Homework 6
Due Thursday, 03/03/2016, by 11:55 p.m.

Solutions to problems 1 and 3 should be written using LaTeX, while problem 2 will result only in executable Haskell code. **When completed, please put the program files and the pdf generated from LaTeX into a folder, zip it up, and then turn it in as usual on Sakai.**

I should be able to load your file into Haskell (ghci) and have it compile without error. If there are programs with compilation errors, please comment them out so they don't get in the way of your other programs.

Please include good comments and use good variable names with your programs. Otherwise it is very difficult to read your code because Haskell is so concise.

1. (10 points)

   Consider the sentence: "Every boy admired some girl that laughed". It can be written in Haskell as

   ```
   Sent(NP1 Every Boy)
       (VP1 Admired (NP2 Some (RCN1 Girl That Laughed)))
   ```

   Please write down all the steps involved in computing `intSent` of that sentence. Do this in the same way we did in class on Monday, using definitions from file `TCOM.hs` and the other files we have been using to interpret our English subset.

   Continue the computation until you determine whether or not the sentence is true in the model. (You will likely want to check your final answer by running it in Haskell as well, though you need not turn this in.) Please turn in the detailed step-by-step description of how the term is evaluated.

2. (10 points) In this question you will (again) add several adjectives to our language and be able to determine whether sentences using the new terms are true or false in a model. You may use the files you modified for the last assignment, but now you must also modify TCOM.hs so that intSent will correctly evaluate sentences involving the adjectives red and dangerous. Please include with your program all the files necessary to run your program.

   Please also include a file `TestMyCode.hs` that contains the following code:

   ```
   import HW5FSynFSoln  --Fix these names as needed!!
   import HW5ModelSoln  --Fix
   import HW6TCOM        --Fix

   giantSent = Sent(NP1 Some Giant)
       (VP2 Gave SnowWhite (NP2 The (RCN3 Dangerous Dagger)))
   ```

```
ans2 = intSent giantSent

main = do
   putStrLn ("Solution to problem 2")
   putStrLn ("Interpreting: "++show(giantSent))
   putStrLn ("It is "++(show ans2)++" in our model")
```

No other code should be in this file aside from the import statements and the code evaluating the sentence.

For your information, the definition of main is a program written in the monad language of Haskell to do output. Haskell cannot do input and output in its main language (because Haskell is pure – and lazy – and output has side effects), so the monad language allows users to write output statements that call pure Haskell functions. Read more about output and monads in Chapter 9 (and later) of "Learn you a Haskell for a great good. After compiling the program, typing main will execute the statements.

3. (5 points)

The sentence "The girl laughed" can be written in Haskell as

```
Sent(NP1 The Girl)(Laughed)
```

If you interpret it with intSent, the result is False. Please explain why it has that meaning.