COMP 150C++ Homework 2

Suppose this:

\[ A \ ( b ) \]

appears somewhere inside a C++ program. It might appear in the middle of a declaration or an expression, or somewhat in isolation surrounded by suitable punctuation. This homework explores what kind of operation or construction it might be.

Assume no macro substitutions are involved; i.e. assume there are no \# symbols in the source code.

Assume that each of the identifiers A and B might or might not have been previously declared or defined in the program in some way. Note in this regard that a ‘const int’ definition can effectively turn A or B into a constant, and that a ‘typedef’ can turn A or B into the name of a type.

Using the syntax summary handed out in class, find as many syntactically different contexts for ‘A ( b )’ as you can. For each one, do the following. Find the line in the grammar that corresponds to that particular usage. Write down the category the line is listed under, followed by ‘:=’, followed by the line. Within the line, show which component would contain the A and which would contain the B. For example, if the problem had asked about ‘( A ) B’ instead of ‘A ( b )’, then one of your answers should be:

\[
\text{Statement} := \text{while ( Expression ) Statement} \\
A \quad B
\]

The above answer would reflect that fact that a program could contain this:

\[
\text{while ( A ) B += A--;}
\]

You are encouraged to submit examples to the compiler, if that would help you find answers.

Write your answer in a form similar to the above and submit it in the next class meeting (Monday, Feb. 2, Ground Hog Day).