Assignment – Stage 1.

The for command was added to the Fun Grammar as follows:

Lexicon additions

FORVAR

FOR : 'for' ;

TO : 'to' ;

Variable declaration additions:

for\_var\_decl

: ID ASSN expr -> ^(FORVAR INT ID expr)

;

Command additions (inside “com”):

FOR ID ASSN expr TO expr COLON seq\_com DOT -> ^(FOR for\_var\_decl expr seq\_com)

The first part of the code, before the “->” symbol, represents the for command:

'for' ID '=' expr1 'to' expr2 ':' seq\_com '.'

The second part of the code represents the tree build operator.

The for command tree has the for command in its top. Below it, it first has for\_var\_decl, which define the control variable and assigns the first expression, that is the initial point of the for loop, to it. Secondly it has other expression that is the final point of the for loop and finally the sequence of commands to be executed.

The changes in the Fun grammar was highlighted by adding //EXTENSION FOR comments in order to identify where the changes were made.

In order to achieve this first assignment objectives, a range of tests were created as can be seen in the attached files. Below, each test is described:

simpleFor.fun:

In this file a simple for was created, going from 2 to 5. No syntactic errors given.

booleanFor.fun

In this file both expressions used were of the type bool. Although it is an error, once the expressions are to be of the type int, this is not a syntactic error, but a contextual one. No syntactic error given, once boolean can be represented as an expression.

invertedFor.fun

In this file the range vary from 5 to 2, which represents an error according to the specification, but again is not an syntactic error, but a contextual one. No syntactic error given.

noAssignmentFor.fun

In this file the id assignment was omitted in the for command declaration. The following errors were given:

Syntactic analysis ...

line 6:5 mismatched input '1' expecting ID

line 9:0 extraneous input '.' expecting EOF

2 syntactic errors

Compilation failed

missingToFor.fun

In this file the word 'to' was omitted in the for command declaration. The following errors were given:

Syntactic analysis ...

line 6:11 missing TO at '7'

1 syntactic errors

Compilation failed

At this stage, it is only analysed the syntax of the code. Thus, although the context was wrong in some tests, the code passes through the syntax analyser without giving errors, due to its correct syntax.