Psych150/Ling155: Homework 4 questions
(Note that this will be posted on EEE soon, and you should turn in your assignment through EEE. HW4 is due 6/2/15.) As usual, you are welcome (and encouraged) to work in a group. If you do so, make sure to include everyone's name and ID number on the EEE submission.

Total points possible: 111

I. Word Recognition [69pts]
1. Run through the three visual word recognition online experiments available here:
   http://www.intro2psycholing.net/experiments/visual/vis_expt_index.php

   - *Each member of your group needs to run through it her/himself (don't watch while other group members run through the experiments)*
   - Record the results of your experiment and compare with other members of your group. (Note: If you're completing this assignment on your own, simply note down your own results.)
   - *Write and turn in* a paragraph-length description of what you observed in the data from your group and what it might tell us about the difference between real word and nonword processing. (Note: If you're completing this assignment by yourself, simply describe your own data – but make sure to still discuss the difference between real word and nonword processing.) [10pts]

2. Neighborhood density [20pts]
   a. Briefly define "neighborhood density". [2 pts]
   b. Use IPhOD (www.iphod.com – click SEARCH>Word list, Version 2.0>use unstressed/unweighted values) to calculate the neighborhood density of the following words [2pt each = 16pts total]: sponge, square, bottom, fry, crusty, starfish, crab, pineapple.
   c. Which has the highest density value? [1pt]
   d. Which has the lowest? [1pt]

3. Cohort Model [9pts]
   a. Give 4 examples of the cohort of the word fragment "EXP". (4pts)
   b. The Cohort model predicts that "speaker" and "beaker" will not be active at the same time, whereas "speaker" and "spike" will be coactivated at some point during word recognition. Explain the basis of this prediction. [5 pts]

4. Dual Route Model (DRC) [30pts]
   a. The Dual Route (aka, DRC) Model of reading explains how different types of words can be pronounced, via a **lexical route** or via a **grapheme-to-phoneme route**. A third, "side route" is used to link the reading system with semantics. Based on material presented in *lecture* (the book presents the model using slightly different terms) and the model version shown here <u>which excludes the semantic part</u>, list the

route name and elaborate the pathways that *could be used to read aloud* the following words:

To elaborate the pathways use abbreviations for the box names as in the example for the word LISTEN below. [5pts each = 15pts]
[-2 for missing/additional route; -1 for missing/additional piece of pathway]

   Example: LISTEN
          Route #1, lexical route: VFU→LU→OL→PL→PS→speech
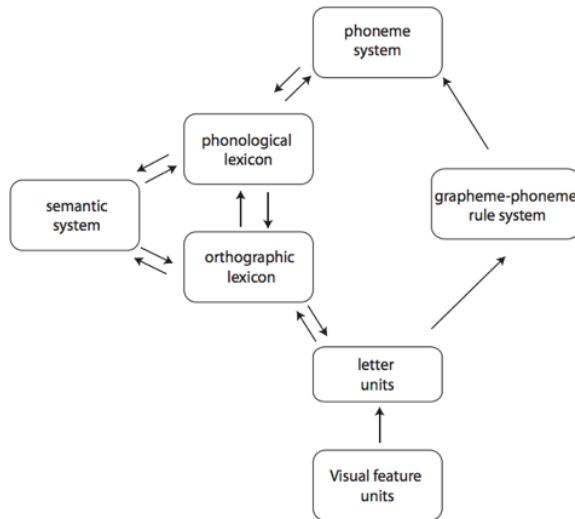   *(Note: the grapheme-to-phoneme route won't work here, so don't list it.)*
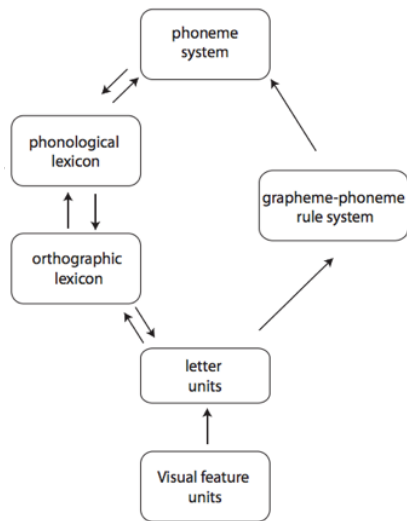
        a. COT
        b. CAUGHT
        c. NELK

   b. Now use the model version below, which includes the semantic system, to indicate the routes available for *comprehending* the same words. Note that comprehending a nonword would be equivalent to it reaching the semantic system and being interpreted as "I don't know what this means". [5pts each = 15pts]
       [-2 for missing/additional route; -1 for missing/additional piece of pathway]

Example: LISTEN
       Route #1, lexical route: VFU→LU→OL→PL→SS→comprehension
       Route #2, lexical route: VFU→LU→OL→SS→comprehension

phoneme system

phonological lexicon

semantic system

grapheme-phoneme rule system

orthographic lexicon

letter units

Visual feature units

c. If a person who had learned to read normally suffers a stroke and can no longer read nonwords, but can comprehend and pronounce real words of any sort, what part of the Dual Route Model is presumably defective? [2pts]

II. Writing Systems [6pts]

a. While different writing systems emphasize one or another linguistic level, most systems use a mix. In the following English examples, indicate which level of linguistic representation the symbols stand for (phonemes, syllables, or morphemes). [2pts each = 6pts]

a. CAR
b. 7
c. Prof.

III. Sentence Processing [28 points]

1. [9 pts] According to David Swinney's "bugs" experiment, how are ambiguous words processed in the following sentence contexts

a. immediately when they are encountered? [2pts]
b. a few syllables after they are encountered? [2pts]

2. Try this exercise. Pick one "reader" and one "listener/copier" from your group. (*Note: If you're working on your own, find another person to partner with you for this exercise.*)
Reader: read the first sentence on page 330 of your text out loud to the listener/copier.
Listener/copier: As soon as the reader starts reading the sentence, copy her/his speech. Try to say the sentence *with* the reader as s/he is saying it.

a) What is the name of the task you are performing? [1pt]

Now try it again but, reader, pick another sentence and read it backwards (practice in your head a couple times so you can read it at a normal pace).

b) Which condition was more difficult? [1pt] Briefly explain what that tells us about "incrementality". [3pts]

3. Testing your knowledge of sentence processing [13 pts]
   a. Fill in the blank: A garden path sentence is one that contains a temporary
      _____ and often leads to difficulty in processing. [2pts]
   b. Garden path sentences are ungrammatical on all readings (True/False). [1pt]
   c. Fill in the blank: In many experiments on garden path sentences, processing
      difficulty is reflected in an increase in _____. [2 pts]
   d. Sentence ambiguity often arises because the input is consistent with more than
      one syntactic structure. "I saw the man with binoculars" is globally ambiguous
      due to a "prepositional phrase attachment ambiguity". Describe the two possible
      attachment sites. [2pts each = 4 pts]
   e. People tend to mis-parse gardenpath sentences in similar ways. (True/False). [1pt]
   f. When a sentence is structurally ambiguous, the parser chooses one structural
      analysis over another in a random fashion. (True/False). [1 pt]
   g. Verbs can be ambiguous with respect to their syntactic frames. (True/False) [1pt]
   h. The context in which an ambiguous sentence occurs affects how it is parsed.
      (True/False) [1 pt]

4. Sentence processing models differ in terms of [4pts]
   (i) whether they hypothesize that a single, preferred structure is built or multiple
   structures are built, and
   (ii) whether they hypothesize that only syntactic information is used in initial
   structure building or whether a range of information is used to inform the parser.

   (a) Consider the Garden Path Theory.
      (i)   Does it prefer a single structure or does it believe multiple structures are
             built? [1pt]
      (ii)   Does it rely on syntactic information only initially or does it incorporate a
             range of information initially? [1pt]
   (b) Consider the Constraint-based approach.
      (i)   Does it prefer a single structure or does it believe multiple structures are
             built? [1pt]
      (ii)   Does it rely on syntactic information only initially or does it incorporate a
             range of information initially? [1pt]

IV. Speech Production [8pts]

1. Slips of the tongue provide clues to the stages of speech production. What linguistic units are slipping in these examples (target→error)? Possible units=phoneme, morpheme, whole words, or whole phrase. (2pts each = 8pts)

        a. I'm not in the mood for reading→I'm not in the mooding for read

        b. I put my book in the car→I put my car in the book

        c. Three cheers for our dear old queen→The cheers for our queer old dean

        d. I took my sister to the Grand Canyon→I took the Grand Canyon to my sister