

24.900: Introduction to Linguistics

3/2/05

I. *Constraints on wh-movement: Bounding Theory*

(Some notes from Carnie, A. 2002. *Syntax: A Generative Introduction*. Blackwell Publishers: England)

- a. Wh-movement isn't without some limitations.
- b. There is a constraint on what categories you can move out of (the categories that contain the *wh-word*).
- c. Compare the following:
 1. What_i did Bill claim [_{CP} that he read *t_i* in the syntax book]?
 2. *What did Bill make [_{NP} the claim [_{CP} that he read *t_i* in the syntax book]]?
- d. Sentence 1 is grammatical—movement of the Wh-word out of a complement clause.
- e. Sentence 2 suggests that not all movement out of a complement clause is acceptable. In particular, it appears that you cannot move a wh-word out of a CP contained within an NP.
⇒ *Complex Noun Phrase Island* (Ross 1967).
- f. Notion of a syntactic island: you can't get off of them/out of them. You can only move within the confines of the island. In sent. 2, we have an NP island.
- g. There are other kinds of syntactic islands. One of the most important is called the *wh-island*.
 3. I wonder [_{CP} what_i [_{IP} John bought *t_i* with the money.]]]
NB: it is possible to move a *wh*-phrase to the specifier of an embedded CP.¹
 4. [_{CP} How_i do [_{IP} you think [John bought the car *t_i*?]]]]
NB: Here is possible to move another *wh*-phrase to the specifier of the main CP.
 5. *[_{CP} How_j do [_{IP} you wonder [_{CP} what_i [_{IP} John bought *t_i* *t_j*]]]]]?
NB: We cannot move one *wh*-word to the embedded specifier and the other to the main specifier in the same sentence.

¹ There is actually a restriction on this. *Wh-movement* to an embedded CP can only take place when the main verb selects (theta marks) a question clause. Verbs that do this are predicates like *wonder* and *ask*. Verbs like *think* don't allow embedded *wh*-questions.

h. **Important to note:** Sentence 5 is wildly ungrammatical even though we have performed two otherwise legitimate operations.

1. We know that this is not a constraint on having two wh-words in a sentence:

- a. How do you think John bought *what*?
- b. I wonder what John bought *how*?

2. Rather, the constraint seems to be on moving both of them.

Another set of examples:

6. I wonder what_i John kissed t_i.

7. Who_j did you think/wonder t_j kissed the gorilla?

NB: Movement of either the object in sentence 6 or the subject in sentence 7 to the specifiers of CP is acceptable.

8. *Who_j did you think/wonder what_i t_j kissed t_i.

NB: However we cannot move both within the same sentence as in the examples in 3-5.

i. The basic intuition underlying an account of these facts is that once you move the *wh*-phrase into the specifier of a CP, then that CP becomes an island for further extraction.

9. I asked CP what_i John kissed t_i]. *Wh-island*

NB: Movement out of this wh-island results in ungrammaticality.

⇒ We now have a *descriptive* statement about the restrictions on Wh-movement.

What we would like to have is a more formal description that would allow us to account for both the *complex NP island* effects and *wh-islands*.

⇒ **Bounding Theory** (1970s and 1980s)

- j. The central idea underlying bounding theory is that certain nodes are boundaries for movement. These nodes are called *bounding nodes*.
- k. The bounding nodes for English are: **IP** and **NP**.
- l. We cannot simply say: “*Don’t cross a bounding node.*” Sentence 10 violates this.

10. [CP Who_i did [IP John see t_i]]?
 ↑ _____

Sentence 10 is completely grammatical.

- m. The account needs to be more complicated than that stated in (l).
- n. **The answer:** *The Subjacency Condition/Constraint* (Chomsky 1973).
- o. Subjacency Condition:

Wh-movement may not cross more than one bounding node (but it may cross one).

11. [CP What_i did [IP you think [CP that [IP Millie said t_i]]]]?
 ↑ _____

Movement of this kind will necessarily cross two IPs, and thus should be a violation of the subjacency condition. However, the sentence is grammatical. Recall, *wh*-movement targets the specifier of *CP*. In sentence 11, there is an unfilled specifier of *CP* between the two IPs.

12. [CP What_i did [IP you think [CP _____ that [IP Millie said t_i]]]]?

Two movements:

13. [CP did [IP you think [CP what_i that [IP Millie said t_i]]]]?
 ↑ _____
move #1

14. [CP What did [IP you think [CP t_i that [IP Millie said t_i]]]]?
 ↑ _____
move #2

p. *Cyclicity*: Property of stopping off in intermediate specifiers of CP.

How do we account for the ungrammaticality of the following:

*What_i did Bill make the claim that he read t_i in the syntax book?

*Who_j did you wonder what_i t_j kissed t_i ?

q. Bounding Nodes: Cross-linguistic variation

earth **or** money in the bank

e. Homophony

light: not heavy or an
Illumination

- Polysemy and homophony create **lexical ambiguity**.

Liz bought a *pen*.

We sat on the bank.

Phrase and Sentence Meaning

E. Semantic relations involving sentences

a. Paraphrase: two sentences that have the same meaning.

- i. The police chased the burglar.
- ii. The burglar was chased by the police.

b. Entailment: one sentence guarantees the truth of the other.

- i. The park wardens killed the bear.
- ii. The bear is dead.

- i. Prince is a dog.
- ii. Prince is an animal.

F. Contradiction: case in which one sentence is true and the other then must be false.

- i. Charles is a bachelor.
- ii. Charles is married.

G. **Pragmatics**

Brrr, I am freezing.

This could mean "Please close the window."

SYNTAX/SEMANTICS

1. Meaning and structure

- *Strings of words* do not have meaning.
- Syntactic *structures* (which include words) have meaning.
- Sentence (1) has two meanings:

>(1) **Structural ambiguity:** *We will hit the puppet with the hammer.*

[*with the hammer* modifies V' (we'll use the hammer') or modifies N' (man has a hammer)]

2. Semantics vs. syntax

- However, the fact that semantics and syntax are connected does not mean that we cannot also tease them apart.
- For example, we can imagine sentences with semantic flaws that are syntactically impeccable as we have already discussed:

>(2) Colorless green ideas sleep furiously.

- Compare (3), which is both semantic and syntactic gibberish:
→(3) *Furiously sleep ideas green colorless.

3. Binding Theory:

- One important area of language where we can see both the structure (syntax) and meaning (semantics) interacting is in determining what are possible antecedents for different kinds of noun forms. The principles which determine these co-referential relationships are called *Binding Theory*.

Binding theory states the principles which describe how one noun or pronoun may determine the reference of another in the same context. For example, in the sentence

- "James thinks Scrapy likes him."

the pronoun "him" cannot refer to Scrapy but it can refer to James or some other person not mentioned in the sentence.

Another example: In

- "He likes Steven."

the pronoun “he” cannot refer to Steven; it must refer to someone else outside of the sentence context.

- “He remembers that he likes Steven.”

In this sentence, “He” and “he” can both refer to the same person or they can refer to two different people. Neither pronoun can refer to “Steven.”

3. Pronouns: basic facts

a) basic properties:

- Syntax: pronoun is an N heading an NP
- Semantics: takes its reference from context

b) reference can come from non-linguistic context

- (4) a. [A woman runs by.] "Do you know that she won a gold medal in the Olympics?"
b. [A man leaves the room.] "Thank goodness he's gone!"

c) reference can come from from linguistic context:

- (5) a. Sue_i said [that she_i saw Bill].
b. Virtue_i is its_i own reward.

4. Principle C

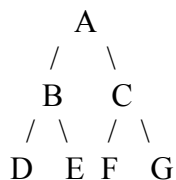
- (6) a. Sue proved [that she saw Bill].
b *She_i proved [that Sue_i saw Bill].

- (7) a. Her_i mother proved that Sue_i saw Bill.
b. That photo of her_i proved that Sue_i saw Bill.

5. Important definition of a structural relationship:

C-COMMAND

- (8) X C-commands Y iff (a) first branching node that dominates X also dominates Y and (b) neither X or Y dominates the other



- A c-commands \emptyset
B c-commands CFG
C c-commands BDE

D c-commands E
E c-commands D
F c-commands G
G c-commands F

- A **pronominal NP** is an NP whose head is a pronoun. [Examples: *he, me, her, our...*]
- An **r-expression (REFERRING EXPRESSION) NP** is an NP whose head is not a pronoun (or reflexive).
[Examples: *the dog, the King of Baritaria, Mary's, Bill's honesty.*]

- **Principle C: If an r-expression NP is c-commanded by a [pronominal] NP, the two NPs may not co-refer.**

→(9) *She proved that Sue_i's mother saw Bill.

- (10) a. *She_i defended Sue_i'.
b. Her_i mother defended Sue_i.

5. Principle B

- (11) a. *Sue_i defended her_i.
b. Sue's mother defended her_i.

- (12) a. Sue_i proved that she_i saw Bill.
b. Sue_i proved that Bill saw her_i.

- **Principle B: If a pronominal NP is c-commanded by another NP within the same clause (same IP), the two NPs may not co-refer.**

6. Principle A

- A **reflexive NP** is an NP whose head is a reflexive pronoun.
[Examples: *myself, yourself, herself, themselves.*]

- (13) a. Sue_i defended herself_i.
b. *Sue_i's brother defended herself_i.

- (14) a. *Sue_i proved that herself_i saw Bill.
b. *Sue_i proved that Bill saw herself_i.

- **Principle A: A reflexive NP must be c-commanded by a coreferent NP within the same clause.**