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CS 210 Assignment 1

1. Provide a BNF grammar for each of the languages below. Please do not use EBNF. Please be explicit.
   a. The set of all strings containing one or more 'a's followed by a single 'b' ___5

<1> ::= <2> b

<2> ::= <2> a
| a

   b. The set of all strings starting with a lower case letter, followed by any number of upper and lower cases letters, digits or _ followed by .cpp or .txt. For example: _____5

myFile_1.cpp
n1DayIWill.txt

* Answer on seperate attached sheet *

   c. The set of all strings consisting of the keyword **begin** followed by zero or more statements with a semicolon after each one, followed by the keyword **end**. Use the non-terminal <statement>, but do not provide productions for it. _____ 5

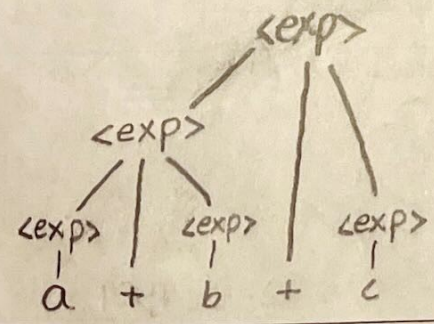
<1> ::= begin <2> end

<2> ::= <statement>; <2>
| <empty>

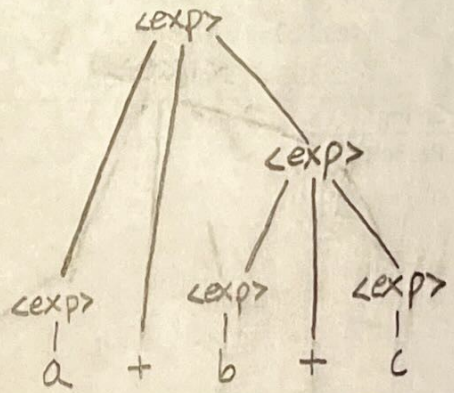
2. Prove each of the following grammars is ambiguous by providing two parse trees for the same string.
   a. <exp> ::= <exp> + <exp> | a | b | c _____5

String: a+b+c

Parse tree 1



Parse tree 2



Give an unambiguous equivalent grammar _____5

<exp> ::= <exp> + a
| <exp> + b
| <exp> + c
| a
| b
| c