Khyle Jan Aune
9/23/18

Chapter 2 excercises

2.1f : Example: $\$ \underbrace{**}_{0 \text{ or more}} 2,\overbrace{345}^{\text{constant Groups}}.\underbrace{67}_{2 \text{ Max}}$

S → $ expr
expr → ** (0 | num) (ε | .int | int int | Group*)(ε | . int int)
Group → , int int int
int → 0 | num
num → 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9

2.12
a) This language represents a sequence of a's and b's

b) a b a n ε
    a b a a E
    a b a ε A
    a b a E A
    a b A A
    a A ε
    a A M
    a S
    a ε M
    a E M
    A M
    S
    G

c) This grammar is ambiguous and therefore not LL(1). As shown in the tree above A top down parser could not have made the decision to map E → ε or E → bA. It would have had to look forward to see what came next
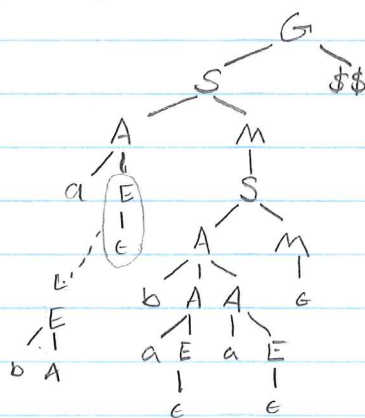
2.15 a-c

a) This grammar describes a string with
   pairs of balanced () parentheses, but right
   ] brackets that close multiple left (parentheses.

b) (([]())
    (L[]())
    (L]())
    ∈N()
    GN()
    G(∈)
    G(E)
    GB
    G
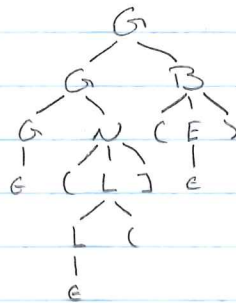
c) Right derevation (work the last problem backwards)

   G ⇒ GB
     ⇒ G(E)
     ⇒ G()
     ⇒ GN()
     ⇒ G(L]())
     ⇒ G(L[]())
     ⇒ G(([]())
     ⇒ (([]())   G ⇒* (([]())