

Morphology

Maybe in order to understand mankind, we have to look at the word itself. *Mankind*. Basically, it's made up of two separate words--"mank" and "ind." What do these words mean? It's a mystery, and that's why so is mankind.

--Jack Handey, *Deeper Thoughts*

today, we will get started on questions like:

- what is universal/innate, and what is learned?
- what do you know when you know a word?
- why is the word "unlockable" ambiguous?

Universal?

"cat" = Image of cat removed due to copyright reasons.

probably not....

"cat"=
"neko"=
"Katze"=
"koshka"=
"pusa"=
"buthikan"=

Image of cat removed due to copyright reasons.

Ferdinand de Saussure: "arbitrariness of the sign" (1910 or so)

Our mental dictionary--the **lexicon**--has to contain the information that "cat" means cat; we just have to learn that.

What else is in the lexicon?

Lexical entry #2?

"cats" = Image of cat removed due to copyright reasons.

seems kind of wasteful...

cat	cats	cat	-s
dog	dogs	dog	
banana	bananas	banana	
computer	computers	computer	

....

lexicon #1:
given N nouns,
contains 2N forms

....

lexicon #2:
given N nouns,
contains N+1 forms

in some languages, seems *really* wasteful.

Nimboran (Papua New Guinea)

ngeduo -man -se -d -am
draw 1.du.incl. 7loc fut.incl.
'You and I will draw from here to there'

- 4 tenses (future, present, recent past, distant past)
- agreement with subject and object
 - distinguishes 14 person/number combinations
(3 numbers (singular, dual, plural), 4 singular persons, 5 plural)
- 15 locative suffixes (above, below, there, from there to here...)
- 2 aspects (repeated, not repeated)

$4 \times 14 \times 14 \times 15 \times 2 = 23,520$ forms for a transitive verb
 $4 + 14 + 14 + 15 + 2 = 49$ (ish) suffixes

And in fact we have evidence that we divide words into their parts:

- productivity (wug)
- reuse of word parts: Water**gate**, Monicag**ate**, Irang**ate**...
- backformation:
sculptor, beggar, swindler > sculpt, beg, swindle
pease > pea

Some terminology:

cat-s	atroc-ity	culp-able	un- worth-y
dog-s	atroc-ious	culp-abil-ity	worth-y

- cat, dog, -s, atroc-, -ity... are **morphemes**
- cat, dog, atroc-, culp-, worth-... are **roots**
- -s, -ity, -able, un-... are **affixes**
- cat, dog... are **free**
- -s, atroc-, culp-... are **bound**

Note that some words just consist of one morpheme: *cat, dog*
Others consist of more than one: *cat-s, industri-al-iz-ation*

Some more terminology:

- **open-class** morphemes: nouns (*xerox, laser*)
verbs (*google, fax*)
adjectives (*grody*)
- **closed-class** morphemes: prepositions (*in, at, on*)
determiners (*the, an*)
auxiliaries (*will, has*)

Neurological evidence for open/closed distinction: **Broca's aphasia**

Production (asked to describe a picture):

boy...cook...cookie...took...cookie...

Broca's aphasia

Comprehension:

He showed her baby pictures. (ambiguous)

Broca's aphasia

Comprehension:

He showed her baby pictures. (ambiguous)

He showed her baby the pictures. (ambiguous for Broca's patients)

He showed her the baby pictures. (")

Information in the lexicon:

- sound ("cat")
- meaning (four-legged furry critter that purrs...)
- ...

Information in the lexicon, continued:

- bound vs. free

English

big banana-s

Tagalog

mga malalaking saging
PL big banana
'big bananas'

Information in the lexicon, continued:

- bound vs. free

English
big banana-s

Tagalog
mga malalaking saging
PL big banana
'big bananas'

English
my **friend**

Passamaquoddy
n- **itap** (*itap)
my friend

Even more information in the lexicon:

- **prefix** vs. **suffix**

English
dance-**d**

Lardil
yuud- luuli
PAST dance
'danced'

So we've seen that languages can vary in what kinds of affixes they have, where they go, and what they mean.

Morphology is the study of the rules governing this variability.

Part of the work of morphology is **morphological analysis** of unfamiliar languages; figuring out the lexicon for an unfamiliar language, and the rules for combining its parts.

Swahili

nilipata	'I got'	niliwapiga	'I hit them'
walipata	'they got'	walitupiga	'they hit us'
nilipiga	'I hit'	utatupiga	'you will hit us'
nilikipata	'I got it'	ulipata	'you got'
ulikipata	'you got it'	watakupiga	'they will hit you'
nitakupata	'I will get it'	ulitupiga	'you hit us'
ulipiga	'you hit'	nitakupata	'I will get you'
watakupiga	'they will hit it'		

Step One: Find the verb stems

nilipata	'I got'	nilipiga	'I hit'
walipata	'they got'	ulipiga	'you hit'
nilikipata	'I got it'	watakipiga	'they will hit it'
ulikipata	'you got it'	niliwapiga	'I hit them'
nitakipata	'I will get it'	walitupiga	'they hit us'
ulipata	'you got'	utatupiga	'you will hit us'
nitakupata	'I will get you'	watakupiga	'they will hit you'
		ulitupiga	'you hit us'

Step Two: Now concentrate on the other affixes.

Sort by affix, and see if you can figure out what a given affix means:

<i>pata</i> 'get'		<i>piga</i> 'hit'	
nilipata	'I got'	nilipiga	'I hit'
nilikipata	'I got it'	niliwapiga	'I hit them'
nitakipata	'I will get it'	ulipiga	'you hit'
nitakupata	'I will get you'	ulitupiga	'you hit us'
ulikipata	'you got it'	utatupiga	'you will hit us'
ulipata	'you got'	walitupiga	'they hit us'
walipata	'they got'	watakipiga	'they will hit it'
		watakupiga	'they will hit you'

Step Five: declare victory (after checking to make sure your story accounts for everything)

ni- 'I (subject)', *u-* 'you (subject)', *wa-* 'they (subject)'

li- 'past', *ta-* 'future'

ki- 'it (object)', *ku-* 'you (object)', *tu-* 'us (object)', *wa-* 'them (object)'

pata 'get'

piga 'hit'

nilipata	'I got'	niliwapiga	'I hit them'
walipata	'they got'	walitupiga	'they hit us'
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ulipiga	'you hit'	nitakupata	'I will get you'
watakupiga	'they will hit it'		

(and test yourself: how do you say 'they will get us'?)

of course, not all morphemes are this easy to find...

Tagalog

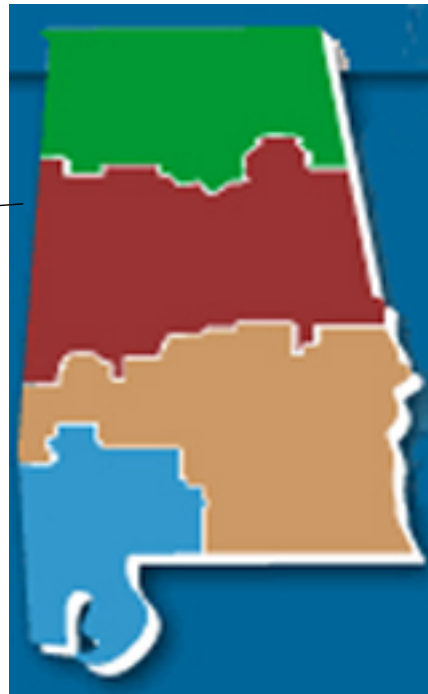
lumangoy	'swam'
kumain	'ate'
tumaas	'became tall'
bumili	'bought'
umawit	'sang'
umakyat	'climbed'
umihi	'urinated'
umuwi	'went home'

Tagalog: infixes

l <u>u</u> ngoy	'swam'
k <u>u</u> main	'ate'
t <u>u</u> maas	'became tall'
b <u>u</u> mili	'bought'
<u>u</u> mawit	'sang'
<u>u</u> makyat	'climbed'
<u>u</u> mihi	'urinated'
<u>u</u> muwi	'went home'

English infixes:

Alabama



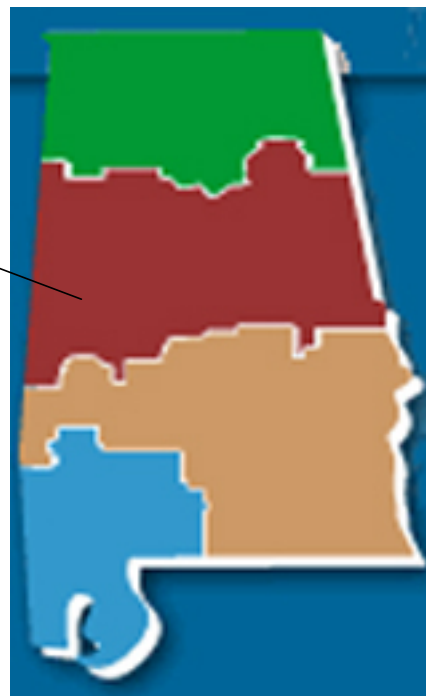
English infixes:

Ala**fuckin**bama



English infixes:

Tusca**fuckin**loosa,
Ala**fuckin**bama



English infixes:

Massafuckinachusetts



templates: Egyptian Arabic

sakan	'he lived in'	daxal	'he entered'
baskun	'I live in'	badxul	'I entered'
uskun	'live in!'	udxul	'enter!'
saakin	'one who lives in'	daaxil	'one who enters'

templates: Egyptian Arabic

sa <u>kan</u>	'he lived in'	da <u>xal</u>	'he entered'	-a-a- 'past, 3rd'
ba <u>skun</u>	'I live in'	ba <u>dxul</u>	'I entered'	ba - - u - 'past, 1st'
u <u>skun</u>	'live in!'	u <u>dxul</u>	'enter!'	u - - u - 'imperative'
sa <u>akin</u>	'one who lives in'	da <u>axil</u>	'one who enters'	-aa-i- 'one who...'
s-k-n	'live in'	d-x-l	'enter'	

Reduplication: Tagalog

lalangoy	'will swim'
kakain	'will eat'
tataas	'will become tall'
bibili	'will buy'
aawit	'will sing'
aakyat	'will climb'
iihi	'will urinate'
uuwi	'will go home'

Reduplication: Tagalog

l al angoy	'will swim'
k ak ain	'will eat'
t ata as	'will become tall'
b ib ili	'will buy'
a aw it	'will sing'
a ak yat	'will climb'
i ih i	'will urinate'
u uw i	'will go home'

Reduplication, part 2: more Tagalog

mataas	'tall'	ma ta as-taas	'rather tall'
malapit	'close'	ma la pit-lapit	'rather close'
maliwanag	'bright'	ma li wa-liwanag	'rather bright'
matalino	'intelligent'	ma ta li-talino	'rather intelligent'

--> partly specified for phonological content (just number of syllables)

Truncation: O'odham

imperfect

ñeok

ñeid

hi:nk

meḍ

golon

siḥp

perfect

ñeo 'speak'

ñei 'see'

hi:n 'bark'

me 'run'

golo 'rake'

siḥ 'nail'