LNGT0101
Introduction to Linguistics

Lingu-ist-ic-s
[lɪŋ-gʷɪ-stɪks]
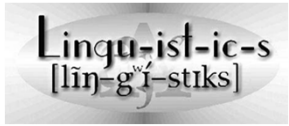
Lecture #15
Nov 5th, 2012

Announcements

➢ LAP typed proposal is due by e-mail or as hard copy in my mailbox this **Friday by 3pm**. Mention the language of your choice, the interesting linguistic or nonlinguistic inspected that you hope to study in your project. List at least two references that you'll be using.

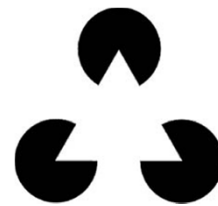➢ HW4 will be the final homework, so you can focus on the LAP.

2

Announcements

➢ On Wed, please sit in 'dialectal' groups, as in the clip we saw on HW3:
http://www.youtube.com/watch?v=fGxIxOcS-tE

➢ I will send a doodle link for possible times for the screening of *The Linguists*.
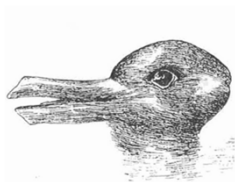
3

A visual puzzle

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

4

Another visual illusion (just for fun)

➢ http://www.youtube.com/watch?v=hPCoe-6RRks&feature=player_embedded#!
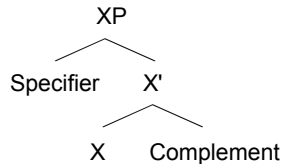

Summary of Syntax so far

➢ 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: the **substitution**, **movement**, **clefting,** and **stand-alone** tests.

6

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 X'-schema:

```
                XP
              /    \
      Specifier      X'
                   /    \
                  X       Complement
```

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
      $A \rightarrow B\ C$, and
  (ii) Lexical insertion rules, which insert words into syntactic structures generated by PSRs.

Summary of Syntax so far

➢ The grammar we have constructed so far can account for the following aspects of speakers' syntactic knowledge:
  - Grammaticality
  - Recrusiveness
  - Ambiguity

Today's agenda

➢ It remains to account for sentence relatedness. We do this with regard to the relationship between statements and questions (a variation on Linda's question from last time).
➢ We also need to explain why languages differ in their syntax. We do this with regard to word order (a variation on Danielle's question from last time).

Sentence relatedness revisited

➢ As we said before, some sentences are intuitively "felt" to be related, e.g.,
  a. Your friend can play the piano.
  b. Can your friend play the piano?
➢ We know that a phrase structure grammar can generate the (a) sentence, but the question now is: Can it also generate the sentence in (b)?

Sentence relatedness revisited

Here's the mini PSG again:
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)

Sentence relatedness revisited

➢ The answer then is probably not. There is no PSR that will allow the Aux "can" to appear at the beginning of the sentence.

➢ But why should this be a problem? Can't we simply add a rule that allows us to have an Aux head at the beginning? After all, this is a mini-grammar, not an exhaustive grammar.

➢ Yes, we sure can. Here's one possible rule:
    AuxP → Aux NP VP

➢ Can this rule help?

13

Sentence relatedness revisited

➢ The additional rule can help, but at a high cost: Now, we simply have no direct explanation for why a statement and a corresponding question are felt to be related.

➢ In essence, while a phrase structure grammar can account for grammaticality, ambiguity, and recursiveness, it fails to account for sentence relatedness in a straightforward manner, which is not a good result.

➢ To solve this problem, we need to enrich our grammar.

14

Transformational rules

➢ A solution, first proposed by Chomsky in the 1950s, is to include another component in the grammar in addition to the phrase structure component: a **transformational component** that consists of a set of **transformational rules**.

15

Transformational rules

➢ What is a transformational rule?

➢ A transformational rule is a syntactic operation that takes one structure as input and operates on it producing a modified syntactic structure as output.
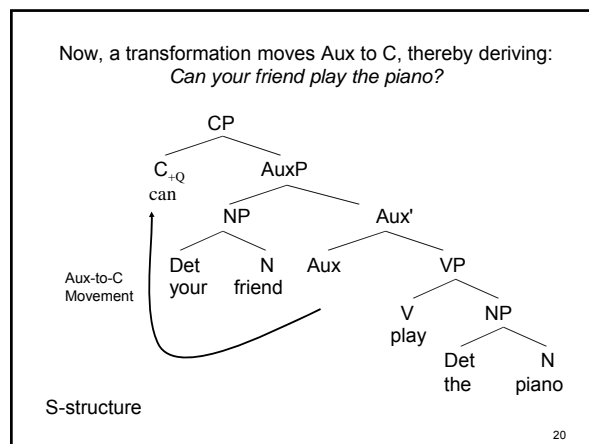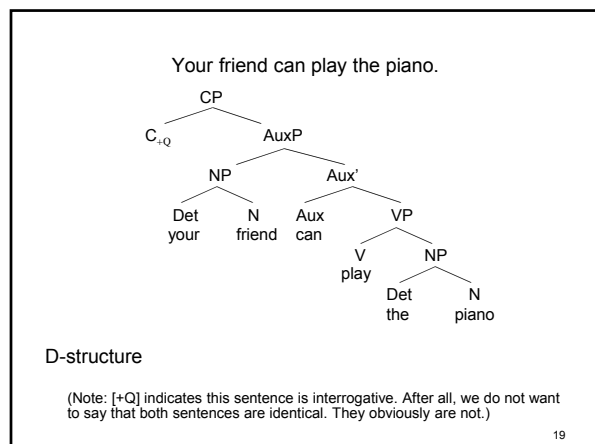
16

Deep and surface structure

➢ For this purpose, a fundamental distinction in the grammar has to be made between two separate levels of structure:

(a) a pre-transformational structure, which is called **deep structure** (or D-structure) and is derived by phrase structure rules, and

(b) a post-transformational structure, which is called **surface structure** (or S-structure) and is derived through the application of transformational rules.

17

Deriving English yes-no questions

➢ So, let's now get back to the yes-no question "*Can your friend play the piano?*" and see how we can implement a transformational analysis.

➢ Now, instead of drawing a tree for the yes-no question directly, we actually draw a tree for the corresponding statement "*Your friend can play the piano.*"

➢ The only difference is that such structure will be marked as interrogative. We can do that, say by adding a [+Q] feature on C in the tree.

18

Slide 19:

Your friend can play the piano.

CP
C+Q   AuxP
NP   Aux'
Det   N   Aux   VP
your friend can
V   NP
play
Det   N
the   piano

D-structure

(Note: [+Q] indicates this sentence is interrogative. After all, we do not want to say that both sentences are identical. They obviously are not.)

19

Slide 20:

Now, a transformation moves Aux to C, thereby deriving: *Can your friend play the piano?*

CP
C+Q   AuxP
can
NP   Aux'
Det   N   Aux   VP
your   friend
V   NP
play
Det   N
the   piano

Aux-to-C Movement

S-structure

20

Slide 21:

Evidence for Aux-to-C movement

➢ But how do we prove that there is actually Aux-to-C movement in English yes-no questions? What evidence is there that 'invisible triangles' actually exist in syntax?
➢ Well, consider:

He asked if your friend could play the piano.
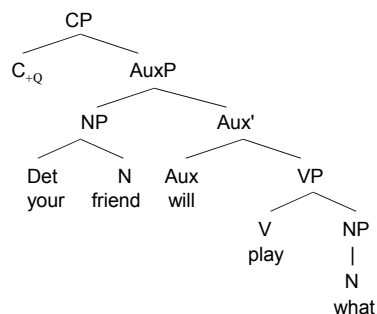**He asked if could your friend play the piano.*
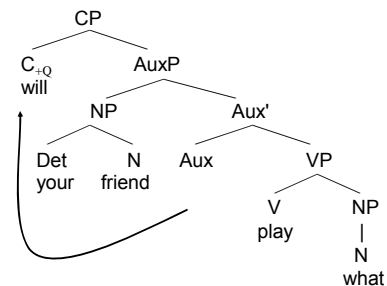
21

Slide 22:

Deriving wh-questions

➢ Ok, let's try another kind of question, the so-called ***wh-questions***, e.g.,

What will your friend play?
➢ Since "what" is interpreted as the object of "play," we assume that this is where it starts at D-structure:

your friend will play what

22

Slide 23:

We apply PSRs to derive the D-structure:

CP
C+Q   AuxP
NP   Aux'
Det   N   Aux   VP
your   friend   will
V   NP
play
|
N
what

23

Slide 24:

Now, since this is a question, we apply Aux-to-C movement to derive the S-structure:

CP
C+Q   AuxP
will
NP   Aux'
Det   N   Aux   VP
your   friend
V   NP
play |
N
what

➢ But does that give us the desired sentence?

24

4

Where do wh-phrases end up?

- To get the desired surface structure, we need to move the wh-phrase "what" to the front of the sentence.
- The question now is: Where does the wh-phrase move to?
- There is a restriction, however. It's called **structure perseveration**: *Phrases can move only to specifier positions, and heads can only move to head positions.*

*("t" stands for **trace** of the moved phrase, another invisible triangle.)*
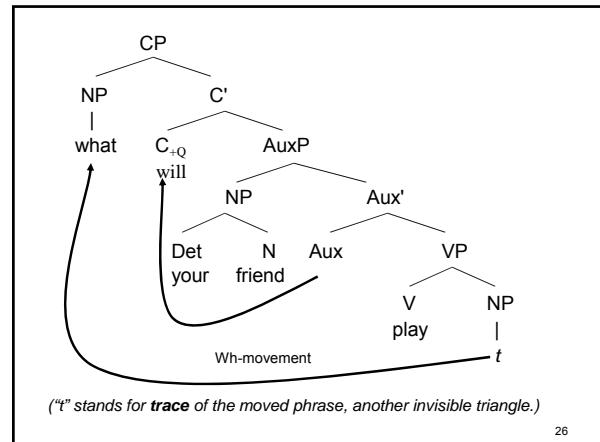
A puzzle: *wanna*-contraction

- Who do you want to kiss?
  Who do you *wanna* kiss?

- Who do you want to kiss Mary?
  *Who do you *wanna* kiss Mary?

- Compare:　　　I want to kiss Mary.
  　　　　　　　I *wanna* kiss Mary.

A puzzle: *wanna*-contraction

- Provide a principled explanation for the contrast for 4 points of extra credit. Deadline: Monday Nov 12th in class.
- Assume that 'do' starts under Aux. Assume also that verbs like 'want' subcategorize for an AuxP complement headed by the Aux element 'to.' So, a VP rule in that case is VP → V AuxP
- And think triangles.

Parameters of question-formation

- Notice that not all languages are like English when it comes to wh-questions.
- Some languages like English form a question by fronting the wh-word:
  What did you see _?
- These are typically referred to as **wh-fronting** languages.

Parameters of question-formation

- In other languages like Japanese, Chinese, and Egyptian Arabic, the wh-word appears where other nouns normally appear:
  Japanese
  　　John-ga　　dare-o　　　butta ka?
  　　John-Subj　who-Obj　hit　Q-particle
  　　"Who did John hit?"
  Egyptian Arabic
  　　ʔinta ʃuft miin?
  　　you　saw who
  　　"Who did you see?"
- This type is called **wh-in-situ** languages.

Syntax: The grammar model

Phrase structure grammar (X'-theory)
↓
D-structure
↓
Transformations (primarily Movement)
↓
S-structure

➢ But if this language model is universal, why do languages differ then?

31

Universal Grammar: Principles and Parameters

➢ Languages differ because UG (*Universal Grammar*, remember?) includes two components: **principles** and **parameters**. The principles are invariant; they hold in all languages. For example, grammatical rules are all ***structure-dependent***, as discussed in Myth 12 early in the semester, in the textbook (pp. 157-60).

➢ Parameters are also universal, but unlike principles, they come in the form of (usually) **binary** options, and this is where the locus of cross-linguistic variation exists.

32

UG: principles and parameters

➢ As Chomsky notes:

"We can think of the initial state of the faculty of language as a fixed network connected to a switch box; the network is constituted of the principles of language, while the switches are the options to be determined by experience. When the switches are set one way, we have Swahili; when they are set another way, we have Japanese. Each possible human language is identified as a particular setting of the switches—a setting of parameters, in technical terminology."
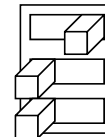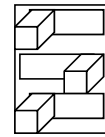
33

UG: principles and parameters

➢ Or, we can represent this graphically as follows:
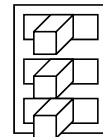
UG   **Japanese**   **English**

34

UG: principles and parameters

➢ We can think of UG as an initial state S_0 that gets mapped onto a final state S_F, through exposure to ***primary linguistic data*** (PLD).

$$S_0 + PLD \rightarrow S_F$$

➢ S_0 is the general system that we are born with, and S_F is what we end up referring to as English, Finnish, Tiwa, Khmer, etc.

35

UG: principles and parameters

➢ Under this approach, a child's job is to "set" the value of each parameter on the basis of the PLD in the linguistic environment around her.

➢ This should explain the role of the environment in language acquisition: If you're born in Beirut, then your PLD are different from the PLD of someone born in Moscow, hence the acquired system will be different.

➢ Under this approach, language acquisition is the result of interaction between *nature* (principles and parameters) and *nurture* (PLD).

36

UG: principles and parameters

- So, if I haven't confused you already with all these invisible triangles, you must be wondering when I'll start giving you some examples of parameters.
- Let me start with a parameter that should help us explain variation in basic word order across languages.

37

Variation in basic word order

- Even though languages may allow several word orders in sentences, each language typically has one order that is used in "neutral" contexts. This is what is called "**basic word order**."
- Consider English, for example: Which of these do you think represents the basic word order in English?

Seafood I like.	(OSV)
Believe you me.	(VSO)
John plays the piano.	(SVO)

38

Basic word order

- If we confine ourselves to transitive clauses with three elements: Subject, Verb and Object (S, V, O), then we should expect **six** possible basic word orders in human language:

    SVO, SOV, VSO, VOS, OVS, OSV
- Do we find these attested in natural languages?
- Actually, we do.

39

Basic word order

- SVO: English

    John loves Mary.

- SOV: Japanese

    John-ga   Mary-o   butta
    John-SU Mary-OB hit
    "John hit Mary."

40

Basic word order

- VSO: Welsh

    Darllenais I   y   llyfr
    read   I   the book
    "I read the book."

- VOS: Malagasy (Austronesian)

    manasa   ni   lamba ny vihavavy
    wash   the clothes the woman
    "The woman is washing the clothes."

41

Basic word order

- OVS: Hixkaryana (Carib)

    Kanawa   yano toto
    canoe   took person
    "The man took the canoe."

- OSV: Nadëb (Maku)

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

42

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

- As it turns out, typological studies reveal preferences for certain word orders than others.

- Consider the frequencies reported in Tomlin's (1986) language sample, for example:

43

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

44

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

- With greater than chance frequency, then, SVO and SOV orders indicate a clear preference for word order in natural languages.

- But what's even more interesting is that each of these two common orders has a set of *correlates* that go with it. To see what this means, let's compare English and Japanese.

45

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."

46

Word order correlates

| Element A	Element B	English	Japanese
V	NP	A precedes B	A follows B
V	PP	A precedes B	A follows B
V	embedded CP	A precedes B	A follows B
P	NP	A precedes B	A follows B
N	PP	A precedes B	A follows B
C	embedded AuxP	A precedes B	A follows B
Aux	VP	A precedes B	A follows B

47

Phrase structure: English vs. Japanese

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

- Obviously, in English, heads precede their complements; in Japanese heads follow their complements.

48

8

The X'-schema in English vs. Japanese

English	Japanese
XP	XP
Specifier X'	Specifier X'
X_{head} Complement	Complement X_{head}
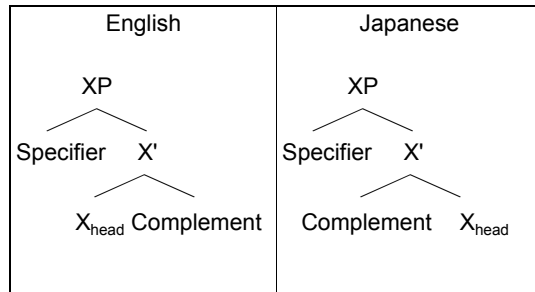
49

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.

50

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.

51

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. We don't want to parameterize that. Rather, in both languages, the subject is the specifier of Aux:

AuxP → NP Aux'

52

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

➢ Now, let's try to make things more interesting and see how and why English and Japanese do really look dramatically different on the surface.

➢ That's where trees can help for sure. Here are some PSRs for both languages:

53

English vs. Japanese

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

54

9

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

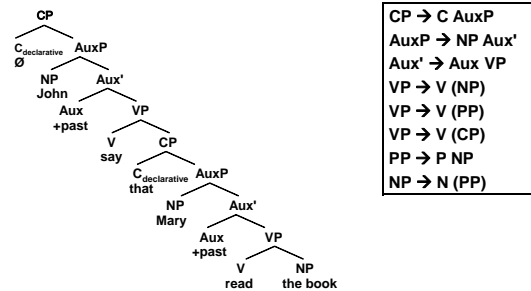➢ Compare English and Japanese again:

John said that Mary read the book.

John-ga Mary-ga hon-o   yon-da-tu   it-ta
John-SU Mary-SU book-OB read-past-comp say-past

➢ Given the PSRs for both English and Japanese, the structural trees will look as follows:
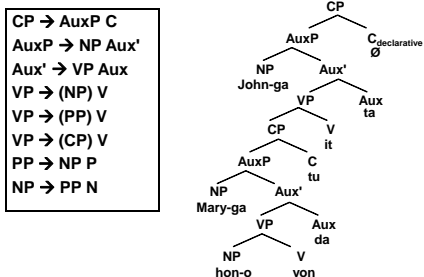

John said that Mary read the book.

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

John-ga Mary-ga hon-o   yon-da-tu   it-ta
John-SU Mary-SU book-OB read-past-comp say-past

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

So, …

➢ The principles and parameters approach 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 specifiers, 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.

How about VSO languages?

➢ 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 theory of grammar "derive" VSO orders then?
➢ Head directionality can't do it. So, there must be another parameter involved. What could that be?

61

The subject placement parameter

➢ Let's follow Mark Baker, the author of *The Atoms of Language,* and call it the *Subject Placement parameter*:

"The subject of a clause is in the specifier of VP (as in Welsh), or in the specifier of AuxP (as in English)."

62

The subject placement parameter

➢ The subject placement parameter then has to do with the phrase structure rule that introduces subjects :

English:
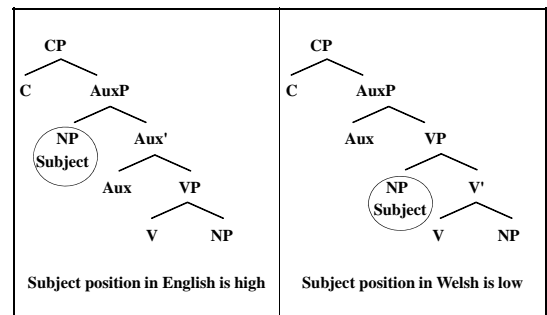   AuxP → NP Aux'
   Aux' → Aux VP
Welsh:
   AuxP → Aux VP
   VP → NP V'

63

The English-Welsh contrast

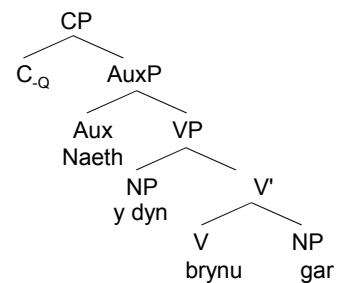Subject position in English is high | Subject position in Welsh is low

64

Welsh

➢ Given the subject placement parameter, the structure of Welsh sentences with auxiliaries becomes straightforward. Here's an example, followed by a tree:

(1) Naeth   y   dyn brynu gar
       did   the man buy   car
    "The man did buy a car."

65

Welsh

66

Welsh

> Ok, but how about this other Welsh example, then?
>> (2) bryn-odd   y   dyn   gar
>>   buy-Past the man car
>>   "The man bought a car."
> There's no overt auxiliary here, so how does the verb come to precede the subject?

The verb movement parameter

> I guess it's time for me to come clean on how Aux and V eventually get together. It turns out there are two options, thereby formulating another parameter.
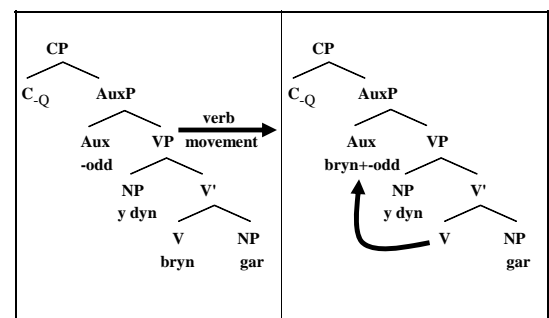>> "V moves up to Aux (Welsh), or Aux moves down to V (English)."

The verb movement 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 head is absent).
> The tree structures for the Welsh example in (2) before and after movement takes place would be as follows:

Welsh

Welsh

> VSO languages like Welsh and Irish are thus possible because of the interaction between two parameters: the **subject placement** parameter and the **verb movement** parameter.
> If you understood these syntactic gymnastics, you must be asking: How do we prove this? Is there any evidence for the assumption that in English Aux moves down to V?
> Luckily, there is. Let's contrast English and French.

Parlez vous français?
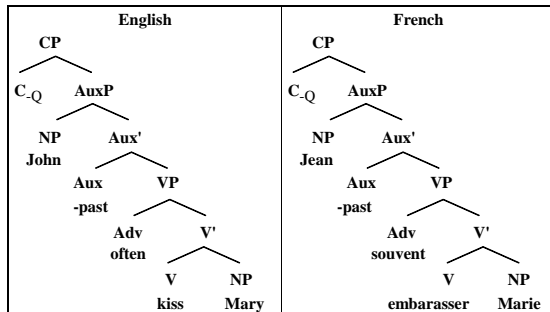
> Compare the position of adverbs in English and French:
>> John often kisses Mary.
>> *John kisses often Mary.
>>
>> *Jean souvent embarasse Marie.
>> Jean often kisses Marie.
>> Jean embarasse souvent Marie.
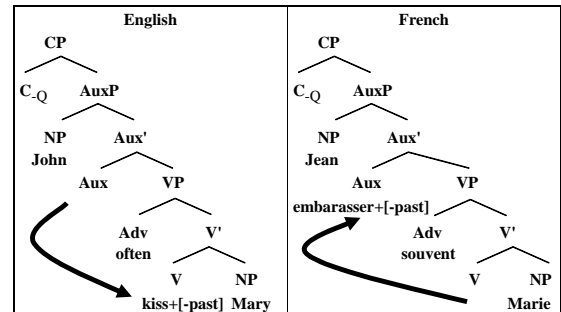>> Jean kisses often Marie.

Verb position in English vs. French

English	French
CP	CP
C-Q AuxP	C-Q AuxP
NP Aux'	NP Aux'
John	Jean
Aux VP	Aux VP
-past	-past
Adv V'	Adv V'
often	souvent
V NP	V NP
kiss Mary	embarasser Marie

73

Verb position in English vs. French

English	French
CP	CP
C-Q AuxP	C-Q AuxP
NP Aux'	NP Aux'
John	Jean
Aux VP	Aux VP
	embarasser+[-past]
Adv V'	Adv V'
often	souvent
V NP	V NP
kiss+[-past] Mary	Marie

74

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/Turkish/Navajo, which are head-final.

➢ But:

75

Interim summary

➢ Welsh differs from both English and French in having the subject placed in the specifier of 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 these parameters gives us English, Japanese, Welsh, and French.

➢ If I haven't confused you by now, then why not look at German/Scandinavian?

76

Sprechen Zie Deutsch?

  a. Ich **las** letztes jahr diesen Roman
      I   read last   year this   book
  b. Diesen Roman **las** ich letztes jahr
      this   book read I   last   year
  c. Letztes jahr **las** ich diesen Roman
      last   year read I   this   book

➢ So, what do you notice here about the position of the verb in German?

77

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-to-Aux movement.

➢ Unlike French, though, German can even have the verb before the subject.

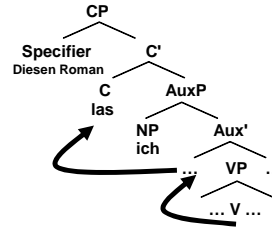➢ Hmmm … what's going on here?

78

13

German: The V2 effect

> If V can move up to Aux in declarative clauses (as in French and Welsh), one can imagine a language where V can keep moving all the way up to C, right? At least, the system of sentence structure we're using here does not prevent that from happening.
> And that seems to be what is happening in German main clauses. Let's call this the **V2 parameter**. The parameter also holds in Scandinavian languages.

79

German: The V2 effect

German (sketchy since German word order is a matter of debate)


```
              CP
           /      \
   Specifier       C'
 Diesen Roman     /   \
              C      AuxP
             las    /    \
                 NP        Aux'
                 ich      /    \
                       …      VP  …
                            /    \
                          … V …
```

80

German: The V2 effect

> Is there evidence from German showing that its V moves to C?
> Yes. Consider:
a.   Hans schlug den Ball
     Hans hit   the ball
     'Hans hit the ball.'
b.   Ich denke daβ Hans den Ball geschlangen hat
     I   think that Hans the ball hit   has
     'I think that Hans hit the ball.'

81

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 AuxP	Specifier of VP
Verb movement parameter	Aux down to V	?	V up to Aux	V up to Aux	V up to Aux
V2 parameter	No	?	No	Yes	?

"?" indicates issues that we simply did not address in this class; it does not mean that linguists don't know the settings of these parameters in such languages.

82

VOS/OVS/OSV languages

> VOS languages should be derivable by a parameter for subject position. I'll let you figure this one out on your own.
> OVS/OSV languages are not that well understood, but there are definitely ways to derive their word order. In the interest of time, we won't be discussing them here. If your LAP language ends up being of either type, then let the class know what you find out.

83

Another parameter: Do you need to 'verbalize' your subject?

84

14

The null subject parameter

➢ Consider these data from English, French, and Italian, all of which allow SV (=Subject-Verb) orders:

    (1) John will leave.

    (2) Jean arrivera.   French

        Jean will-arrive

    (3) Gianni verrá.   Italian

        Gianni will-come.

85

The null subject parameter

➢ Italian, however, allows the subject of a tensed sentence to be omitted, an option that is not available in English or French:

    (5) *Will leave.

    (6) *Arrivera.   French

        will-arrive

    (7) Verrá.   Italian

        will-come.

86

The null subject parameter

➢ This case of cross-linguistic variation is typically referred to as the ***null subject parameter***.

"In some languages (e.g., French, English, Edo) every tensed clause must have an overt subject. In other languages (e.g., Italian, Spanish, Romanian, Navajo, Arabic) tensed clauses need not have an overt subject."

87

Summary

➢ These are some examples of parameters. I hope the notion is clear by now.

88

Next class agenda

➢ Sociolinguistics: Chapter 10, pp. 430-452.

89