

## Knowledge of Language

Background reading: Chomsky, Noam (1965), *Aspects of the Theory of Syntax*, MIT Press. Chapter 1. (on reserve in the Hill library)

Required reading: Lectures 1 and 2 from Kyle Johnson's lecture notes. They are linked to from the course website.

### 1 Some Central Questions

- What does linguistic knowledge consist of?

We know things that we were never taught. How did this knowledge arise?

- How are we able to comprehend a potentially infinite number of novel sentences? The problem of *discrete infinity*.

### 2 Pronominal Reference: a case of implicit knowledge

- (1) a. John likes him.  
b. He likes John.  
c. He likes him.
- (2) a. Liina introduced John to him.  
b. Liina introduced him to John.  
c. Liina introduced him to him.
- (3) a. 1. John likes his brother.  
2. He likes John's brother.  
3. He likes his brother.  
b. 1. John's brother likes him.  
2. His brother likes John.  
3. His brother likes him.
- (4) a. 1. Liina introduced John's (long lost) sister to him.  
2. Liina introduced his (long lost) sister to John.  
3. Liina introduced his (long lost) sister to him.  
b. 1. Liina introduced John to his (long lost) sister.  
2. Liina introduced him to John's (long lost) sister.  
3. Liina introduced him to his (long lost) sister.
- (5) a. John thinks that he is smart.  
b. He thinks that John is smart.  
c. He thinks that he is smart.
- (6) a. 1. John thinks that Hafdis believes that he is smart.  
2. He thinks that Hafdis believes that John is smart.  
3. He thinks that Hafdis believes that he is smart.  
b. 1. John thinks that he believes that Hafdis is smart.  
2. He thinks that John believes that Hafdis is smart.  
3. He thinks that he believes that Hafdis is smart.  
c. 1. Hafdis thinks that John believes that he is smart.  
2. Hafdis thinks that he believes that John is smart.  
3. Hafdis thinks that he believes that he is smart.
- (7) a. 1. The fact that Liina admires John pleases him.  
2. The fact that Liina admires him pleases John.  
3. The fact that Liina admires him pleases him.

- b. 1. John is pleased by the fact that Chunghye admires him.  
2. He is pleased by the fact that Chunghye admires John.  
3. He is pleased by the fact that Chunghye admires him.
- (8) a. 1. Liina gave a book to the boy who admires her.  
2. She gave a book to the boy who admires Liina.  
3. She gave a book to the boy who admires her.
- b. 1. The boy who admires Liina gave a book to her.  
2. The boy who admires her gave a book to Liina.  
3. The boy who admires her gave a book to her.
- (9) a. 1. When John left the room, he was smiling.  
2. When he left the room, John was smiling.  
3. When he left the room, he was smiling.
- b. 1. John was smiling when he left the room.  
2. He was smiling when John left the room.  
3. He was smiling when he left the room.

### Tools for discovering structure: Tests for Constituency

## 3 Movement

If a group of words can undergo *movement* i.e. preposing, postposing, or fronting for question formation, they constitute a phrase of some sort.<sup>1</sup>

### 3.1 Preposing

Constituents can often be preposed. Non-constituents can never be preposed.

Noun Phrase (NP) preposing:

- (10) a. I can't stand your younger brother.
- b. [Your younger brother], I can't stand [ \_\_\_ ] (though your elder brother's OK).
- c. \* Your younger, I can't stand [ \_\_\_ brother].
- d. \* Younger brother, I can't stand [ your \_\_\_ ].
- e. \* Brother, I can't stand [your younger \_\_\_ ].
- f. \* Your, I can't stand [ \_\_\_ younger brother].
- g. \* Your brother, I can't stand [ \_\_\_ younger \_\_\_ ].

Prepositional Phrase preposing:

- (11) a. Peter gave a book to your brother.
- b. [To your brother], Peter gave a book [ \_\_\_ ] (but not to mine).
- c. \* To your , Peter gave a book [ \_\_\_ brother].
- d. \* To, Peter gave a book [ \_\_\_ your brother].
- e. [Your brother], Peter gave a book [to \_\_\_] (but not to mine).

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<sup>1</sup>Remember that the reverse is not always true i.e. if something cannot be moved around, it does not mean that it is not a constituent. There could be independent reasons for why it cannot move around.

- f. \* Your, Peter gave a book [to \_\_\_ brother].
- g. \* To brother, Peter gave a book [ \_\_\_ your \_\_\_ ].

Why is (11e) ok?

Preposing of Adjective Phrases and Verb Phrases is more restricted but still possible.

- (12) a. Bill said that the new Almodovar was exciting and [very exciting], it was [*AP* \_\_\_ ]. (Adjective Phrase)
- b. [Give in to blackmail], I never will [*VP* \_\_\_ ]. (Verb Phrase)
- c. Patrick said that he would win the prize, and [win the prize], he did [*VP* \_\_\_ ]. (Verb Phrase)
- (13) a. They said that Bill would read the book somewhere, and [read the book] he *did* in the library.
- b. They said that Bill would read the book in the library, and read the book in the library he *did*.

Tensed VPs (and VPs + modals) can not be preposed.

- (14) a. John ate the apple.
- b. \* [Ate the apple], John.
- c. Kelly must visit the doctor.
- d. \* Must visit the doctor, Kelly.

Adverbial phrases can be preposed much more freely.

- (15) a. She's going to be leaving for Poughkeepsie [very shortly].
- b. [Very shortly], she's going to be leaving for Poughkeepsie [*AdvP* \_\_\_ ].

### 3.2 Postposing

Only constituents can be postposed. Typically this test is only applicable to NP objects.

- (16) a. He explained [all of the terrible problems that he had encountered] to her.
- b. He explained [*NP* \_\_\_ ] to her [all of the terrible problems that he had encountered].
- c. \* He explained [*NP* all of \_\_\_ ] to her the terrible problems that he had encountered.
- d. \* He explained [*NP* all \_\_\_ ] to her of the terrible problems that he had encountered.

### 3.3 Questions

If it is possible to ask a question about a set of consecutive words in a sentence, they form a constituent.

- (17) a. He gave a book to Michael hurriedly.
- b. Who gave a book to Michael hurriedly?
- c. Who did he give a book [*PP* to [*NP* \_\_\_ ]] hurriedly?
- d. How did he give a book to Michael [*AdvP* \_\_\_ ]?
- e. To whom did he give a book [*PP* \_\_\_ ] hurriedly?
- f. What did he give [*NP* \_\_\_ ] to Michael hurriedly?
- g. What did he do [*VP* \_\_\_ ]?

## 4 Adverbs

If adverbs can be positioned inside a constituent, it is either an S or a VP, and not an NP or a PP.

If S-adverbs such as *certainly*, *obviously* etc. can be positioned inside a constituent, it is an S. If

VP-adverbs such as *completely* can be positioned inside a constituent, it is a VP.

- (18) a. Possible positions for S-adverbs like *certainly*  
[<sub>S</sub> \* The team \* can \* [<sub>VP</sub> rely on my support]<sub>VP</sub> \* ]<sub>S</sub>
- b. Possible positions for VP-adverbs like *completely*  
[<sub>S</sub> The team can \* [<sub>VP</sub> rely \* [<sub>PP</sub> on my support]<sub>PP</sub> \* ]<sub>VP</sub> ]<sub>S</sub>

## 5 Sentence fragments

Only phrasal constituents i.e. full phrases can serve as sentence fragments (in an appropriate context).

- (19) a. A: Where did he go?  
B1: Up the hill  
B2: \*Up hill  
B3: He went up the hill
- b. A: Where are you going to?  
B1: To the cinema  
B2: The cinema  
B3: I am going to the cinema
- c. A: Who were you ringing up?  
B1: My sister  
B2: \*Up my sister  
B3: I was ringing up my sister.

*Up my sister* in (19c) is not a possible sentence fragment because *up* and *my sister* do not form a constituent in 'I was ringing up my sister'. This is in contrast with 'I am going to the cinema' where *to* and *the cinema* do form a constituent.

## 6 Coordination

Only constituents can be coordinated.

- (20) a. He has [<sub>NP</sub> a cat] and [<sub>NP</sub> a dog].  
b. I met your [<sub>N</sub> mother] and [<sub>N</sub> father].  
c. Is she [<sub>PP</sub> in the kitchen] or [<sub>PP</sub> in the bathroom]?  
d. He speaks [<sub>AdvP</sub> very slowly] but [<sub>AdvP</sub> very articulately].  
e. [<sub>S</sub> Wynona likes Maui] and [<sub>S</sub> Kelly likes Cancun].  
f. \*John rang up his mother and up his sister.

Only identical constituents can be coordinated.

- (21) a. John wrote to Mary and to Fred. (= PP and PP)

- b. John wrote *a letter* and *a postcard*. (= NP and NP)
- c. \* John wrote *to Mary* and *a letter*. (= PP and NP)
- d. \* John wrote *a letter* and *to Fred*. (= NP and PP)

## 6.1 Shared Constituent Coordination

Another kind of coordination is exemplified below.

- (22) a. John walked and Bill ran [*up the hill*].
- b. Tamara denied but Fred admitted [*complicity in the crime*].
- c. Kelly must, and Jason may, [*go to the party*].

The italicized sequence in the sentences in (22) is shared between the two conjuncts. Only constituents can be shared.

- (23) \*Martha rang and Paul picked *up Martin's sister*.

## 6.2 Ellipsis

Under certain discourse conditions, it is possible to omit certain parts of a sentence. This phenomenon is known as Ellipsis.

- (24) A: Jay won't *wash the dishes*.
- B: I bet he will (wash the dishes) if you're nice to him.
- (the bracketed words need not be pronounced)

Typically, in English, only VPs can undergo Ellipsis (i.e. be omitted)

- (25) a. Vivian won't put soda water into scotch, but her brother will put soda water into scotch.
- b. \* Vivian won't put soda water into scotch, but her brother will put soda water into (scotch).
- c. \* Vivian won't put soda water into scotch, but her brother will put soda water (into scotch).
- d. \* Vivian won't put soda water into scotch, but her brother will put (soda water into scotch).
- e. Vivian won't put soda water into scotch, but her brother will (put soda water into scotch).

## 7 Replaceability

If a sequence of words can be replaced by another sequence of words which you know forms a constituent, then the original sequence also forms a constituent.

So suppose you know that *eat the apple* is a Verb Phrase, then you can show that *drink scotch* is also a verb phrase by a simple replacement test.

- (26) Mimi didn't [drink scotch]      →      Mimi didn't [eat the apple].

## 7.1 Proforms

The replacement test can be used more generally with help of words which can stand for full phrases. These are words like *him, it, so, as, which* etc. These words are called proforms - to generalize over pronouns (actually pro-NPs), pro-VPs, pro-APs etc.

If we can replace a sequence of words by a pro-XP, then we can claim that the sequence is an XP.

Pronouns, (*him, her, it*), replace NPs and not Ns.

- (27) a. A: What do you think of woman who wrote that incredibly pretentious book on shamanistic chants?  
B: I can't stand *her*.
- b. \*What do you think of the *her* who wrote that incredibly pretentious *it* on shamanistic *it*?

*there* functions as pro-PP.

- (28) A: Have you ever been to Paris?  
B: No, I have never been *there*.

*so, as, which* function as pro-VPs.

- (29) a. John might [<sub>VP</sub> go home], and *so* might Bill.  
b. John might [<sub>VP</sub> resign his post], *as* might Bill.  
c. If John can [<sub>VP</sub> speak French fluently] - *which* we all know he can - why is he so shy with the French?

*do so* is another pro-VP.

- (30) a. Bill [**read the book**] in the library, and Mary *did so* (in the museum).  
b. Bill [**fixed the faucet**] with a screwdriver in fifteen minutes with great difficulty, and Mary *did so* (with a hammer) (in twenty minutes) (with no problem at all).
- (31) the boldfaced sequence is the (intended) antecedent for *do so*.
- a. Maia [**gave a present to me**] yesterday and Sally *did so* the day before yesterday.  
b. \*Maia [**gave a present to me**], and Mary *did so* to my brother.  
c. Maia [**put some money on the table**] yesterday and Sally *did so* the day before yesterday.  
d. \*Maia [**put some money on the table**], and Mary *did so* on the shelf.  
e. Maia [**gave Mary a book**] yesterday, and Sally *did so* the day before yesterday.  
f. \*Maia [**gave Mary a book**], and Sally *did so* a magazine.

*so* can also replace APs i.e. it is a pro-AP also.

- (32) Many people consider John [<sub>AP</sub> extremely rude], but I've never found him *so*.

Similarly *it* can be a pro-S also. However *it* can only occur in NP positions.

- (33) a. A: Mary has finished her assignment.  
B: I don't believe it. (I don't believe that Mary has finished her assignment)
- b. A: I believe that John will win.  
B: \*I hope it. (I hope that John will win)

Note that all the proforms that we have discussed so far replace phrases and not word-level constituent.

## 7.2 Words used as phrases

Consider the following sentence:

(34) Cats can be useful.

Is *Cats* in (34) an NP or an N or both?

We know that *cats* is a Noun. Is it also an NP?

Similarly is *useful* just an A or is it an AP also?

We can show that *cats* is also an NP and that *useful* is also an AP.

For one thing, they can be replaced by the relevant proforms.

- (35) a. Cats can be useful, but *they* can also be dangerous.  
b. Cats can be useful, but I have never found them *so*.

Also *cats* can be replaced by phrases which we are sure are noun phrases.

(36) Those brown cats can be very useful.

*cats* can be coordinated with NPs.

(37) Cats and other mice hunting animals can be very useful.

These facts suggest that words can function as phrases. The absence of extra words should not lead us to conclude that something is just a word-level category.