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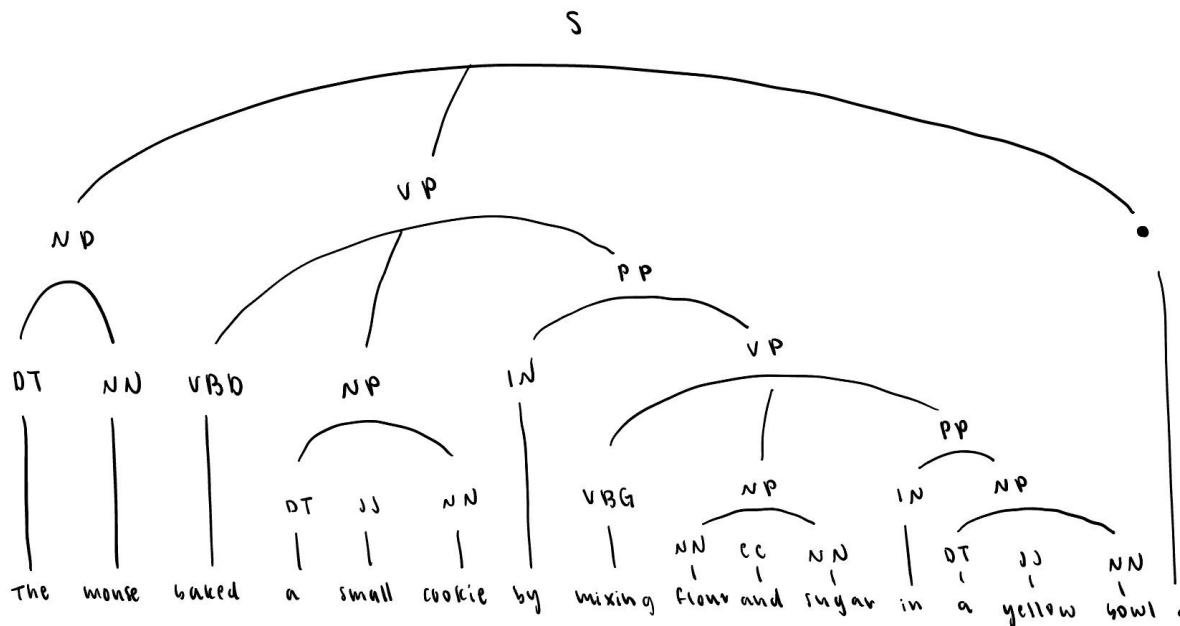Dr. Karen Mazidi
CS 4395.001

CS 4395: Syntax Parsing

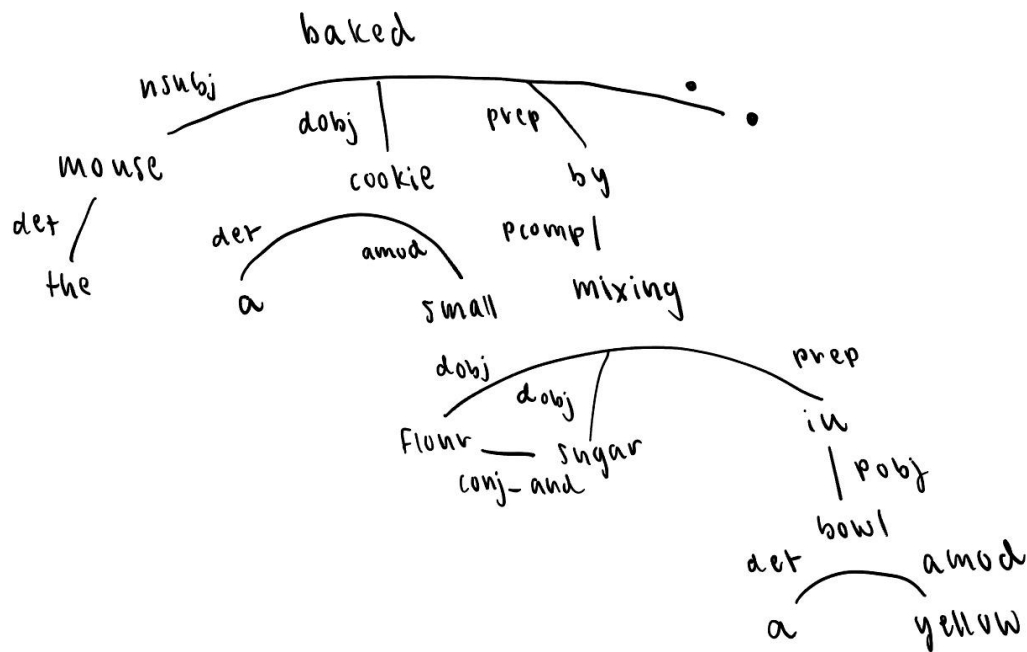"The mouse baked a small cookie by mixing flour and sugar in a yellow bowl."

PSG Tree:

Definitions of terms:
- S: the full sentence, a declarative clause
- NP: noun phrase, the part of the sentence with the subject
- VP: verb phrase, the part of the sentence which what the subject does
- .: punctuation at the end of the declarative clause
- DT: determiner, a functional word like "a" or "the" that contributes to grammar
- NN: a singular noun, non-proper
- VBD: a verb in the past tense
- IN: preposition, the start of a prepositional phrase
- PP: a prepositional phrase
- VBG: a verb in the present participle (ends with -ing)
- JJ: adjective, describes a noun
- CC: coordinating conjunction like "and"

Dependency Parse:

baked

nsubj — mouse
det — the

dobj — cookie
det — a
amod — small

prep — by
pcomp — mixing

dobj — Flour
conj-and — sugar
dobj — sugar

prep — in
pobj — bowl
det — a
amod — yellow

.
.

Definitions of dependency relations:
- Nsubj: nominal subject, a noun phrase that performs the main predicate/verb
- Dobj: direct object, the noun phrase which the verb is performed
- Prep: prepositional modifier, the phrase that links two phrases like "by"
- Det: determiner, like "a" or "the"
- Amod: adjectival modifier, a phrase that describes the noun phrase
- Pcomp: prepositional complement, signifies the complement of the preposition is a phrase in itself
- Pobj: object of a preposition, the start of the noun phrase after the preposition
- .: punctuation at the end of the sentence

For verb "baked":
ARG0 The mouse
ARG1 a small cookie
ARGM-MNR by mixing flour and sugar in a yellow bowl.

Comments:
- ARG0 is the agent of the sentence, so it is "the mouse" and it is the mouse that baked
- ARG1 is the passive actor, "a small cookie" because it was the result of the mouse baking
- ARGM-MNR is a modifier that describes how the action was performed. In this case, it describes how the mouse baked the cookie.

For verb "mixing":
ARG0 The mouse
ARG1 flour and sugar
ARGM-LOC in a yellow bowl.

Comments:
- ARG0 is the agent of the sentence, so it is "the mouse" and it is the mouse that did the mixing
- ARG1 is the passive actor, "flour and sugar" because they were the nouns that were mixed
- ARGM_LOC is a modifier that describes where the action was performed, where the mixing took place. That is, "in a yellow bowl".

Reflection on the pros/cons of each parse:

Because the sentence had two main parts, I thought the SRL parse provided a very interesting view of the individual verbs and how they connected to the subject of the sentence. It was a broader perspective on the different phrases within the sentence and what value they added, like the location modifier of the verb. However, it did not provide much detail into the inner workings of the phrases themselves.

For more detail, I thought the PSG was extremely effective. Because the sentence ended up being broken down into tokens, we get to see how each individual word functions within the sentence. It displays how the words combined to make larger and larger phrases. Unfortunately, we do not get to see what the different phrases, specifically prepositional phrases, add to the sentence. It is simply what kind of phrase they are. This is a tradeoff, as the PSG tree does provide more detail into the words themselves even if the SRL parse gave more information on the phrases.

The dependency parse was a nice in-between of the two parses for this sentence, as it provides a good view of how the verb phrases are broken down while also breaking the sentence down into its individual words. It was interesting to see how each word was related to each other in the context of the main predicate being the root, or what the sentence was based around. This parse seemed to put more emphasis on the verb's functioning within the sentence than the PSG tree,while maintaining its detail on the individual words in the prepositions unlike the SRL parse.