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CS5012

<p style="text-align:center">Practical 2 Report</p>

I separated the ARGs into adjective phrase (ADJP), verb phrase (VP), prepositional phrase (PP), and noun phrase (NP). From these ARGs I could create the trees I wanted (since this covered all of the sentences). My VP also had ADV VP to allow for the 'always'. I created separate sentences for the WH and Aux structure sentences. I did this because it was a quicker way to implement the solution than messing with the +,- aux and inv tags for subcategorization. I attempted to do that first and could not get the grammar working. All of my verbs are subcategorized for the exact sentences they are used (or have a separate nil SUBCAT to account for separate sentences). My initial attempt was to SUBCAT the morphology of the verbs and have HEAD be the stem of the verb and that is why I still have TENSE, NUM, and PER used in the SUBCAT HEADs. I could not manage to make it work in time, so my verbs are incredibly specific to the positive and negative examples given in the practical. I also include an ADJP in my NP, so I have NP -> ADJP NP, which helped greatly even though I thought I had it working another way, it would not work until I made the adjective phrase a part of the noun phrase. I feel like if I wanted to add adjectives to a sentence, e.g. "the large heavy *black* piano," it would not work as my ADJP accepts DET ADJ or DET ADJ ADJ. Even when I put ADJ -> ADJ, it still would not chain as many adjectives as I wanted together. Or when I changed how ADJ phrases worked, it still would not accept unlimited adjectives. I am not sure where the fault, but I believe it comes from how I set up my ARGs and adjuncts/complements (which I didn't set up at all).

My grammar should not accept non-standard English, but it will only accept very specific sentences in the forms given. For example, I created two separate 'sneezes,' one SUBCAT for the WH sentence structure and one for the general example "Stan sneezes." I feel like my grammar could have been more general, which would make it a better grammar to use in general. I wanted to first at least get the sentences from the practical working and then work on the rest if I had time. It took me a while to understand how to use the SUBCAT features and I am still not sure I am sub-categorizing and putting the proper things in HEAD.

My grammar is fully functional and works for this practical, but I felt like it could have been more powerful, or there was a better way to use ARGs. I am not sure I took the "elegant" solution requested, but I am happy it works. I enjoyed the puzzle and logic aspect of this practical and found that working on it was not terrible or difficult, it just took a long time and a lot of rereading the NLTK book and chapters on how to implement what I wanted, especially the SUBCAT and HEAD portions of subcategorization. One thing that I still do not understand is why some of the verbs required heavy subcategorization and some could accept a head of NP and tail of nil and still manage to put the ARGs together correctly to parse a sentence. I am close to understanding but feel like there is a small gap in my knowledge.