Aviv Shisman 206558157 Itay Hassid 209127596

NLP Ex2 – Answers

part1:

Question a:
the program generate long sentences because of these rules:

```
1   NP NP PP     ←--- most problematic
1  PP Prep NP
1  Noun   Adj Noun
```

the first rule allows us to recursively add more PP and by the second rule we can create another NP , therefore the only possible option to stop is to use the rule: “NP Det noun” in **Both** the first and the second rule to prevent long sentences.

*Notice the last rule(the third here is also problematic because it can also do recursion until it chooses an noun)

*The first 3 rules are not recursive so they will not have a great affect on sentence length

Question b:

The multiple adj in a sentence is rare because the rule:

```
1  Noun   Adj Noun
```

the rule will most of the time choose to develop an actual noun then the rule it self again because the probability is low (its weight is 1 as all of the others).

Question c :

the solution to problem is to increase the weight of the rule :NP Det Noun ,that way the recursion in question a will occur more rarely because the rule :NP→ NP PP will be more rare (after testing I was right!)

the solution to the problem in question b is to adjust the weight of the rule:Noun-> adj Noun increasing it will cause to adjective be more frequent.

Now I suggest that if you want to implement my previous solution the sentences will be more shorter and then a lot of adjectives will seem unnatural, therefore it will be better to stay at weight of 1 for this rule. If you don’t use my solution them increasing the weight will cause them to be more frequent but to my opinion unnatural.

Aviv Shisman 206558157 Itay Hassid 209127596

Go to next page

Question d:

I think the best course to “natural sentence” is to go by the solutions I offered, lower the sentence length and increasing by a bit the number of adjectives, notice that increasing the following:

1 S NP VP 1 VP Verb NP 1 PP Prep NP

is pointless because for S, VP, and PP these are the only rules !

And the rule 1 NP NP PP is causing the sentence to be longer(and we fixed it by the first solution)

therefore my solution is the only reasonable possibility in my opinion