Morphology

general announcements

No recitation sections tomorrow: we'll start next week.

Anybody having any trouble with the websites?

Your next problem set will feature fieldwork; you'll be asked to find something out about the language you'll be working with. Let's talk about how to do that…

Martian fieldwork notes

Martian fieldwork notes

X!oo　(popular Martian name)

- (feel free to make up your own transcription system)

Martian fieldwork notes

X!oo kuulduud bii

'X!oo is a linguist'

Martian fieldwork notes

X!oo kuulduud bii

'X!oo is a linguist'

- 'What's the word for "linguist"?'
- 'How do you say "X!oo is a physicist"?'

Martian fieldwork notes

X!oo kuulduud bii
X!oo linguist   is
'X!oo is a linguist'

- 'What's the word for "linguist"?'
- 'How do you say "X!oo is a physicist"?'

Martian fieldwork notes

X!oo kuulduud bii
X!oo linguist   is
'X!oo is a linguist'

X!oo amsterdam digdug
X!oo canal   dug
'X!oo dug a canal'

X!oo amsterdam gudgid
X!oo canal   is-digging
'X!oo is digging a canal'

Martian fieldwork notes

X!oo kuulduud bii
X!oo linguist   is
'X!oo is a linguist'

X!oo kuulduud noowee
X!oo linguist   NEG-is
'X!oo isn't a linguist'

X!oo amsterdam digdug
X!oo canal   dug
'X!oo dug a canal'

X!oo amsterdam digwedug
X!oo canal   NEG-dug
'X!oo didn't dig a canal'

X!oo amsterdam gudgid
X!oo canal   is-digging
'X!oo is digging a canal'

X!oo amsterdam gudwegid
X!oo canal   NEG-is-digging
'Xoo isn't digging a canal'

Martian fieldwork notes

hypotheses:

• negative of 'is'

is irregular (**bii** > **noowee**)

• regular negation

is an infix **-we-**

...after the first syllable?

...before the last syllable?

....??

X!oo kuulduud noowee

X!oo linguist   NEG-is

'X!oo isn't a linguist'

X!oo amsterdam digwedug

X!oo canal   NEG-dug

'X!oo didn't dig a canal'

X!oo amsterdam gudwegid

X!oo canal   NEG-is-digging

'Xoo isn't digging a canal'

Martian fieldwork notes

X!oo yodeleehihuu
X!oo is-singing
'X!oo is singing'

X!oo roovaa   munchmunchyum
X!oo spacecraft destroyed
'X!oo destroyed a spacecraft'

Martian fieldwork notes

X!oo yodeleehihuu
X!oo is-singing
'X!oo is singing'

X!oo yowedeleehihuu
X!oo NEG-is-singing
'X!oo isn't singing'

X!oo roovaa   munchmunchyum
X!oo spacecraft destroyed
'X!oo destroyed a spacecraft'

X!oo roovaa munchwemunchyum
X!oo spacecraft NEG-destroyed
'X!oo didn't destroy a spacecraft'

Martian fieldwork notes

X!oo yodeleehihuu
X!oo is-singing
'X!oo is singing'

X!oo yowedeleehihuu
X!oo NEG-is-singing
'X!oo isn't singing'

X!oo roovaa   munchmunchyum
X!oo spacecraft destroyed
'X!oo destroyed a spacecraft'

X!oo roovaa munchwemunchyum
X!oo spacecraft NEG-destroyed
'X!oo didn't destroy a spacecraft'

Negative morpheme -we- apparently infixed **after first syllable** of verb.

More on fieldwork

- Make sure your consultant knows what you're interested in: "how people really speak", not necessarily "proper language".

- Start with simple, culturally appropriate sentences.

- Don't assume that you're getting what you're asking for.

- Be organized.

- Be nice!

today, we will get started on questions like:

- what do you know when you know a word?

- what is universal/innate, and what is learned?

- why is the word "unlockable" ambiguous?

"cat"   =

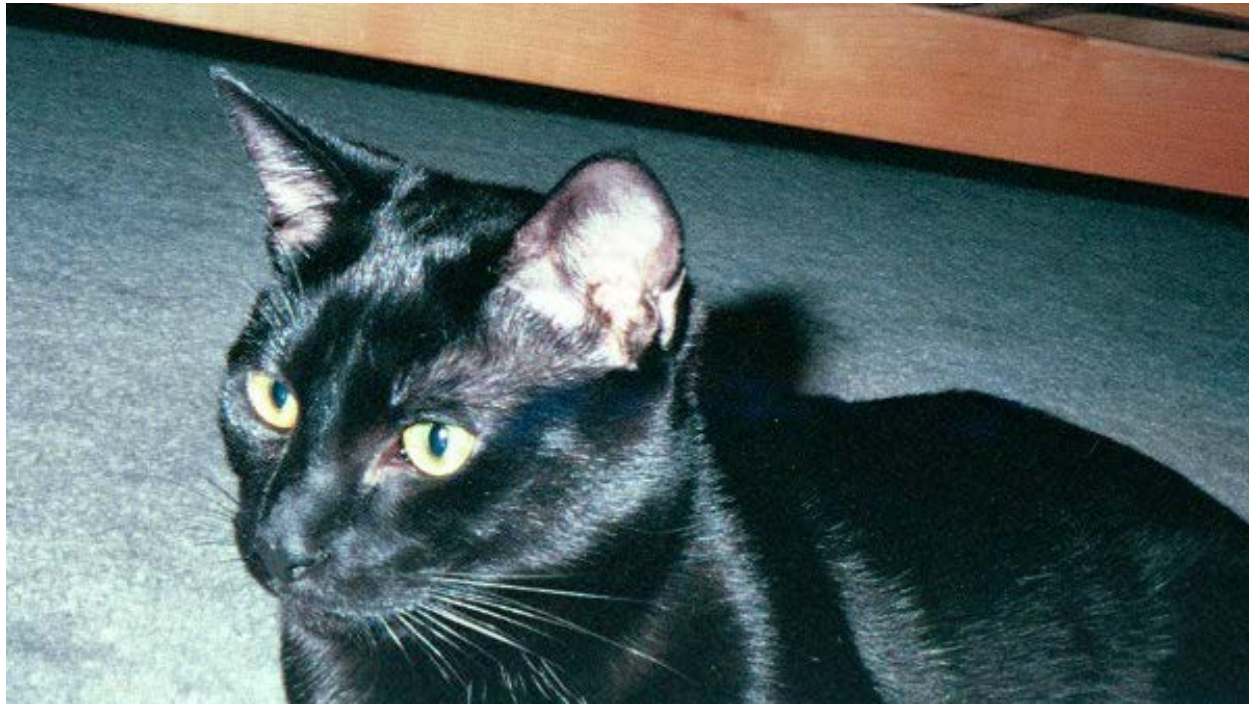# Universal?

"cat"   =

probably not....

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

Ferdinand de Saussure: "arbitrariness of the sign"

(just so we don't go overboard on 'arbitrariness of the sign':)

Passamaquoddy *kuhkukhahs*   = what kind of bird?
Passamaquoddy *kocokikilahsis*   = what kind of bird?

Japanese *pikapika*   = what kind of light?

(just so we don't go overboard on 'arbitrariness of the sign':)

Passamaquoddy *kuhkukhahs* = what kind of bird?
Passamaquoddy *kocokikilahsis* = what kind of bird?

Japanese *pikapika* = what kind of light?

Even in onomatopoeia, though, there's some arbitrariness:

    e.g., frogs say:
        ribbit, ribbit   in English, but
        kero kero   in Japanese,
        op op   in Thai,
        gae gool   in Korean,
        brekeke   in Hungarian…

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"   =

seems kind of wasteful...

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

....

lexicon #1:   lexicon #2:
given N nouns,   given N nouns,
contains 2N forms   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 x 14 x 14 x 15 x 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 test, Berko 1958)

- reuse of word parts: Water**gate**, Monica**gate**, Iran**gate**...

- 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:

- **<u>open-class</u>** morphemes: nouns (*xerox*, *laser*)
                                                verbs (*google*, *fax*)
                                                adjectives (*cromulent*)

- **<u>closed-class</u>** morphemes: prepositions (*in*, *at*, *on*)
                                                determiners (*the*, *an*)
                                                auxiliaries (*will*, *has*)

Literary evidence for open/closed distinction[1]: ***Jabberwocky***

'Twas brillig, and the slithy toves
did gyre and gimble in the wabe…

---

[1] point stolen from David Pesetsky

Literary evidence for open/closed distinction: *Jabberwocky*

'Twas **brillig**, and the **slithy toves**
did **gyre** and **gimble** in the **wabe**…

Literary evidence for open/closed distinction: ***Jabberwocky***

'Twas **brillig**, and the **slithy toves**
did **gyre** and **gimble** in the **wabe**…

Glorph lunchtime, **drimp la** hungry wolves
yuld run **drimp** play **ul la** meadow…

Information in the lexicon:

- sound ("cat")
- meaning (four-legged furry critter that purrs and attacks your feet from under the couch...)

  ...

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'
nitakipata	'I will get it'	ulitupiga	'you hit us'
ulipiga	'you hit'	nitakupata	'I will get you'
watakipiga	'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:

pata 'get'

nilipata	'I got'
nilikipata	'I got it'
nitakipata	'I will get it'
nitakupata	'I will get you'
ulikipata	'you got it'
ulipata	'you got'
walipata	'they got'

piga 'hit'

nilipiga	'I hit'
niliwapiga	'I hit them'
ulipiga	'you hit'
ulitupiga	'you hit us'
utatupiga	'you will hit us'
walitupiga	'they hit us'
watakipiga	'they will hit it'
watakupiga	'they will hit you'

Step Three: Keep sorting by affix...

ni-'I (subject)', **u-** 'you (subject)', **wa-** 'they (subject)'
pata 'get'   **piga** 'hit'

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

Step Four: Keep sorting...

ni- 'I (subject)', *u-* 'you (subject)', *wa-* 'they (subject)'
li- 'past', *ta-* 'future'
pata 'get'   *piga* 'hit'

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

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

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

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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>um</u>angoy   'swam'
k<u>um</u>ain   'ate'
t<u>um</u>aas   'became tall'
b<u>um</u>ili   'bought'
<u>um</u>awit   'sang'
<u>um</u>akyat   'climbed'
<u>um</u>ihi   'urinated'
<u>um</u>uwi   'went home'

(careful! There are no infixes in Swahili ni-ta-ku-pata 'I will get you')

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

sakan	'he lived in'	daxal	'he entered'	-a-a- 'past, 3rd'
baskun	'I live in'	badxul	'I entered'	ba - - u - 'past, 1st'
uskun	'live in!'	udxul	'enter!'	u - - u - 'imperative'
saakin	'one who lives in'	daaxil	'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

lalangoy	'will swim'
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aakyat	'will climb'
iihi	'will urinate'
uuwi	'will go home'

Reduplication, part 2: more Tagalog

mataas	'tall'	mataas-taas	'rather tall'
malapit	'close'	malapit-lapit	'rather close'
maliwanag	'bright'	maliwa-liwanag	'rather bright'
matalino	'intelligent'	matali-talino	'rather intelligent'

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

Truncation: O'odham

imperfect	perfect	
ñeok	ñeo	'speak'
ñeid	ñei	'see'
hi:nk	hi:n	'bark'
meḍ	me	'run'
golon	golo	'rake'
siṣp	siṣ	'nail'

Tone: Dinka (Nilotic, Sudan)

       Bòl   'Bol (man's name)'

       mánh   è **Bôl**   'Bol's brother'
       brother of Bol

The name *Bol* is normally low-toned, but takes falling tone in the genitive case.

Nothing?:   English

cat   cat-**s**
dog   dog-**s**
sheep   sheep**-Ø**

- sound
- meaning
- bound vs. free
- prefix vs. suffix (vs. infix...)

    ...