**NLP – Assignment 2**

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**Part 1**

1. The grammar rule responsible for the long sentences is rule NP -> NP PP. what is special about this rule is that it allows for recursive calls to NP and the fact that NP has only 2 possible derivations, which means that a recursive call will happen with a 50% chance, thus allowing for long sentences with preposition descriptors.
2. The reason behind this is that Noun has a total of 6 possible derivations, 5 of which are terminals. This means that a noun with an adjective will be selected with 1/6 probability and double adjective is 1/6\*1/6.
3. In order to solve the problem with (a) we have given more weight to the NP -> Det Noun, which causes the sentences to be shorter and more natural. To deal with (b) we have given more weight to the rule Noun -> Adj Noun. All of the changes can be seen in grammer1
4. In addition to the changes described in ( c ) we have committed the following weight changes:
   1. Give more weight to president, chief of staff and sandwich over floor and pickle because they can work together better
   2. Give more weight to wanted verb which works well with almost any other noun, also give less weight to pickled which works basically only with pickled
   3. Give more weight to adjectives with double meaning ( delicious, fine can be said on both the president and a sandwich e.g.)
   4. Give more weight to the with preposition which is more common on the English language
   5. Prefer "the" and "a" over "every"