

INTD0111A/ARBC0111A

The Unity and Diversity of Human Language

Lecture #6
Sept 28th, 2006

Main question: How are SVO and SOV languages different?

- Japanese and English look very different on the surface, but the parametric approach attributes that to a single difference in head directionality: initial in English, final in Japanese.
- To see how, let's review the data quickly and then introduce some syntax.

English vs. Japanese

- English:
The child might think that she will show Mary's picture of John to Chris.
- Japanese:
Taroo-ga Hiro-ga Hanako-ni zibun-no
Taroo-SU Hiro-SU Hanako-to self-POSS
syasin-o miseta to omette iru
picture-OB showed that thinking be
"Taro thinks (literally, is thinking) that Hiro showed a picture of himself to Hanako."

Word order correlates in English and Japanese

Element A	Element B	English	Japanese
Verb	Direct Object	A precedes B	A follows B
Verb	Pre-/post-position phrase	A precedes B	A follows B
Verb	Embedded Clause	A precedes B	A follows B
Pre-/post-position	Related Noun Phrase	A precedes B	A follows B
Noun	Pre-/post-position phrase	A precedes B	A follows B
Complementizer	Embedded Clause	A precedes B	A follows B
Auxiliary	Main verb	A precedes B	A follows B

A crash course in theoretical syntax

- Syntax is the study of how words combine together to form larger units in human language.
- The larger units are typically called phrases and sentences, and the use of these combinatorial rules creates "structure".
- In short, then, syntax is *the study of structure in human language*.

Constituency

- Consider the following sentence:
The linguist has drawn a tree.
- If I ask you to divide the sentence into two units, where would you draw the line?
- Right:
(1) The linguist | has drawn a tree.

Constituency

- Intuitively, we “know” that certain words “hang together” in the sentence to the exclusion of others. We call such strings of words “constituents”.
- And we can actually determine constituency by means of “objective” diagnostic tests. Let's consider a couple of these tests.

Substitution test for constituency

- If a string of words can be replaced by one word and the result is a grammatical sentence while preserving the original meaning, then it must be that this string of words comprises a “constituent”.

Substitution test for constituency

- (2) a. [The linguist] has drawn a tree.
✓ *He* has drawn a tree..
b. The [linguist has drawn a tree].
*The ???
c. [The linguist has] drawn a tree.
*??? drawn a tree.
d. [The linguist has drawn a] tree.
*??? tree.

Substitution test for constituency

- (3) a. [The tall boy] ate the burrito.
✓ *He* ate the burrito.
b. The tall boy ate [the burrito].
✓ The linguist ate *it*.
c. [The tall boy ate] the burrito.
*??? the burrito.
d. The tall boy [ate the burrito]
✓ The tall boy *did*.
e. The tall boy ate the burrito [in the classroom]
The tall boy ate the burrito *there*

Fronting test for constituency

- If a string of words can be fronted in a sentence, then this string of words comprises a “constituent”:
- (4) a. I first met him [at the party].
At *the party* I first met him.
b. I first met [him at the party].
**Him at the party* I first met.

Fronting test for constituency

- c. I knew he would [eat the whole pizza],
and *eat the whole pizza* he did.
d. *I knew he [would eat the] whole pizza,
and *would eat the* he did whole pizza.
e. I read [this book by Chomsky] before.
This book by Chomsky I read before.
f. I read this book [by Chomsky before].
**By Chomsky before* I read this book.

Fronting test for constituency

- Once we determine that a string is a constituent, the next step is to determine its syntactic type, or category.
- As we mentioned last time, a string of more than one word will have a *head* and a *complement*, and the syntactic category of the whole string is that of the head:

Phrase structure grammar

- So, "picture of the boys" is a *noun phrase* (NP), since the head of the string is the N "picture".
- "ate the sandwich", by contrast, is a *verb phrase*, since the head of the string is the V "ate".
- "in the office" is a *prepositional phrase* (PP) since the head of the string is the P "in".

Phrase structure grammar

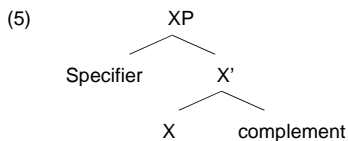
- We express this head-complement relationship by means of rewriting rules, which we call *phrase structure rules*, as in the following examples:
 NP → N PP
 VP → V NP
 PP → P NP
 etc.

Phrase structure grammar

- Notice that while complements may be obligatory (depending on the requirements of the head), a head may also have optional "satellite" elements, e.g.,
John's picture of the boys
quickly ate the sandwich
right into the office
- These optional elements are called *specifiers*.

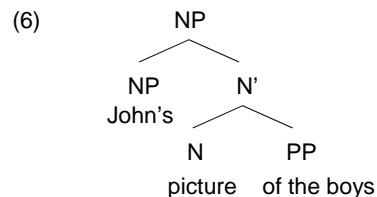
X'-schema for phrase structure

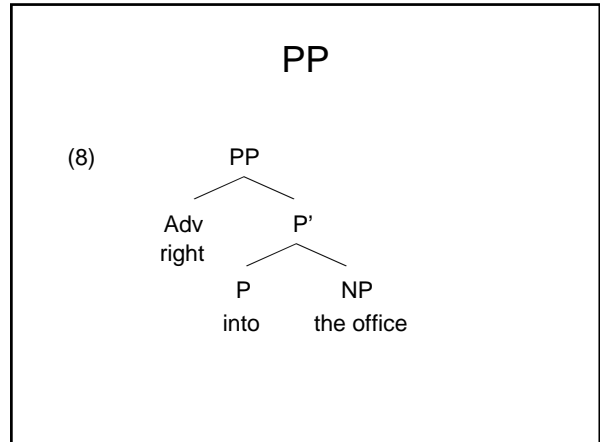
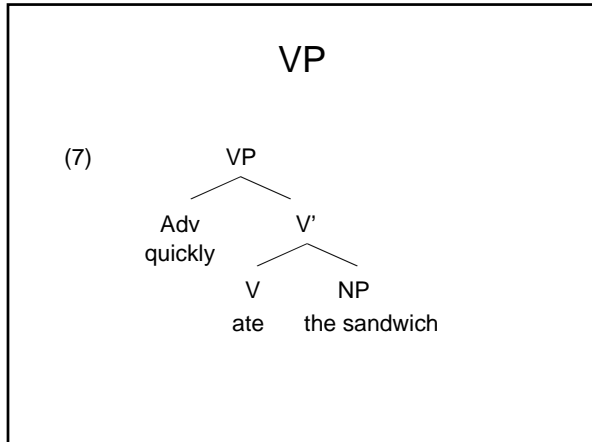
- To generalize, using X as a variable ranging over all heads, every phrase has the internal structure below:



- We can then apply this X'-schema to all heads.

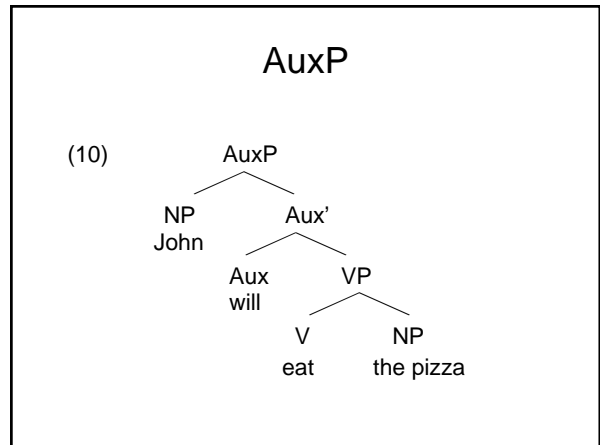
NP





And yet another category

- Consider now sentences such as
(9) John will eat the pizza.
- Since we know that “John” is a constituent, it must be that “will eat the pizza” is also a constituent. But what kind of constituent is it?
- Suppose we assume that the head here is the auxiliary verb “will”, whose complement is the VP “eat the pizza”, and whose specifier is the subject “John”, as shown in the following diagram:



AuxP

- But now consider this sentence:
(11) John ate the pizza.
- Since the subject “John” is still present, we have to assume that there is some Aux element in the sentence, since subjects are specifiers of Aux. But it does not look like there is an auxiliary verb there.
- To solve this problem, let's assume that *Tense* is actually a form of Aux (alternatively, we can assume that Aux is a form of Tense, which is the standard view now, but this is a labeling issue).

AuxP

- The structure of “John ate the pizza” will look like that, then:

(12)

```

graph TD
    AuxP2[AuxP] --- NP3[NP  
John]
    AuxP2 --- Aux_prime2[Aux']
    Aux_prime2 --- Aux2[Aux  
past]
    Aux_prime2 --- VP2[VP]
    VP2 --- V2[V  
eat]
    VP2 --- NP4[NP  
the pizza]
  
```

- Question: How does “eat” and “past” become the word “ate”?

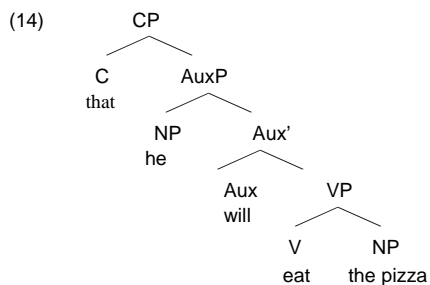
One more category

- Consider the embedded clause in (13) John says [that he will eat the pizza].
- Now, the embedded clause looks identical to the AuxP from the previous slide, except that it has an extra element, that is, the complementizer *that*, which carries the so-called *illocutionary force* of the clause, e.g., whether the clause is declarative or interrogative.

CP

- Using the same X'-schema, then this must be a head-complement relation (though no specifier is available here, but remember that specifiers are optional).
- Let's assume then that C also heads a phrase whose complement is AuxP, as shown on the next slide:

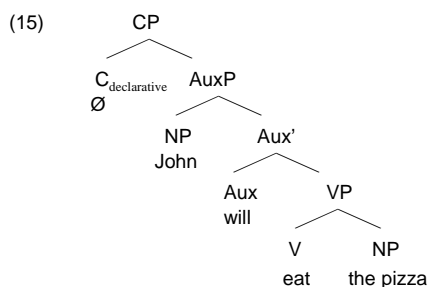
CP (embedded)



CP

- Notice, however, that if C determines the illocutionary force of a clause, then it must also be present in main (i.e., non-embedded) clauses, though not pronounced.
- In other words, the structure of “*John will eat the pizza*” is actually as on the next slide, with a null C heading the sentence and indicating that this is a declarative sentence:

CP (main)



A mini-grammar for English phrase structure

- So putting all of this together, here's a mini-grammar for English phrase structure, where bracketing indicates optionality:

(16)

CP → C AuxP
 AuxP → NP Aux'
 Aux' → Aux VP
 VP → V (NP)
 VP → V (PP)
 VP → V (CP)
 NP → N (PP)
 PP → P NP

A mini-grammar for English phrase structure

- In addition, we have to assume a set of rules that insert words under “terminal” nodes in the tree, e.g.,
 - N → {man, dog, justice, ...}
 - V → {love, hit, leave, ...}
 - Aux → {will, must, Past, Future, ...}
 - etc.
- As you should expect, these are called *lexical insertion* rules.

The head directionality parameter

- Now, let's remind ourselves of the *head directionality parameter* from last time:
 - Heads occur initially (i.e., before their complements) or finally (i.e., after their complements) within phrase structure.
- Since Japanese is a head-final language, the mini-grammar for Japanese phrase structure will have the same rules as in English, except for the position of the head:

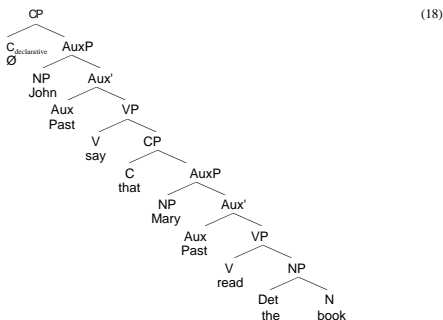
A mini-grammar for Japanese phrase structure

- (17)
- CP → AuxP C
 - AuxP → NP Aux'
 - Aux' → VP Aux
 - VP → (NP) V
 - VP → (PP) V
 - VP → (CP) V
 - NP → (PP) N
 - PP → NP P

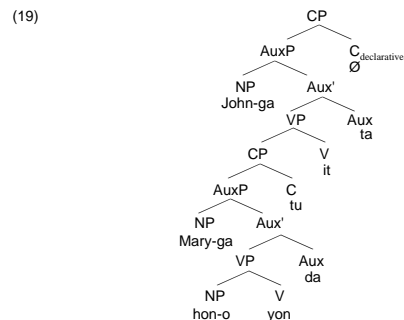
So, why do English and Japanese look dramatically different then?

- Compare English and Japanese again:
 - John said that Mary read the book.
- John-ga Mary-ga hon-o yon-da-tu it-ta
 John-SU Mary-OB book-OB read-past-comp say-past
- Given the PSRs for both English and Japanese, the structural trees will look as follows:

First: English



Second: Japanese



So, ...

- The principles and parameters approach thus accounts for word order correlates in SVO and SOV languages in a straightforward manner.
- Notice also how 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.

And ...

- In addition, since the HD parameter does not apply to subjects, it follows that both English and Japanese will behave the same with regard to the position of subjects in sentences.
- 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.

Japenenglish!

- But equally important, the HD parameter also predicts the non-existence or at least the rarity of Japenenglish-type languages, i.e., languages in which the verb precedes the object but that are also postpositional, or languages in which the verb follows the object but that are also prepositional, (in contradiction with Greenberg's *Universal 4*).

Japenenglish!

- As Baker notes, in such languages we expect to find structures like this:
Chris put the book the table on.
Chris the book on the table put.
- But Japenenglish-type languages are very rare, if existent (but see assignment #1). This is good news for the parametric approach since Japenenglish is predicted to be an unattested human language under this approach.

How about VSO languages, then?

- Remember that 9% of the languages in Tomlin's sample are VSO. Why do these languages exist? Do they follow from the head directionality parameter?
- Well, the first thing to notice is that in these languages the verb comes before the object. So, they must be ...
- Right, *head-initial*.

Deriving VSO basic word order

- But then the main difference in their word order as opposed to SVO and SOV languages is that the subject follows, rather than precedes, the verb.
- So, how can our phrase structure grammar "derive" VSO orders then?
- Head directionality can't do it. So, there must be another parameter involved. What could that be?

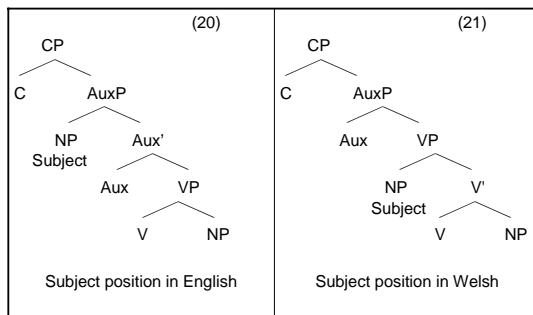
The subject placement parameter

- This is what Baker calls the *Subject Placement parameter* (p. 130):
 “The subject of a clause is in the specifier of VP (as in Welsh), or in the specifier of AuxP (as in English).”

The subject placement parameter

- The subject placement parameter then has to do with the phrase structure rule that introduces subjects :
 English:
 AuxP → NP Aux'
 Aux' → Aux VP
 Welsh:
 AuxP → Aux VP
 VP → NP V'

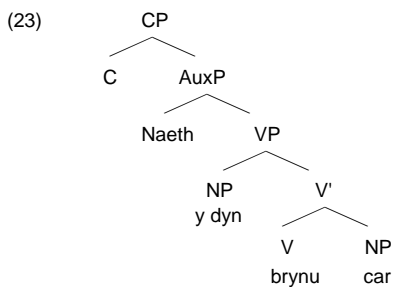
The English-Welsh contrast



Welsh

- Given the subject placement parameter, the structure of Welsh sentences with auxiliaries becomes straightforward. Here's an example, followed by a tree:
 (22) Naeth y dyn brynu car
 did the man buy car
 “The man did buy a car.”

Welsh



Welsh

- Ok, but how about this other Welsh example, then?
 (23) bryn-odd y dyn gar
 buy-Past the man car
 “The man bought a car.”
- There's no auxiliary here, so how come the verb precedes the subject?
- Maybe time for another parameter?

The verb attraction parameter

- “Aux attracts V to its position (Welsh), or V attracts Aux to its position (English).”

The verb attraction parameter

- So, the reason why Welsh is always verb-initial is because the Aux head has to host a verb (either an auxiliary verb, or a main verb, if an auxiliary is not present).
- *Notice that this means if Aux is already filled, then the verb cannot be there, as we saw in the first Welsh example.*

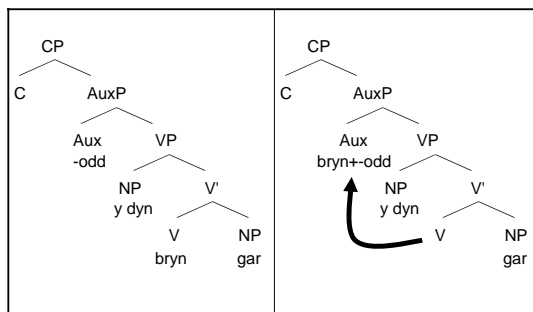
Quick note on “movement”

- Importantly here, we need a second type of rule: A rule that can derive one tree structure from another tree structure.
- Formalists typically talk about that in terms of “movement”.
- So, in Welsh, V “moves” to Aux, but in English Aux “moves” to V.

Welsh

- The tree structures for the Welsh example in (23) before and after movement takes place would be as follows:

Welsh



Welsh

- In sum, VSO languages like Welsh and Irish are possible because of the interaction between two parameters: the subject placement parameter and the verb attraction parameter.
- But if Mr or Mrs. Advocate were here, they would've asked if there is any evidence for the existence of these parameters in natural languages other than in Welsh and Irish.
- Luckily, there is. And in familiar languages.

Parlez vous français?

- Compare the position of adverbs in English and French:

John often kisses Mary.

*John kisses often Mary.

*Jean souvent embarrasse Marie.

Jean often kisses Marie.

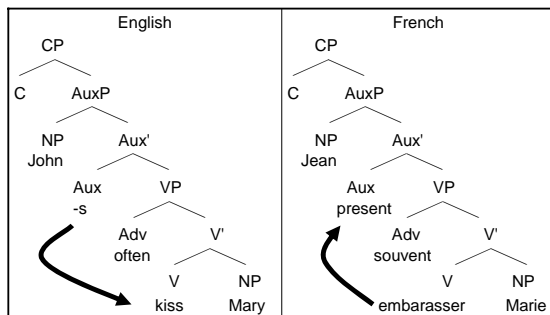
Jean embarrasse souvent Marie.

Jean kisses often Marie.

Verb position in English vs. French

- We mentioned before that adverbs are sometimes in the specifier of VP. So, given the contrast between English and French in adverb position with regard to the main verb, it must be that V is outside VP in French, but inside VP in English.
- Since verbs all start in the same position, the only explanation has to be that in French verbs move "up" to Aux, but in English Aux moves "down" to V.

Verb position in English vs. French



Interim summary

- So, here's the story:
- English, French, and Welsh, all share the same head-initial setting for the HD parameter, as opposed to Japanese, which is head-final.
- But:

Interim summary

- Welsh differs from both English and French in having the subject placed inside the VP. English and French subjects are in the specifier of AuxP.
- English differs from both French and Welsh in having Aux move down to V. In French and Welsh V moves up to Aux.
- The interaction of parameters give us English, Japanese, Welsh, and French. Any more parameters today?

One more before we go

- If V can move up to Aux, one can imagine a language where it can keep moving all the way up to C, right? At least, the system we're developing does not prevent that from happening.
- So, are there languages where the verb ends up in C?
- Obviously, this language can't be English or French, since both have the subject before the verb.
- Well, how about this language:

Sprechen sie Deutsch?

Ich las letztes jahr diesen Roman
 I read last year this book
 Diesen Roman las ich letztes jahr
 this book read I last year
 Letztes jahr las ich diesen Roman
 last year read I this book

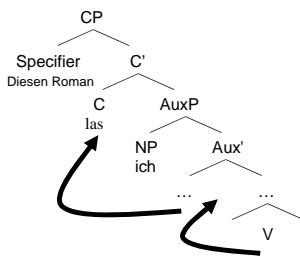
- So, what do you notice here about the position of the verb?

German: The V2 effect

- The verb is always the second constituent in German sentences, following the subject, or a fronted object, or an adverbial.
- If that is the case, then it must be that German, like French, has V move up to Aux.
- Unlike French, though, German moves V further up to C, hence its occurrence following any material in the specifier of C.

German: The V2 effect

German (sketchy since it's part of your assignment)



Parameters and languages so far

Parameter	English	Japanese	French	German	Welsh
HD parameter	Head-initial	Head-final	Head-initial	?	Head-initial
Subject placement parameter	Specifier of AuxP	Specifier of AuxP	Specifier of AuxP	?	Specifier of VP
Verb attraction parameter	Aux down to V	?	V up to Aux	V up to Aux	V up to Aux
V2 parameter	No	?	No	Yes	?

Agenda for next class

- VOS/OVS/OSV languages: Malagasy/Hixkarayana/Nadëb
- A quick introduction to morphology: Synthesis and fusion continua (Whaley chapters 7 and 8)
- Languages with freedom of word order (aka nonconfigurational languages): Warlpiri and polysynthetic languages (Mohawk) (Baker chapter 4).