Maria Frey
LING 492B: Computational Linguistics
30 April 2021

Lab 6 Questions

1. The two parses of "every fine fly and monkey want to understand him" are that fine could have scope over both fly and monkey or just fly. So, the two meanings are that the fly and monkey are both fine or just the fly is fine. The parses only differ by the use of the N -> N ConjN rule and N -> Adj N rule, and both rules have the same weight of 3.7. Changing the weight of either of these rules would not change the grammar's preference of one meaning over the other because in order to parse the sentence, both rules are used in both parses.

2. Parse 1 of the sentence is that the president wanted the pickle that was already on the sandwich; PP attaches to the pickle. Parse 2 of the sentence is that the president wanted the pickle to be put on the sandwich; PP attaches to wanted (though I'm not sure about this meaning, because it could also be that he is wanting the pickle while on a sandwich). Parse 3 is that the monkey is on a sandwich while thinking that the president wanted a pickle; PP attaches to thinked. The parse that I get when I read the sentence is closest to parse 2, assuming that parse 2 means what I think it means; that is, that the "to be put [on the sandwich]" is implied.

3. The grammar prefers the parse of PP modifying VP to PP modifying NP.

(a) Sentence: Bart kissed a puppy with a smile
(b) The grammar prefers this parse because there is no rule that lets PPs attach to nonterminal NPs, only Ns can attach to PPs. So, the higher probability parse is the one where a PP attaches to a VP.
(c) The rule weights that I changed were N -> N PP, VP -> V PP, and VP -> VP PP to make the VP attachment less likely and the NP attachment more likely.
(d) The original grammar would incorrectly parse the sentence "I kissed the puppy with a tan coat", attaching the PP to the VP not the NP. Conversely, the Q3 grammar would incorrectly parse "I ate soup with a spoon", attaching the PP to the NP not the VP. So, both grammars would get one sentence right but not the other.