

CSCI 3236 Homework #3
Due date: May 28, 2020 (Thursday), 11:59am

Chapter 3 Exercises

1. (10pts) Let G be the grammar

$$S \rightarrow abSc \mid A$$

$$A \rightarrow cAd \mid cd$$

- a) Give a left-most derivation of $ababccddcc$.
- b) Build the derivation tree for the derivation in part (a).
- c) Use set notation to define $L(G)$.

2. (50pts) For each of the following context-free grammars, use set notation to define the language generated by the grammar.

a) $S \rightarrow aaSB \mid \lambda$
 $B \rightarrow bB \mid b$

b) $S \rightarrow aSbb \mid A$
 $A \rightarrow cA \mid c$

c) $S \rightarrow abSdc \mid A$
 $A \rightarrow cdAba \mid \lambda$

d) $S \rightarrow aSb \mid A$
 $A \rightarrow cAd \mid cBd$
 $B \rightarrow aBb \mid ab$

e) $S \rightarrow aSB \mid aB$
 $B \rightarrow bb \mid b$