# Phonologically determined allomorphy

- Class 1 affixes triggers stress shift, class 2 doesn't

| Class 1 | | Class 2 | |
|---------|---------|---------|---------|
| réal | reálity | nátural | náturalness |
| cómedy | comédian | accómpany | accómpaniable |
| pseúdonym | pseudónymy | bóunty | bóuntiful |

- Class 1 affixes trigger assimilation, class 2 doesn't

Class 1: intolerable, impossible, illegal, irregular
Class 2: untenable, unpardonable, unlawful, unreal

# Determinants of morph shapes

- Phonologically conditioned allomorphy: phonological properties of stems and affixes play a role in determining the shape of the word.

- Dutch:  2 agentive affixes - aar & er

  bedel/be:dəl/  `to beg'        bedel-aar   `beggar'
  luistar/ləistər/ `to listen      luist-aar     `listener'

  verdedig/vɛrdedig `defend' vɛrdedig-er
    `defender
  bak/bak/                    `to bake' bak-er          `baker'

# Determinants of morph shapes

- Morphologically conditioned allomorphy: Morphological properties of words are determined by morphological properties.

Table 2. German gender indicators

**(a) Absolute gender indicators**

Masculine
| | |
|---|---|
| -ling | der Schmetterling 'butterfly' |
| -or | der Motor 'motor' |
| -us | der Zirkus 'circus' |
| -e and denoting nationality | der Schwede 'Swede' |
| -er and denoting occupation | der Bäcker 'baker' |
| seasons, months weekdays | der Herbst 'autumn' |

Neuter
| | |
|---|---|
| -chen | das Mädchen 'girl' |
| -lein | das Fräulein 'Miss' |
| -sal | das Schicksal 'fate' |
| -um | das Museum 'museum' |
| substantivized infinitives | das Essen 'food' |

Feminine
| | |
|---|---|
| -heit | die Krankheit 'illness' |
| -keit | die Schwierigkeit 'difficulty' |
| -in | die Verkäuferin 'sales clerk (female)' |
| -schaft | die Freundschaft 'friendship' |
| -ung | die Erklärung 'explanation' |
| -ik | die Musik 'music' |
| -tät | die Universität 'university' |

**(b) Probabilistic gender indicators**

Masculine
| | |
|---|---|
| -er | der Anker 'anchor' |
| -el | der Löffel 'spoon' |
| denoting some German rivers | der Rhein |
| denoting non-German rivers not ending in -e or -a | der Don |
| denoting mountains | der Montblanc |
| denoting parts of days | der Morgen 'morning' |
| makes of automobiles | der Mercedes |

Neuter
| | |
|---|---|
| -nis | das Ergebnis 'result' |
| -tum | das Eigentum 'estate' |
| countries, cities, continents | das geteilte Berlin 'the divided Berlin' |
| one-syllable nouns | das Bild 'picture' |

Feminine
| | |
|---|---|
| denoting female persons | die Tochter 'daughter' |
| -e | die Tasse 'cup' |
| ships, maritime terms | die "Sassnitz" |
| denoting German rivers | die Oder |
| denoting non-German rivers ending in -e or -a | die Wolga |

# 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 in order to identify typologies for these patterns.

- Get a sense of nature of 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.

# What is Morphology?
(image from Carroll et. al. 2005:12)

- Morphology is the study of <u>form</u>: Biology

- But, form in biology is also associated with <u>function</u>
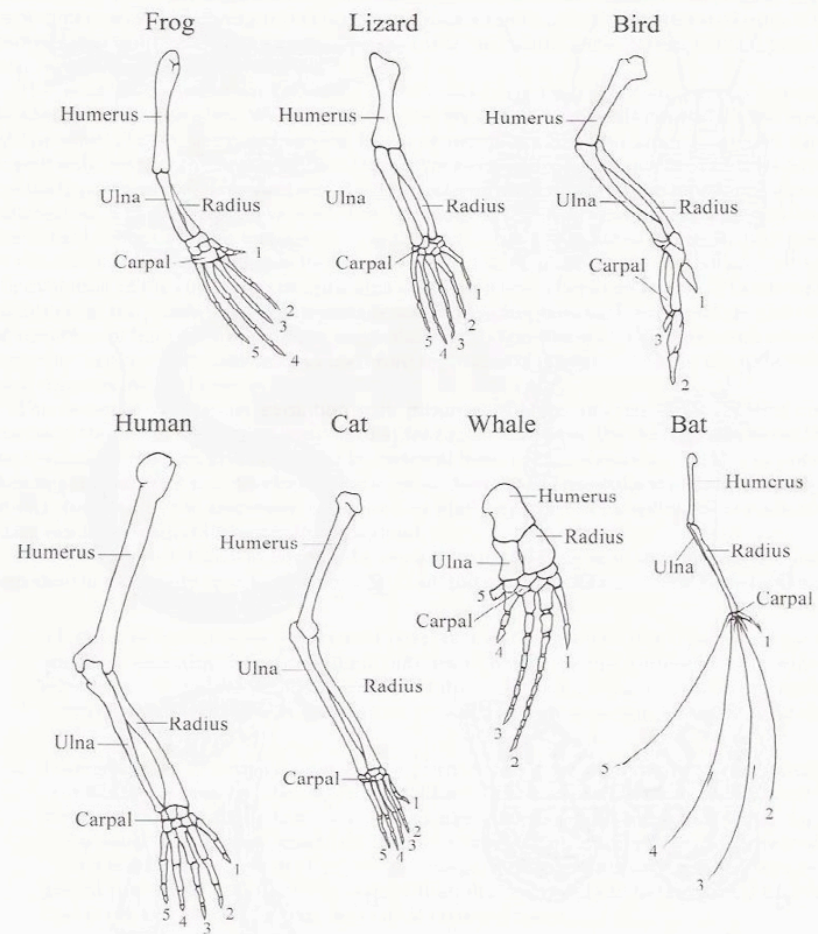


**Figure 1.7**
**The diversification of homologous parts**
All vertebrate forelimbs are homologous structures whose anatomy has undergone considerable diversification in the evolution and adaptation of these various vertebrate lineages. Not to scale.
Source: Redrawn from Ridley M. *Evolution*, 2nd edn. Malden, MA: Blackwell Science, 1996.

# Morphology

- Morphology is the study of the systematic covariation in the form and meaning of words.

  - Not: "...the study of the combination of <u>morphemes</u> 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 word 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
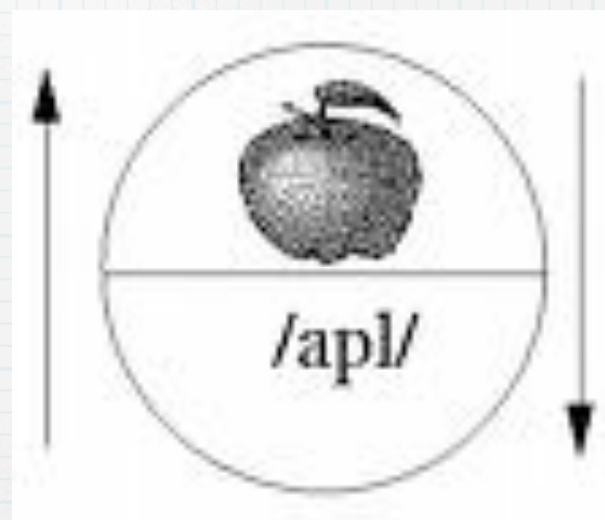
# Morphemes as signs

- Many words are <u>simple</u>, but sometimes they are <u>complex</u> 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 <u>motivated</u>, since there is a productive operation which makes every V-er combination predictable in meaning.

# Words as units of information
(Haspelmath 2002:62)
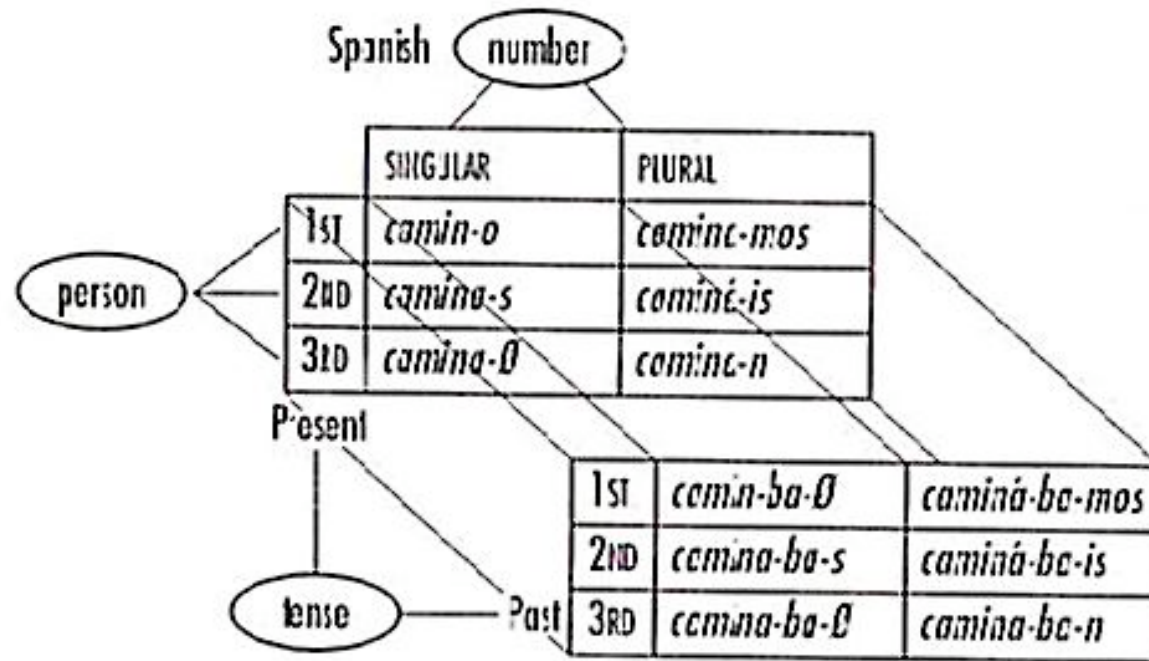
# Bulgarian verbal morphology

(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}

# 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.)*

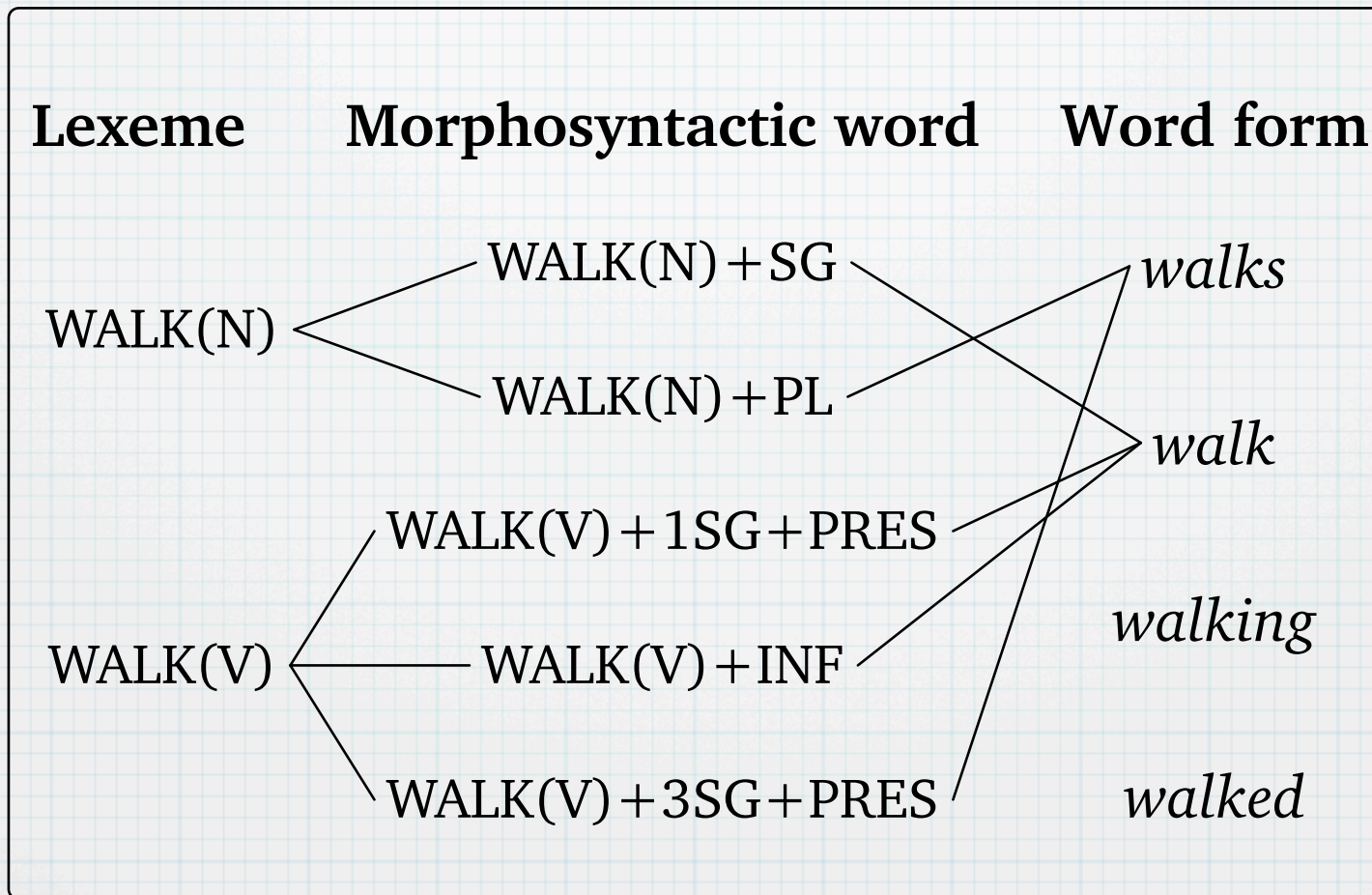| | | KRAD 'steal' | IGRÁJ 'play' | KOVA 'forge' | DÁVA 'give' |
|---|---|---|---|---|---|
| Conjugation: | | −T,+C | +T,+C | +T,−C | −T,−C |
| PRESENT | 1SG | krad-ɔ́ | igráj-ɔ | kov-ɔ́ | dáva-m |
| | 2SG | krad-é-š | igrá-e-š | kov-é-š | dáva-š |
| | 3SG | krad-é | igrá-e | kov-é | dáva |
| | 1PL | krad-é-m | igrá-e-m | kov-é-m | dáva-me |
| | 2PL | krad-é-te | igrá-e-te | kov-é-te | dáva-te |
| | 3PL | krad-ɔ́t | igráj-ət | kov-ɔ́t | dáva-t |
| IMPERFECT | 1SG | krad-'á-x | igrá-e-x | kov-'á-x | dáva-x |
| | 2SG | krad-é-š-e | igrá-e-š-e | kov-é-š-e | dáva-š-e |
| | 3SG | krad-é-š-e | igrá-e-š-e | kov-é-š-e | dáva-š-e |
| | 1PL | krad-'á-x-me | igrá-e-x-me | kov-'á-x-me | dáva-x-me |
| | 2PL | krad-'á-x-te | igrá-e-x-te | kov-'á-x-te | dáva-x-te |
| | 3PL | krad-'á-x-a | igrá-e-x-a | kov-'á-x-a | dáva-x-a |
| AORIST | 1SG | krád-o-x | igrá-x | ková-x | dáva-x, davá-x |
| | 2SG | krád-e | igrá | ková | dáva, davá |
| | 3SG | krád-e | igrá | ková | dáva, davá |
| | 1PL | krád-o-x-me | igrá-x-me | ková-x-me | dáva-x-me, davá-x-me |
| | 2PL | krád-o-x-te | igrá-x-te | ková-x-te | dáva-x-te, davá-x-te |
| | 3PL | krád-o-x-a | igrá-x-a | ková-x-a | dáva-x-a, davá-x-a |

# 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.

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 | krad-ó | igráj-ɔ | kov-ó | dáva-m |
| | 2SG | krad-é-š | igrá-e-š | kov-é-š | dáva-š |
| | 3SG | krad-é | igrá-e | kov-é | dáva |
| | 1PL | krad-é-m | igrá-e-m | kov-é-m | dáva-me |
| | 2PL | krad-é-te | igrá-e-te | kov-é-te | dáva-te |
| | 3PL | krad-ót | igráj-ət | kov-ót | dáva-t |
| IMPERFECT | 1SG | krad-'á-x | igrá-e-x | kov-'á-x | dáva-x |
| | 2SG | krad-é-š-e | igrá-e-š-e | kov-é-š-e | dáva-š-e |
| | 3SG | krad-é-š-e | igrá-e-š-e | kov-é-š-e | dáva-š-e |
| | 1PL | krad-'á-x-me | igrá-e-x-me | kov-'á-x-me | dáva-x-me |
| | 2PL | krad-'á-x-te | igrá-e-x-te | kov-'á-x-te | dáva-x-te |
| | 3PL | krad-'á-x-a | igrá-e-x-a | kov-'á-x-a | dáva-x-a |
| AORIST | 1SG | krád-o-x | igrá-x | ková-x | dáva-x. davá-x |
| | 2SG | krád-e | igrá | ková | dáva, davá |
| | 3SG | krád-e | igrá | ková | dáva, davá |
| | 1PL | krád-o-x-me | igrá-x-me | ková-x-me | dáva-x-me, davá-x-me |
| | 2PL | krád-o-x-te | igrá-x-te | ková-x-te | dáva-x-te, davá-x-te |
| | 3PL | krád-o-x-a | igrá-x-a | ková-x-a | dáva-x-a, davá-x-a |

# Three dimensions of wordhood

| Lexeme | Morphosyntactic word | Word form |
|---|---|---|
| WALK(N) | WALK(N)+SG | *walks* |
| | WALK(N)+PL | *walk* |
| WALK(V) | WALK(V)+1SG+PRES | |
| | WALK(V)+INF | *walking* |
| | WALK(V)+3SG+PRES | *walked* |

# 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?

# 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.



Figure 5.7
A prosodic tree



Figure 5.6
A morphological structure
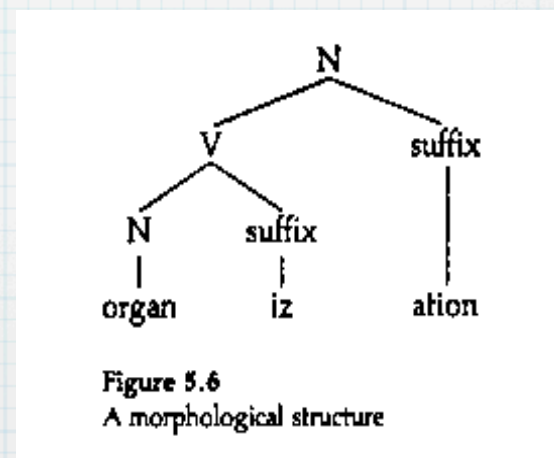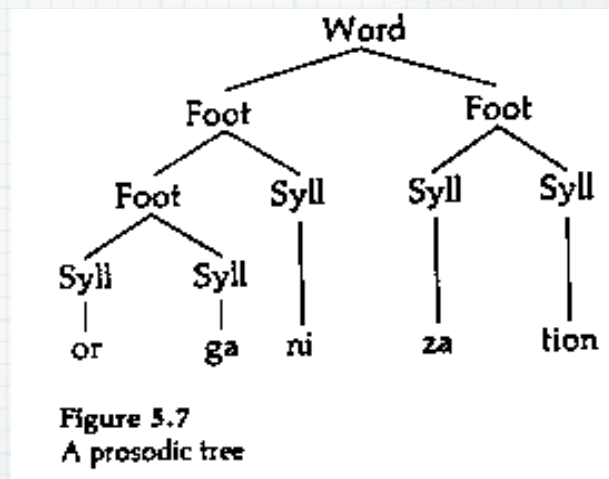
# Morphology v.  Phonology

(Gábor Bereczki 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/


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
    télephone

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

- But:

    cárrot cake  versus apple píe

# Phonological words

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

  1a. žéna  ta                    1b. žená    ta    ti
      wife  ART                        wife  ART   your
      `the wife'                       `your wife'


- Negative marker leads to stress change:

  2a. mu        go      dádov      2b. ne  mu        gó      dade
      he.DAT  it.ACC  give.1SG         not  he.DAT  it.ACC  give.3SG
      `I gave it to him'               `He didn't give it to him'

# Phonological words
(Spencer 1991:360)

- Phrases versus compounds:

  Syntactic phrase                    Compound

  1a.  pŕva véčer            1b.  pŕvá večer
       first   evening            honeymoon

# 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

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?

# The central role of morphology for understand human language

- 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)

# Keep learning

Have a fun, healthy, and productive summer (and for those who are graduating - you're just beginning)