CSC485 A1 – 3.5 Limitations – David LY – lydavid1 – 1001435501

Some obvious grammar I was not able to handle include subject-verb agreement, different tenses for verb phrases and nonsensical sentences. All cases of subject-verb agreement were over generated in my grammar so sentences like “I has eaten” are accepted despite a lack of agreement. The present tense was notably missing across my entire grammar except for certain gerundive-form auxiliary constructions like “Nadia is eating”. Thus, any sentences using transitive verbs in the present tense would had been under generated. Finally, even though I divided nouns down into subject/object, common/proper, mass/count, it was not enough to prevent nonsense like ‘I ate the boat’ which are grammatical but doesn’t really make sense.

Other over generated limitations included the placement of adverbs all over the place as I made sure adverbs could be included at the end of a sentence but also right before a verb. It allowed for flexibility when it came to parsing test sentences but came at a cost of over generation to produce things like “I slowly ate slowly”. Using a context-free grammar, it was no surprise some sentences are accepted yet doesn’t make sense without context such “she told Nadia that he was a cat”.

As I tried to not recreate the entire English grammar, the under generated sentences grew. These would have included lack of adverb placement before a sentence like in “immediately I told Nadia”, missing di-transitive verbs in passive form such as “Nadia could have been given a cat” and alternate ways to make use of complements that were not utilized in the examples. For example, I did not allow for “that” to be used in a chain of infinitive verbs. So, while “Ross believed that Nadia ate the cheese” was valid, “I told Nadia to believe that I wanted the cat” was not as the “that” construction occurred within a level into the infinitive verb chain. I intended it to be this way to prevent anymore explosion of grammar rules that weren’t explicitly tested for. The same was true for embedded verb phrases like “the man helping Nadia demanded Ross to leave”.

My strategy to test my grammar was to make example sentences every time I added a new grammatical entry. Thus, I had one of each type of construction present in my Positive file. Unlike positive sentences, I made less negative sentences as I went along, mostly creating them as I figured out that a sentence was ungrammatical. I ended up writing code to randomly generate sentences using my lexicon and grammar to help in creating test sentences and checking their eligibility. As the lexicon expanded and more recursive grammar rules were added, the random generation started to take forever to run, so I trimmed each lexical category down to a single vocabulary. That of course started producing many jarring sentences but many surprising made sense upon a second read. Testing each piece of grammar this way before going forward and occasionally testing older grammar entries for backwards compatibility, I slowly compiled my final grammar rules.