

## September 24 summary (24.902)

### 1. Japanese phrase structure

Consider sentences in Japanese whose word order is perceived by native speakers as "normal" -- or, in linguists' jargon, *unmarked*. These sentences conform to a very neat generalization across all categories:

- (1) **Japanese word order**  
 For any head H:  
 a. H follows its complements.  
 b. H' follows all adjuncts (modifiers).  
 c. H' follows its specifier.

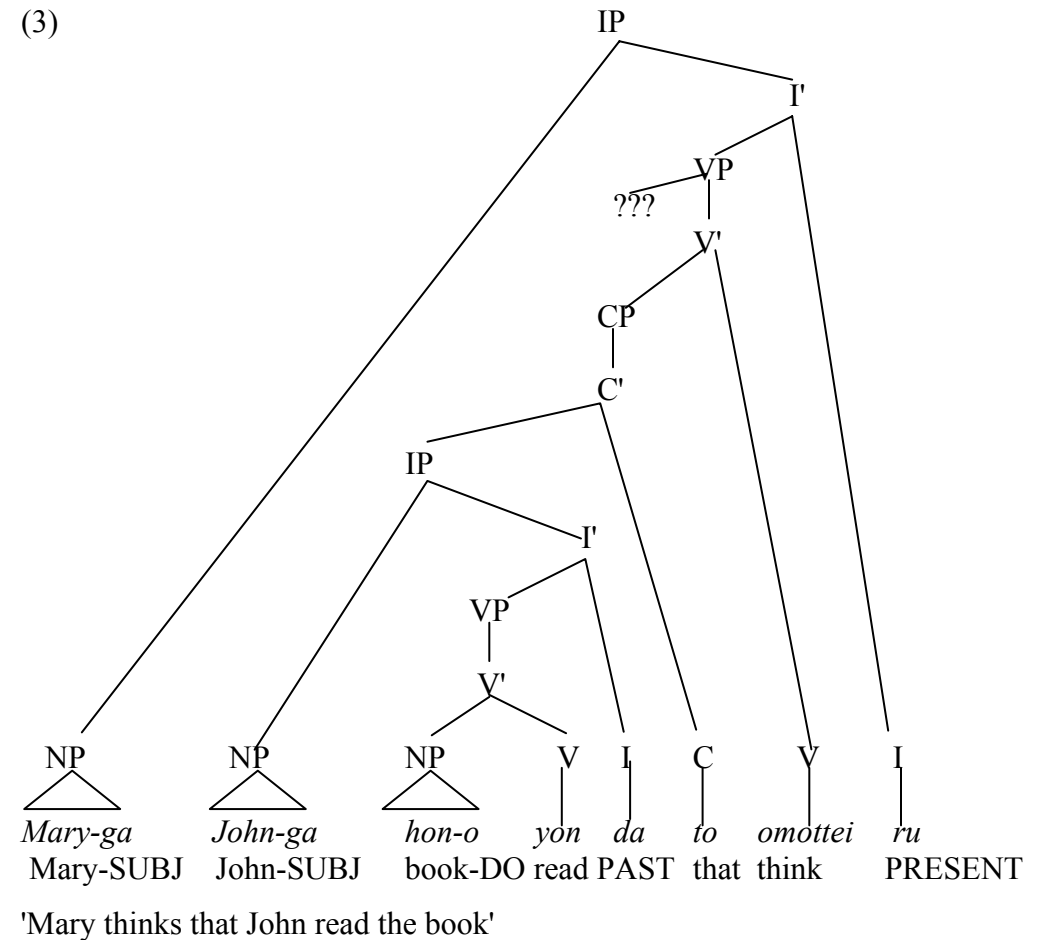
Expressing this using Phrase Structure rules, where *complements* stands in for whatever the complements of a particular head may be, etc:

- (2) **Phrase structure rules for Japanese**  
 H' --> *complements* H  
 H' --> *adjuncts* H'  
 HP --> *specifier* H'

It is important (and reassuring) to note that the same elements singled out as heads when we examined subcategorization in English (see the previous summary) are identified as heads in Japanese according to the generalization in (1) and (2).

- Thus, for example, the fact that verbs in English whose complement is a subordinate clause "care about" the particular choice of C told us that C is the head of the subordinate clause. Lo and behold, the C of a subordinate clause comes last in Japanese -- just where the head should be. That's why we call it CP!
- Similarly, the fact that English C "cares about" its complement's I, told us that I is the head of the complement of C. Lo and behold, the I of the complement to C comes last in Japanese. So we call the phrase IP.

The Japanese handout has many relevant examples. Here's the example that shows C final in CP and I final in IP (as well as V final in VP etc.). It was example (6) on the Japanese handout:



### 2. Introducing *Movement*: Scrambling in Japanese

But there's a problem.

- Although the word orders on the left side of the Japanese handout are felt by native speakers to be "normal" and "unmarked", other word orders are possible.
- In particular, the object may precede the subject, and the order of direct and indirect object may be reversed (and they may be freely ordered with respect to the subject):

(4) **Scrambling in Japanese**

- a. Taroo-ga Hanako-ni piza-o age-ta.  
Taro-SUB Hanako-to pizza-OBJ gave
- b. piza-o Taroo-ga Hanako-ni age-ta.  
c. Taroo-ga piza-o Hanako-ni age-ta  
d. piza-o Hanako-ni Taroo-ga age-ta.  
e. Hanako-ni piza-o Taroo-ga age-ta.  
f. Hanako-ni Taroo-ga piza-o age-ta.

It looks as though the scrambled orders in (4b-f) arise from a process distinct from the basic rules of Phrase Structure -- an "add-on" to the theory of phrase structure that we call *movement*.

(5) **Hypothesis:**

The phrase structure of Japanese (and other languages) is determined by two factors:

- a. the structure determined by the basic phrase structure rules in (2); and  
b. the structures determined by *moving* one or more constituents to a new position.

Here is some evidence in favor of a two-part hypothesis about Japanese scrambling sentences like the hypothesis in (5). The evidence comes from work of the Japanese linguist *Yuki Kuroda*.

*Step #1:* A numeral in Japanese, unsurprisingly, is generally found next to the noun it "quantifies over":<sup>1</sup>

- (6) a. Gakusei-ga 2-ri piza-o katta.  
students-*nom* 2-cl pizza-*acc* bought  
'Two students bought pizza.'
- b. \*Gakusei-ga piza-o 2-ri katta.  
students-*nom* pizza-*acc* 2-cl bought  
'Two students bought pizza.'

We might suppose that the quantifier is a D that takes an N' as its sister, like English *the, a* (and possibly English *two, three* etc.). Example (1b) shows that a numeral that quantifies over the subject may not be separated from the subject by the direct object in an SOV sentence.

*Step #2:* In some instances, however, a Japanese numeral *may* be separated from its N' by other material. In particular, when a constituent is found in a position that is "surprising", given the basic phrase structure rules in (2), its numeral may (optionally) be found in the position in which we would have *expected* its N' to occur -- if there were no scrambling.

<sup>1</sup> A Japanese numeral takes a *classifier* suffix (abbreviated *cl* in the gloss), which agrees in features like "animacy" (among others) with the N' that it quantifies over.

- (7) a. Gakusei-ga piza-o 2-tu katta  
student-SUB pizza-OBJ 2-cl bought  
'The student bought two pizzas.'

- b. Piza-o gakusei-ga 2-tu katta  
pizzas-OBJ student-SUB 2-cl bought  
'The student bought two pizzas.' (compare with (6b)!)

The numeral may also travel along with the scrambled phrase. (Laurel asked about this in class, and I didn't have the examples on the handout.) In other words, the pattern seen in (7b) is not the only option, as example (8) shows:

- (8) Piza-o 2-tu gakusei-ga katta

Other examples of the phenomenon seen in (6)-(8) are given in problem set #4.

(9) **Analysis:**

- a. Basic phrase structures of Japanese are generated by the rules in (2).  
b. Scrambling optionally applies, moving either NP or N' leftward.

Note that there are three options in every derivation: <sup>2</sup> (1) don't scramble; (2) scramble NP; (3) scramble N'. Actually, there are more choices since, if there's a direct and an indirect object, you could choose to scramble one or the other, or both, or neither (and for each instance of scrambling, you could choose to scramble NP or N').<sup>3</sup>

The important lesson that we learn from this phenomenon (called Numeral Quantifier Float, by the way -- for historical reasons) is that even when we hear the scrambled phrase at the left of the sentence, it is also has a presence in its expected position. We model this situation with the device called movement.

An important detail that we are not filling in right now is *where* in the tree the scrambled element ends up. It does occupy a tree position; it's not just floating in hyperspace somewhere. But I don't want to discuss this issue now.

**3. Verb movement I: apparent violations of subcategorization in French**

- One reason we worried about scrambling in Japanese is the fact that subcategorization restrictions between V and the direct object appear to work in Japanese just as in English.

<sup>2</sup> *Derivation:* The sequence of operations (phrase structure rules, movements) that yields the structure of a sentence.

<sup>3</sup> Actually, the hypothesis that N' scrambles when the numeral is stranded is probably not correct, since we do not find other (clear) instances in which a single-bar constituent (N', V', A' etc.) undergoes movement. Movement seems limited to maximal projections and to heads. If we analyze D as the head of D+NP (i.e. if we analyze *the student of chemistry* as a DP), then the choice in scrambling is between a DP and an NP, which looks more like other instances of movement. But these details will come later in the class.

- We expect that core facts about language like the "locality property" of subcategorization will not differ randomly from language to language. So it was reassuring to see actual evidence that Japanese complements start out next to their verb, just like English complements.

French poses a similar puzzle, in a different domain of data. In a finite<sup>4</sup> clause in which an adverb modifies VP (and is not on the right side of VP), the adverb obligatorily comes between the verb and its complements:

- (10) **V Adv DO<sup>5</sup>**
- a. Marie parle souvent français.  
 Marie speaks often French  
 'Marie often speaks French.'
- b. \*Marie souvent parle français.

Negation (*pas* 'not') works the same way:

- (11) **V Neg DO**
- a. Marie ne parle pas français.  
 Marie *ne* speaks not French  
 'Marie doesn't speak French.'
- b. \* Marie ne pas parle français.

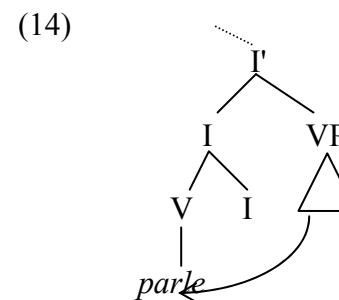
Something we didn't get to on Wednesday, but which is relevant nonetheless: in an infinitival clause, the verb may not be separated from its object by negation:

- (12) **V does not move to I in an infinitival clause**
- a. ...ne pas parler français...  
*ne* not speak French  
 'to not speak French'
- b. \*...ne parler pas français...

The fact in (12) suggest that the laws of phrase structure are not just different in French. Instead, it suggests that something special happens to the finite verb: movement. Here there is an obvious hypothesis about where the verb moves to. The verb might very well occupy the position we have been calling I:

- (13) **Hypothesis: Verb movement**  
 In French, [+finite V] moves to I.

By executive order, I will tell you the structure produced by V-to-I movement. It is called *adjunction* (the verb is "adjoined" to I), and looks like this:



The V becomes a sister of I and the node immediately dominating V and I is another instance of I. Don't ask why, just do it. (Sorry.)

More to come...

<sup>4</sup> "finite" = "not an infinitive", i.e. bears tense (present, past, future...)

<sup>5</sup> DO = "direct object"