

Homework 1

January 24, 2014

1. Consider the grammar given below

```
<Group> ::= [ <One>, <Group> ] | <One>
<One>   ::= <Var> | ( <Group> )
<Var>   ::= a | b | c
```

- (a) What are the non-terminals?
 - (b) What are the tokens?
 - (c) What is the start symbol? (The start symbol you choose should allow the grammar to parse the most input sentences.).
 - (d) Draw parse tree for the input string [(a), [b, c]].
2. Write a BNF grammar for the language that consists of strings that have n copies of the letter X followed by the same number of copies of the letter Y, where $n \geq 1$.
 3. Write a BNF grammar for Java style switch statements <SwitchStmt>. Assume that there are definitions for the non-terminal <Exp> for any expression, <Const> for any constant, and <Stmt> for any statement.
See <http://docs.oracle.com/javase/tutorial/java/nutsandbolts/switch.html> to refresh your memory of Java switch statements.