

Concepts of Programming Languages, CSCI 305, Fall 2021
Context-Free Grammars, Section 2.1.2
Precedence & Associativity in Context-Free Grammars, Sept. 22

Context-Free Grammars

1. Give a context free grammar for the language on $\Sigma = \{a,b\}$ defined by
 $L = \{\text{all strings with no more than three as}\}$

2. Give a context free grammar for the language on $\Sigma = \{a,b\}$ defined by
 $L = \{a^n b^n : n \geq 0\}$

3. Give a context-free grammar that generates the language
 $A = \{a^i b^j c^k : i=j \text{ or } j=k \text{ where } i,j,k \geq 0\}$

4. Create a context-free grammar for the language
 $L = \{w \# x \mid w^R \text{ is a substring of } x \text{ for } w, x \in \{0,1\}^*\}$
Hint: another way to write this is:
 $L = \{w \# x_1 w^R x_2 \mid x_1, x_2, w \in \{0,1\}^*\}$