

Ling 498y: Lecture notes. 8 Sept 2008.

1. Main Questions

- How do languages differ, and how are they alike?
- What is a possible natural language?

2. Class Grammar. Our goal in building a (fragment of a) grammar is to model the *syntactic competence* of a native speaker. That is, we want to create a system of rules and principles that generate *all and only* those sentences judged grammatical by a native speaker.

Our grammar so far consists of two components: (i) a lexicon, and (ii) a set of phrase structure rules. The lexicon specifies, for each word, its category (N, V, A, etc), its meaning, and its pronunciation. The phrase structure rules dictate how words are combined into phrases, which themselves are combined into larger phrases, the largest phrase being the sentence.

Our phrase structure rules as of Wednesday (Sept. 3rd):

Phrase Structure Rules

S → NP VP NP → (D) (A) N
VP → V (NP) (PP) PP → P NP

Exercise 1: Give a sentence that our grammar generates, but is ungrammatical, and give a sentence which is grammatical, but which our grammar does not generate.

Exercise 2: Revise the phrase structure rules so that they generate the following S's:

- (1) You destroyed the city.
- (2) The destruction of the city was irreparable.
- (3) The war was destructive of the city.
- (4) I thought that it was a good idea.
- (5) We will/might/could/shall/can cry.
- (6) We are crying. We have cried.
- (7) She seems happy (about it).
- (8) She seems so/very/too/quite happy (about it).
- (9) They always/sometimes/often leave.
- (10) I wrote a letter and a postcard.
- (11) I wrote to X and to Y.

3. Motivating Constituent Structure. According to our grammar, words are organized into groupings, which are themselves organized into larger groupings, the largest grouping being S. These groupings are called *constituents*, or *phrases*.

While it is natural to rely on intuition in analyzing the constituent structure of sentences, we want to make sure we kept track of our *justification* for positing these structures. So far, we have justified saying that a string of words is a constituent using two types of arguments:

Argument 1: Substitution classes. By positing phrases, we account for the fact that certain sequences of words have the same distribution within a sentence, that is, they form *substitution classes*. For example, the sequences N, A^N, D^N, and D^A^N (e.g., *squirrels*, *nice squirrels*, *the squirrels*, and *the nice squirrels*, respectively) all occur in the same places in a sentence, e.g., before or after a verb. Thus, we can generalize and say that these strings together form a class, which we refer to as NP.

Argument 2: Constituency tests. Certain grammatical processes appear to necessarily make reference to constituents, which is evidence for the existence of constituents. For example, (for the most part), only constituents may (i) be substituted for by single words (*Replacement test*), (ii) appear as fragments (*Fragment test*), (iii) move (*Movement test*), or (iv) be co-ordinated (*Co-ordination test*).

Note on false negatives. It's possible for constituents to fail one more constituency tests (a so-called false negative). In general, if a string of words passes the constituency tests, then you have reason to believe it is a constituent. In contrast, if a string *fails* a constituency test, it is not necessarily not a constituent.

Exercise 3: Support the modification of the PS Rules you posited in Exercise 3 using the constituent structure tests.

Exercise 4 (from the textbook): Consider the following data from Nootka (data from Sapir and Swadesh 1939), a language spoken in British Columbia.

- a) Mamu:k-ma qu:ʔas-ʔi.
working-PRES man-DEF
"The man is working."
- b) Qu:ʔas-ma mamu:k-ʔi.
working-PRES man-DEF
"The working one is a man."

4. Word Categories and Subcategories

The category (or *part of speech*) of a word is determined by:

- (i) Its syntactic distribution; and
- (ii) Its morphology.

Word categories seem to fall into two classes: *lexical* vs. *functional*.

- (i) *Lexical*: Nouns, Verbs, Adjectives, Adverbs.
- (ii) *Functional*: Determiners, Prepositions, Complementizers, Conjunctions, Negation, Auxiliaries, Modals.

Subcategories of word categories can be marked by *features*. For example, we can use features to specify how many and what kind of arguments a phrasal head takes.

<i>Intransitive</i>	$V_{[NP _]}$	E.g., <i>leave</i>
<i>Transitive</i>	$V_{[NP _ NP]}$ $V_{[NP _ \{NP/CP\}]}$ $V_{[NP _ \{NP/PP/CP\}]}$	E.g., <i>hit</i> E.g., <i>ask</i> E.g., <i>hope</i>
<i>Ditransitive</i>	$V_{[NP _ NP NP]}$ $V_{[NP _ NP PP]}$ $V_{[NP _ \{NP/PP/CP\}]}$ $V_{[NP _ NP \{NP/PP\}]}$ $V_{[NP _ NP \{NP/PP/CP\}]}$	E.g., <i>spare</i> E.g., <i>put</i> E.g., <i>hope</i> E.g., <i>gave</i> E.g., <i>tell</i>

Other potential uses for features:

<i>Singular/Plural</i>	$N_{[+plural]}$	E.g., <i>clocks</i>
<i>Count/Mass</i>	$N_{[-count]}$	E.g., <i> mud</i>
<i>Auxiliary</i>	$T_{[+finite]}$	E.g., <i>have</i>
<i>Modal</i>	$T_{[-finite]}$	E.g., <i>could</i>

5. Final PSR's

TP \rightarrow {NP/CP} (T) VP
 NP \rightarrow (D) (AdjP+) N ({PP/CP}) (PP+)
 VP \rightarrow (AdvP+) V (NP) ({NP/CP/PP}) (PP+)
 PP \rightarrow (PAdvP) P ({NP/CP})
 AP \rightarrow (DegP) A ({PP/CP})
 AdvP \rightarrow (DegP) Adv
 DegP \rightarrow (DegP) Deg
 CP \rightarrow C TP

6. Exercises from the textbook.

1. Draw the trees for the following APs, AdvPs, and NPs:

- a) very smelly
- b) too quickly
- c) much too quickly
- d) very much too quickly
- e) the old shoelace
- g) these very nice people

2. Sinhala.

- i) Jōn ballavə dākka
 John dog saw
 "John saw the dog."
- ii) Jōn janēle iñdōla ballavə dākka
 John window from dog saw
 "John saw the dog from the window."
- iii) Jōn eyāge taḍi ballavə dākka
 John his big dog saw
 "John saw his big dog."

- a) Assume there is an AdjP rule: AdjP \rightarrow Adj. What is the NP rule of Sinhala?
- b) What is the PP rule of Sinhala?
- c) What is the VP rule of Sinhala? (Assume all non-head material is optional.)
- d) What is the TP rule of Sinhala?
- e) Draw the tree for sentences (ii) and (iii).

3. SWEDISH NPs

- a) folk "people"
- b) ett paraply "an umbrella"
- c) tre paraplyer "three umbrellas"
- d) ett äpple "an apple"
- e) ett rött paraply "a red umbrella"
- f) ett gult äpple "a yellow apple"
- g) ett mycket fint paraply "a very fine umbrella"
- h) ett gammalt fint paraply "a fine old umbrella"
- i) ett rött paraply med ett gult handtag "a red umbrella with a yellow handle"

- 1) Assume the Adv rule of Swedish is AdvP → Adv. What is the AP rule?
- 2) Are determiners obligatory in Swedish NPs?
- 3) Are AdjPs obligatory in Swedish NPs?
- 4) What is the PP rule for Swedish?
- 5) Are PPs obligatory in Swedish NPs?
- 6) What is the NP rule for Swedish?
- 7) Draw the trees for (g), (h), and (i)
- 8) Give the bracketed diagram for (f) and (i)

4. ENGLISH

- a) The kangaroo hopped over the truck.
- c) Jesse will never return to his hometown.
- e) Every student knows the location of the sixth floor.
- g) The very young child walked from school to the store.
- h) Catherine paid a dollar for a ticket to Ireland.
- j) A clever linguist with the right equipment can fool the audience easily.
- m) The latest research on dieting always warns people about the dangers of too much cholesterol.
- n) That annoying faucet was dripping constantly for months.
- o) Marian wonders if the package from Boston will ever arrive.
- p) I said that you should do some dances from the Middle East.
- q) That Dan smokes in the office really bothers Alina.
- r) The belief that syntactic theory reveals the inner structure of sentences excited the already much too excited students.

6. HIXKARYANA

Look carefully at the following data from a Carib language from Brazil (the glosses have been slightly simplified from the original). In your analysis do not break apart words. (Data from Derbyshire 1985.)

- a) Kuraha yonyhoryeno biyekomo.
bow made boy
"The boy made a bow."
- b) Newehyatxhe woriskomo komo.
take-bath women all
"All the women take a bath."
- c) Toto heno komo yonoye kamara.
person dead all ate jaguar
"The jaguar ate all the dead people."

Now answer the following questions about Hixkaryana:

- 2) Posit an NP rule to account for Hixkaryana. Assume there is an AdjP rule: AdjP → Adj.
- 3) Posit a VP rule for Hixkaryana.
- 4) Posit a TP rule for Hixkaryana.
- 5) What is the part of speech of *newehyatxhe*? How do you know?
- 6) Draw the trees for (a) and (c) using the rules you posited above. (Hint: if your trees don't work, then you have probably made a mistake in the rules.)
- 7) Give bracketed diagrams for the same sentences.