

Problem set 5

1. How do the goals of maximum likelihood and minimum error-rate training differ? (20 points)
2. A voice controlled alarm clock has the following functions:
 - set or report time
 - set alarm
 - enabling, disabling, or the alarm
 - temporarily silencing (“snooze” function) an active alarmWrite a formal grammar to accept commands for this device. (40 points)
3. Determine bigram probabilities for the following nonsense sentence with a two word vocabulary (remember to take into account sentence start and end probabilities):
 - One one two. Two one two one one. One one two two one.
 - One two two one one one. Two two two. One two.

Next, estimate the perplexity of the above set using the following text:

Two two one one two. Two two one two one one.

Note that these samples are too small to be meaningful in a real world sense and are simply to make sure that you understand the concepts. (40 points)