Compiler Program #1

Your task–should you choose to accept it–is to extend the PL/0 compiler to include the ability to parse additional features as defined with the following production rules:

- <statement> ::= IF <condition> THEN <statement> [ELSE <statement>]
- <statement> ::= REPEAT <statement> {;<statement>} UNTIL <condition>
- <statement> ::= FOR <ident> := <expression> (TO | DOWNTO) <expression> DO <statement>
- <statement> ::= CASE <expression> OF {(<number> | <constant>):<statement>;} CEND
- <statement> ::= WRITE(<expression>{,<expression>})
- <statement> ::= WRITELN(<expression>{,<expression>})

Also, extend the compiler to support restricted globals.

It is to your advantage to draw the syntax diagram(s) for the aforementioned production rules although it is not a submission requirement for this assignment; we've seen in class how easy it is to generate the code for a particular syntax diagram.

The compiler *shell* is located on the Web site, along with several test files to run your compiler against. There are three error cases and a single valid test case. Remember that our compiler does not attempt to continue compiling after finding an error; therefore, all error cases should terminate at the point of the error and display some sort of meaningful error message to the user. All test cases are available on the class Web site.

You may choose to extend any of the versions of the compiler provided. All versions work on the "pre-modification" test case. I recommend extending the Pascal version, but you may choose any currently available: Pascal, C, C++, C#, Java, Visual Basic, Bash, and PHP.

You must use the given test data to test your compiler and to show that it can catch the errors exploited by the error cases. Please, please, please **comment your modifications to the code**. It would be nice to see some comments before your additions or modifications such as "begin added/modified" followed by your additions or modifications followed by "end added/modified."

Upload your modified compiler **source code** only (I do not need any of the test cases or compiler output) using the upload facility on the Web site.

NOTE: If you are extending a compiler that you've written in some language other than the ones provided above, please make sure that it accepts input from `stdin` and directs output to `stdout`. Also, do not turn in a compiler that does not compile! You will receive **NO CREDIT**! Do not turn in a compiler that does not work properly! Instead, see me during office hours **prior to the day the assignment is due** so that we may discuss any problems you are having.