INTD0111A

The Unity and Diversity of Human Language

Lecture #8
March 4th, 2009

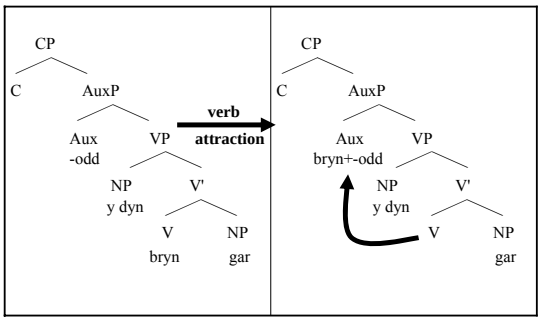
Announcements

- None. Except:
- Mr. and Mrs. Advocate are in Hawaii. grrrrr.

Some unfinished business from last time

- Here's a VSO sentence in Welsh:
  (2) bryn-odd y dyn gar
  buy-Past the man car
  "The man bought a car."
- On the next slide is how we got this word order last time.

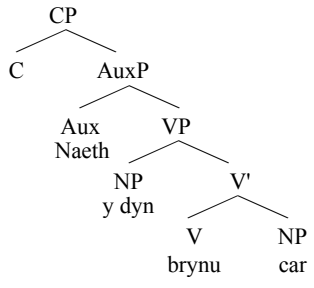
Welsh



Welsh

- But how about this sentence (also discussed last time)?
  Naeth y dyn brynu car
  did the man buy car
  "The man did buy a car."
- According to the verb attraction parameter, V moves up to Aux in Welsh. So, why does the verb not move to Aux here? Tree on next slide.
- Any ideas?

Welsh



Second thing: Three types of rules

- You should have noticed by now that there are three types of rules in syntax:
- First, **phrase structure rules**, such as
  VP → V NP
- Second, **lexical insertion rules**, such as
  V → {love, hit, leave, …}
- Third, **"movement" rules**, such as V moving up to Aux or C, or Aux moving down to V.
- This last type is also called **transformational rules**, which do other things than just move elements in the structure, but we will not discuss that in detail here.

Recap: Parameters that we discussed so far

- **Head directionality parameter**: head-initial (English, Edo) vs. head-final (Japanese, Basque).
- **Subject placement parameter**: high subject (English, French) vs. low subject (Welsh, Irish).
- **Verb attraction parameter**: V moving to Aux (Welsh, French) vs. Aux moving to V (English).
- **V2 parameter**: V moving to C in declarative clauses (German, Scandinavian) vs. V not moving to C in declarative clauses (French).

Parameters and languages so far (updated)

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

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

- VOS: Malagasy (Austronesian)
  manasa ni lamba ny vihavavy
  wash the clothes the woman
  "The woman is washing the clothes."
- OVS: Hixkaryana (Carib)
  kanawa yano toto
  canoe took person
  "The man took the canoe."

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

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

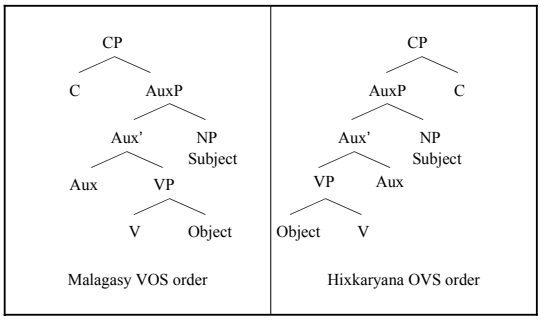
VOS and OVS

- Both VOS and OVS orders share one property: they both have the subject in final position.
- To account for these languages, 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):

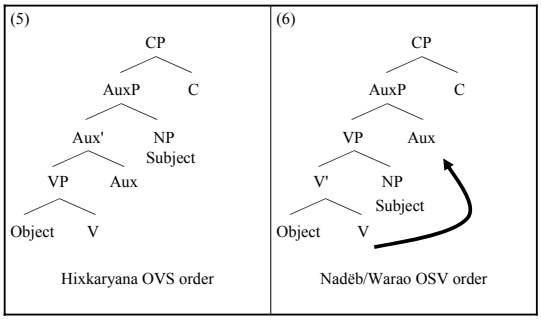
VOS and OVS



Predictions?

- Now, here's a question for you: Would the verb attraction parameter and the subject placement parameter be relevant to either of these two language types, or both, or neither? Let's look at the trees on the previous slide again.
- Correct, it should be relevant for OVS orders, giving rise to Mirror Welsh. But does it exist? This is what Nadëb (Brazil) and Warao (Venezuela) are claimed to be.

Deriving OSV



Updated 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 AuxP	Irrelevant	Specifier of VP	Irrelevant	Specifier of AuxP	Specifier of VP
Verb attraction parameter	Aux down to V	Irrelevant	V up to Aux	Irrelevant	Irrelevant	V up to Aux

Something just doesn't seem right

- That looks like a nice story, except for one thing: It just does not seem to be right. Can you see why?
- Well, our table makes it seem like all these types should have the same statistical distribution, which is obviously not the case.
- Consider their frequencies in Tomlin's sample again:

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

Explaining frequency of VSO

- For a start, why are VSO languages not as frequent as SVO and SOV languages, but more frequent than VOS, OVS, and OSV languages?
- Baker's answer: …

  Well, here's the logic:

Explaining frequency of VSO

- If parameters are decided by a coin flip, then the HD parameter predicts a 50/50 distribution of head-initial and head-final languages.
- Since the subject placement parameter and the verb attraction parameter are irrelevant to head-final languages, then VSO languages will arise only in head-initial languages.

Explaining frequency of VSO

- To get a VSO language, 1 out of 4 scenarios has to materialize (again assuming a coin flip): The subject has to be placed in the specifier of VP, and V has to move up to Aux. The three other scenarios give rise to SVO.
- If you do the math, the prediction then is that 25% of head-initial languages will be VSO, and 75% will be SVO.
- Given Tomlin's sample, the prediction is not perfect, but it's close.

Ok, but why are VOS, OVS, and OSV so rare, then?

- If you're following what I've been saying, you should've noticed a discrepancy between what we just said about head-final languages and the table for the six word orders with parameters specified on an earlier slide. Here is the table again to help you think about the problem:

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 AuxP	Irrelevant	Specifier of VP	Irrelevant	Specifier of AuxP	Specifier of VP
Verb attraction parameter	Aux down to V	Irrelevant	V up to Aux	Irrelevant	Irrelevant	V up to Aux

So, where's the problem?

- The problem is that the table is based on the assumption that subject placement and verb attraction parameters are relevant to head-final languages. After all, this is how we explained how Hixkaryana and Nadëb are different.
- But remember that we concluded last time these two parameters are irrelevant to head-final languages.
- But maybe this is good news. After all, the table is problematic in predicting that these language types should be more frequent than they actually are.
- That said, we now have to find another explanation for why OSV and OVS orders are rare. We do this now. Let's look at the table again.

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 AuxP	Irrelevant	Specifier of VP	Irrelevant	Specifier of AuxP	Specifier of VP
Verb attraction parameter	Aux down to V	Irrelevant	V up to Aux	Irrelevant	Irrelevant	V up to Aux

Revisiting the subject side parameter

- Recall that the crucial parameter for these rare languages is the "subject side" parameter.
- Suppose we follow Baker and assume that the "subject side" parameter is only relevant for head-initial languages, but not for head-final languages.
- If so, then there has to be another way to get the subject to appear in final position in OVS languages like Hixkaryana.

Deriving Hixkaryana OVS

- Maybe "a rare language type" is the result of the application of "a rare rule of grammar." Some "marked" option has to take place, so these languages exist.
- Can you think of any? Here's the tree for Hixkaryana, this time assuming the subject is in initial position:

Deriving Hixkaryana OVS

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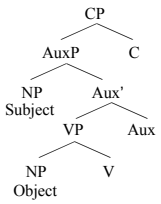

Hixkaryana with subject-initial structure

Deriving Hixkaryana OVS

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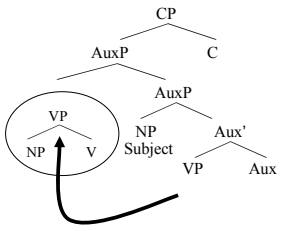


Deriving OVS order in Hixkaryana by VP movement

Deriving Hixkaryana OVS

- As it turns out, there is good evidence that this analysis is indeed on the right track.
- For one thing, there are sentences in Hixkaryana:

  otweto yimyakoni rohetxe totokomo wya
  hammok gave my-wife people to
  "My wife used to give hammocks to the people."
- What do we notice here? Yes, the subject is actually not in final position; rather an indirect object typically follows the subject.

Deriving Hixkaryana OVS

- Consider this setence as well:

  ro-wy wewe yamatxhe itehe harha owo hona
  me-by tree after-felling I-go back village to
  "After I fell the tree, I will go back to the village."
- As you can see, Hixkaryana exhibits SOV order in nonfinite embedded clauses
- This shows that the position of subject in Hixkaryana is not determined by the subject side parameter, but rather by some other operation, which we called VP movement here.

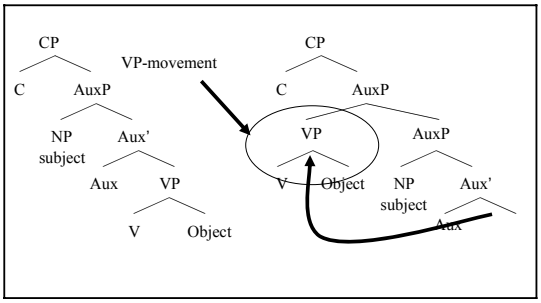
Deriving Hixkaryana OVS

- Now, if such operation is (for whatever reason) a "marked" option in human language grammar, then we expect languages like Hixkaryana to be rare, which they are.
- Sounds circular? Maybe, but still a viable solution.

Revisiting Malagasy VOS

- Using the same logic, perhaps we can get rid of the subject side parameter altogether, and assume instead that in human languages the subject is always initial, and never final.
- But then we need to explain why Malagasy has subject-final word order.
- Any ideas?

Revisiting Malagasy VOS



Revisiting Malagasy VOS

- The VP-movement analysis of VOS is more attractive because it provides us with a chance to explain the rarity of such languages.
- Baker's subject side parameter just does not seem to be able to do that. If this is indeed a parameter, why is it that we do not see more languages using final positioning of subject?
- We need more investigation of VOS languages. For now, though, let's be aware of the issues involved.

How about Nadëb/Warao OSV order?

- Actually, this is an interesting question. So, why don't we turn it into a homework problem on Assignment #2 for everyone then?

Table for the 6 language types (revised yet again)

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	Irrelevant	S-initial	Perhaps?	Irrelevant	Irrelevant
Subject placement parameter	Specifier of AuxP	Irrelevant	Specifier of VP	Irrelevant	Irrelevant	?
Verb attraction parameter	Aux down to V	Irrelevant	V up to Aux	Irrelevant	Irrelevant	?
VP-movement	?	?	?	Perhaps?	Yes	?

So, to sum up …

- Word order variation in human languages is the result of choosing different values for a finite set of (binary) parameters.
- The HD parameter gives us English-type vs. Japanese-type languages.
- The subject placement and verb attraction parameters give us Welsh-type languages vs. English/French.
- The verb attraction parameter gives us French-type languages vs. English/Edo.
- The V2 parameter gives us German-type languages.

So, to sum up …

- Rare word orders might be the result of the VP-movement parameter in main clauses.
- This should give us Malagasy VOS and Hixkarayan OVS word orders.
- Nadëb/Warao OSV orders can probably be explained in the same way, pending homework investigation.

Entering the world of polysynthesis
MOHAWK

What about Mohawk?

- Great language! But if you know some Mohawk, you should have figured out that it poses quite a challenge to the theory of word order that we presented so far.
- To see how, consider these Mohawk sentences:

Mohawk

a. Sak ranuhwe's ne atya'tawi (SVO)
Sak likes the dress.

b. ranuhwe's ne atya'tawi (ne) Sak (VOS)
likes the dress (the) Sak.

c. ranuhwe's ne Sak ne atya'tawi (VSO)
likes (the) Sak the dress.

Mohawk

d. Sak atya'tawi ranuhwe's (SOV)
Sak dress likes

e. atya'tawi Sak ranuhwe's ne (OSV)
dress Sak likes.

f. atya'tawi ranuhwe's (ne) Sak (OVS)
dress likes (the) Sak.

Mohawk

- Looks like we found an "anything goes" language, at least with regard to word order. A case of "heads" losing their "directionality".
- Is there a way out?
- There has to be, or linguists will go out of business ☹.

Morphological typology

- To understand how Mohawk works, we need to introduce first a different kind of typology: typology at the word-level, typically referred to as *morphological typology*.
- But to understand morphological typology, we need to understand what *morphology* is in the first place.

A crash course in Morphology

- Morphology is the study of word structure in human language.
- A word consists of one or more *morphemes*, where a morpheme is defined as the "minimal unit of meaning or grammatical function in the language".
- So, …

A crash course in Morphology

- The word "open" in English has one morpheme. We call it a *monomorphemic* word.
- But how about "reopen"?
  This has two units: "re-" and "open", each a morpheme with a different meaning that contributes to the overall meaning of the whole word.

Derivational vs. Inflectional morphemes

- How about "reopened" then?
  Right. Three morphemes: *re-*, *open*, and *-ed*.
- Notice that while "re-" and "open" have meanings, "-ed" has the grammatical function of signaling past tense.
- To distinguish between these morphemes, we say that "open" is the *root* morpheme; "re-" is a *derivational* morpheme; and "-ed" is an *inflectional* morpheme.

Not all morphemes are created equal: some are free, and some are bound

- Another distinction between the three morphemes in "reopened" has to do with their ability to occur alone in the language.
- So, while "open" seems to be an independent morpheme, that is, it can stand alone in English (e.g., *I want to open the door*), "re-" and "-ed" are dependent morphemes; they cannot stand alone in English (**I re- the door*; **I -ed the door*).
- We call the former type "*free*" morphemes, and the latter type "*bound*" morphemes.

But languages differ …

- Notice that "freeness" and "boundedness" of an inflectional morpheme differ from one language to another.
- For example, the definiteness morpheme is free in English, but bound in Arabic and Danish:
  walad "boy" → ʔal-walad "the boy"
  dag "day" → dag-en "the day"

Yes languages differ …

- By contrast, while the plural morpheme is bound in English, it is free in Gurung:
  cá pxra-báe mxi jaga
  that walk-ADJ person PLURAL
  "those walking people"

Types of bound morphemes by position

- Finally, bound morphemes are also called *affixes*.
- Affixes in turn have different names depending on their position within the word:
  a. A *prefix* is a bound morpheme that precedes the root, e.g., "re-" in *reopened*.
  b. A *suffix* is a bound morpheme that follows the root, e.g., "-ed" in *reopened*.

Types of bound morphemes by position

c. An *infix* is a bound morpheme that occurs within the root, e.g., the morpheme "ta" in Akkadian:
   išriq "he stole" → iš**ta**riq "he stole for himself"
d. A *circumfix* is a bound morpheme that occurs on both sides of the root, as in the case of the Egyptian Arabic negation morpheme "ma…š":
   katab "wrote" → ma-katab-š "didn't write"

Morphological typology: How many morphemes does your language have per word?

- More relevant to our purposes here is that some languages may choose to "stack" morphemes on top of one another within words; others may elect to use at most one morpheme per word, and many others will fall somewhere between these two extremes.
- Let us start by comparing Yay to Oneida (examples cited in Whaley 1997:127):

Morphological typology: How many morphemes does your language have per word?

Yay:

a. mi ran tua ŋwa lew
   not see CLASS snake CMPLT
   "He did not see the snake."

Oneida:

b. yo-nuhs-a-tho:lé:
   3NEUT.PAT-room-epenthetic-be.cold.STAT
   "The room is cold."

- Notice how the Yay sentence involves no affixation and all the words are monomorphemic. The Oneida sentence, by contrast, consists of one word with multiple affixes.

Morphological typology: Index of synthesis

- On the so-called *index of synthesis* for morphological typology (Comrie 1989), understood as a continuum, Yay is considered an ***isolating*** language, whereas Oneida would be closer to the ***synthetic*** end of the scale, with English closer to the Yay-end than to the Oneida-end:

Isolating <--x-------x----------x--->Synthetic
Yay English Oneida

Morphological typology: Index of synthesis

- Some languages take synthesis to the extreme, though, marking all grammatical relationships on the verb with extensive affixation, thereby creating ***long and complex words*** that would correspond to whole sentences in languages like English, as the case is in Tiwa (from Whaley 1997:131), for example:

  Men-mukhin-tuwi-ban
  2D-hat-buy-PST
  "You two bought a hat."

Morphological typology: Index of synthesis

- Or Eskimo:

  iglu-kpi-yuma-laak-tu-ŋa
  house-build-intend-anxious-reflexive-I
  "I'm anxious to build a house."
- Or Mohawk (from Baker 2001:88) :

  Katerihwaiénstha'
  "I am a student. [Literally: I habitually cause myself to have ideas.]"

Morphological typology: Index of synthesis

- Or Mohawk again, though rather more ridiculously:

  Washakotya'tawitsheraherkvhta'se'
  "He made the thing that one puts on one's body (i.e., the dress) ugly for her."
- We call languages like Tiwa, Eskimo and Mohawk, *polysynthetic* languages.

Morphological typology: Index of fusion

- Languages also differ in whether morphemes are easily segmentable or not. Consider this paradigm from Michoacan Nahuatl, for example:

no-kali	"my house"	no-pelo	"my dog"
no-kali-mes	"my houses"	mo-pelo	"your dog"
mo-kali	"your house"	mo-pelo-mes	"your dogs"
i-kali	"his house"	i-pelo	"his dog"

Morphological typology: Index of fusion

- But now compare with Ancient Greek:

lu-ō	"1sg.Pres.Act.Ind (I am releasing)"
lu-ōmai	"1sg.Pres.Act.Sbjv (I should release)"
lu-omai	"1sg.Pres.Pass.Ind (I am being released)"
lu-oimi	"1sg.Pres.Act.Opt (I might release)"
lu-etai	"3sg.Pres.Act.Ind (He is being released)"

Morphological typology: Index of fusion

- On the so-called *index of fusion* for morphological typology, also conceived of as a continuum, Michoacan Nahuatl is considered an ***agglutinative*** language, whereas Ancient Greek would be closer to the ***fusional*** end of the scale:

Agglutinative <---x----------x-->Fusional

Nahuatl Greek

Head-marking vs. dependent-marking

- One final morphological variation has to do with whether languages mark grammatical functions such as "subject of" and "object of" on the head or on the dependents (i.e., specifiers and complements in our syntactic terminology).
- Compare Japanese with Mohawk:

Head-marking vs. dependent-marking

a. John-**ga** Mary-**o** butta — Japanese
   John-**SU** Mary-**OB** hit
   "John hit Mary."
b. Sak Uwári **shako**-núhwe's — Mohawk
   Sak Uwari he/her-likes
   "Sak likes Uwari."
c. Sak Uwári **ruwa**-núhwe's — Mohawk
   Sak Uwari she/him-likes
   "Mary likes Jim."

Head-marking vs. dependent-marking

- To distinguish between these two types of languages, we call the Mohawk-type a ***head-marking*** language, and the Japanese-type a ***dependent-marking*** language.

Next class agenda

- With this morphology background, we should now be able to address the linguistic characteristics of Mohawk, including freedom of word order.
- We'll do this next time. For this, please read Baker's Chapter 4: "Baking a polysynthetic language."