**A SIMPLE CONTEXT-FREE GRAMMAR**

My Grammar, Limitations, and Testing Strategies

My grammar works on all the test cases provided by the handout, as well as my generated sentences. I designed my grammar by first making up simple sentences. I decided that the pronouns should have their own categories because pronouns and regular nouns do not always behave the same. Another factor I considered was including a DP. In previous linguistic courses I’ve taken, DP usually represents a determiner and a noun. I used this in my grammar because it would be easier to differentiate regular NP (noun phrases) and DP (determiner phrases). What was important for 3.3 was that the verbs must be sepereated into their own categories of intransitive, transitive, and ditranstitive verbs. This is because

*\*I gave*

is completely wrong and does not make sense. If I put all the verbs into one category, then my grammar would be able to parse “I gave” when it should not. (*I dance* will be parsed).

My grammar also recruses on itself when dealt with a phrase like:

*The pretty pink petals*

The adjective would recurse on itself.

Another example is for sentences like:

*Ross thinks that Nadia likes the park*

In this case, I created a CP -> C S. This means that CP (complemenet phrase) would take on a C (which could *that* or *which*) and begins a new sentence again, starting with S. With this rule, I kept building my grammar on top of each other until it reached my satisifcation.

However, there are many limitations for 3.2 and 3.3 of my grammar. The biggest problem is generalization. Maybe I overgeneralized a lot of the rules.

In 3.2, my grammar allows “they was dancing” and “she were dancing.” This is not allowed. A reason why my grammar does this is because I combined were and was into one category and I didn’t specify that “they” had to be attached with “were dancing” and “she/he” had to be attached to “was dancing”

In 3.3, my grammar does not cover answers to question that deal with intransitive verbs. For example, “\**I was*” is ungramatical in my grammar. However, if “*I was”* was a response to a question, *“I was*” would be grammatical.

Nonetheless, the biggest limitation is that I sorted all the verbs into their categories (intransitive, transitive, and ditransitive), all the pronouns to one category (he, Nadia, their, her), and all the prepositions to one category (to, from, onto). The problem with this is that I have created some nonsensical sentences. For example, “*put*” and “*give*” are both ditransitve words:

*Nadia gave the flowers to Ross*

This above example is a sentence that my grammar parses. But, because I put *to* and *of* in the same lexicon category of preposition, the phrsase:

\**Nadia gave the flowers of Ross*

will be parsed. However, this is not a sentence that should be able to parse. Different verbs take on different parts of speech, but because I generalize that all the lexicons will contain the same type of speech, these kind of sentences will be reproduced. The same holds true for verbs and also pronouns.

*Ross likes the hovercraft*

and

\**Her likes the hovercraft*

will both be parsed in my grammar. However, it is obvious that the second sentence does not make sense.

Testing Strategy

I used the testing cases provided in the A1 handout. I also created different sentences for myself to see if I can break my code. Since mostly everyone know sthe English language, I asked my non-computer science/linguistic friends to provide me with silly ungrammatical sentences. If those sentences would parse, then I would change up my grammar. I think it is more important to test ungrammatical sentences than to test grammatical sentences. Since I followed the rules for grammatical sentences, it should be given that my grammatical sentences will work. However, it is when I test ungrammaticla sentences that I can truly tell if my gramar is valid or not.

One strategy that I made sure to use was to test my DP and PN (pronouns). Since I put pronouns and regular nouns in separate places, I wanted to make sure both sentences would parse if both sentences could be pasred. Another concern I had was that I wanted to make sure the adverbs would show up before a verb and after verb such as:

*He quickly danced*

*He danced quickly*

I tested for adverbs that could show up before and after the verb.

**Different parse trees for: “My dog saw a man in the park with a statue”**















