

# Introduction to Morphology

Farrell Ackerman

APM 4101

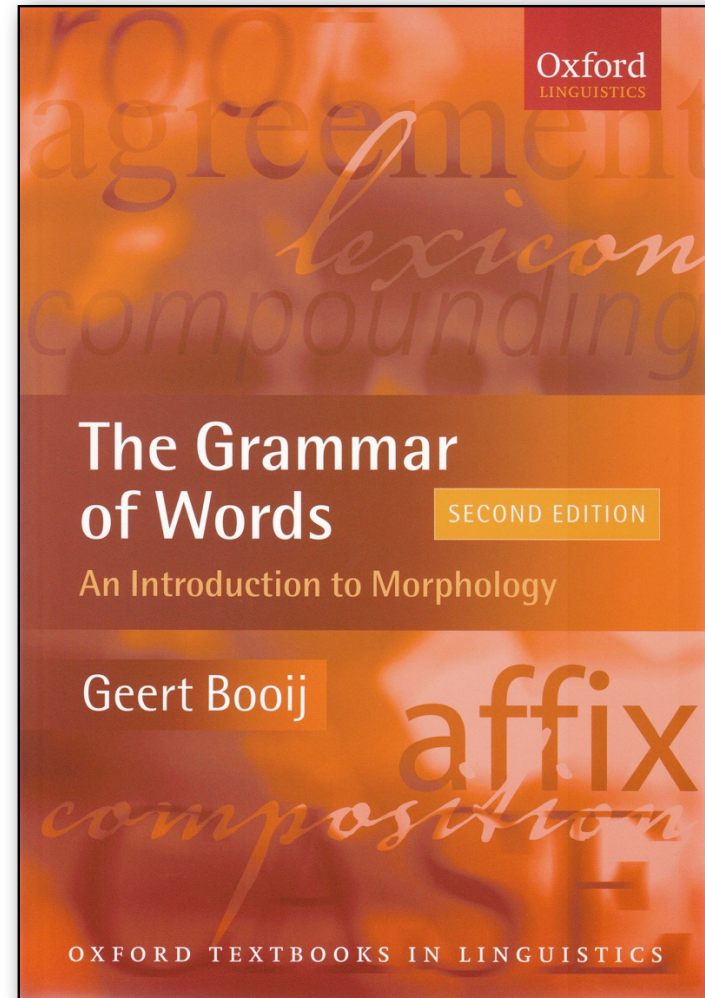
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# Requirements

- The final grade will be based on:
  - 7 homework assignments (70%), including attendance in sections where homeworks will be gone over.
  - A take-home final exam (30%)
  - Though it is permitted, even encouraged, to collaborate with others only on the homework assignments, all work must be your own. If you work with others, it is expected that you will list their names in a footnote at the bottom of the 1st page of your assignment and final. This is to acknowledge their input and to permit comparison of their work with your's.
  - Plagiarism is not permitted and University guidelines will be enforced.
  - A important point of the course is to learn how to solve problems, so you miss the point, if you cheat.

# Goals of the course

- Introduce the basic methods for analyzing words.
- Identify the patterns of word shapes and their strategies of formation found cross-linguistically.
- Develop a typology of these patterns.
- Develop theories that can account for these patterns.
- Get insights into the human mind by examining the patterns of morphology, why they might be like they are, how they are learned, comprehended and produced, and change over time.

# Syllabus

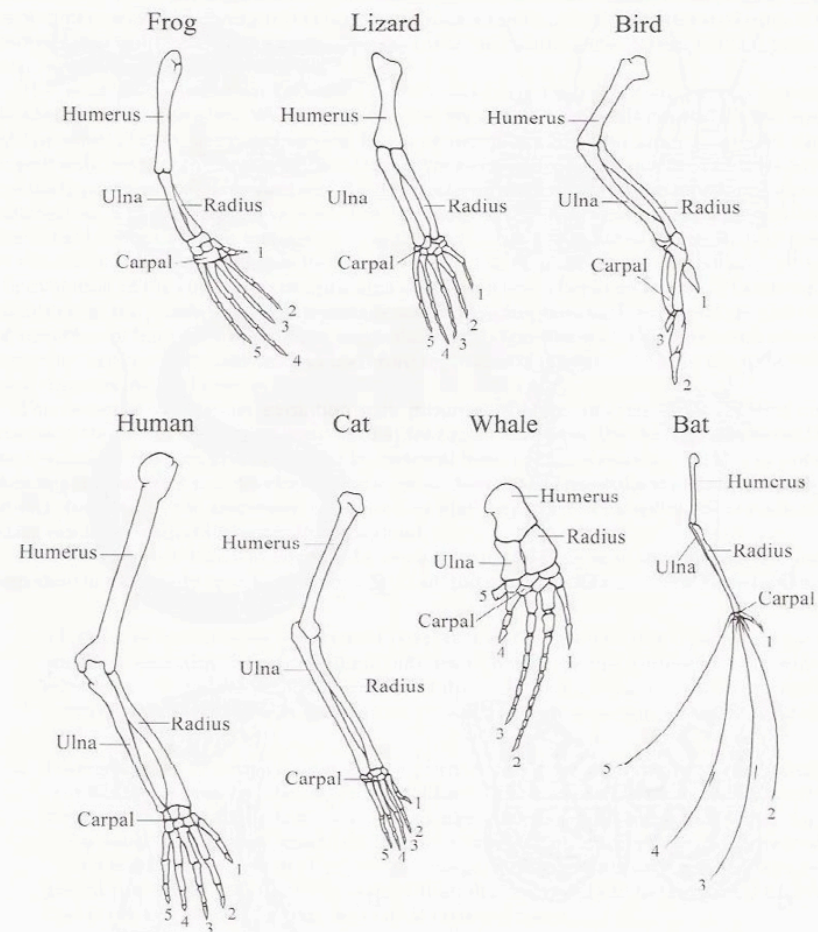
(Chapters from G. Booij The Grammar of Words)

Week 1-2	Introduction, basic concepts Chapters 1, 2 & 12
Week 3-4	Derivation & Compounding Chapters 3 & 4
Week 5-6	Inflection & Paradigms Chapters 5 & 6
Week 7-8	Interfaces Chapters 7, 8 & 9
Week 9	Morphology & Psycholinguistics Chapter 10
Week 10	Morphology & Psycholinguistics Chapter 11

# What is Morphology?

(image from Carroll et. al. 2005:12)

- Morphology is the study of form: Biology
- But, form in biology is also associated with function



**Figure 1.7**  
**The diversification of homologous parts**

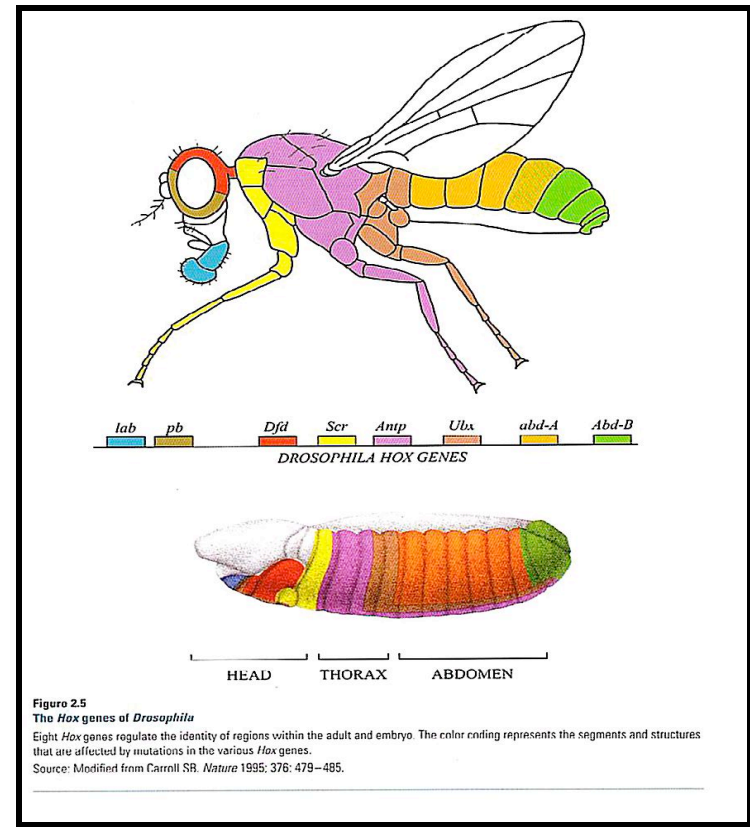
All vertebrate forelimbs are homologous structures whose anatomy has undergone considerable diversification in the evolution and adaptation of these various vertebrate lineages. Not to scale.

Source: Redrawn from Ridley M. *Evolution*, 2nd edn. Malden, MA: Blackwell Science, 1996.

# The payoff

(image from Carroll et. al. 2005:25)

- Cross species comparison of body design in conjunction with results in molecular genetics and developmental biology are providing new understanding of constraints and variability in living creatures.
- This is made possible by good description of variety and similarity, formal tools of analysis, and the development of theories in which to formulate hypotheses.



# What is linguistic morphology?

- Morphology is where all linguistic dimensions come together:

“Morphology is at the conceptual centre of linguistics. This is not because it is the dominant subdiscipline, but because morphology is the study of word structure, and words are at the interface between phonology, syntax and semantics.” (Spencer and Zwicky 1998:1)

# What is Linguistic Morphology?

- Morphology is the study of the systematic patterns exhibited between forms and meanings of words in natural language

- August Schleicher, 1859

Hungarian:

áll                   `stand`

fel-áll               `stand up`

fel-áll-ít           `set something up`

fel-áll-ít-ás       `installation`





# Morphology

- Morphology is the study of the systematic covariation in the form and meaning of words.
- Not: “...the study of the combination of morphemes to form words”
- Not: “...the study of the internal structure of words”
- A conflict in perspectives

Morphology is the study of morphemes and their arrangements in forming words. (Nida 1949:1)

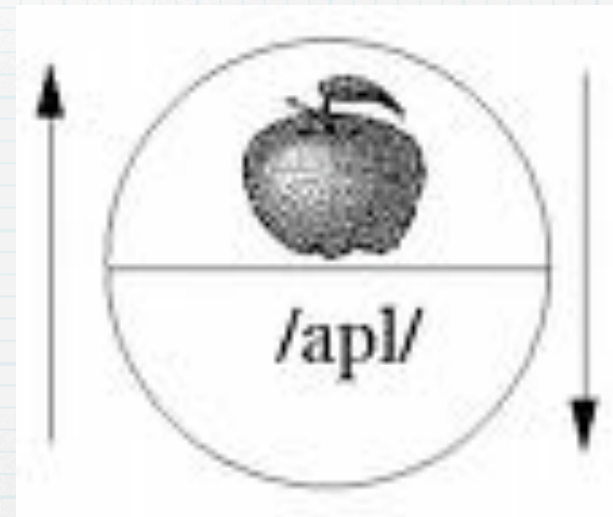
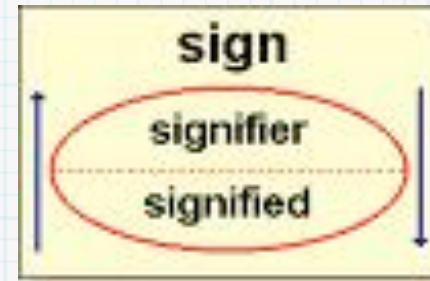
‘Morphology ... is simply a term for that branch of linguistics which is concerned with the ‘forms of words’ in different uses and constructions. (Matthews 1991:3)

# Fundamental questions

- What are morphemes and what motivates the hypothesis that they exist?
- What patterns do words exhibit in different uses and constructions?
- What sorts of theories have been developed to account for these patterns?
- To what degree do theories reflect typological and methodological biases?
- Are there morphological universals? If so, how might they arise? If not, what explains tendencies for languages to display similarities?

# Morphology

- Ferdinand de Saussure (1916)
- Human language is a system of signs
- The sign is a relation between form and meaning
- This relationship is arbitrary
- The key insight behind morphology is that complex signs aren't completely arbitrary
- Words with similar forms tend to have similar meanings



# Morphemes as signs

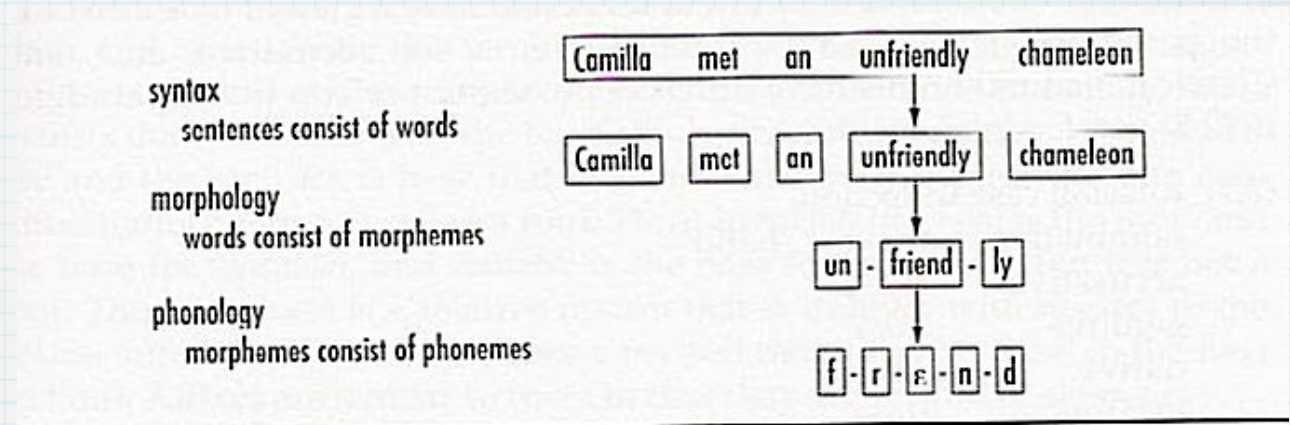
- Many words are simple, but sometimes they are complex and composed of identifiable smaller pieces.
- **farmer** is a complex word **farm**+**er**, because farmer is part of the systematic set:

work	worker
eat	eater
drive	driver
farm	farmer

- where **-er** is a morpheme, i.e. a sign, that means “one who Vs”
- A words like **dormer** (a structure that projects out of a house with sloping roof) and **sliver** aren't complex, because they aren't parts of a set of related words. How about **lovelier**, **sprinkler**, and **messenger**?
- **work** is an arbitrary sign (Armenian **yerk-el** does just as good a job) and **-er** is an arbitrary sign (Armenian **ič** in **yerkič** does just as good a job).
- But, words like **work-er** are motivated, since there is a productive operation which makes every **V-er** combination predictable in meaning.

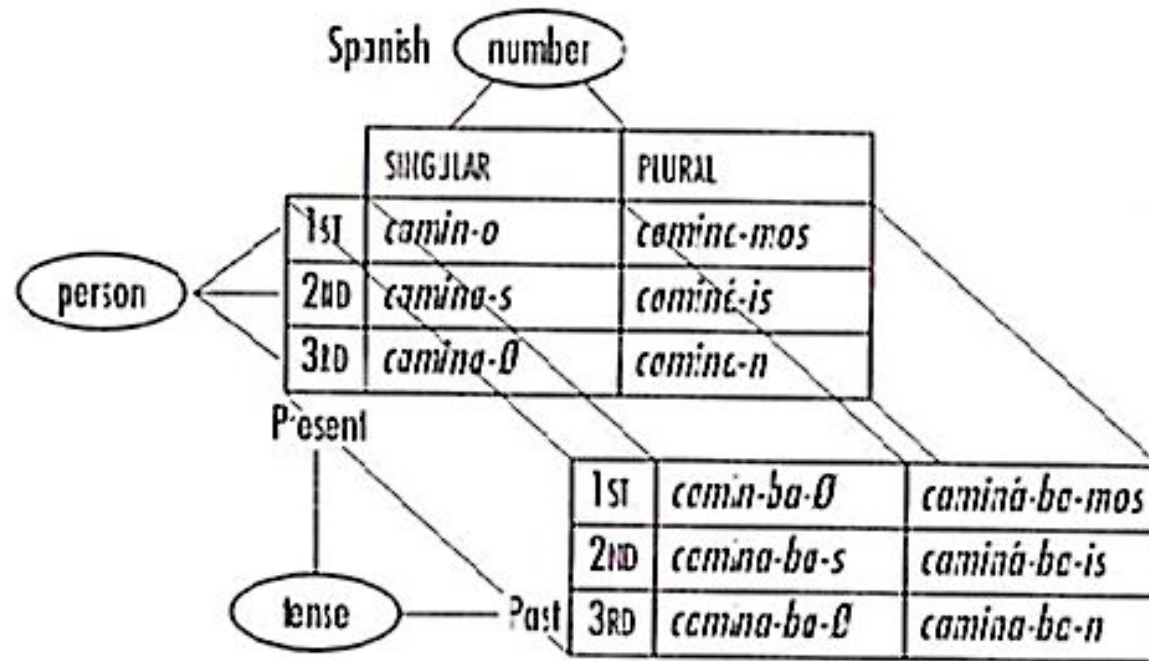
# The allure of reductionism

- Entities at higher levels of analysis are simply and exhaustively decomposed into entities at lower levels, until we reach the features associated with phonological entities.



# Words as units of information

(Haspelmath 2002:62)



# Bulgarian verbal morphology

(From Stump 2001:37)

Feature: grammatical attribute such as PERSON, NUMBER, TENSE...

Value: a specification of an attribute such as 2ND, SINGULAR, PAST...

Property: a feature-value pairing such as 2ND PERSON, PAST TENSE...

Property bundle: a set of grammatical properties such as {2ND PERSON; PAST TENSE; PASSIVE VOICE}

FINITE FORMS:				
MOOD:	INDICATIVE			IMPERATIVE
TENSE:	PRESENT	IMPERFECT	AORIST	
1SG				}
2SG				
3SG				
1PL				
2PL				
3PL				
ACTIVE				
PARTICIPIAL FORMS:				
TENSE:	PRESENT	IMPERFECT	AORIST	
FEM/SG				}
MASC/SG				
NEUT/SG				
PLURAL				
		FEM/SG		
		MASC/SG		
		NEUT/SG		
		PLURAL		
PASSIVE				

# Bulgarian verbal morphology

(From Stump 2001:39)

- The inflected wordforms of 4 LEXEMES.
- LEXEME: The abstract element common among related elements.
- Morphosyntactic/ Grammatical word: The meaning associated with the lexeme (lexical) and the morphosyntactic properties (grammatical).
- Wordform: The formal realization or exponence of the grammatical word.

Table 2.2 *Indicative paradigms of four imperfective verbs in Bulgarian* (Scatton 1984:211ff.)

		KRAD 'steal'	IGRÁJ 'play'	KOVA 'forge'	DÁVA 'give'
Conjugation:		-T,+C	+T,+C	+T,-C	-T,-C
PRESENT	1SG	<i>krad-ǎ</i>	<i>igráj-ǎ</i>	<i>kov-ǎ</i>	<i>dáva-m</i>
	2SG	<i>krad-ǎ-š</i>	<i>igrá-e-š</i>	<i>kov-ǎ-š</i>	<i>dáva-š</i>
	3SG	<i>krad-ǎ</i>	<i>igrá-e</i>	<i>kov-ǎ</i>	<i>dáva</i>
	1PL	<i>krad-ǎ-m</i>	<i>igrá-e-m</i>	<i>kov-ǎ-m</i>	<i>dáva-me</i>
	2PL	<i>krad-ǎ-te</i>	<i>igrá-e-te</i>	<i>kov-ǎ-te</i>	<i>dáva-te</i>
	3PL	<i>krad-ǎt</i>	<i>igráj-ǎt</i>	<i>kov-ǎt</i>	<i>dáva-t</i>
IMPERFECT	1SG	<i>krad-'á-x</i>	<i>igrá-e-x</i>	<i>kov-'á-x</i>	<i>dáva-x</i>
	2SG	<i>krad-ǎ-š-e</i>	<i>igrá-e-š-e</i>	<i>kov-ǎ-š-e</i>	<i>dáva-š-e</i>
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	1PL	<i>krad-'á-x-me</i>	<i>igrá-e-x-me</i>	<i>kov-'á-x-me</i>	<i>dáva-x-me</i>
	2PL	<i>krad-'á-x-te</i>	<i>igrá-e-x-te</i>	<i>kov-'á-x-te</i>	<i>dáva-x-te</i>
	3PL	<i>krad-'á-x-a</i>	<i>igrá-e-x-a</i>	<i>kov-'á-x-a</i>	<i>dáva-x-a</i>
AORIST	1SG	<i>krád-o-x</i>	<i>igrá-x</i>	<i>ková-x</i>	<i>dáva-x.</i> <i>davá-x</i>
	2SG	<i>krád-e</i>	<i>igrá</i>	<i>ková</i>	<i>dáva, davá</i>
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	2PL	<i>krád-o-x-te</i>	<i>igrá-x-te</i>	<i>ková-x-te</i>	<i>dáva-x-te,</i> <i>davá-x-te</i>
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# Syntagmatic & Paradigmatic

(image from Stump 2001:39)

- Syntagmatic: The linear arrangement of elements (morphotactics)
- Paradigm: The set of wordforms sharing the same lexeme; The abstracted schema for wordforms sharing the same lexeme; the selection of one wordform excludes the selection of another wordform for the relevant property set.
- Syncretism: Identity in wordform, but difference in property set.

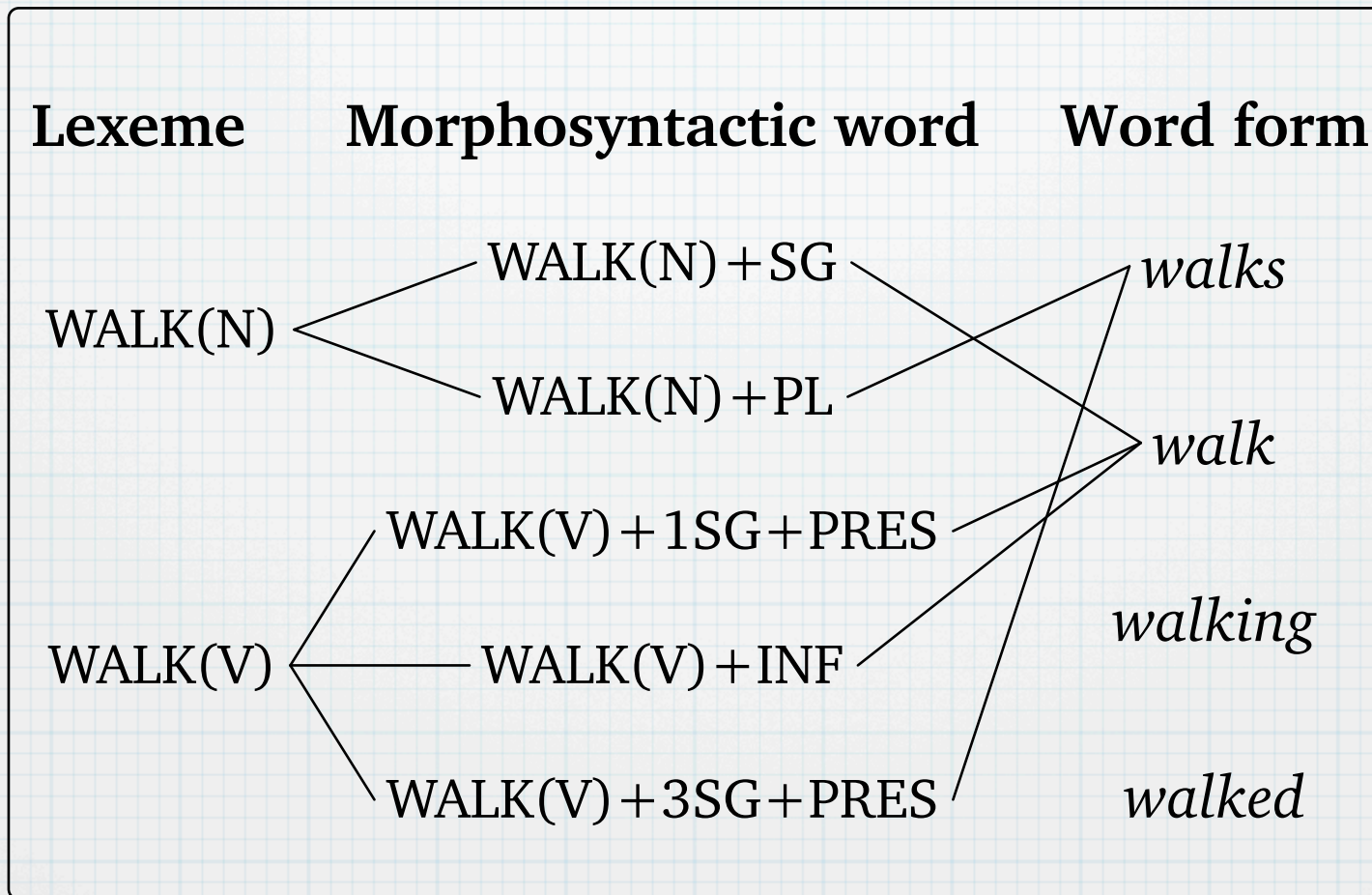
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# Words in morphology

- We can distinguish between notions of 'word' in terms of different level of abstraction.
- A LEXEME is a 'dictionary word', an abstract entity, written in SMALL CAPS
- A word form is a concrete orthographic or phonological entity
- A morphosyntactic word is a particular combination of morphosyntactic features
- A paradigm is a set of word forms (or morphosyntactic words) which belong to a particular lexeme
- A word family is a set of related lexemes

# Three dimensions of wordhood



# The problems with words

(following Dixon and Aikhenvald 2002:6)

- Morphology is about words, but what is a word?
  - A LEXEME and its family of related forms?
  - An orthographic (spelled) unit?
  - An entity defined in terms of grammatical criteria?
  - An entity defined in terms of phonological criteria?
  - An entity defined in terms of syntactic criteria?

# A famous characterization

“a word, then, is a free form which does not consist entirely of (two or more) lesser free forms; in brief, it is a minimum free form.” Bloomfield 1933:178

- A word is a minimal free form: an entity which can appear as an independent syntactic element which must consist minimally of a LEXEME, i.e., it cannot consist simply of affixes, which are never free forms.

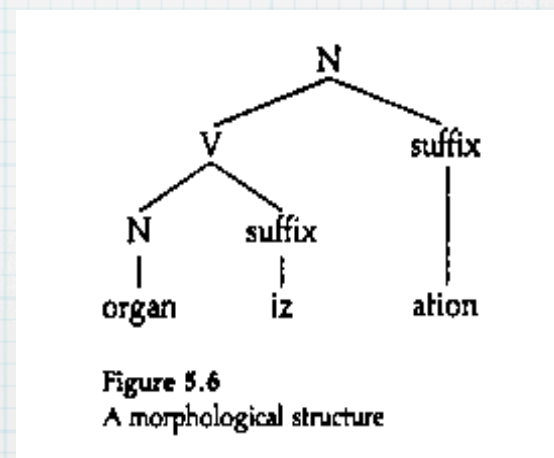
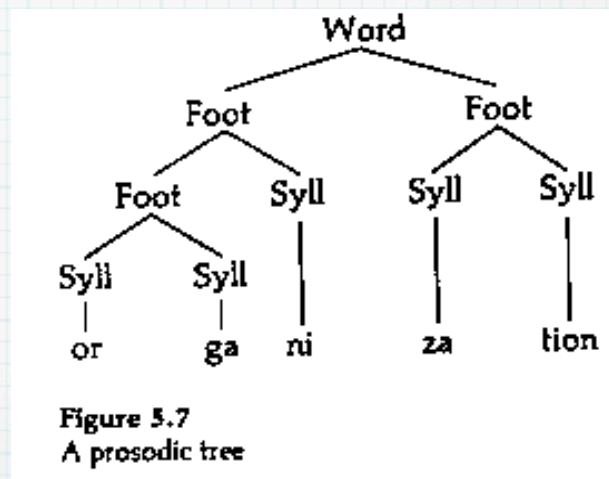
So, **weav-er-s** is a word, but **er-s** is not.

# The problems with words

- Morphology is about words, but what is a word?
- Orthographic word
  - “Naive” definition - sequences of letters separated by spaces
  - Problematic for written languages
    - used to
    - hors d’oeuvre
    - the mayor of San Diego’s house
  - Meaningless for unwritten languages; since words run together in speech, do non-literate peoples have intuitions about words? Of course, how can you learn a language, if you can’t identify words and the principles that alter their shapes?

# Morphological versus phonological words

- There are mismatches between the phonological word and the morphological word.
- The basic analytic constructs for these dimensions are different, i.e., foot and syllable for phonology & lexical category and affix for morphology.



# Morphology v. Phonology

(Gábor Berezcki 1981:26)

**Hungarian:** Ez az ember itt ólálkod-ik  
this the person here loiter.3SG  
'this person is loitering here'  
/e za zem be rit tó lál ko dik/

**Finnish:** Minu-n isä-ni hampaa-t ova-t ehjä-t  
I.GEN father.1SG tooth-PL is.PL whole.PL  
'my father's teeth are in good shape'  
/mi nu ni sä ni ham paa to va te jät/

**Estonian:** Mu-l on uus auto  
I.AD is new car  
'I have a new car'  
/mu lon nuu sau to/



# Phonological word

(Dixon & Aikhenvald 2002:13)

“A phonological word is a phonological unit larger than a syllable (in some languages it may be minimally just one syllable) which has at least one (and generally more than one) phonological defining property chosen from one of the following areas:

Segmental features - internal syllabic and segmental structure...

Prosodic features - stress ( or accent) and/or tone assignment..

Phonological rules - some rules only apply within a phonological word....”

# Domain of phonological rules/processes

- English nouns are generally stressed on the first syllable:

ánvil  
téléphone

- |             |             |
|-------------|-------------|
| Phrase      | Compound    |
| whìte hóuse | whíte house |
| hòt dóg     | hót dog     |

- But:

cárrót cake versus apple píe

# Phonological words

- Finnish vowel harmony (front = /y, ä, ö/, back = /a, o, u/)

## Back harmony

puku 'dress'  
talo 'house'  
kunto 'condition'  
talo-na 'house-ESS'

## Front harmony

kyky 'ability'  
sülö 'splinter'  
kyntö 'plowing'  
kylö-nä 'village-ESS'

- But, pää-kaupunki 'capitol city' is two words, i.e. a compound, for harmony, yet one word for stress assignment, since the stress is on the 1st syllable of the first word, as it is in all Finnish words.

# Phonological words

(Spencer 1991:360)

- Macedonian words have antepenultimate (3rd to the last) stress, if they have two or more syllables.

1a. žéna ta  
wife ART  
`the wife'

1b. žená ta ti  
wife ART your  
`your wife'

- Negative marker leads to stress change:

2a. mu go dá dov  
he.DAT it.ACC give.ISG  
`I gave it to him'

2b. ne mu gó dade  
not he.DAT it.ACC give.3SG  
`He didn't give it to him'

# Phonological words

(Spencer 1991:360)

- Phrases versus compounds:

Syntactic phrase

Compound

ia. *přva věčer*

ib. *přvá večer*

# Some standard criteria for wordhood

- Syntactic words: syntax treats some elements as atomic/indivisible, as if their internal structure is opaque to word external operations.
- Lexical integrity: syntactic operations cannot separate pieces of words

walked very slowly

\*walked slow-very-ly

- Anaphoric islands: independent syntactic elements cannot peek into words.

Pat had a glass of wine and spilled some of it on the table.

?? Pat bought a wine bottle and spilled some of it on the table.

\*Pat visited a winery and hated its taste.

## Some standard criteria for wordhood

- Permutability: while sequences of words or phrases can display different orders, the pieces of words generally cannot.

1a. Ez az ember itt ólálkod-ik  
this the person here loiter.3SG

1b. Itt ez az ember ólálkod-ik  
here this the person loiter.3SG  
'this person is loitering here'

but,

\* ólál-ik-kod

## Some standard criteria for wordhood

- But, consider Serbo-Croatian, where the future marker is sometimes before the verb (1a) and sometimes after (1b).

1a. knjig-u      ću      čita-ti  
book-ACC 1SG.FUT read-INF  
'It's the book I want to read'

1b. čita-ću      knjig-u  
read-1SG.FUT book-ACC  
'I want to read the book'



# Standard criteria

- Noun incorporation in Onondaga: an independent word in syntax becomes a part of a complex word.

Clause:

waʔhahninúʔ                      neʔ                      oýɛʔkwaʔ  
TNS-he:it-buy-ASP            PRT                      PRE-tobacco-SG  
'He bought the tobacco.'

Word:

waʔhayɛʔkwahní:nuʔ  
TNS-he:it-tobacco-buy-ASP  
'He bought (a kind of) tobacco.'

# Standard criteria

Restriction against the coordination of parts of words

1. I am fond of raspberries and blackberries.
2. \* I am fond of rasp- and blackberries.

# Lexical units versus morphological words

- Semantic or lexical words are atoms of meaning, but is the morphological word the same as the lexical word?
- The meaning of phrases and sentences is ordinarily constructed compositionally from the meanings of words:

The slow swimming happy duck paused in the pond.

- But what about **idioms** where there is an effective arbitrariness in meaning which resembles what occurs with words?

kick the bucket, keep tabs on, the cat's got his tongue, spill the beans, keep your eyes peeled, by and large...

# Lexical units versus morphological words

- or, complex predicates

1a. Harry made an offer of money to the police.

1b. Harry offered money to the police.

2a. Sue gave Harry a look.

2b. Sue looked at Harry.

3a. Sally gave a snort/cough/laugh/yell.

3b. Sally snorted/coughed/laugh/yelled.

# Lexical units versus morphological words

- or, phrasal verbs
- More or less semantically transparent:
  - 1a. Murray **threw out** the down pillows.
  - 1b. Murray **threw** the down pillows **out**.
  - 1c. Murray **threw it out**.
  - 1d. \*Murray **threw out it**.
- Less semantically transparent:
  - 2a. Sarah **beefed up** her resumé.
  - 2b. Sarah **beefed** her resumé **up**.

# Lexical units versus morphological words

- There are some entities that consist of syntactically independent elements, but where there the meanings are idiosyncratic, or some somewhat transparent, or completely transparent.
- Are these lexical units, entitled to their own dictionary entries, but not proper candidates for morphological wordhood?

# Doing morphology

nilipata	'I got'	n:liwapiga	'I hit them'
walipata	'they got'	walitupiga	'they hit us'
nilipiga	'I hit'	walikipiga	'they hit it'
nilikipata	'I got it'	u:atupiga	'you will hit us'
ulikipata	'you got it'	u:ipata	'you got'
nitakipata	'I will get it'	watakupiga	'they will hit you'
ulipiga	'you hit'	u:itupiga	'you hit us'
watakipiga	'they will hit it'	n:takupata	'I will get you'

- Identify the forms and meanings of the morphemes in these Swahili verbs, distinguishing between the LEXEME associated with the root and the grammatical morphemes.
- What is the order (morphotactics) of the morphemes? Provide a schematic template.