   |    |
|  | 11     | s2 |    | s7 |    | s11 |      |      | 12 |
|  | 12     |    | s3 | s5 | s9 |     | s13  |      |    |
|  | 13     |    | r6 | r6 | r6 |     | r6   | r6   |    |

Write a computation of this parser for the input  $(x + x * x) + (x * -(x - x))$