Assignment 2

L445 / L545 / B659

Due Tuesday, February 9

1. I’m going to give you a morphology exercise on Swahilli taken from *The Language Files*. You are to do parts (a) & (b). And then, for our part (c), do:

   (c) Provide (i.e., properly define) a finite-state transducer (FST) to recognize and analyze the words.

2. Do question 3.2 on p. 81 from Jurafsky & Martin, extending a transducer to deal with *sh* and *ch*.

3. Do question 3.4 on p. 81 from Jurafsky & Martin, dealing with consonant doubling in English. (This refers to the chart on p. 63 in section 3.6.)

4. Draw a FST which accounts for the following spelling rules, where the input is a morphotactic form and the output is an actual English word:

   (1) $y \rightarrow ie / \_ \_ \_ \_ s$
   (2) $y \rightarrow i / \_ \_ \_ \_ ed$

   Remember to account for words with non-final $y$ (e.g., *yes, dystopia*); to not change $y$ before other morphemes (e.g., *currying*); and to disallow the strings *ys* or *yed* ending a word (when *s* or *ed* is a morpheme). You do not need to worry about interactions with other spelling rules.

5. Do question 3.5 on p. 81-82 of Jurafsky & Martin, involving the Soundex algorithm.