Russ Ronalds Comp Ling

4/4/19 HW5

Part 1

1. The reason that our stub produces so many long sentences is that each time an NP occurs, it has a 50% chance of producing both another NP and a PP, which itself contains another NP, *and* every VP automatically produces yet another NP. So, there should be a 25% chance of S becoming just a Det/Noun/Verb/Det/Noun, and then the other 75% chance of Ss start to have a lot (see appendix 2) of NPs.

2. While the program allows multiple adjectives, it does this rarely because [‘Adj’, ‘Noun’] only has a 1/6 probability of appearing given a ‘Noun’. So two adjectives have a 1/36 probability.

3. In order to address the problems in:

1. I (would) need to increase the probability of NP-> Det/Noun production over NP -> NP/PP;

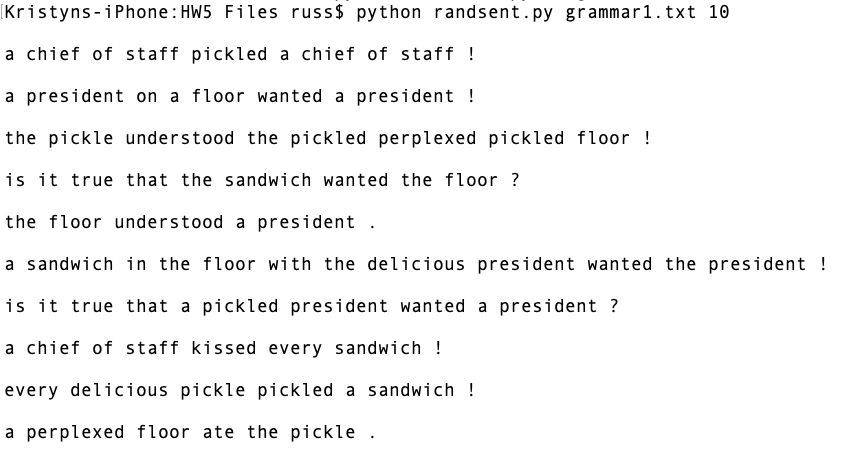
2. I (would) need to increase the probability of Noun -> Adj/Noun. (Of course now we have another problem of delicious delicious delicious presidents eating every perplexed perplexed pickled sandwich in every president)

4. In addition to increasing Noun ->Adj/Noun, I increased each of the individual nouns as well, so that it doesn’t just get into a loop of producing far too many adjectives. This is sort of just a necessary component of the 2nd change in Question #3.

I also reduced the relative frequency of “Is it true that” questions. While it is our only question form at the moment, it seems too frequent.

I also decreased the relative frequency of “every” as a determiner, since it was overproducing. And decreased the amount of pickling that was going on. Every president was getting pickled too often.

Ten generated sentences:

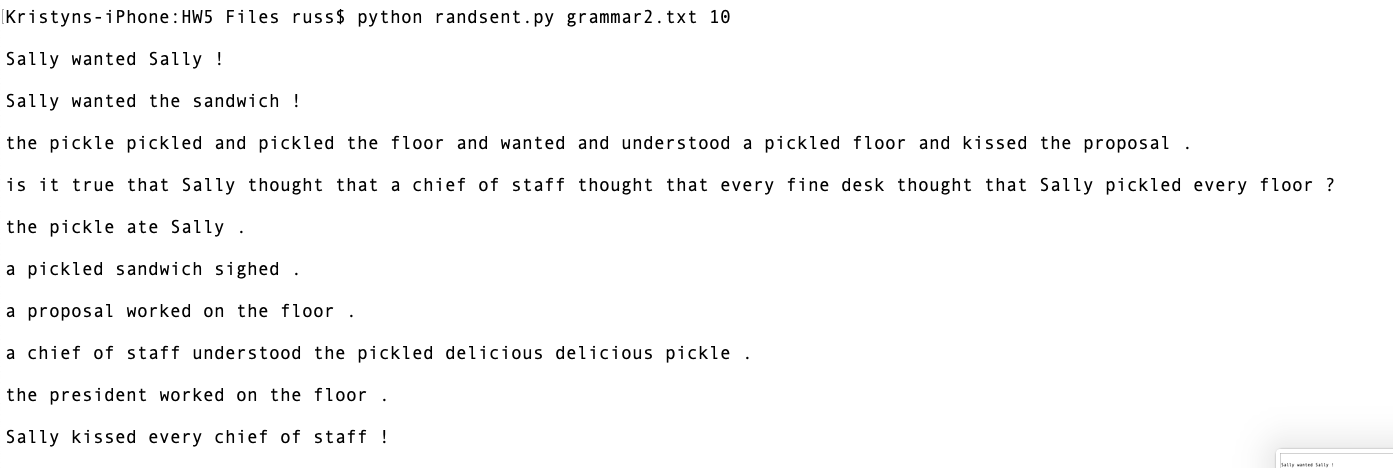


Part 2

1. Add Sally as an NP
2. Add Conjunctions
3. Add sighed + intransitive verbs as VP -> sighed, instead of VP->VP NP (transitives)
4. Add VP -> thought that S
5. Add ROOT-> that S perplexed NP .
6. Add Adj-> very Adj
7. Add NP -> worked on NP

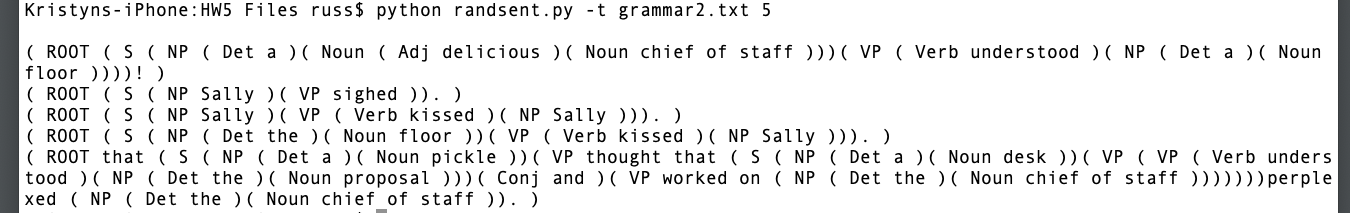
The changes in grammar2.txt are commented above the addition, e.g. # [PART 2, f)]

Ten generated sentences:



Part 3

Five generated bracketed strings:



Part 4

5.

(ROOT (S (NP (NP (Det every) (Noun sandwich)) (PP (Prep with) (NP (NP (Det a) (Noun pickle)) (PP (Prep on) (NP (Det the) (Noun floor)))))) (VP (Verb wanted) (NP (Det a) (Noun president)))) .)

6. Well, the only reason to eliminate the ambiguity is to clear up whether the pickle is on the floor or the sandwich is on the floor. Each sandwich that has a pickle-on-the-floor wants a president, or each sandwich on the floor, which also has a pickle, wants a president.

Appendix 1

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Appendix 2 (presumably caused by genNonTerminal trying to recur/recurse too many times inside of itself…)

