Helen Cui

5/20/24

PS-5

In order to evaluate the performance of my code's correctness I tested the individual methods, separating how my transitions and observations work. I ran the training methods with the simple tests and tallied how much of each I expected, I had the system print out each observation and transition set in the test object.

```
//for (String key : test.transitions.keySet()){
//  System.out.println(key);
//   System.out.println(test.transitions.get(key).keySet());
//  System.out.println("next + frequencies");
//  for (String key2 : test.transitions.get(key).keySet()){
//      System.out.println(key2 + " : " + test.transitions.get(key).get(key2));
// }}

//for (String key : test.observations.keySet()){
//    System.out.println(key);
//    System.out.println(test.observations.get(key).keySet());
//    System.out.println("word + frequencies");
//    for (String key2 : test.observations.get(key).keySet()){
//        System.out.println(key2 + " : " + test.observations.get(key).get(key2));
//            }
//        }
//System.out.println("testing my calculate prob");
test.calculateProb();
//Set<String> testprob = test.obsProb.get("p").keySet();
```

Afterwards to test my calculateProb() function I chose one specific set in my maps and did the math out in order to see if the method worked as expected.

Finally, in my file input and console input methods, I only used the simple training sentences and tags and ran those functions. Although my output was somewhat subpar, I thought that it was because of the lack of training my program went through.

BASED UPON SIMPLE TRAINING SENTENCES AND TAGS (FILE INPUT, CONSOLE INPUT):

```
correct tags: 12 wrong tags: 25
Enter what you would like to be tagged:
>:
hello sexy
hello (n) sexy (p)
```

I then plugged the Brown training sentences and tags into my functions and received pretty solid results. The overall performance I had greatly improved, the hidden observation penalty also definitely impacted this performance as if it had been lower my program definitely would not have run as well.

BASED UPON SIMPLE TRAINING SENTENCES AND TAGS; BROWN SENTENCES AND TAGS (FILE INPUT):

```
/Library/Java/JavaVirtualMachines/jdk-16.0.2.jdk/Contents/Home/bin/java ...
correct tags: 27 wrong tags: 10
correct tags: 31482 wrong tags: 4912
```

(CONSOLE INPUT):