

Introduction to Phonological Theory CG121

Introduction

What's phonology about?

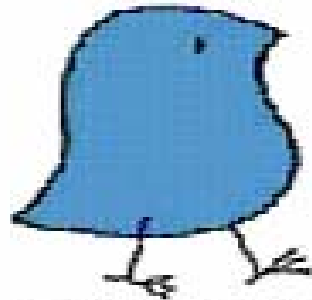
- Wugs & English plural
- Consonant clusters & syllable structure
- Stress

English plural

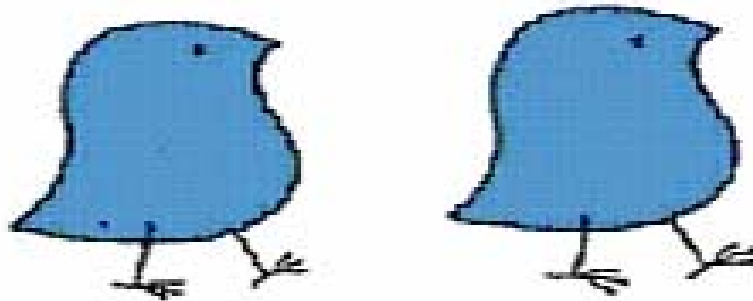
- What do we know about plural formation?
- The alternation [s]/[z]/[əz] is **systematic** because the realization of plural morpheme can be predicted by the context: when a preceding sound is produced with vocal fold vibration (such as the [g] in *dog*) the plural ending is [z]; otherwise, it is [s].
- 4-year olds consistently pronounce the plural ending in *cats* and *dogs* as [s] and [z] respectively. Why?

Wug test

(Berko-Gleason 1957)



This is a wug.



Now there is another one.
There are two of them.
There are two ____.

Other words tested

- Plural/possesive: lun, bik, tor, tass, gutch,...
- Past tense: blinged, ricked, mott,...
- Results: children productively reproduce the morphological alternations in words they have never heard.
- When tested, they call two toys named *glick*, as *glick[s]*, and two instances of a *wug*, as *wug[z]*.
- For other patterns, see the paper (Berko-Gleason, J. 1957. "The Child's Learning of English Morphology," *Word* 14:150-77.

Why is this interesting?

The consistency in the wug-data can't be the result of memorizing the plural forms of the words themselves.

Rather the plural is formed in a rule-like fashion depending on phonetic properties of the final sounds in the stem.

We know this and small kids know this too without anybody telling them!

Consonant clusters

- Another test: which of the following words have been taken from a latest unabridged dictionary of English (i.e. could refer to a new product or an activity)?
- flib slin vlim smid fnit vrig plit trit brid blim tnig ktim
- flib slin **vlim** smid **fnit** **vrig** plit trit brid blim **tnig** **ktim**

Languages 'pick & choose'

- English: there are about 24 consonants and CC clusters are allowed. Hence, there should be 24^2 (=576) CC clusters. But there are not. Why?
- Hypothesis: some are difficult to produce
- But speakers of other languages don't seem to have problems with them (e.g. Slovak *kto* 'who', *vlak* 'train', *vrana* 'crow', *hmla* 'fog', *zmrzlina* 'ice-cream',...)

Is 'pick & choose' random?

- Not really
- If [ʒ] then [z]
- If [ç] then [t]
- If [x] then [k] or [s]
- if voiced C, then voiceless C (exception: Arabic has /b/ but not /p/)
- if voiceless V, then voiced V
- ...

'pick & choose' continued

- Syllable structure: Hawaiian vs. Berber vs. English

Mamuli o ke noi i waihoia ae eka Makai Nui David L. Desha, imua o ka Loio Kalana Charles S. Davis no kona manao kanawai, e pili ana i ka mana ame ka mana ole o ka makai nui, e hoopau ai i kekahi poe e noho hana ana malalo o ka oihana makai o Honolulu nei, i hoopuka ae ai ka Loio Kalana Davis i kona manao kanawai, e hoakaka ana, no ka loa o ka mana piha I ka Makai Nui Desha, e hoopau ai i oa lunapaahao, na kiai paahao, na makai wahine, na lunanana kaa, na makai kuikawa, na hope, na kakauolelo ame na kokua e ae, a koe ka poe e noho hana ana iloko o ka puali makai kumau. [excerpt from a Hawaiian newspaper, <http://nupepa.org/gsd12.5/cgi-bin/nupepa?l=en>]

Yan urgaz iεmmr mnnaw yilmawn n tammnt γ ssuq. Yašk nn dars yan urgaz, ira ad dars isγ tammnt. Inna yas: "Mnšk at tzznzt tammnt ann?" Inna yas: "Mđi tt, iγ tt tεjb ar gis tsawalt." Yasi urgaz ann yan yilm, ifsi t, imđi tammnt, ifk t i bab nns, inna as: "Amz, ar kiγ gussγ wayyađ." Yamz t s ufus nns, yasi daγ umssaγ lli wayyađ, ifsi t, imđi tammnt, ifk t daγ i bab nns. Yamz t s ufus nns yađnin, yasi umssaγ yan yilm n tammnt, irur, iggammi bu tammnt mad an iskar i yilmawn lli yumz. Ar yaqgra i mddn at t fukkun [Wikipedia, Stroomer, Harry (1995). *Textes berbères des Aït Souab (Anti-Atlas) recueillis par le capitaine Jean Podeur, édités et annotés*. Aix-en-Provence: Edisud]

'pick & choose' continued

- Hawaiian: CV only
- English: CV, CVC, CCVC, ...
- Berber: CV, CVC, CCCC, ...
- Cross-linguistically: If a language has CVC, it has to have CV also.

'pick & choose' continued

- In phonology, certain patterns recur many times over, and seem to be preferred. We call such patterns *unmarked*.
- Unmarked patterns may have phonetic origins (easy to pronounce, easy to hear), or perhaps some more abstract origin.
- We expect unmarked patterns to be more stable over time (less prone to change), simpler to acquire (either children, or 2nd language)
- But only unmarked structures aren't enough to have enough contrast for all the words that are needed in language, so languages have *marked* structures too.

Stress in English

Consider what we know as speakers of English about the position of stress in nouns.

‘limerick	‘javelin	A’mérica	‘Canada
ad’dendum	ve’randa	Au’gusta	A’laska
de’corum	ulti’matum	ma’rina	ruta’baga

(non-random exceptions not discussed here: statu’ette, de’velop, ‘orchestra, etc.)

Which syllable is stressed?

How do we know?

- Hypothesis: speakers of English remember the stress contour of every word they know.
- Test: borrowings
 - Where is the stress in these words?
 - Babushka, Bolshevik, Romanov
 - English speakers: Ba'bushka, 'Bolshevik, 'Romanov
 - Russian speakers: 'Babushka, Bolshe'vik, Ro'manov
- Again, this consistency can't result from memorization. Hence, there must be some systematic way in which we can determine stress location even in words we never heard.

Rule of Stress Assignment

‘limerick	‘javelin	A’merica	‘Canada
ad’dendum	ve’randa	Au’gusta	A’laska
de’corum	ulti’matum	ma’rina	ruta’baga

- a) Start from the end of the word
- b) Stress the antepenultimate syllable if the penultimate syllable is “light”, that is, ends with a short vowel;
- c) otherwise, stress the penultimate syllable

Stress in other languages?

So what's phonology about?

- what we as speakers know about our own language patterns and what is the cognitive computational system that best describes/organizes this knowledge
- The fact that this knowledge is not directly available to introspection (just like knowledge of how to catch a ball, knowledge of phrase structure, of movement constraints, and so on) does not make that knowledge any less real or true.

Next: Phonetics