

# Homework 4 for LING 570

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## 1 Question 3

Before we made two FSMs for each question, we first used *guava-libraries* to make a big table, storing all the morphological rules and lexicons together. (See *Tab.java*) Then, we used this table to reach each data to print the two Carmel-formatted FSMs. The first one is a Carmel-formatted FSA, which includes the start state, the next state, and the input in each line. And the second one is a Carmel-formatted FST, which includes the start state, the next state, the input, and the output in each line.

Then we used a class called *Graph* to build these two FSMs. For the first FSA (See *FSM1.java*), we added each transition in the edge with the start state, the next state, and the input. We did the same for the second FST (See *FSM2.java*), but additionally, we create another HashMap to store the output of its transitions, with their key as a format of a string of *startstate + nextstate + input*.

## 2 Other problem

As mentioned above that we used an external *guava-libraries*, in which the implementations might differ from the java version on patas. The program run on patas might make a different answer for *wordlist\_ex*. But the answers are correct given by my home machine. (See *q5/q5-result*)