INTD0111A/ARBC0111A

The Unity and Diversity of Human Language

Lecture #8
Oct 5th, 2006

Announcements

- A slight change in Assignment #2: It'll be posted tomorrow and is due on Friday, either by e-mail or by hand. Of course, you can still turn it in on Thursday if you're done with it, though.
- Code languages for grade sheet. These are assigned randomly, but I hope you'll like your code name.
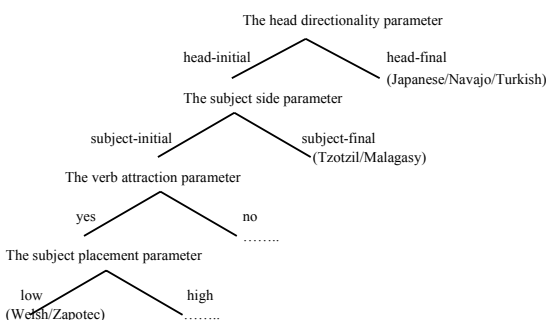

Announcements

- LAP issues: Reference or descriptive grammars can be ordered through ILL (inter-library loan), but normally you'll have to return them in 3 to 4 weeks. Here's a couple of ways around the problem:
  - (i) Finish the project while you have the book.
  - (ii) Order a different book on the language after you return the first.
- It's an unexpected inconvenience, but we should be able to get around it.

Baker's parameter hierarchy

- Baker's idea is that parameters are ranked in a hierarchical order, such that the one higher on the hierarchy will determine which ones are available lower on the hierarchy.

- Here's the hierarchy from last time.

Baker's parameter hierarchy

The head directionality parameter
head-initial / head-final (Japanese/Navajo/Turkish)
The subject side parameter
subject-initial / subject-final (Tzotzil/Malagasy)
The verb attraction parameter
yes / no ....
The subject placement parameter
low (Welsh/Zapotec) / high ....

Baker's parameter hierarchy

- As we discuss more parameters, we'll have to revise this hierarchy, but the point of the hierarchy should be clear: Certain parametric options exist only by virtue of their relationship to other parameters higher than them on the hierarchy.
- Another piece of evidence for that comes from the phenomenon of verb serialization.

When verbs come in sequence

- Compare Edo with English:
  a. Ozó ghá lè èvbàré khièn
     Ozo will cook food sell
     "Ozo will cook the food and sell it."
  b. Ozó ghá suà àkhé dè
     Ozo will push pot fall
     "Ozo will push the pot down [literally, so that it falls]."

When verbs come in sequence

- Similar to Edo are Sranan and Saramaccan:
  c. Kofi naki Amba kiri   (Sranan)
     Kofi hit   Amba kill
     "Kofi struck Amba dead."
  d. a bi   fèfi di wòsu kabà (Saramaccan)
     he Tense paint the house finish
     "He had painted the house already."

When verbs come in sequence

- Structures such as those in (a-d) in Edo, Sranan, and Saramaccan, are called *serial verb constructions*, because verbs in such constructions can follow one another in a serial order without the need to use connecting elements such as "and" or repeating the object with each verb.
- So, maybe it's another parameter:

The serial verb parameter

- "Only one verb can be contained in each VP (as in English), or more than one verb can be contained in a single VP (as in Edo)."

The serial verb parameter

- But do you notice something about those languages that allow verb serialization?

- Right. They either mark tense with a separate word or do not mark it at all.
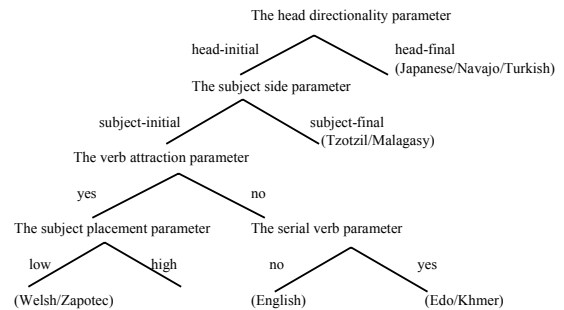
- Hmmm … Is that a coincidence?

The serial verb parameter

- Before we answer let's consider these further Edo examples:

  a. Evbàré òré   Ozó lé-rè
     food   Focus Ozo cook-past
     "It's food that Ozo has cooked."
  b. *Evbàré òré   Ozó lé-rè   khièn(-rèn)
     food   Focus Ozo cook-past sell(-past)
     "It's food that Ozo has cooked and sold."

The serial verb parameter

- So, when is verb serialization blocked?

- Exactly! When Aux is an affix, verb attraction becomes a problem, and the result is a bad sentence.

- For Baker, this follows if the verb attraction parameter outranks the serial verb parameter on the parameter hierarchy, as shown on the next slide:

Baker's parameter hierarchy (2nd version)

```
                                The head directionality parameter
              head-initial                        head-final
                                                   (Japanese/Navajo/Turkish)
              The subject side parameter
      subject-initial              subject-final
                                   (Tzotzil/Malagasy)
      The verb attraction parameter
        yes                no
The subject placement parameter    The serial verb parameter
   low        high          no              yes
 (Welsh/Zapotec)        (English)        (Edo/Khmer)
```

Verb serialization in Khmer

- Further evidence for the incompatibility between verb attraction and verb serialization comes from the Khmer languages.

- Eric Schiller notes that Proto-Khmer was originally a VSO language. It gave rise to the two modern languages of Ravua, which is still VSO, and Modern Khmer, which is SVO. Interestingly for the verb serialization phenomenon, only Modern Khmer developed serial verb constructions, but not Ravua.

- We will get back to the parameter hierarchy as the course progress and more parameters are introduced.

So, can we talk about Mohawk now?

- Sure! 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 data:

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 "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 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 X'-notation).
- 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.

Now, back to Mohawk

- So, we have seen that Mohawk does not place any restrictions on word order.
- It's also polysynthetic with complex word structure.
- In addition, it allows both subjects and objects to drop, as in the following example:

Now, back to Mohawk

a.　ranuhwe's ne atya'tawi
　　likes　　　the dress
　　"He likes the dress."
b.　Sak ranuhwe's
　　Sak likes
　　"Sak likes it."
c.　ranuhwe's
　　likes
　　"He likes it."

Making sense of polysynthetic word structure: Incorporation

- The key to understanding why words in polysynthetic languages tend to be long and complex is the syntactic operation of ***noun incorporation***. Consider:
  a. Owira'a wahrake' ne o'wahru (plain version)
     baby   ate   the meat
  b. Owira'a waha'wahrake'   (incorporation version)
     baby   meat-ate

Noun incorporation

- Noun incorporation is pretty common in Mohawk:

Wa'eksohare'.	"She dish-washed."	(*ks* "dish" + *ohare* "wash")
Wa'kenaktahninu'.	"I bed-bought."	(*nakt* "bed" + *a* + hninu "buy")
Wahana'tarakwetare'.	"He bread-cut."	(*na'tar* "bread" + *a* + *kwetar* "cut")

Noun incorporation

- A similar pattern to Mohawk-style noun incorporation actually appears in English compounding, e.g., *dishwasher, dishwashing, stamp-collecting, housekeeping*, etc.
- The only difference between English and Mohawk is that the latter uses incorporation in a larger number of contexts.
- Interestingly, though, the two languages behave similarly when it comes to restrictions on incorporation.

Noun incorporation

- In English only objects can appear inside compounds; subjects cannot:
  a. The husband washed the dishes.
  b. The husband enjoys *dishwashing*./The husband is a good *dishwasher*.
  c. *She appreciates *husband-washing* (of dishes)./*He is a good *husband-washer* (of dishes).

Noun incorporation

- Interestingly, the same subject-object asymmetry with regard to incorporation holds in Mohawk:
  a. Owira'a wahrake' ne o'wahru   (plain version)
     baby   ate   the meat
  b. Owira'a waha'wahrake'   (object incorporation ok)
     baby   meat-ate
  c. *Wahawirake' ne o'wahru   (subject incorporation *)
     baby-ate   the meat

The verb-object constraint

- An explanation of the subject-object asymmetry with regard to compounding in English and incorporation in Mohawk follows from a universal principle of grammar, that is, what Baker calls the ***verb-object constraint*** below (from Baker 2001:95):

  "The object of a verb must be the first NP to combine with the verb; the subject NP cannot combine with the verb until after the object does."

Verb incorporation

- Mohawk, however, shows not only noun incorporation, but also what Baker calls *verb incorporation*. Consider the following pair:
  a. Ashare' tu*hsu*'ne'.
      knife   fell-down
      "The knife fell."
  b. Uwari tayú*hsuht*e   ne ashare'
      Uwari made-to-fall the knife
      "Uwari made the knife fall."

Verb incorporation

- While Mohawk causativization is not possible in languages like English, causative morphemes are not that uncommon in English, e.g., *-ify* in *beautify*, *clarify*; *-ize* in *modernize*, *industrialize*.

Conclusion

- Complex word structure in polysynthetic languages is the result of using the same kind of word formation processes used in languages like English, though with much more frequency and in more varied contexts.
- Importantly, the use of such word-formation processes is subject to universal principles that hold of all languages (e.g., the verb-object constraint).

Why do subjects and objects drop in Mohawk then?

- Here are the data again:
  a. ranuhwe's ne atya'tawi
      likes   the dress
      "He likes the dress."
  b. Sak ranuhwe's
      Sak likes
      "Sak likes it."
  c. ranuhwe's
      likes
      "He likes it."

The null subject parameter revisited

- This should sound familiar, right?

- It's obviously reminiscent of the *null subject parameter* that we talked about earlier. Remember Italian?
  a.   Gianni verrá.
        Gianni will-come.
  b.   Verrá Gianni.
        will-come Gianni.
  c.   Verrá.
        will-come.

The null subject parameter revisited

- A plausible explanation for the occurrence of null subjects, at least in Italian-type languages, ties it to the presence of "rich" verbal morphology, which makes the reference of the subject "recoverable" from the form of the verb.
- To see this, compare the verbal conjugation paradigms of the Spanish verb "com" and the corresponding verb "eat" in English in the present tense:

The null subject parameter revisited

Spanish conjugation of "*com*"	English conjugation of "*eat*"
yo com*o*	I eat
tu com*es*	you (sg.) eat
el com*e*	he eat*s*
nosotros com*emos*	we eat
vosotros com*éis*	you (pl.) eat
ellos com*en*	they eat

The null subject parameter revisited

- As in Spanish, Mohawk verbs do inflect for agreement with their subjects. Unlike Spanish, though, they also inflect for agreement with their objects. Consider the following conjugation paradigms for the verb root *nuhwe'* (=like):

The null subject parameter revisited

*ke*nuhwe's	"I like it"	*rake*nuhwe's	"he likes me"
*se*nuhwe's	"you like it:	*ya*nuhwe's	"he likes you"
*ra*nuhwe's	"he likes it"	*ro*nuhwe's	"he likes him"
*ye*nuhwe's	"she likes it"	*shako*nuhwe's	"he likes her"
*yakwa*nuhwe's	"we like it?	*shukwa*nuhwe's	"he likes us"

Conclusion

- Subject and object drop in Mohawk follows from the rich morphological head-marking that verbs always show with both their subjects and objects.

How about free word order then?

- This was the initial question: Why is it that Mohawk allows this freedom in its word order in a way that other languages (e.g., English) do not?

- Here are the data again:

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   (OSV)
    dress   Sak likes.

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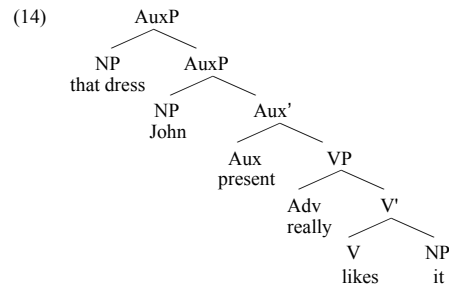   dress   likes   (the) Sak.

Introducing "dislocation"

- To understand why Mohawk has freedom of word order, we need to discuss first the phenomenon of "*dislocation*" common in many, perhaps all, natural languages.

- Baker illustrates this with data from English:
  a. That dress, John really likes it.   (object left-dislocation)
  b. John really likes it, that dress.   (object right-dislocation)
  c. John, he really likes that dress.   (subject left-dislocation)
  d. He really likes that dress, John.   (subject right-dislocation)

Introducing "dislocation"

- As you can see from these English sentences, dislocated elements are typically linked to a pronoun in the "core" clause ("*it*" in a-b, and "*he*" in c-d). As a result, they come to enjoy more freedom with regard to their positioning in the sentence.
- The standard analysis for dislocation structures is that the dislocated element is attached to AuxP, either to the left or the to right.

Tree for dislocation structures

(14)

```
                    AuxP
                  /      \
               NP         AuxP
            that dress    /    \
                        NP      Aux'
                       John    /    \
                            Aux      VP
                          present   /   \
                                 Adv      V'
                                really   /  \
                                        V    NP
                                      likes   it
```
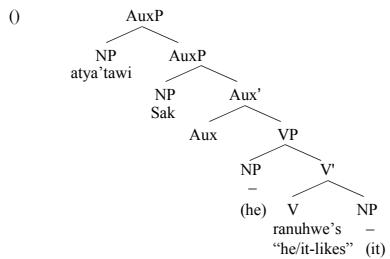
The Pronominal Argument Hypothesis

- But how does this help us explain the Mohawk facts?

- Suppose that the agreement prefixes on verbs in Mohawk are actually subject and object pronouns. If so, then the NPs these pronouns refer to will be able to appear dislocated almost in any position in the sentence, thereby giving rise to what looks like absence of restrictions on word order in the language.

- This is the so-called *Pronominal Argument Hypothesis*, which was first proposed by Jelinek (1984) .
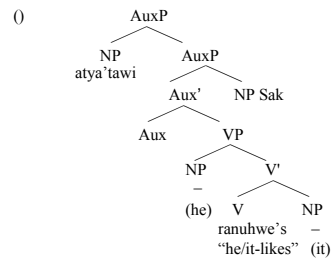
The Pronominal Argument Hypothesis

- Under this analysis, syntactic trees for Mohawk OSV and OVS orders, for example, are as in the following two trees:

Deriving OSV order in Mohawk

()　　　　　AuxP
　　　NP　　　AuxP
　　atya'tawi
　　　　　NP　　Aux'
　　　　　Sak
　　　　　　　Aux　　VP
　　　　　　　　　NP　　V'
　　　　　　　　　 –
　　　　　　　　(he)　V　　NP
　　　　　　　　　ranuhwe's　 –
　　　　　　　　　"he/it-likes"　(it)

Deriving OVS order in Mohawk

()　　　　　AuxP
　　　NP　　　AuxP
　　atya'tawi
　　　　　Aux'　　NP Sak
　　　Aux　　VP
　　　　　NP　　V'
　　　　　 –
　　　　　(he)　V　　NP
　　　　　ranuhwe's　 –
　　　　　"he/it-likes"　(it)

The polysynthesis parameter

- It's the polysynthetic morphology on Mohawk verbs then that gives rise to this surface freedom of word order.
- Lack of head directionality in Mohawk, then, is a consequence of its polysynthetic nature. The difference between Mohawk and English can then be expressed in terms of one parameter: the "*polysynthesis parameter*"
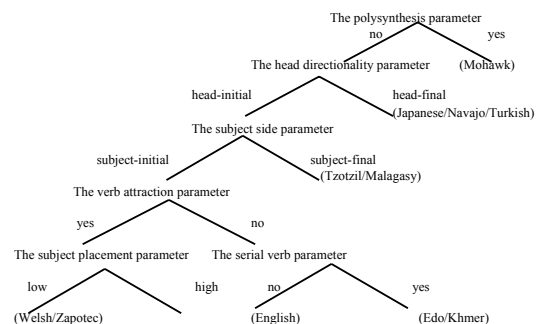
The polysynthesis parameter

- "Verbs must include some expression of each of the main participants in the event described by the verb (the subject, object, and indirect object)."

The polysynthesis parameter

- Adding this to the parameter hierarchy, we now have:

Baker's parameter hierarchy (3rd version)

　　　　　　　　　　The polysynthesis parameter
　　　　　　　　　 no　　　　　　yes
　　　　　　　The head directionality parameter　　(Mohawk)
　　　　head-initial　　　　　head-final
　　　　　　　　　　　　　　(Japanese/Navajo/Turkish)
　　　　The subject side parameter
　subject-initial　　　　subject-final
　　　　　　　　　　　(Tzotzil/Malagasy)
　The verb attraction parameter
　yes　　　　　no
The subject placement parameter　　The serial verb parameter
　low　　　high　　　no　　　　yes
(Welsh/Zapotec)　　(English)　　　(Edo/Khmer)

Agenda for next class

- Polysynthesis cont. Baker Chapter 4.
- Optional polysynthesis: Baker Chapter 5 (pp. 143-156)