INTD0112 Introduction to Linguistics

Lecture #15
April 12th, 2007

Announcements

- If you haven't submitted your research proposal to me yet, please do so ASAP. Please remember that I have to approve your topic. Don't procrastinate.
- Homework #5 will be posted by tomorrow morning. Due date is Friday April 20. Make sure you watch Part Two of the Human Language movie before you attempt to answer the questions.

More syntax

- I know I have to curb my passion for things syntactic at one point, so this is the last session on syntax. We have to move on with other topics on the syllabus.
- Today, I want us to discuss 2 topics:
    a. VOS/OVS/OSV languages. and
    b. A couple of universal principles of grammar: Constraints on movement and Binding Principles.

Transition

- Within the principles and parameters framework, cross-linguistic variation is attributed to the existence of a number of parameters in UG, each of which has binary options to be set one way or the other on the basis of the primary linguistic data.

- Under this approach, then, acquiring a human language is nothing but a process of parameter fixation. Here's the table we ended up with last time:

Parameters and languages

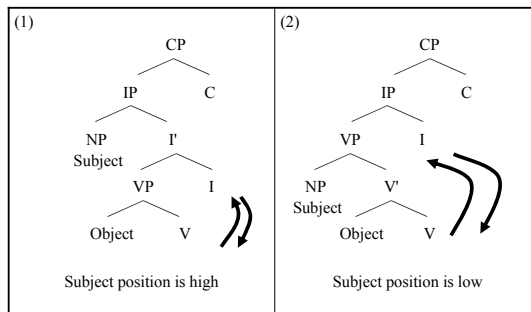| Parameter	English	Japanese	French	German	Welsh
HD parameter	Head-initial	Head-final	Head-initial	?	Head-initial
Subject placement parameter	Specifier of IP	Specifier of IP	Specifier of IP	?	Specifier of VP
Verb movement parameter	I down to V	?	V up to I	V up to I	V up to I
V2 parameter	No	?	No	Yes	?

Verb attraction and subject placement in head-final languages

- We have seen how the interaction of different parameters in head-initial languages can give rise to different languages, e.g., English, Welsh, French, and German.
- Now, one should wonder if we see this same parametric interaction in head-final languages.
- It turns out that, at least as far as we know, such interaction does not exist.

Verb attraction and subject placement in head-final languages

- Let's consider the interaction of subject placement and verb attraction with head-finality in tree-geometric terms.
- Here's how the two trees would look like for two head-final languages, one of which places the subject in specifier of IP, and the other places it in specifier of VP, with verb attraction going either up or down:

Verb attraction and subject placement in head-final languages

(1) [CP [IP [NP Subject] [I' [VP [Object] V] I]] C] Subject position is high

(2) [CP [IP [VP [NP Subject] [V' Object V]] I] C] Subject position is low

Verb attraction and subject placement in head-final languages

- As you can see, no matter where the subject is, it will precede the verb, and whether V moves up or I moves down, there is no effect on word order.
- The parametric approach thus predicts that no comparable word order variation in head-final languages can result from the subject placement and verb attraction parameters, which seems to be the case.

How about VOS, OVS, and OSV word orders then?

- VOS: Malagasy
    manasa ni lamba   ny vihavavy
    wash   the clothes the woman
    "The woman is washing the clothes."

- OVS: Hixkaryana
    kanawa yano toto
    canoe   took person
    "The man took the canoe."

How about VOS, OVS, and OSV word orders then?

- OSV: Nadëb
    samũũy   yi   qa-wùh
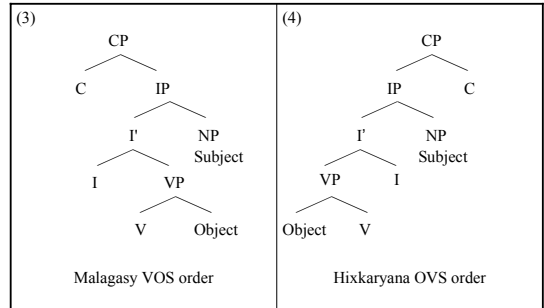   howler-monkey people eat
    "People eat howler-monkeys."

VOS and OVS

- VOS and OVS orders share one property: They both have the subject in final position.

- Perhaps there is a parameter that accounts for subject position in human language, then. Mark Baker suggests a "***subject side parameter***":
    "Subjects may occur initially or finally in the sentence."

VOS and OVS

- The interaction of the subject side parameter with the HD parameter should give us VOS (Mirror Japanese) and OVS (Mirror English):
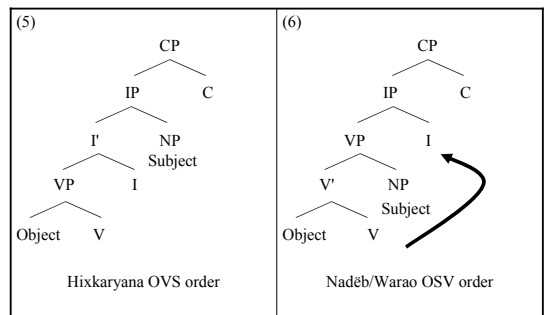
VOS and OVS

(3)
```
        CP
       /  \
      C    IP
          /  \
         I'   NP
        /  \  Subject
       I    VP
           /  \
          V    Object
```
Malagasy VOS order

(4)
```
           CP
          /  \
         IP   C
        /  \
       I'   NP
      /  \  Subject
     VP   I
    /  \
Object   V
```
Hixkaryana OVS order

Predictions?

- Now, here's a question:
  Would the verb attraction parameter and the subject placement parameter be relevant to either of these two language types, or both, or neither?

- Correct, it should be relevant for OVS orders, giving rise to Mirror Welsh. But does it exist? This is what Nadëb and Warao are claimed to be.

Deriving OSV

(5)
```
        CP
       /  \
      IP    C
     /  \
    I'   NP
   /  \  Subject
  VP    I
 /  \
Object  V
```
Hixkaryana OVS order

(6)
```
         CP
        /  \
       IP    C
      /  \
     VP    I
    /  \
   V'    NP
  /  \   Subject
Object  V
```
Nadëb/Warao OSV order

Summary table for the 6 language types

Parameter	English	Japanese	Welsh	Malagasy	Hixkaryana	Nadëb
HD parameter	H-initial	H-final	H-initial	H-initial	H-final	H-final
Subject side parameter	S-initial	S-initial	S-initial	S-final	S-final	S-final
Subject placement parameter	Specifier of IP	Irrelevant	Specifier of VP	Irrelevant	Specifier of IP	Specifier of VP
Verb attraction parameter	I to V	Irrelevant	V up to I	Irrelevant	Irrelevant	V to I

Something just doesn't seem right

- That looks like a nice story, except for one thing: It just can't be right.
- For one thing, our table makes it seem like all these types of basic word order languages should have the same statistical distribution, which is obviously not the case.
- Consider their frequencies in Tomlin's sample again:

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Distribution of basic word order types in the world's languages

Word order	# of Languages	%
SOV	180	45
SVO	168	42
VSO	37	9
VOS	12	3
OVS	5	1
OSV	0	0

Frequency of VSO: Bonus points!

- Nothing that we have said so far explains why VSO languages like Welsh should account for around 9% of human languages. They are not rare; but they are not predominant either.

- There is a mathematical explanation for the statistical distribution of VSO languages, however, given the assumptions we made in today's class. If you can come up with that, you get 10 points of extra credit. Make sure you illustrate your answer with tree diagrams. Let's set next Tuesday as a deadline for this extra credit assignment.

Cheating never pays! More bonus points

- Another problem with the table is that it cheats a little bit: For one thing, it says that the verb movement parameter is irrelevant to head-final languages like Japanese, but at the same time makes use of that specific parameter to explain the difference between Hixkaryana and Nädeb.

- Since the argument for making verb movement irrelevant to head-final languages is compelling, we should probably keep to that assumption. But then we have to explain how languages like Hixkaryana and Nädeb exist, and why they are so rare.

- If you can think of an analysis whereby we explain the word order in these languages, while accounting for the rarity of these languages at the same time, you get 10 more extra credit points. Deadline is next Tuesday as well.

Back to UG principles

- In the rest of today's lecture, I would like us to discuss examples of universal principles of grammar, and how they help us account for certain facts about the syntax and semantics of human languages.

Constraints on Wh-movement

- We have already seen examples of wh-movement in English (remember "*t*" is the trace of the moved wh-phrase):

    Who did John meet *t* ?

- Notice that the distance between the wh-phrase and its original position in the D-structure could extend across several CPs:

    Who did you say that John met *t* ?

    Who does Mary believe that you said that John met *t* ?

Constraints on Wh-movement

- But now consider these cases of wh-movement:

    *Who did you meet Mary and *t* ?

    *Who do you believe the claim that Mary met *t*?

    *Which book did Mary talk to the author who wrote *t*?

    *Who do you wonder whether Mary met *t* ?

    *Who did Mary talk to John without meeting *t* ?

- Obviously, wh-movement is not unconstrained. There are cases where the movement is for some reason *blocked*.

Islands

- The substructures out of which wh-movement is blocked are technically called *islands*.
- Complex NPs are also islands:

  *Who do you believe [$_{NP}$ **the claim that Mary met** *t*]?
- Relative clauses are also islands:

  *Which book did Mary talk to **[the author who wrote** *t*]?
- Also, embedded CPs introduced by a wh-word act as islands blocking wh-movement:

  *Who do you wonder [$_{CP}$ **whether Mary met** *t*]?

Islands

- Adverbial clauses are islands:

  *Who did Mary talk to John **[without meeting** *t*] ?
- Coordinate NPs are also islands;

  *Who did you meet [$_{NP}$ **Mary and** *t*]?
- Island constraints cannot possibly be learned on the basis of primary linguistic data that the child hears around her. Therefore, they must be built-in.

Link on islands

- A discussion of islands is available through one of the links on the textbook website. Go there, click on the Syntax chapter, then click on the link to Constraints. Remember that you need to have an account to be able to access the materials.

Binding!

- Let's revisit some English examples from early in the semester on the difference between reflexives and other kinds of pronouns.
- Before we do that, just a quick note on "convention": To indicate coreference between two elements in a sentence, linguists use the convention of subscripting both elements with the same index, e.g.,

  John$_i$ said that he$_i$ already had lunch. (*John = he*)

  John$_i$ said that he$_j$ already had lunch. (*John ≠ he*)

Binding!

a. John$_i$ hurt himself$_{i/*j}$

                (*himself* has to refer to John; it cannot refer to someone else)

b. John$_i$ hurt him$_{*i/j}$

                (*him* cannot refer to John; it has to refer to someone else.)

c. John$_i$ said that Bill$_j$ hurt himself$_{*i/j}$

                (*himself* refers to Bill, but not to John)

d. John$_i$ said that Bill$_j$ hurt him$_{i/*j/k}$

                (*him* cannot refer to Bill, but may refer to John or to someone else)

Binding!

- So, why is coreference between the reflexive pronoun *himself* and *John* allowed in (a), but not in (c)?
- Similarly, why is coreference between the pronoun *him* and *John* is possible in (d), but disallowed in (b)?

Binding Principles

- The explanation for these "binding" facts follows from universal principles of grammar.
- In particular, there are two principles at work here:

  Binding Principle A:

  An anaphor (e.g., a reflexive expression) must be bound by an NP in the smallest IP it is in.

  Binding Principle B:

  A pronoun cannot be bound by an NP in the smallest IP it is in.

Binding!

- Let's reconsider the data in light of these two principles.

  a. John_i hurt $\text{himself}_{i/*j}$

- What's the smallest IP in which the reflexive *himself* occurs?

  Well, there's only one IP.

  By Binding Principle A, there has to be an NP to "bind" the reflexive in that IP. Since *John* is the only NP in the IP, it follows that *himself* has to refer to *John*, as desired.

Binding!

- Now, how about the following sentence:

  b. John_i hurt $\text{him}_{*i/j}$

- What's the smallest IP in which the pronoun *him* occurs?

  Well, there's only one IP.

  By Binding Principle B, there cannot be an NP that "binds" the pronoun in that IP. Since *John* is an NP in that IP, it follows that *him* cannot refer to *John*, as desired.

Binding!

- Now, consider (c):

  c. John_i said that Bill_j hurt $\text{himself}_{*i/j}$

- What's the smallest IP in which the pronoun *him* occurs?

  Here we have two IPs: the matrix IP_1 and the embedded IP_2:

  $[_{CP} [_{IP1} \text{John}_i \text{ said } [_{CP} \text{ that } [_{IP2} \text{Bill}_j \text{ hurt himself}_{*i/j}]]]]$

- Given Binding Principle A, the reflexive *himself* has to be bound in the smallest IP, which in this case is the embedded IP_2. Since *Bill* is the only NP in IP_2, it follows that *himself* and *Bill* have to corefer. By contrast, since the NP *John* is in the larger IP_1, it follows that *himself* cannot refer to *John*, as desired.

Binding!

- Finally, let's consider (d):

  d. John_i said that Bill_j hurt $\text{him}_{i/*j/k}$

- What's the smallest IP in which the pronoun *him* occurs?

  Here we have two IPs : the matrix IP_1 and the embedded IP_2:

  $[_{CP} [_{IP1} \text{John}_i \text{ said } [_{CP} \text{ that } [_{IP2} \text{Bill}_j \text{ hurt him}_{i/*j/k}]]]]$

- Given Binding Principle B, the pronoun *him* cannot be bound in the smallest IP, which in this case is the embedded IP_2. Since *Bill* is an NP in IP_2, it follows that *him* and *Bill* cannot corefer. By contrast, since the NP *John* is in the larger IP_1, it follows that *him* can be bound by *John*. Additionally, since Principle B does not force coreference, it follows that *him* can refer to someone else understood from the discourse.

Time for a puzzle

- Now consider this sentence:

  $[[\text{John}]_i\text{'s father}]_j$ likes $\text{himself}_{*i/j}$.

- Since the smallest IP in which the reflexive *himself* occurs is the whole sentence, we should predict by Principle A that any NP in that IP should be able to bind the reflexive. This is not the case, however. Only the NP *John's father* can be a binder for the reflexive. The NP *John*, by contrast, cannot.

Time for a puzzle

- The same problem arises with the following sentence:

  [[John]$_i$'s father]$_j$ likes him$_{i/*j/k}$.

- Since the smallest IP in which the pronoun *him* occurs is the whole sentence, we should predict by Principle B that no NP in the sentence can function as a potential binder. This is not the case, however, since there is a possible reading for the sentence in which the NP *John* and the pronoun *him* are coreferential.


Hmmm…. What can we do?

Hierarchy does matter: *C-command*

- The solution to the problem rests on one of the fundamental notions in syntactic theory: ***c-command*** (the "c" is for "constituent").
- C-command is a tree-geometric relation, but to understand it, we need to introduce first some other basic tree-geometric terms.
- Thinking of a syntactic tree as a family tree, we use terms for family relations to refer to relations between nodes in the tree.
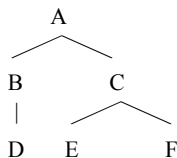

Mothers, daughters, and sisters

- Consider the following abstract tree:

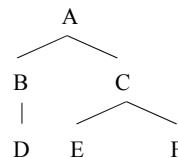 A
  / \
  B   C
  | / \
  D E   F
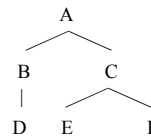
- We say:
- A is a mother of B and C; C is a mother of E and F; and B is a mother of D.
- B and C are sisters, and so are E and F.
- B and C are daughters of A, and E and F are daughters of C. D is a daughter of B.

C-command

A
/ \
B   C
| / \
D E   F

- What's c-command then?
- C-command is the structural relation holding between a node and its sister as well as any daughter(s) of that sister.
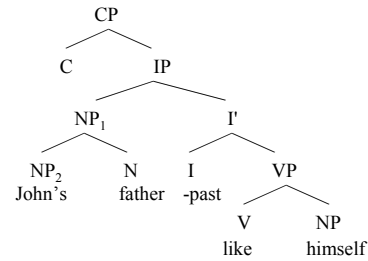

C-command

A
/ \
B   C
| / \
D E   F

- "*B c-commands C, E and F*," because C is a sister of B, and E and F are daughters of C.
- "*C c-commands B and D*," because B is a sister of C, and D is a daughter of B.

Solving the binding puzzles

- So, how does c-command help us in solving the puzzles noted earlier with regard to binding reflexives and pronouns?
- To see that, we need to draw a tree for each sentence first.

$[[\text{John}]_i\text{'s father}]_j$ likes himself$_{*i/j}$

```
                CP
              /    \
             C      IP
                  /    \
               NP_1     I'
              /    \   /   \
           NP_2    N  I     VP
          John's father -past / \
                              V   NP
                             like himself
```
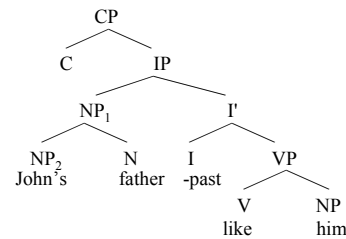
- Why is reflexive binding by NP$_1$ is possible, but not by NP$_2$?

Binders are c-commanders

- The key to the solution to the puzzle is that a binder is not just any NP preceding the reflexive. It also has to c-command the reflexive.
- We can thus restate Binding Principle A to incorporate this fact:

  "An anaphor must be bound by a c-commanding NP in the smallest IP it is in."

$[[\text{John}]_i\text{'s father}]_j$ likes him$_{i/*j/k}$

```
                CP
              /    \
             C      IP
                  /    \
               NP_1     I'
              /    \   /   \
           NP_2    N  I     VP
          John's father -past / \
                              V   NP
                             like him
```

- Why is coreference between *him* and NP$_2$ possible, but not between *him* and NP$_1$?

Binders are c-commanders

- Same thing: C-command does matter. Coreference between *John* and *him* is possible because *John* does not c-command *him*.
- We can thus restate Binding Principle A to incorporate this fact:

  "A pronoun cannot be bound by a c-commanding NP in the smallest IP it is in."

Another puzzle?

  John$_i$ loves his$_i$ mother.
  *John$_i$ found Mary's picture of himself$_i$.

- Any problems there?
- Intrigued? Visit the textbook website, click on the chapter on Semantics, then click on pronouns.

Next class agenda

- First language acquisition: What do kids do when they learn a language? Read Chapter 11.