Morphology: The Study of Word Structure

How words are put together out of smaller pieces that linguists call **morphemes**, the **minimal** units of linguistic form and meaning.

- dog, dog+s, bull+dog
- walk, walk+s, walk+ed, walk+ing, moon+walk
- red, redd+ish, redd+en, redd+en+s, redd+er
- pre+pose, post+pose, im+pose, com+pose, de+pose, trans+pose, contra+pose, ...
- pre+Raphael+ite+s, anti+deluv+ian, sesqui+ped+al+ian, ...

- pre+pose
- pre+pos+ition
- pre+pos+ition+al
- pre+pos+ition+al+ize
- pre+pos+ition+al+iz+ation
- pre+pos+ition+al+iz+ation+free
- Pseudopseudohypoparathyroidism

- pre+pose
- [pre+pos]+ition
- [[[pre+pos]+ition]+al]
- [[[[pre+pos]+ition]+al]+ize]
- [[[[[pre+pos]+ition]+al]+iz]+ation]
- [[[[[[pre+pos]+ition]+al]+iz]+ation]+free]
- [[[Pseudo+[pseudo+[hypo+[para+[thyr+oid]]]]]]
+ism]

All languages have phonology, syntax and semantics...

- [t] vs. [t^h] vs. [d]
- English is SVO; Irish is VSO; Japanese is SOV.
- [ku]
  - pigeon sound, government takeover, ...
  - blow, punch, neck, ...
  - cow, ...
  - bank, library, ...
- But..... Do all languages have morphology?

Mandarin

(Sino-Tibetan - 845,500,000 speakers)

na^{4}er^{5} you^{3} gou^{3}
there have dog
'there's a dog (or dogs) there.'
na^{4}er^{5} you^{3} ji^{3} zhi^{1} gou^{3}
there have several CLASSIFIER dog
'there are dogs there.'

These languages are called **Analytic** (or **Isolating**).

Synthetic Languages

Have affixes (or other **bound** elements) that get attached to other morphemes to build words. There are three kinds:

- Agglutinating Languages
- Fusional Languages
- Polysynthetic Languages

Agglutinating Languages

- The morphemes are put together "loosely".
- The segmentation of individual morphemes is straightforward, e.g. **Hungarian** (Uralic - 12,500,000 speakers):

[haːz-unk] house-our

[haːz-ɔd] house-your

[haːz-unk-bɔn] house-our-in

[haːz-od-bɔn] house-your-in

More Hungarian

- [taːrʃ] (‘companion’)
- [taːrʃ + ɔs (‘-ial’)] = [taːrʃɔʃ] (‘social’)
- [taːrʃɔʃ + ʃaːg (‘-ness’)] = [taːrʃɔʃaːg] (‘society’)
- [köz (‘place’) + taːrʃɔʃaːg] = [köztaːrʃɔʃaːg] (‘republic’)
- [nép (‘people’) + köztaːrʃɔʃaːg] = [népköztaːrʃɔʃaːg] (‘people’s republic’)
- [népköztaːrʃɔʃaːg + utsɔ (‘street’)] = [népköztaːrʃɔʃaːgutsɔ] (‘The Street of the People’s Republic’)

Latin: A Fusional Language

(Indo-European - Classical Language of the Roman Empire)

moneō	'I am advising'
monēs	'you(sg) are advising'
monet	'(s)he is advising'
monēmus	'we are advising'
monētis	'you(pl) are advising'
monent	'they are advising'

[-o] '1st, sg. pres. tense'
[-s] '2nd, sg. pres. tense'
[-t] '3rd, sg. pres. tense'
[-mus] '1st pl. pres. tense'
[-tis] '2nd pl. pres. tense'
[-nt] '3rd, pl. pres. tense'

Polysynthetic Languages

An example from **Chukchi** (Chukotko-Kamchatkan – 16,000 speakers)

θəmeyŋəlevtpəɣtərkən

t-ə-meyŋ-ə-levt-pəɣt-ə-rkən

1.SG.SUBJ-great-head-hurt-PRES.1

'I have a fierce headache.' (Skorik 1961: 102)

θəmeyŋəlevtpəɣtərkən has a 5:1 morpheme-to-word ratio with 3 incorporated lexical morphemes (meyŋ 'great', levt 'head', pəɣt 'ache').

Polysynthetic Languages

Two words of **Sora** (Munda (Austro-Asiatic) - 310,000):

pɔ- poʊŋ- koʊŋ- t- am
stab belly knife non-past you(sg.)
"(Someone) will stab you with a knife in (your) belly."

ɲɛn- əʤ- ʤa- dar- si- əm
I Not receive cooked-rice hand you(sg.)
"I will not receive cooked rice from your hands."

Note the words:
si-i "hand"; kondi "knife"

Do all languages with morphology express the same distinctions?

No Way

- For example, kinship terms can vary dramatically.
- See:

  http://www.umanitoba.ca/faculties/arts/anthropology/tutor/kintern

Japanese Honorifics

(Japonic - 121,000,000 speakers)

- Takao-**san**
- Takao-**kun**
- Takao-**chan**
- Takao-**senpai**
- Takao-**sensei**
- Takao-**sama**
- Takao-**shi**

See http://en.wikipedia.org/wiki/Japanese_honorifics.

Morpheme Diversity

Hindi (Indo-European - 181,700,000) Causatives:

bənnaː ‘to be made’; bənaːnaː ‘to make (something)’; bənvaːnaː ‘to make (someone) make (something)’.

pəknaː ‘to be cooking’; pəkaːnaː ‘to cook (something)’; pəkvaːnaː ‘to make (someone) cook (something)’.

Saṃskṛt (IE - Classical language of ancient India) Desideratives:

pibaːti	‘he drinks’	piːpaːsati	‘he wants to drink’
jiːvati	‘he lives’	jiːjiːviʃati	‘he wants to live’

Noun classes: Swahili

(Bantu (Niger-Congo) - 800,000 native speakers; over 30,000,000 L2 users)

class	semantics	prefix	singular	gloss	plural	gloss
1,2	persons	m-/mu-, wa-	mtu	person	watu	persons
3,4	trees, natural forces	m-/mu-, mi-	mti	tree	miti	trees
5,6	groups, aug	∅/ji-, ma-	jicho	eye	macho	eyes
7,8	artifacts, dim	ki-, vi-	kisu	knife	visu	knives
9,10	animals, loanwords, other	∅/n-, ∅/n-	ndoto	dream	ndoto	dreams
11,12	extension	u-, ∅/n-	ua	fence, yard	nyua	fences
14	abstraction	u-	utoto	childhood	–	

Noun class prefixes mark singular and plural as well. Verbs contain agreement affixes:

- **wa**toto **wa**dogo **wa**meanguka
  "the small children fell."
- **ki**tabu **ki**dogo **ki**meanguka "the small book fell."
- **vi**tabu **vi**dogo **vi**meanguka "the small books fell."
- **wa**toto **wa**dogo **wa**na **ki**taka **ki**tabu
  "the small children want the book."

What about English Morphology?

- English doesn't have nearly as much morphology as many other languages...
- but it still has enough to illustrate the basic concepts of morphological theory and analysis.

Two Perspectives:

- Morphemes, allomorphs, and their distribution
- Morpheme sequences (underlying representations) and their realization

Allomorphs: The English Noun Plural Morpheme

CONTEXT	ALLOMORPH
baby, bag, hood, eye, hive	z
book, cat, caps, proof	s
crutch, garage, glass, buzz	əz

Phonological Rules:
The English Noun Plural Morpheme

	/bebi+z/	/bʊk+z/	/glæs+z/
Voicing Assimilation	–	[bʊk+s]	–
ə-Epenthesis	–	–	[glæs+əz]
	[bebi+z]	[bʊk+s]	[glæs+əz]

Exceptions

SINGULAR	PLURAL
man	men
woman	women
child	children
ox	oxen
tooth	teeth
foot	feet
sheep	sheep
deer	deer
fish	fish

Organizing Principle:
Exceptions (apavāda) block General Rule (utsarga)

Other Concepts from Ancient India

- **Root**: The most basic morpheme in a word or family of related words, consisting of an irreducible, arbitrary sound-meaning pairing: electricity, electrical, electric, electrify, electron.
- **Stem**: The main portion of a word, the one that prefixes and suffixes are attached to. Associated with the root electr- are stems like electrify and electron, to which we can add further endings to get electrifies and electrons
- A root is normally a single morpheme, but a stem might contain two or more, e.g. noun-noun compounds
- **Affix: Prefix**, **Suffix**,...

Beyond Concatenation

- fan-ta-stic
- fan-freakin-tastic

*fantas-freakin-tic

- Mis-sis-sip-pi
- Missi-freakin-ssippi

*Mis-freakin-sissippi

*Mississip-freakin-pi

- **Bound Morphemes**: cannot occur on their own as full words (**-s** in dogs; **de-** in detoxify; **-ness** in happiness; **cran-** in cranberry)
- **Free Morphemes**: can occur as separate words (**dog**; **walk**; **berry**; **yes**)

- **Zero Derivation (Conversion):** Building a different word (stem) without changing the phonology.

- ADJ $\rightarrow$ NOUN
- NOUN $\rightarrow$ VERB
- More Examples??

How many words does English have?

An Infinity

- missile: ‘ICBM’
- anti-tank-missile: ‘missile targetting tanks’
- anti-aircraft-missile: ‘missile targetting aircraft’
- anti-missile-missile: ‘missile targetting ICBMs’

Morphological Rules

- Rule: Anti-X-missile is a missile targetting Xs.
- What kind of missile targets anti-missile-missiles?
- anti-anti-missile-missile-missile
- anti-anti-anti-missile-missile-missile-missile: ‘missile targetting anti-anti-missile-missile-missiles’

- Meaning and structure go hand-in-hand.
- Other examples?

Morphological Rules

- $X = \textbf{great} + Y$

Ambiguity

- unusable
- prefix un-
- verb stem use
- suffix -able
- [un + [use + able]] (*unuse)

- Don't store your money in that box, it's unlockable.
  [un + [lock + able]]
- Now that we have the right key, the box is finally unlockable.
  [[un + lock] + able]

Morphological Vowel Mutation

- swim swam swum
- drink / drank / drunk
- begin / began / begun
- sit/sat; win/won; come/came; run/ran; shine/shone; find/found...
- wear / wore / worn (combination)

- A small number of English noun plurals also have internal changes: foot/feet; mouse/mice; man/men
- 'Nonconcatenative' Morphology

Arabic

FORM	MEANING	PATTERN
kataba	to write	CaCaCa
ʔaktaba	to cause to write	ʔaCCaCa
kaatib	writing	CaaCiC
kitaab	a book	CiCaaC
kutub	boo	CuCuC
kitaabah	writing profession	CiCaaCah
kattaab	author	CaCCaaC
miktaab	writing instrument	miCCaaC

Arabic

FORM	MEANING	PATTERN
kataba	he wrote	CaCaCa
katabna	we wrote	CaCaCna
katabuu	they wrote	CaCaCuu
yaktubu	he writes	yaCCuCu
naktubu	we write	naCCuCu
yaktabuuna	they write	yaCCaCuuna
sayaktubu	he will write	sayaCCuCu
sanaktubu	we will write	sanaCCuCu
sayaktabuuna	they will write	sayaCCaCuuna

Lexical vs. Grammatical Morphemes

- **Content (Lexical) Morphemes**: express general referential or informational content, a meaning that is essentially independent of the grammatical system of a particular language.
- **Functional (Grammatical) Morphemes**: other morphemes are heavily tied to a grammatical function, expressing syntactic relationships between units in a sentence, or obligatorily marked categories such as number or tense.

Open-class vs. Closed-Class Morphemes

Content morphemes are also often called **open-class morphemes**, because they belong to categories that are open to the addition of arbitrary new items. People are always making up or borrowing new morphemes in these categories: *smurf*, *nuke*, *byte*, *grok*, *chalupa*, *baathist*.

- By contrast, the following are typically **functional** (**closed-class**) morphemes:
  - prepositions: *to*, *by*, *from*, *with*
  - articles: *the*, *a*
  - pronouns: *she*, *his*, *my*
  - conjunctions: *and*, *but*, *although*
  - affixes: *re-*, *-ness*, *-ly*

- Such morphemes either serve to tie elements together grammatically (hit **by** a truck, Pat **and** Chris), or
- to express morphological features such as definiteness that may be required in a particular language (She found **a/the** table vs. *She found table.
- Function morphemes are also called "closed-class" categories– essentially closed to invention or borrowing.