Linguistics 251 B. Hayes

Vowel Harmony Spring 2019

Class 8 (4/25/19): Veneto, Gurindji, Harmonic Serialism

# Notice

* Class has been moved for next week to accommodate Chomsky class-attenders.
* NOT Tuesday 4/30 2-4
* INSTEAD Wednesday 5/1 4-6 (Phonology Seminar slot)

# Readings

* Ryan, Kevin M. (2017) Attenuated spreading in Sanskrit retroflex harmony. *Linguistic Inquiry* 48.2:299–340.
* On course web site for Week 4.
* This is the famous *naṭi* process, commonly analyzed (!) as vowel harmony.
* Ryan uses Harmonic Serialism, so more on this theory.

# Plan for today

* Finish the analytic exercises on tap: Veneto, Gurindji
* Cover McCarthy’s Harmonic Serialism theory of harmony.
* Collate: what criteria for evaluating a theory of harmony do we have in hand so far?

# On tap

* Continue the theory-bazaar
* Done with Humble, Spans, and soon Harmonic Serialism
* We can’t cover *all* the theories, but I have noticed

—Credit-for-spreading: Kimper, Kaplan

—Directional-OT (Eisner)

—Nevins’s non-OT approach

* Others perhaps on request …
* Then on to phonetics, experimentalism, learnability
* We will continue the language-exercises, hoping to get a clear sense of typology by the time we are done.

# I took a peek at Onn (1980) on Johore Malay

* Source:
* Onn, Farid M. (1980) *Aspects of Malay Phonology and Morphology*. Bangsi: Universiti Kebangsaan Malaysia.
* It is crystal clear from Onn that Ṽ is *not* phonemic in this language.
* p. 45 “All nasalized vowels in J[ohore] M[alay] are derived.”
* Examples all illustrate straightforward rightward spreading from nasal consonants across members of the set {vowels, j w h ʔ}.
* Hence our previous spreadsheets were fully correct in deriving [a] from rich-base /ã/.

back to Veneto

# Inputs and candidates with discussion

|  |  |  |  |
| --- | --- | --- | --- |
| kalˈs-et-i | ☞ | kalˈs-it-i | Basic raising with penultimate stress; can’t fix by lowering last vowel. |
|  |  | kalˈs-et-i |
|  |  | kalˈs-et-e |
| kanˈt-e-si-mo | ☞ | kanˈt-i-si-mo | Raising with penultimate trigger in an antepenultimately-stressed word. No rightward assimilation to last vowel; no rightward mid assimilation from stressed vowel. |
|  |  | kanˈt-i-si-mu |
|  |  | kanˈt-e-si-mo |
|  |  | kanˈt-e-se-mo |
| ˈorden-i | ☞ | ˈurdin-i | Double raising when two mids precede a high in antepenultimate-stressed word. |
|  |  | ˈorden-i |
|  |  | ˈurden-i |
|  |  | ˈordin-i |
|  |  | ˈorden-e |
| ˈpɛrseg-i | ☞ | ˈpɛrseg-i | [–ATR] vowels don’t raise, and when antepenultimate don’t permit raising of a following mid vowel. |
|  |  | ˈpɛrsig-i |
|  |  | ˈpirsig-i |
|  |  | ˈpirseg-i |
|  |  | ˈpɛseg-e |
| ˈnavig-o | ☞ | ˈnavig-o | Stressed [–ATR] antepenultimate vowels do not lower a following mid vowel. |
|  |  | ˈnaveg-o |
| eˈzɛrsit-i | ☞ | eˈzɛrsit-i | Ditto. |
|  |  | eˈzɛrset-i |
|  |  | eˈzirsit-i |
| laˈvor-av-i | ☞ | laˈvor-av-i | Blocking effect of an /a/ in penultimate position. |
|  |  | laˈvur-av-i |
|  |  | laˈvur-iv-i |
|  |  | laˈvor-av-e |

# We were getting a bit bogged down; some thoughts

* It often pays to grab low-hanging fruit.
* Faithfulness: is one direction (high  mid, mid  high) privileged?
* Markedness: is one configuration privileged? (high non-high, non-high high)
* Per Tyler, I think this could get us out of trouble in favoring affix faithfulness over stem.[[1]](#footnote-1)

# Pondering the implications of our Humble analysis

* Is this really non-myopia?
* One way to imagine this is to do the derivations step-by-step, per Harmonic Serialism.
* The crucial comparison seems to /ordeni/  [urdini] vs. [pErsegi]  [pɛrsegi].
* As scholars note, if this is non-myopia, it is *bounded* non-myopia.
* Since stress (presumably) never falls to the left of the antepenult, the degree of “distal vision” doesn’t have to be that great.

# A later reply

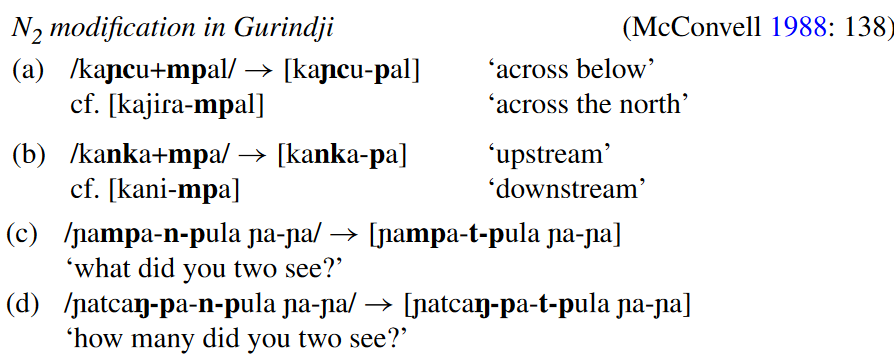
* Kimper, Wendell (2012) Harmony is myopic: reply to Walker 2010. *Linguistic Inquiry* 43, no. 1: 301-309.
* In his view, the derivational path for /ordeni/  [urdini] is in fact /ordeni/  [urdeni]  [urdini], and this will solve the problem.

Stanton’s claim of non-myopia in Gurindji

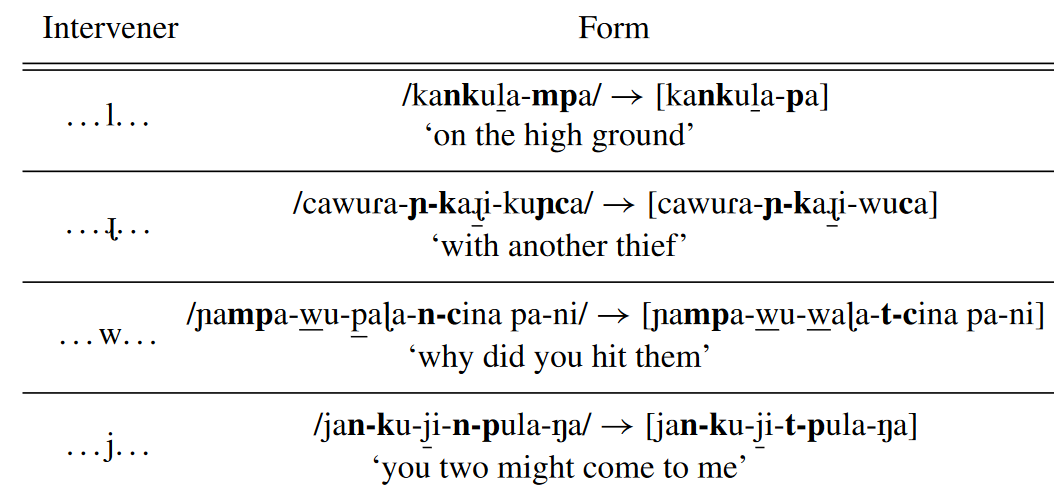
# Source

* Stanton, Juliet (2018) Gurindji nasal cluster dissimilation as trigger deletion. *Journal of Linguistics* [vol.?], 1–39.

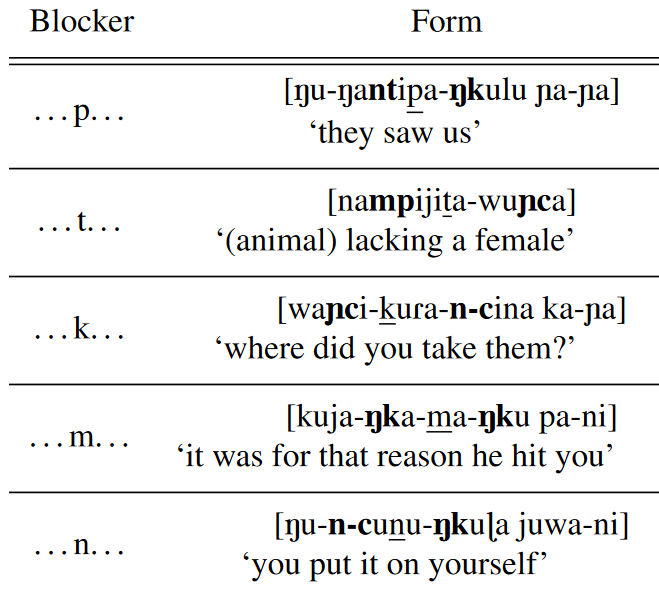
# An interesting phonological process: NC  C / NC X \_\_\_



# Long-distance application: vowels, glides, and liquids may intervene

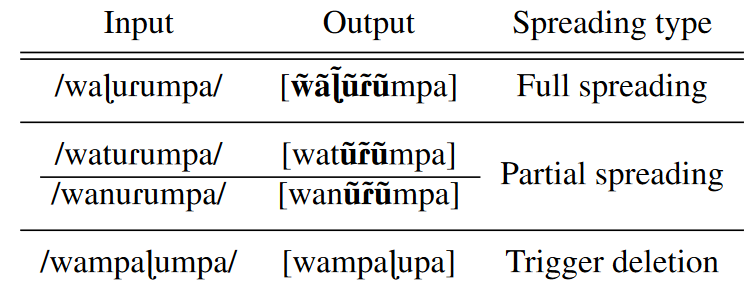


# Long-distance application: stops and nasals are blockers



# Stanton bravely reconstructs the phonetics of the recorded data

* Overall scheme
* Leftward nasal spread, triggered by *coda* nasals.
* Spread is blocked by [−continuant], i.e. stops and nasals.
* Where spread would create NCṼ, there is **trigger suicide**!



* [Socrates: give the crucial losing candidate for the last example. ]

# Following Stanton’s footsteps with non-myopic analysis

* I’ve basically follow Stanton in laying out the candidate set.

|  |  |  |
| --- | --- | --- |
| a~ | a | Nasality is not phonemic |
|  | a~ |  |
| ama | ama | Onset nasals do not spread their nasality. |
|  | a~ma |  |
| amba | a~mba | Coda nasals spread their nasality. |
|  | amba |  |
|  | amba~ |  |
|  | a~mba~ |  |
|  | ama | Stop deletion is not a way to avoid nasal spreading. |
|  | aba | Nasal deletion is not a way to avoid nasal spreading. |
| kawa-mpa | ka~w~a~mpa | Nasal spreading is unbounded over vocoids. |
|  | kawa-mpa | (faithful loser) |
|  | k~a~w~a~mpa | Nasal spreading does not extend to obstruents. |
|  | kawa~mpa | Nasal spreading is iterative. |
|  | kaw~a~mpa | ditto |
| kankawa-mpa | ka~nkawapa | The extraordinary winning nasal-suicide candidate. |
|  | ka~nkawampa |  |
|  | ka~nka~w~a~mpa | NC bad before a nasalized vowel. |
|  | ka~nkaw~a~mpa | Stop just short of disaster? No. |
|  | ka~nk~a~w~a~mpa | spread all the way, with bad consequences |

# The intriguing triple-cluster case — which fix to take?

|  |  |  |
| --- | --- | --- |
| wampa-nta-nka | w~a~mpata~nka | Fix #2 suffices |
|  | w~a~mpa~nta~nka | Don’t fix any |
|  | wapa~nta~nka | Fix #1 |
|  | w~a~mpa~ntaka | Fix #3 |
|  | w~a~mpataka | Fix #2 and #3 |
|  | wapa~ntaka | Fix #1 and #3 |
|  | wapata~nka | Fix #1 and #2 |
|  | wapataka | Fix all three |

# What does it all mean?

* Intuitively, this seems like non-myopia.
* But we should test myopia-guaranteeing theories like Harmonic Serialism for whether they exclude Gurindji harmony.
* And we should remember that the whole thing is based on a phonetic reconstruction; time to get access to whatever speakers remain.

mccarthy’s harmonic serialist account of harmony

# Recap of Harmonic Serialism

* No one reference source, but a whole series of articles “redoing OT” from this perspective and making arguments.
* Define a set of “minimal edits,” which form the transition from input to output:
* Single feature changes
* Single autosegmental link-additions or link-subtractions
* Deletion is 2: debuccalize, then remove the residue (McCarthy 2008)[[2]](#footnote-2)
* Syllabification is *not* an edit — else the OT theory of epenthesis fails.
* EVAL works with this serial path:
* Start with UR
* Consider all minimal edits (including do-nothing) and pick the one that is optimal.
* Repeat until the optimal minimal edit is do-nothing, meaning stability
* Faithfulness is in two flavors, both still on the market:
* Faithful to the UR.
* Faithful to the immediately preceding derivational stage.
* The derivations look strikingly diachronic-recapitulatory, per above.

# Key arguments for the theory (if empirical premises valid)

* Faithfulness to intermediate stages of the “derivation” — compensatory lengthening, stress-directed syncope
* Cases where the *global* optimum is not the output — search gets stuck in a local maximum of optimality.

# Arguments against

* Anything that defeats the principles of incremental search — look-ahead.
* Several cases are proposed in Jeff Adler, Jesse Zymet (xxxx year) Irreducible parallelism in phonology. NELS 47.
* Brian Smith’s (2015, UMass diss.) look-ahead example in -(*a*)*licious* with Rhythm Rule: *thirteen-licious*, like *octane-licious*.
* There is no principle basis for ignoring syllabification as a derivational step, other than to rescue the theory.
* Reduplication, a poster child for parallelism in classical OT, is hard to fit in (but see McCarthy et al.[[3]](#footnote-3) for an effort).
* The intermediate steps from [patakapataka] to [patpataka] ([pataCapataka]) don’t improve satisfaction of RED = heavy syl.

# How vowel harmony fits in

* The possibility of explaining Myopia with the limited-search GEN — you can’t see ahead to a harmony-blocker.

# Starting point: Agree looks like an instant loser for Harmonic Serialism

* Try this out with /m-ajapa/, Agree(nasal), and \*Ṽ.

# McCarthy’s work-around amazingly brings Agree back into contention.

* Make every feature privative (uni-valued), per much ancient history.[[4]](#footnote-4)
* Let us speak of the active value (e.g [+round], [+nasal]) of the feature.
* The new revised Agree():
* Assess a penalty for every adjacent segment-pair whose member **are not both [αF]**, where α is the active value.
* Details:
* The revised, privative, “both-else-bad” version of Agree(F) is named Share(F).
* McCarthy implements this system autosegmentally but I see no reason we couldn’t do it with *SPE* representations as well.
* Exercise: /naja/  [nãj̃ã]

# No one would ever take Share() seriously if it were proposed for classical OT

* Give the extremely absurd empirical prediction it makes.
* Show why this is *not* a prediction under Harmonic Serialism.

# Exercise: what would Share() do in classical OT if applied to a dominant harmony        system?

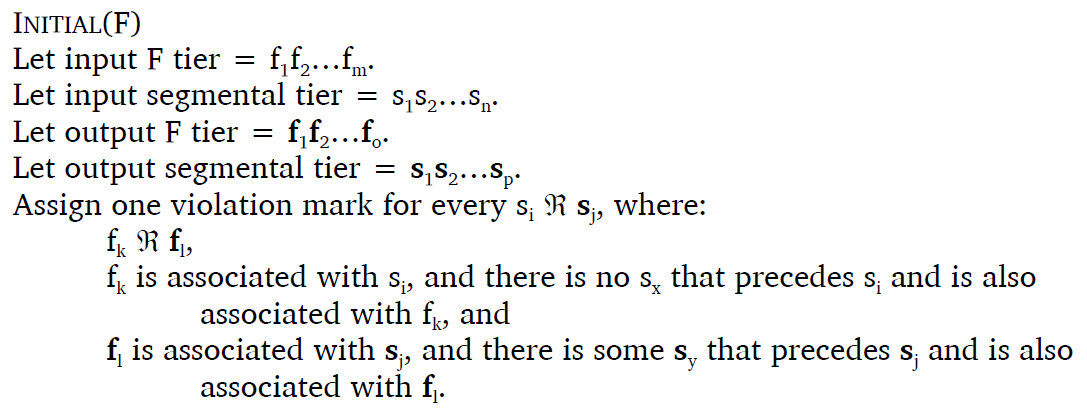
* For concreteness, imagine a language with paired +ATR/−ATR vowels and dominant [+ATR] harmony.
* Consider the input /ɛɛɛ/.

# Exercise: demonstrating the myopia-enforcing properties of Share-cum-Harmonic         Serialism

* Demonstrate myopic rightward spreading for /m-ajapa/, assuming /j/ can become nasal and /p/ cannot.
* Result: putative cases of non-myopia should be scrutinized carefully from the viewpoint of this theory, querying both the constraints used and perhaps the whole framework …

# Directionality with Faithfulness

* McCarthy states, with characteristic care, a Faithfulness-based implementation of directionality:



(and analogously for Final(F))

* Sorry, I would have cited this in earlier discussion if I had remembered it.
* We should ponder what this means with Rich Base inputs, just as we did earlier for Johore Malay.

# McCarthy’s arguments based on restrictiveness

* They are similar to the earlier paper with spans, focusing on Myopia and Too-Many-Solutions.
* There are a lot of them, but the argument is essentially the same: local search can’t reach the pathological candidate.
* For Too-Many-Solutions: Epenthesis, affix ordering, allomorph selection, deletion, stress shift

# Transparent vowels

* He mentions this for concreteness.
* There are two theories that could be used:
* Aberrant phonetic cash-out ([+back] linked to i in Hungarian is [i]).
* Gapped spans

# Direction-specific blocking

* This is a whole topic that we should probably address separately.
* McCarthy takes the view that it does not exist, and if it does his theory is not right.

a comment on the theory

# The theory is completely dependent on single-valued features

* This is an ancient controversy.
* People tend to be comfortable with univalued
* [+nasal]
* [+round]
* various consonant features
* Less so with
* [back]
* [ATR]
* vowel height features

# Samples

* Turkish
* The consonant effects we covered indicate that the “real” feature has to be [front]
* Yet [ɯ] doesn’t like to combine with front vowels; how to single it out for a constraint?
* Nasal contours
* processes like Ṽd  Ṽn͡d imply values for both + and −.
* Tonal contours
* Analogous processes are commonplace: H  rise / L \_\_\_, implying values for both [+HiPitch] and [−HiPitch].[[5]](#footnote-5)

# What McCarthy (briefly) says about these

* “The best cases against privativity can be made for [ATR] and [back] … but in both cases we are probably dealing with two binary features …: [ATR] versus [RTR], and [back] versus [front].”
* This is perhaps a big debt:
* How does spreading create contour segments when the phonetic dimension is split into separate features?
* What is the system for coordinating independent features governing the same phonetic dimension?

# What might be the sort of derivation we get for vowel harmony with two backness         features?

* Assume that the “hot” value is [front].
* Given the principle of minimal edits, the derivation will create intermediate representations of the form [front, back].
* The next step is to fix [front, back] to [front, ∅].
* But this means that the (universal?) constraint \*[front, back] can be ranked below a language-specific constraint like Share.
* Further thought on this topic might be helpful …

keeping our heads above water: what criteria can be used to evaluation proposals about vowel harmony?

part i: providing sufficient power

# Control mechanisms

* Stem control
* Dominant harmony
* Directional harmony

# More on directionality

* Mechanisms to permit LR, RL, and bidirectional harmony in cases that are
* allophonic (Faithfulness can’t help)
* phonemic (Faithfulness can help)

# Direction-specific blocking

* … if, contra McCarthy, it exists

# Iterativity

* Noniterativity is often not even considered vowel harmony, though it seem that many of the same principles should obtained.
* Jinyoung pointed out to us that Korean vowel harmony is noniterative.

# Differences between stem harmony and affix harmony

* Sometimes stem harmony is stricter (Turkish).
* Sometimes affix harmony is stricted (Wolof).
* So clearly there is more than one mechanism.

# Trigger conditions

* Stating them
* Explaining typological tendencies, e.g. “spread bad vowel”[[6]](#footnote-6)

# Opacity

* Opaque vowels, characteristically low
* Opaque consonants, like [lʲ] in Turkish.

# Transparency

* Mechanisms to permit skipping of transparent vowels
* Transparent vowels tend to be high

# Translucency

* Found when we do probabilistic analysis on systems with variation
* distance effects
* effects of height of intervener

# Favoring like-becomes-more-like

# Trojans

* McCarthy says nothing about them.

# Uniformity of suffixes in multi-suffix forms

* This is underinvestigated.
* We toy with inflectional classes to deal with the only documented case I know of, Hungarian.

# Gradient harmony and phonetic clines

* Seen in Diola, also Akan

part ii: Not providing excessive power

# Myopia

* unless it isn’t, in which case this turns into a “sufficient power” argument for the complement class of theories

# Majority rules

* More on this later with Warlpiri

# Too-Many-Solutions

* See the huge cage full of nightmares put forth in the McCarthy article
* We reserve the possibility of explanation by
* poor language sample so far
* diachronic explanation

1. But for a forceful advocacy of affix faithfulness see Anthi Revithiadou (1999) *Headmost Accent Wins*, LOT. [↑](#footnote-ref-1)
2. McCarthy, John J. (2008) The gradual path to cluster simplification. *Phonology* 25: 271–319. [↑](#footnote-ref-2)
3. John J. McCarthy, Wendell Kimper and Kevin Mullin. "Reduplication in Harmonic Serialism" *Morphology* Vol. 22 (2012) [↑](#footnote-ref-3)
4. N. S. Trubetzkoy, working in the 1920’s, had already conceptualized the distinction of univalued (privative) features and two-valued (“equipollent”) features. [↑](#footnote-ref-4)
5. This raises the scary point that there is a great deal of “tone harmony” in the world (a.k.a. “tone spreading”), formally analogous to vowel harmony but neglected by us completely so far … [↑](#footnote-ref-5)
6. McCarthy suggests that “spread bad vowel” seems to work better for rounding harmony than for ATR harmony. [↑](#footnote-ref-6)