LNGT0101
Introduction to Linguistics

Lecture #10
Oct 19th, 2015

Compounding ambiguity

After reading a 52nd straight Reagan Book that still wasn’t even remotely about penguins, little penguin was beginning to suspect a marketing sham by the book publishing industry.

What’s a pronoun?

Forensic linguistics

• Discussion.

A visual puzzle

http://www.magicmgmt.com/gary/oi_pac_tri/#

Another visual illusion (just for fun)

http://www.youtube.com/watch?v=hPCoe6RRks&feature=player_embedded#!
Summary of Syntax so far

• Syntax is the study of sentence structure.
• They key notion to understanding sentence structure in human language is “constituency.”
• Constituency of a string of words can be determined by objective diagnostics: substitution, movement, clefting, and standalone tests.

Summary of Syntax so far

• Constituents are phrases. A phrase is a string of words composed of a syntactic head, its complement (if needed), and its specifier (if any).
• All phrases follow the simple X'-schema:

```
XP
  \_________
 Specifier \     \ X Complement
 X         
```

Summary of Syntax so far

• The syntactic categories we talked about so far are: NP, VP, PP, AP, AuxP, and CP.
• Our grammar thus far has two types of rules:
  (i) Phrase structure rules (PSRs) of the form A \to B C, and
  (ii) Lexical insertion rules, which insert words into syntactic structures generated by PSRs.

Summary of Syntax so far

• Under this theory of syntax, the structure of any clause has three layers:
  - a CP, where C marks the type of the clause,
  - an AuxP, where Aux marks the tense properties of the clause,
  - a VP, where the core of the clause is represented.

An abstract tree generated by some PSRs

```
CP
  \_________
 AuxP \     \ NP
     X         
   Aux' \     \ Det N Aux VP PP V P NP Det N
```

Sentences we drew trees for

1. Our children like this music.
2. John is proud of his medals.
Our children like this music.

John is proud of his medals.

What do trees tell us?

- Tree diagrams show three aspects of speakers' syntactic knowledge:
  a. the linear order of the words in the sentence,
  b. the groupings of words into particular syntactic constituents (e.g., NP, VP, etc.), and
  c. the hierarchical structure of these constituents (that is, the fact that constituents contain constituents inside them, which in turn contain other constituents, and so on and so forth).

Heads and complements

- See handout.

Let's draw some trees: Exercise 8, p. 131

- The puppy found the child.
- A surly passenger insulted the attendant.
- The hot sun melted the ice.
- The old tree swayed in the wind.
- The students in this class are awesome.

Here's the mini PSG

1. CP → C AuxP
2. AuxP → NP Aux'
3. Aux’ → Aux VP
4. VP → V (NP) (PP)
5. VP → V (CP)
6. VP → V (AP)
7. NP → (Det) N (PP)
8. PP → (Deg) P NP
9. AP → (Deg) A (PP)
How adequate is this basic theory of syntax?

• Revisiting some syntactic puzzles:
  - Recursiveness
  - Ambiguity
  - Cross-linguistic variation (e.g., in word order between English and Japanese)
  - Sentence relatedness

Why is syntax recursive?

• John hates war.
• Mary believes that John hates war.
• Bill thinks that Mary believes that John hates war.
• Etc.

Why is syntax recursive?

a. The linguist knows that this language has become extinct.

b. The biologist believes that the linguist knows that this language has become extinct.

c. The neuroscientist claims that the biologist believes that the linguist knows that this language has become extinct.

d. etc.

Why are some sentences ambiguous?

• The following sentence is two-way ambiguous:
  *Anne hit the man with an umbrella.*

• Can our phrase structure grammar account for that fact?

• Let’s do some tree-drawing and see if we can figure this one out.
Ambiguity revisited

1. CP → C AuxP
2. AuxP → NP Aux'
3. Aux' → Aux VP
4. VP → V (NP) (PP)
5. VP → V (CP)
6. NP → (Det) N (PP)
7. PP → (Deg) P NP
8. AP → (Deg) A (PP)

Cross-linguistic variation in word order

• Also, phrase structure grammar can explain to us why languages such as English and Japanese are so different in their surface word order.

English vs. Japanese

• English:
The child might think that she will show Mary's picture of John to Chris.

• Japanese:
Taro-ga Hiro-ga Hanako-ni zibun-no
Taro-sus Hiro-sus Hanako-to self-ross
syasin-o miseta to omette iru
picture-o showed that thinking be
"Taro thinks (literally, is thinking) that Hiro showed a picture of himself to Hanako."
How are the relationships between Elements A and Elements B differ in English and Japanese?

<table>
<thead>
<tr>
<th>Element A</th>
<th>Element B</th>
<th>English</th>
<th>Japanese</th>
</tr>
</thead>
<tbody>
<tr>
<td>V</td>
<td>NP</td>
<td>A precedes B</td>
<td>A follows B</td>
</tr>
<tr>
<td>V</td>
<td>PP</td>
<td>A precedes B</td>
<td>A follows B</td>
</tr>
<tr>
<td>V</td>
<td>embedded CP</td>
<td>A precedes B</td>
<td>A follows B</td>
</tr>
<tr>
<td>P</td>
<td>NP</td>
<td>A precedes B</td>
<td>A follows B</td>
</tr>
<tr>
<td>N</td>
<td>PP</td>
<td>A precedes B</td>
<td>A follows B</td>
</tr>
<tr>
<td>C</td>
<td>embedded AuxP</td>
<td>A precedes B</td>
<td>A follows B</td>
</tr>
<tr>
<td>Aux</td>
<td>VP</td>
<td>A precedes B</td>
<td>A follows B</td>
</tr>
</tbody>
</table>

English vs. Japanese

• How do we express the difference between English and Japanese in terms of the X'-schema for phrase structure then?

The X'-schema in English vs. Japanese

```
English
XP
 Specifier     X'
     X_head     Complement

Japanese
XP
 Specifier      X'
    Complement  X_head
```

The head directionality parameter

• The difference between English and Japanese thus comes down to the “directionality” of the head within the phrase: heads are initial in English, but final in Japanese. This is typically referred to as the **head directionality (HD) parameter**:

  Heads occur initially (i.e., before their complements) or finally (i.e., after their complements) within phrase structure.

The head directionality parameter

• The head-initial setting of the HD parameter holds in English, Edo, Thai, Khmer, Indonesian, Zapotec and Salish, while the head-final setting holds in Japanese, Lakhota, Turkish, Basque, Navajo, the languages of the Eskimos, and Quechua.
How about subjects?

• Notice that the HD parameter does not say anything about the position of subjects in sentences, since these are not complements (they are specifiers, remember?).
• This is actually good, since English and Japanese are both subject-initial. So, in both languages, the subject is the specifier of Aux: 
  \[ \text{AuxP} \rightarrow \text{NP} \text{ Aux}' \]

So, why do English and Japanese look dramatically different in word order?

• Now, let’s try to make things more interesting and see how and why English and Japanese look dramatically different on the surface.
• That’s where trees can help for sure.

English vs. Japanese

• Compare English and Japanese again:
  John said that Mary read the book.

  \[ \text{John-ga Mary-ga hon-o yon-da-tu it-ta} \]
  \[ \text{JOHN-SUB Mary-SUB book-OBJ read-PAST-COMP say-PAST} \]

• Given the PSRs for both English and Japanese, draw a tree for each sentence.
So, ...

- A simple difference in head directionality leads to a dramatic variation on the surface, due to its cumulative effect on all heads and complements in a language.
- In addition, since the HD parameter does not apply to specifiers, it follows that both English and Japanese will behave the same with regard to the position of subjects in sentences.

And ...

- Finally, since the HD parameter has two settings only, it predicts two types of languages, SOV and SVO, which is exactly what we find in language samples: these two orders represent about 90% of human languages.
- We still need to account for the remaining 10% but we won’t do this in this class. (Interested? Take that route:  LNGT 0250).

Next class agenda

- Finishing up syntax.
- We also start phonetics: Chapter 5, pp. 189-204.