

CSCE 531 Spring 2020 Project 1 (part c)

Run bnfc on the grammar in Section 2.10 [R]. I recommend using Haskell (GHC, Happy, Alex). This grammar can be found online at the author's website; test the parser on the programs in files good.cc and bad.cc at the author's website (direct link: <http://www.grammaticalframework.org/ipl-book/assignments/assignment2/assignment2.html>). Also test the parser on the following two programs:

```
// file badSyntax_2.cc
// From: http://www.grammaticalframework.org/ipl-book/assignments/assignment2/assignment2.html
// Modified with a syntax error
int f (double c,,)
{
  int n = 1 ;
  while(c) ++n ;
}
```

```
// file badSyntax_1.cc
// From: http://www.grammaticalframework.org/ipl-book/assignments/assignment2/assignment2.html
// Modified with a syntax error
int f (double c,)
{
  int n = 1 ;
  while(c) ++n ;
}
```

You will see that the parser exhibits abnormal behavior on badSyntax_2.cc. Search the BNFC manual (<https://bnfc.readthedocs.io/en/latest/index.html>) for an explanation and either copy or summarize it in your pdf file. Turn in a single pdf file with the explanation and a script showing the input and the output of the parsing program when tested on each of the four programs.

Update of 2020-02-23

A student noticed that the grammar in Section 4.10 [R] is different from the one in CPP.cf at <http://www.grammaticalframework.org/ipl-book/assignments/assignment2/assignment2.html> (direct link: <http://www.grammaticalframework.org/ipl-book/examples/ CPP.cf>). Please use CPP.cf on the website. The differences are small. Here the ones I noticed:

1. Rules for SDecl. and SDecls. CPP.cf uses the single rule in the errata (linked at the bottom of <http://www.grammaticalframework.org/ipl-book/>).
2. ECall. in [R] is called EApp. In CPP.cf. (Application, I guess, instead of function call.)
3. ENeg. in [R], but not in CPP.cf. (Prefix (unary) minus, i.e., "negative")
4. The available types are specified by a "rules" macro instead of grammar production rules. This is described in the bnfc documentation (<https://bnfc.readthedocs.io/en/latest/index.html>) under "Rules."

Please use the grammar in CPP.cf (direct link: <http://www.grammaticalframework.org/ipl-book/examples/ CPP.cf>) for this assignment.