Homework 3: Parsing

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**Class**: 601.465/665— Natural Language Processing

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1(a): I tried parsing several sentences, and the parser performed as expected. It handled simple sentences accurately, producing well-structured phrase trees. It also managed more ambiguous examples, such as “*Papa ate the caviar with a spoon*” and “*Time flies like an arrow*,” quite well

1(b): I tried some sentences in .sen files, I got:

1. (S (NP (DT The) (NN market)) (VP (VBZ is) (VP (VBG wondering) (SBAR (WHNP (WP what)) (S (NP (NNP General) (NNPS Motors)) (VP (VBZ has) (VP (VBN done))))))) (. .))
2. (S (PP (IN In) (NP (JJ recent) (NNS years))) (, ,) (NP (NN pay)) (VP (VBD surged) (SBAR (IN as) (S (NP (NN demand)) (VP (VBD rose) (SBAR (IN while) (S (NP (NNS workers)) (VP (VBD left) (PP (IN for) (NP (JJR easier) (NNS jobs)))))))))) (. .))

We can see here that it did not do very well. *Demand rose* and *workers left for easier jobs* isn’t parallal, that’s *demand* is the noun phrase of the VP phrase following it, which isn’t very accurate.

1. (S (NP (NN Papa)) (VP (VBD ate) (NP (DT the) (NN caviar)) (PP (IN with) (NP (DT the) (NN spoon))) (PP (IN with) (NP (NNP Papa))) (PP (IN with) (NP (NP (DT a) (NN spoon)) (PP (IN with) (NP (DT the) (NN caviar)))))))

It did well in all of the sentences that I tried except for 2.

1(c): I tried to parse *While the man hunted the deer ran away*. And it got a very wrong parsing:  
(S (SBAR (IN While) (NP (NP (DT the) (NN man)) (VP (VBD hunted) (NP (DT the) (NNS deer))))) (VP (VBD ran) (ADVP (RB away))) (. .))

2(a): I tested it with several sentences that we learned in class on <https://demos.explosion.ai/displacy?text=The%20quick%20brown%20fox%20jumps%20over%20the%20lazy%20dog.&model=en_core_web_sm&cpu=1&cph=1>  
I found that this kind of parse try to find the first verb, and assign the words that depends on it before it and after it to this verb.

2(b): I found this Arabic parser, [*https://corenlp.run/*](https://corenlp.run/),. Honstely, I was surprised from how well it did. In Arabic, the word structure is different from English.

Arabic Structure: V NP NP

English Structure: NP V NP

For example: Rashed ate the apple, in Arabic, the structure looks like, ate Rashed the apple, I tried a lot of sentences like *Rashed ate an apple with a spoon*, and *the horse that was raced past the barn fell.,* it really did very well, it correctly assigned fell to the horse, and with a spoon to the apple.