

Nicole Cranon
CSCI 4640, Fall 2015
Assignment 1 – Extended Micro Grammar

1. $\langle \text{program} \rangle \rightarrow \mathbf{begin} \langle \text{stmt list} \rangle \mathbf{end}$
2. $\langle \text{stmt list} \rangle \rightarrow \langle \text{statement} \rangle \mid \langle \text{statement} \rangle \langle \text{stmt list} \rangle$
3. $\langle \text{statement} \rangle \rightarrow \text{Id} := \langle \text{expression} \rangle;$
4. $\langle \text{statement} \rangle \rightarrow \mathbf{read} (\langle \text{id list} \rangle);$
5. $\langle \text{statement} \rangle \rightarrow \mathbf{write} (\langle \text{expr list} \rangle);$
6. $\langle \text{id list} \rangle \rightarrow \text{Id} \mid \text{Id}, \langle \text{id list} \rangle$
7. $\langle \text{expr list} \rangle \rightarrow \langle \text{expression} \rangle \mid \langle \text{expression} \rangle, \langle \text{expr list} \rangle$
8. $\langle \text{bool expression} \rangle \rightarrow \langle \text{expression} \rangle = \langle \text{expression} \rangle$
9. $\langle \text{expression} \rangle \rightarrow \langle \text{factor} \rangle \mid \langle \text{factor} \rangle + \langle \text{expression} \rangle \mid \langle \text{factor} \rangle - \langle \text{expression} \rangle$
10. $\langle \text{factor} \rangle \rightarrow \langle \text{exponential} \rangle \mid \langle \text{exponential} \rangle * \langle \text{factor} \rangle$
11. $\langle \text{exponential} \rangle \rightarrow \langle \text{primary} \rangle \mid \langle \text{primary} \rangle ** \langle \text{exponential} \rangle$
12. $\langle \text{primary} \rangle \rightarrow \text{Id}$
13. $\langle \text{primary} \rangle \rightarrow \text{IntLiteral}$
14. $\langle \text{primary} \rangle \rightarrow (\langle \text{expression} \rangle)$
15. $\langle \text{add op} \rangle \rightarrow + \mid -$
16. $\langle \text{mult op} \rangle \rightarrow *$
17. $\langle \text{exp op} \rangle \rightarrow **$
18. $\langle \text{system goal} \rangle \rightarrow \langle \text{program} \rangle \$$