Advanced Methods in Natural Language Processing – HW 4

# **Basic Grammar**

1. The rule responsible for the long sentences is “1 NP NP PP”. Almost all the rules derive to NP which gives high chance of deriving NP. Moreover, this rule have half the weight of lhs=NP and it is recursive (derives again to NP) so it is hard to “escape” from deriving it again and again.
2. The rule responsible for multiple adjectives is “1 Noun Adj Noun”. The weight of this rule when lhs=Noun is 1/6 (there are 5 rules deriving Noun to a terminal) so there is a low chance of deriving this rule.
3. For the problem in (a) we changed the weight of the rule “1 NP Det Noun” to 5, thus giving it more weight. This is the only other rule derived from NP so by doing so the probability to derive it is higher than the probability to derive the problematic rule.

For the problem in (b) we changed the weight of the rule “1 Noun Adj Noun” to 5, thus giving it more weight against the other rules derived from Noun and the probability to derive it is higher.