Linguistics 251 B. Hayes

Vowel Harmony Spring 2019

Class 5 (4/15/19): More typology: Translucency, Trojans, Optionality

# Readings

* McCarthy, John J. “Headed spans and autosegmental spreading.” (2004). Ms.
* On course web site for Week 3.

# Plan for today

* Analytic exercise will be on distance effects and translucency in Hungarian
* Trojan(-horse) vowels and their treatment
* optional harmony

# To come

* A disquisition on “unnatural” harmony — not treatable as feature-spreading.
* Beginning the theory-bazaar with reading above.

translucency

# Translucency defined

* In a system with variability, a vowel that is *variably transparent or opaque* is said (here) to be translucent.
* Possible cases of “variability”:
* token variation (occasion-based)
* type variation (lexical item-based)
* both exist in Hungarian, though it is primarily type-based

# Basic facts of Hungarian vowel harmony

* Vowel inventory

Back [u, uː, o, oː, ɔ, aː] abbreviated “B”

Front rounded [y, yː, ø, øː] abbreviated “F”

Front unrounded, often called “neutral” [i, iː, eː, ɛ] abbreviated “N”

*If closest vowel back: back suffixes, always*

B**B** [ɔblɔk-nɔk] ‘window-dat.’

N**B** [biːroː-nɔk] ‘judge-dat.’

F**B** [glykoːz-nɔk] ‘glucose-dat.’

*If closest vowel front rounded: front suffixes always*

**F** [yʃt-nɛk] ‘cauldron-dat.’

N**F** [sɛmøltʃ] ‘wart-dat.’

B**F** [ʃoføːr-nɛk] ‘chauffeur-dat.’

F + N\**: front suffixes always*

**F**N [fysr-nk] ‘spice-dat.’

**F**NN [rizt-nk]‘custody-dat.’

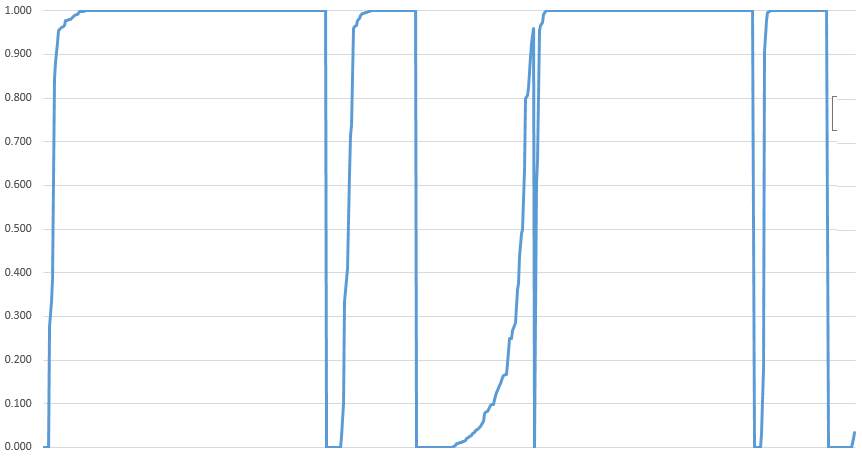
*BN, BNN:*

* Lexically determined; you must memorize each stem to speak correct Hungarian.
* among the 1300 or so relevant stems: a lexically-gradient “height effect” and “count effect”:
* the lower the N, and the more N’s, the more likely a front suffix
* more on this below
* A few words that are “doublets”, with two possible harmony patterns, in proportions that are lexical-item specific.

Overview from corpus for Hayes and Londe (Google frequencies, back when you could auto-Google)

551 words plotted and mushed together

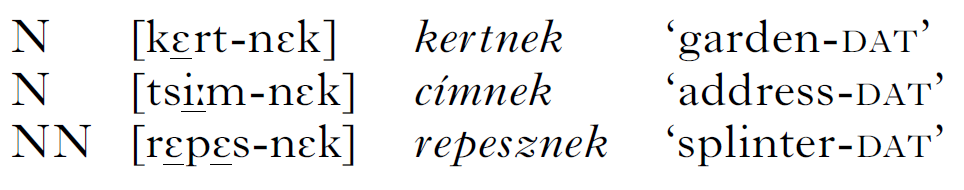
Vertical axis is fraction back for each word



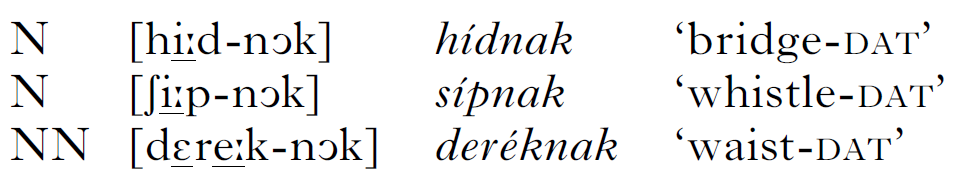
Bi, i: | Beː | Bɛ | BNi, iː | BNeː | BNɛ

*N, NN:*

* Mostly “true” harmony (front).



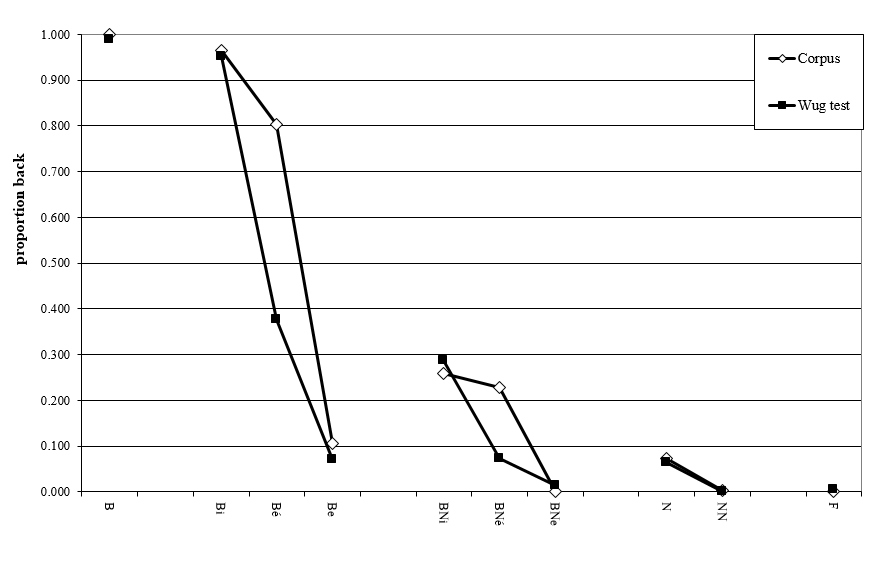
* but a few dozen “Trojans” (Krämer), with unexpected back harmony.
* More on these later.



# The height and count effects have tested positively in two wug-tests

* Hayes and Londe (readings)
* Bruce Hayes, Kie Zuraw, Peter Siptar, and Zsuzsa Londe. (2009) Natural and unnatural constraints in Hungarian vowel harmony. *Language* 85: 822-863

# Some corpus numbers stacked up against Hayes/Londe wug-test responses



# Excursus: a fact from Hayes and Londe that I’d forgotten

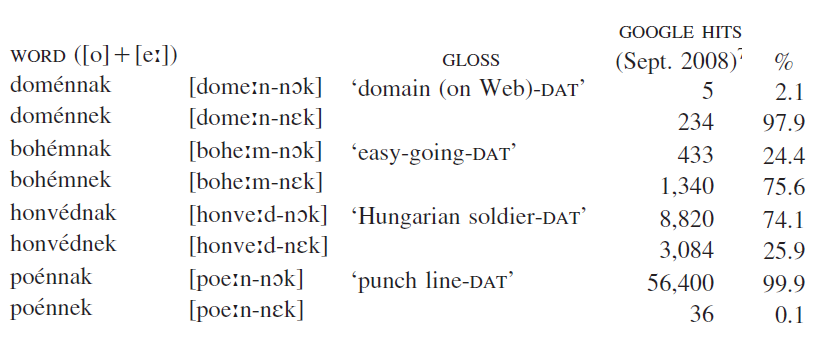
* Well-formedness intuitions
* Strict zones: wrong harmony sounds really wrong
* BN, BNN: wrong harmony sounds better, like “you could hear it from other speakers”
* I assume that the authors are relying on Londe’s native intuitions.
* Theoretical interpretation
* Faithfulness (however we are to implement it) is not all that firmly ranked with respect to markedness.
* Query
* If lexically-wrong BN/BNN forms have a small positive probability, do they ever get uttered?

# Excursus: Hungariant and “spread bad vowel”

* Among front triggers at least, seems pretty good: F is quite inferior in F2, followed by [ɛ], eː

# Corpus data: some representative cases of stems with noninitial [eː]

* This is a mixture of type variation and token variation, with all possible mixes internal to a lexical item apparently occurring.
* Data below from Hayes/Zuraw/Siptár/Londe, *Language* 2009, using Google hits.



# More on the Count effect: BNNN

* Every single BNNN stem takes front suffixes.
* Here are data from the improved Hungarian database used by Hayes et al. (*Lg. 2009)*

*Stem -nɛk -nɔk*

korteskedés 22 0

bukmékerek 10 0

koleszterin 114 0

mûvészetek 135 0

katekézis 71 0

varieté 10 0

kontinensek 42 0

mágnesesség 18 0

* Coupled with the fact that BNN behaves more frontally than BN, we have a **distance-pattern** to account for.

# Editorial comment on transparency research

* In language after language, it is documented with cases of just one intervening vowel, or maybe two.
* This is then instantly generalized to *any number* of intervening vowels, but I suspect the research to support this claim is yet to be done.
* Hungarian certainly does not support this claim.

# Exercise

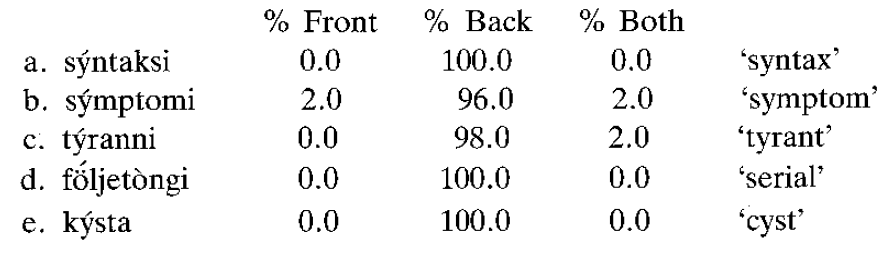
* The class spreadsheet has a variety of forms, with MaxEnt math already set up.
* Try various approaches to distance and attempt to get a decent fit to the counts.

# Finnish translucency

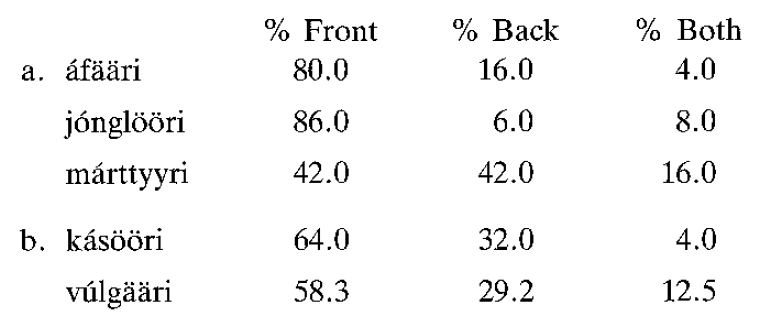
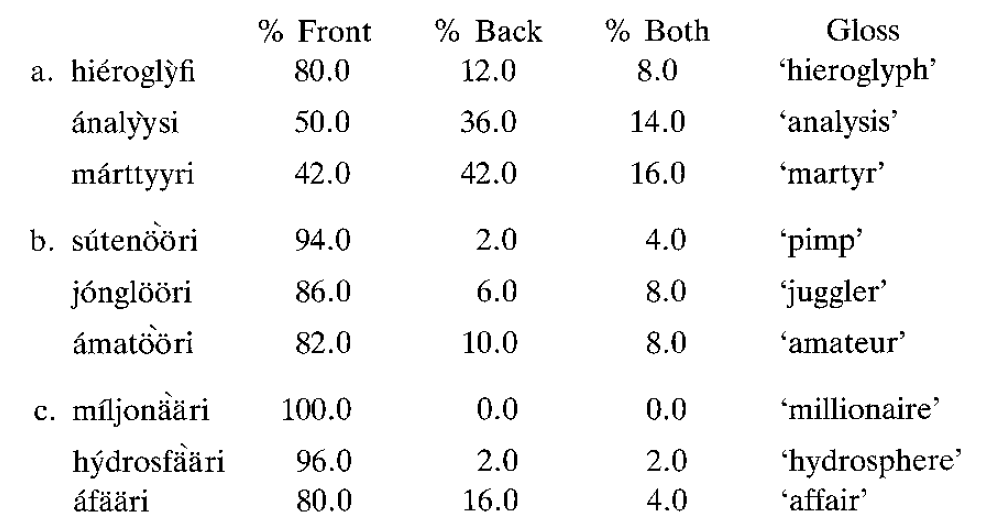
* Source:
* Ringen, Catherine and Orvokki Heinämäki (1999). Variation in Finnish vowel harmony: an OT account. *Natural Language and Linguistic Theory* 17. 303-337.
* There seems to be some tendency for the initial, stressed vowel of a stem to influence harmony, despite intervening harmonic vowels.

# Some Finnish data

* A distal stressed front vowel virtually never beats out a local back vowel:



* But a stressed distal back vowel sometimes beats out a local front vowel:



* Ringen and Heinamäki have analysis but it seem pretty approximate to me; we may take this up later on as an exercise.

trojans

# Definition

* Stem that idiosyncratically takes the “wrong” harmony
* Or: the vowel of the stem that behaves unexpectedly

# Do many people use this term?

* Invented by Martin Krämer, I think
* Krämer, M. (2003). *Vowel harmony and correspondence theory*. Walter de Gruyter.
* Perhaps a misnomer/abbreviation for “Trojan horse”

# Monosyllabic N stem Trojans of Hungarian, with fraction -nɔk in the Hayes et al. (2009) corpus (43 total)

|  |  |  |
| --- | --- | --- |
| mén 0.012  vég 0.014  bél 0.016  meg 0.021  szirt 0.029  és 0.030  íz 0.031  fék 0.034  vét 0.037  hév 0.039  csíny 0.046  kén 0.057  rég 0.071  bé 0.231 | ni 0.241  lék 0.250  ív 0.331  ing 0.441  ék 0.496  is 0.588  víg 0.714  ín 0.720  nyír 0.819  szít 0.938  pír 0.950  héj 0.960 | íj 0.969  csík 0.974  sík 0.992  cél 0.999  fing 1.000  szid 1.000  díj 1.000 |

# NN stem Trojans of Hungarian, with fraction -nɔk (8)

izé 0.011

strici 0.024

nemet 0.035

tízes 0.040

feer 0.115

derék 0.623

férfi 0.797

# NNN stem Trojans of Hungarian, with fraction -nɔk (4)

rebellis 0.011

keverés 0.014

vivendi 0.026

indíték 1.000

*With borrowed suffix:[[1]](#footnote-1)*

effektív 0.019

defenzív 0.040

# These are well outnumbered by “normal” stems

*Total stems At least 1% Trojan*

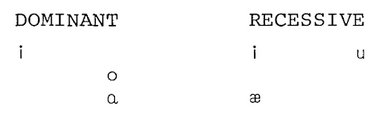
N 297 43

N N 933 8

N N N 778 4

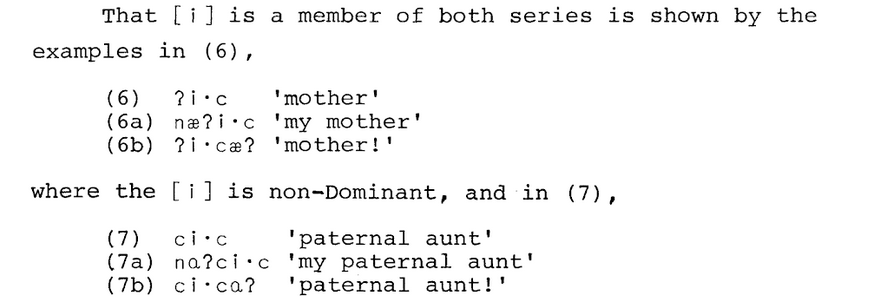
# Another language with Trojans: Nez Perce

* Big literature, including *SPE*
* Here, clipping from:
* Hall, B. L., & Hall, R. M. R. (1980). Nez Perce vowel harmony: an Africanist explanation and some theoretical questions. *Issues in Vowel Harmony*. Amsterdam: John Benjamins, 201-36.
* Vowels:



* Nowadays, most people would say that dominant = [+ATR], per the Halls.
* The harmony is of the “dominant” type, where [−ATR] anywhere in the word prevails (cf. Kalenjin, done already).

# Minimally contrasting stems: Hall and Hall



* Depending on the phonetics, one of the two [i] is a Trojan.
* I don’t know anything about relative frequency, but my sense is that it is far more normal to be a Trojan in Nez Perce than in Hungarian.

# Theory I for Trojans: abstract vowels

* Hungarian: we set up /ɯ/, /ɯː/, /ʌ/, /ʌː/, with late fronting rule.
* Nez Perce: we set up /ɪ/ vs. /i/ in URs.
* This is quite opaque, but Krämer can handle it in OT with an amazing triple conjunction:
* Troy constraint for Hungarian: don’t be simultaneously (a) front unrounded; (b) unfaithful to your backness specification; (c) in *agreement* for backness with the following vowel
* To my knowledge, Trojans are always *unpaired* vowels in the harmony system.
* But we would expect this in any event from their diachronic origin.

# Theory II for Trojans: floating autosegment with mismatched value

* See e.g. Ringen and Vago (1998)
* This seems awkward for bi-directional harmony (e.g., Nez Perce) — you need two floaters, and they need to match.

# Theory III for Trojans: the Trojan vowel is phonetically not the same as the regular         vowel

* This is the sensational discovery made in Hungarian by Benus and Gafos
* Stefan Benus and Adamantios Gafos (2007) “Articulatory characteristics of Hungarian ‘transparent’ vowels,” *Journal of Phonetics* 35:271-300.
* They used electromagnetic articulography (EMMA) data.
* Efforts made here about ten years ago could not find the effect acoustically
* We’ll look at the Benus/Gafos paper in the phonetics section of this course.

# Theory IV for Trojans: diacritically-controlled harmony

* Hungarian would have “back declension nouns”, “front conjugation verbs”, etc.
* This seems ugly/crazy but maybe it is right?

# Arguments for this (?)

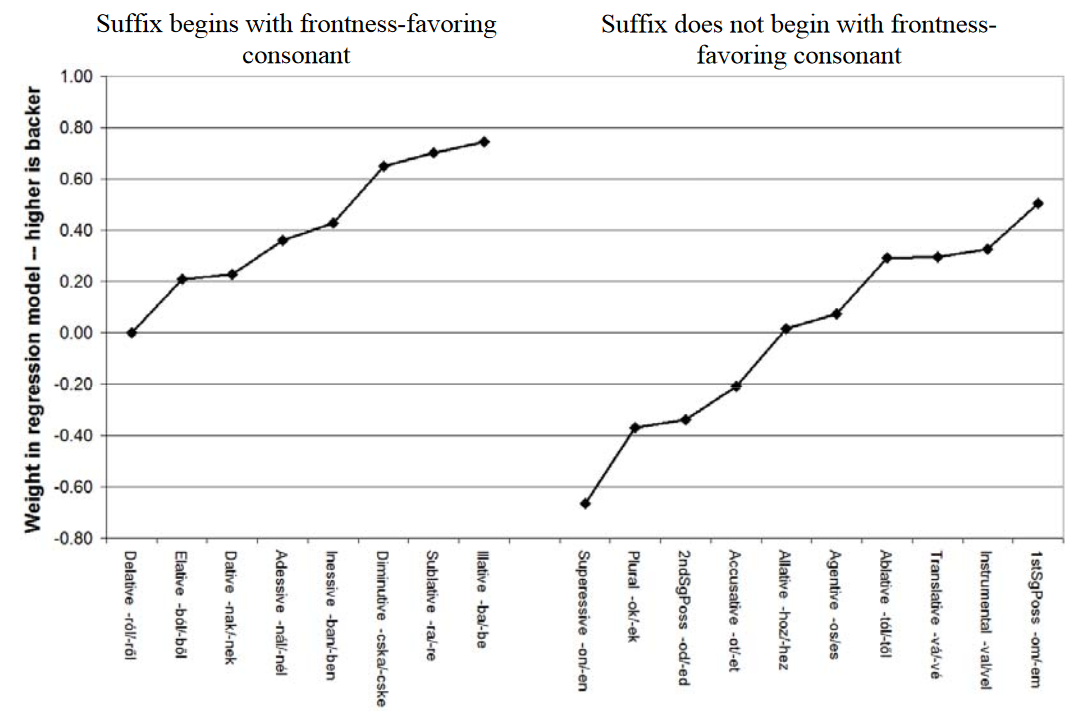
* [[[ B ] N ] N ] N] does not behave like [ B N N N ] — the former can, I believe, take back suffixes, the latter cannot.
* Reason: all [ B ] stems are back-declension!
* As in, say, Spanish diminutives, morphological class is inherited in affixed forms.
* There is also an argument based on consonant effects …

# The consonant effects in Hungarian vowel harmony

* Present only in N, BN and BNN stems, where lexicality matters
* Found by Hayes et al. (2009)
* Hayes, Bruce, Péter Siptár, Kie Zuraw, and Zsuzsa Londe. “Natural and unnatural constraints in Hungarian vowel harmony.” *Language* (2009): 822-863.
* If stem-final consonant or cluster is (a) bilabial; (b) sibilant; (c) coronal sonorant; (d) a cluster, then front harmony is more likely.
* This is statistically significant in the corpus, and passes a wug-test

# And yet …

* The *suffixes* of Hungarian that have any of the consonants/sequences just mentioned do *not* favor front harmony.
* This checked by Hayes (2016)
* Hayes, Bruce (2916) (2016) Comparative phonotactics. Proceedings of the 50th meeting of the Chicago Linguistic Society, 265-285.



# Upshot

* Funny consonant environments are, perhaps, not environments for phonology, but used as cues for class-guessing.

Optional vowel harmony

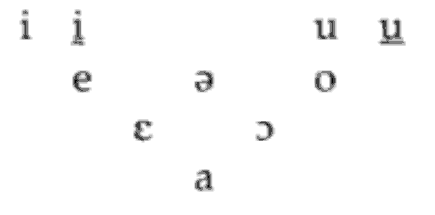
# Kujamaat Joóla: language name and references

* Kujamaat Joóla is the same as Diola Fogny (the first African instance I’ve seen of the widespread phenomenon of linguists replacing the xenonym with the autonym.)
* Diola-Fogny is famous among generative phonologists, and endlessly reanalyzed, for its interesting cluster simplification phenomena—grammar of David Sapir (1965).
* My initial source for optionality: Mark Aronoff and Kristin Fudemann (2004) *What is morphology*? Oxford: Blackwell.
* They rely on: Sapir, J. David, 1975. Big and thin : Two Diola-Fogny metalinguistic terms. *Language in Society* 4(1).

# The language

* Spoken in Senegal (also the home of Wolof).
* West Atlantic (Niger-Congo)
* 80,000 speakers as of 1975.

# Vowels

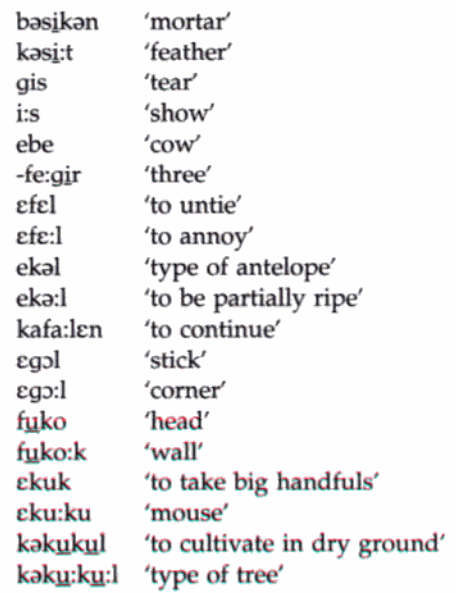


where underlined [i] and [u] are the [+ATR] versions of [i], [u]

ə is the [+ATR] version of [a]

long vowels also exist, matching the short inventory in quality

# Stems are harmonic

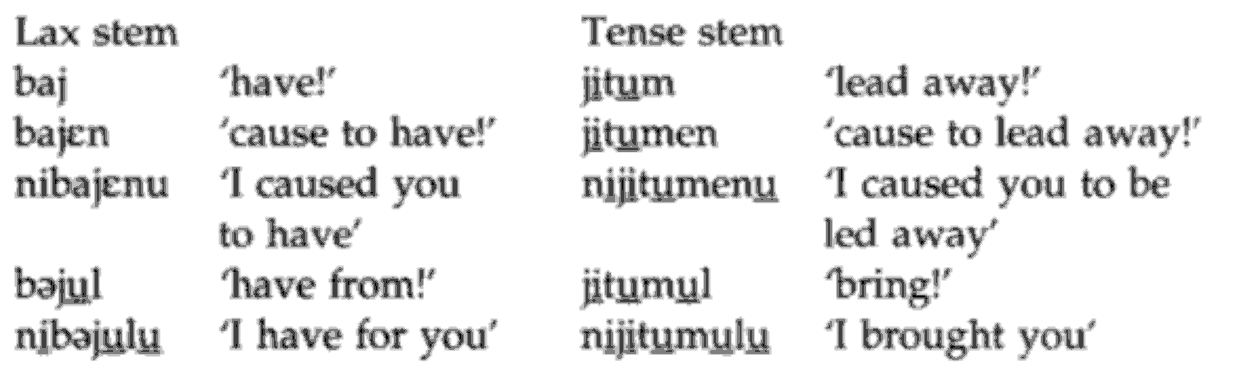


# Harmony pattern

no opaque or transparent vowels

[+ATR] dominant

# Alternations



# “Big” vs. “Thin” speakers

* “Big” = uses vowel harmony a lot
* “Thin” = opposite of “big”
* People self-assess as big or thin, not necessarily accurately (i.e. they self assess as being like locally important individuals).

# A case of optional harmony

pa - na - kan - do ‘he will put it within’

[pənəkəndo] full harmony

[panakəndo] partial harmony—one syllable

[] Sapir’s transcription of partial harmony (semi assimilation) across the word.



# Gradient harmony

* “Likewise, vowels affected by vowel harmony ‘may only partially tense, that is, they may become tainted with tenseness, not completely tense.” (Sapir 1975).

# Other ways to be big and thin

* Particular lexical items (both affixes and stems) have [+ATR] entries for big speakers,

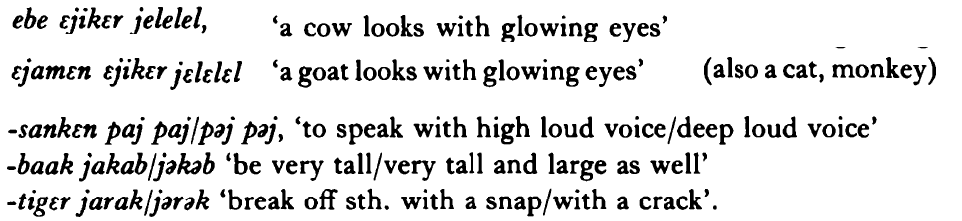
[–ATR] entries for thin ones.

# Not optional everywhere

* This is ill-investigated, but in certain contexts, e.g. derivational morphology, harmony is obligatory for all speakers.

# Why “big” and “thin”?

Because [ATR] is used for sound symbolism: [+ATR] thing are bigger.[[2]](#footnote-2)



# A general impression I get from Sapir’s paper

* This system is not well understood.
* I suspect a substantial study with a corpus/survey judgements/phonetics/quantitative modeling would be needed to obtain a full understanding.

# Kujamaat Joóla and the origin of harmony

* It shows that an innovating harmony can be neutralizing — “thin” speech is more informative!
* Gradient harmony would be worth studying phonetically, since a common-currency belief of historical phonology is that vowel harmony originates in vowel-to-vowel coarticulation.

1. So these forms shouldn’t really count; see below. [↑](#footnote-ref-1)
2. Sapir notes that the cross-linguistic pattern “high F1 = big” is also present. So [+high, –ATR] [ɪ,ʊ] are the smallest vowels, [+low, +ATR] [ə] is the biggest.

   [pɛkɛs] ‘breaking of a small pot’

   [pakas] ‘breaking of a larger pot’

   [pəkəs] ‘breaking of really large pot’ [↑](#footnote-ref-2)