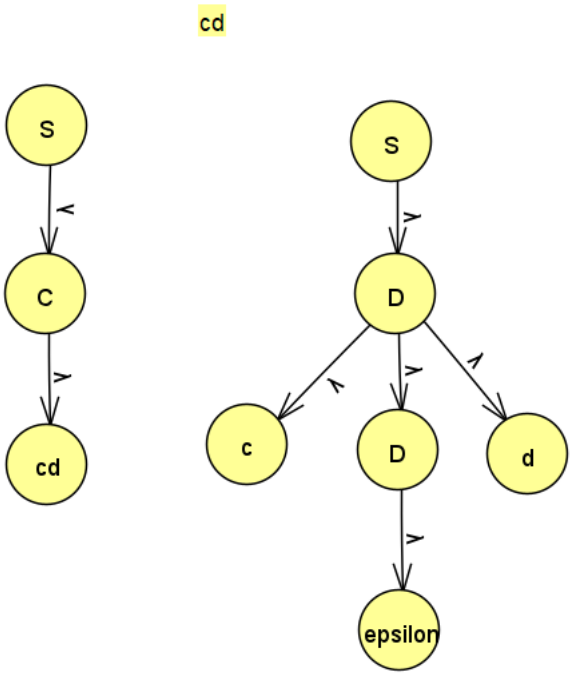
Melanie Peavy Bryson Mrosko Group 7

1. This grammar defines the language consisting of N a's followed by N b's where N >= 1.

2.



3.

Leftmost Derivation	Rightmost Derivation
<S> a<A><S> a<S>b<A><S> aab<A><S> aabba<S> aabbaa	<S> a<A><S> a<A>a a<S>b<A>a a<S>bbaa aabbaa

4. Grammar
   S-> A
   A-> BA | B
   B-> a | b | c | d

Left Derivation of abcd	Left Derivation of accc
<S>	<S>
<A>	<A>
<B><A>	<B><A>
a<A>	a<A>
a<B><A>	a<B><A>
ab<A>	ac<A>
ab<B><A>	ac<B><A>
abc<A>	acc<A>
abc<B>	acc<B>
abcd	accc

5. <id> -> A | B | C
   <expr> -> <expr> + <term> | <term>
   <term> -> <term> * <factor> | <factor>
   <factor> -> (<expr>) | <unary> | <id>
   <unary> -> <id>++ | <id>-- | ++<id> | --<id>