Class 12: Process interaction I

Overview: Should processes be able to look forward into the derivation? How far? We'll contrast SPE, OT, and a major variant of classic OT, Harmonic Serialism. Then we'll revisit the typology of opaque process interaction and what each theory predicts.

1. Global power

- Can a rule "see" anything other than its immediate input? Can it look further ahead? Further back?
- In SPE, rules aren't supposed to have *global power* (term from Lakoff 1970).
- But global power follows naturally in OT: every candidate is the very end of a derivation, and "sees" the very beginning (through correspondence).
  - Now we have something that OT can handle easily but SPE can't.
  - So how robust are the claimed cases?

2. Case of global power in Walker 2010

- Basic metaphony rule again, as seen in many Romance languages/varieties:

  basic rule: {é,ó} → [+high] / __C_0+C_0[+syll, +high]

⚯ Write down a couple of things you remember about metaphony

- Venetan version (inventory: [i,e,ɛ,a,u,o,ɔ])—more info than we saw before

tense Vs raise	kals-ét-o	kals-**í**t-i	'sock (m. sg/pl)'
	móv-o	m**ú**v-i	'move (1 sg/2 sg)'
lax or low Vs don't	gát-o	g**á**t-i	'cat (m sg/pl)'
	prɛ́t-e	pr**ɛ́**t-i	'priest (m sg/pl)'
	bɛ́l-o	b**ɛ́**l-i	'beautiful (m sg/pl)'
	mɔ́d-o	m**ɔ́**d-i	'way (m sg/pl)'
[hi] can spread <u>through</u> unstr. V	órden-o	**ú**rd**i**n-i	'order (1 sg/2 sg)'
... unless that V is /a/	lavór-a-v-a	lav**ór**-**a**-v-i	'work (1 sg [3sg?] perf/2 sg impf)'
no spreading unless [+hi] will get all the way to the stressed V	ángol-o	**á**ng**o**l-i	'angel (m sg/pl)'
	pɛ́rseg-o	p**ɛ́**rs**e**g-i	'peach (m sg/pl)'

- Spreading shows "look-ahead"—it sees all the way to the end of its iterative application (hypothetical *[**á**ng**u**l-i], *[p**ɛ́**rs**i**g-i], where stressed V is still not high)
  - if the result doesn't solve the fundamental problem of the unraised stressed vowel, then no spreading is done at all (**"sour grapes"**)

- ? Let's sketch a rule analysis to see why this is problematic.

- ? Let's develop an OT analysis.

	/mov-i/				
a	móvi				
☞ *b*	múvi				

	/pérseg-i/				
☞ *c*	pɛ́rsegi				
d	pɛ́rsigi				
e	pírsigi				

- See Kaplan 2011 for a seemingly contrasting case of *non*-look-ahead or "**myopia**" in Chamorro.

3. Case of global power in the reverse direction (look-back)

- Analysis briefly entertained (and rejected) in your Piggott 1980 reading:

- Odawa final deletion of glides and lax vowels

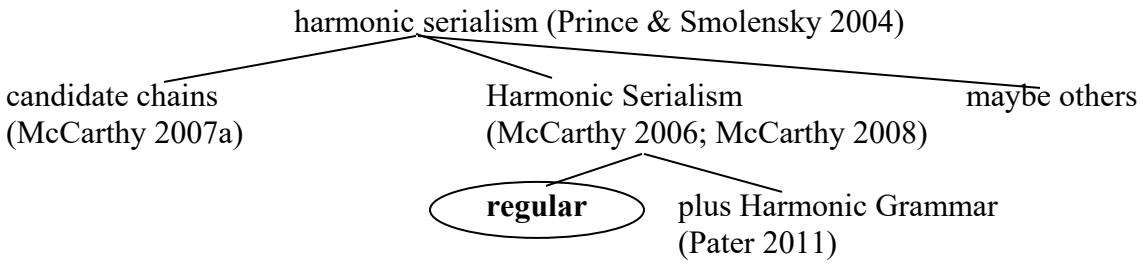
  - /aniššināpē**-wi-w**/ → [aniššināpē**wi**], but doesn't self-feed to *[niššināpē**w**] or *[niššināpē]
    - (later, stress rule applies, [aˈnišši ˈnāˈpēˈwi], and then unstressed vowels delete and stress deletes, yielding [niššnāpēwi])

  - One way to prevent self-feeding (if you want a theory that generally requires it) is to say that the deletion rule deletes only in the *underlying* environment __# ← look-back power
    - Piggott's solution: the rule is simply non-iterative

- ? Not related to look-back but related to this word: The general name for the Ojibwe language group in that language is Anishinaabemowin (anɪʃːɪnaːpeːmowɪn). The name for Odawa specifically is Nishnaabemwin. Explain this.

4. A major variant of OT: Harmonic Serialism

- Distinction between small-*h*, small-*s* and capital-*H*, capital-*S*:



- **Difference #1: Gen()**

Classic OT Gen(/input/) = {all results of applying any rules to input, in any order, repetition OK}
Gen(/ab/) = {ab, b, a, tab, abi, tabi, tabii, tabiii, Ø, ba, qo, ...} (infinite set)

Harmonic Ser. Gen(/input/) = {all results of applying just one minimal change to input}
Gen(/ab/) = {ab, b, a, tab, abi, ɐb, ɑb, ãb, ap, am, ... }(finite set)

  - A change is minimal iff it incurs just one faithfulness violation (so, constraint inventory matters).

- **Difference #2: Overall architecture**
  - In Harmonic Serialism, keep applying grammar to its own output until the result stops changing.

5. Example of how Harmonic Serialism operates: Dakota

- Siouan language, prairies of U.S. and Canada
- Fluent speakers in the hundreds
- Some English words of Dakota origin: *tepee, Minnesota*

Dakota Language immersion program, South Dakota[1]

Ella Cara Deloria, linguist

Analysis adapted from Elfner 2016—*data orig.* Shaw 1985

/čap/	WordMust HaveStress	NoCoda	Don'tAdd Stress	StressIs Final[2]	Dep-V	Don'tDelete Stress	Max-V
a čap	*!	*					
☞ *b* čáp		*	*				
c ča.pa	*!				*		

? Why is [ča.pá] not a candidate?

feed *čáp* into grammar—again, [ča.pá] is not a candidate (why not?)

čáp	WordMust HaveStress	NoCoda	Don'tAdd Stress	StressIs Final	Dep-V	Don'tDelete Stress	Max-V
d čap	*!	*				*	
e čáp		*!					
☞ *f* čá.pa				*	*		

feed *čá.pa* into grammar:

čá.pa	WordMust HaveStress	NoCoda	Don'tAdd Stress	StressIs Final	Dep-V	Don'tDelete Stress	Max-V
g ča.pa	*!					*	
☞ *h* čá.pa				*			
i čá.pá			*!				
j čáp		*!					*

Input=output, so stop iterating.

[1] www.nativeshop.org/programs/language-and-culture/dakota-language-immersion.html

[2] Not the real constraint—see Elfner, who uses "feet".

? What does this grammar predict for input like /čite/?[3]

čite	WORDMUST HAVESTRESS	NOCODA	DON'TADD STRESS	STRESSIS FINAL	DEP-V	DON'TDELETE STRESS	MAX-V

	WORDMUST HAVESTRESS	NOCODA	DON'TADD STRESS	STRESSIS FINAL	DEP-V	DON'TDELETE STRESS	MAX-V

? Why can't we get *[ča.pá] in this Harmonic Serialism grammar?

? What happens if we switch the ranking of WORDMUSTHAVESTRESS and NOCODA?

/čap/	NOCODA	WORDMUST HAVESTRESS	DON'TADD STRESS	STRESSIS FINAL	DEP-V	DON'TDELETE STRESS	MAX-V
a čap	*	*					
b čáp	*		*				
c ča.pa		*			*		

	NOCODA	WORDMUST HAVESTRESS	DON'TADD STRESS	STRESSIS FINAL	DEP-V	DON'TDELETE STRESS	MAX-V

[3] hypothetical—real examples have consonant clusters that muddy the issue

? What happens if we try to analyze Veneto in Harmonic Serialism?

/pérseg-i/				
a pérsegi				
b pérsigi				

6. Classic look-ahead: "peeking" rule in Cupeño (Hill 1970 and Hill 2005)

- Uto-Aztecan language from Southern California
- Cupeño people continue to lay claim to Cupa/Warner Springs, from which they were forcibly removed in 1903
  - This contributed to language attrition—forced to share territory with speakers of different language
  - along with forced residential school
- The language is not currently in daily use
- Hill, when a grad student at UCLA, worked with Roscinda Nolasquez, a survivor of the three-day forced march from Cupa to Pala, who worked to document and preserve the language

Cupa Cultural Center, near Temecula. If in the area, call to find out if exhibition hall is open to the public

Cupeño language courses are taught at the Pala Learning Center

Honoring Traditions Gathering 2021

[4] cupa.palatribe.com/ , all three pictures

- Read the derivations from left (underlying) to right (surface):

Figure 1. Application of Rules to Examples (1)–(13) of Section 1.1

	Underlying Forms	A Vowel Deletion	B *-ine, yaxe* Reduction	C *a*-Reduction	D HAB	E ʔ Insertion	Final Form	
(1)	cí, HAB	cí, HAB			cí	cíʔ	cíʔ	‘can gather’
(2)	hú, HAB	hú, HAB			hú	húʔ	húʔ	‘can fart’
(3)	yélice-ine, HAB	yélic-in, HAB	yélic-i, HAB		yélic-i		yélici	‘can clean’
(4)	céle-ine, HAB	cél-in, HAB	cél-i, HAB		cél-i		céli	‘can snip’
(5)	kʷáwe-yaxe, HAB	kʷáw-yax, HAB	kʷáw-ya, HAB	kʷáw-ye, HAB	kʷáw-ye		kʷáwye	‘can holler’
(6)	qáʔaye-yaxe, HAB	qáʔay-yax, HAB	qáʔay-ya, HAB	qáʔay-ye, HAB	qáʔay-ye		qáʔaye	‘can speak Luiseño’
(7)	píneʔwexe, HAB	píneʔwex, HAB			píneʔwex		píneʔwex	‘can sing enemy songs’
(8)	cáṣpele, HAB	cáṣpel, HAB			cáṣpeʔel		cáṣpeʔel	‘can mend’
(9)	pácike, HAB	pácik, HAB			páciʔik		páciʔik	‘can leach acorns’
(10)	qáwe, HAB	qáw, HAB			qáʔaʔaw		qáʔaʔaw	‘can be sick’
(11)	cále, HAB	cál, HAB			cáʔaʔal		cáʔaʔal	‘can husk’
(12)	tĕwĕ, HAB	téw, HAB*			téʔeʔew		téʔeʔew	‘can see’
(13)	helʸépe, HAB	helʸép, HAB			helʸéʔeʔep		helʸéʔeʔep	‘can hiccup’
	púy, HAB				púʔuʔuy			‘can dine’
	ísaxw, HAB				ísaʔaxw			‘can sing a man’s son
	itú, HAB				itú	itúʔ		‘can steal
	kwá, HAB				kwá	kwáʔ		‘can eat’

(Hill p. 536)

- Step D, Habilitative (habitual) Formation, adds glottal stop(s) and copied vowel(s) only if the word ends in a consonant at this point in the derivation.

- The key is that Habilitative copying applies as many times as needed to provide two syllables following the stressed syllable—including zero times.

  ? So what’s the look-ahead issue? Let’s step through the derivation for (13) and think about the first application of copying.

- Hill points out that of course we *can* write complicated rules that will do this without look-ahead, but they seem to miss the point about word shape.

7. Wrap up

- SPE, Classic OT, and Harmonic Serialism make different predictions about what kinds of look-ahead should exist
  - The typology of what *does* exist is controversial
- Index card fast past: Why do OT and harmonic serialism make different predictions?
  - 2 minutes to write your answer
  - Stand up and swap cards twice
  - Find a nearby student and compare the cards you have

or, if more time, we keep going… **Process interaction**

Overview: We revisit the typology of (counter)-{f,bl}eeding and what each theory predicts.

8. Theories roundup

<table>
<tr><th>theory</th><th>language-specific grammar consists of</th><th>feeding?</th><th>counter-feeding?</th><th>bleeding?</th><th>counter-bleeding?</th><th>global power?</th><th>priority for more-specific rules?</th></tr>
<tr><td>SPE</td><td>ordered list of rules</td><td rowspan="2">yes</td><td rowspan="2">yes</td><td rowspan="2">yes</td><td rowspan="2">yes</td><td rowspan="2">no</td><td>yes, using ( )</td></tr>
<tr><td>SPE + Elsewhere Condition</td><td>ordered list of rules—but adjacent pairs are subject to Elsewhere Condition</td><td>yes</td></tr>
<tr><td>Partially indeterminate ordering, prefer maximal application</td><td rowspan="2">list of rules that is mostly ordered, but with some left unordered</td><td>yes</td><td>yes, but is not default</td><td>yes, but is not default</td><td>yes</td><td rowspan="2">no</td><td rowspan="2">yes, using ( )</td></tr>
<tr><td>Partially indeterminate ordering, prefer transparent application</td><td>yes</td><td>yes, but is not default</td><td>yes</td><td>yes, but is not default</td></tr>
<tr><td>one-shot simultaneous application</td><td rowspan="3">unordered set of rules</td><td>no</td><td>yes</td><td>no</td><td>yes</td><td>no</td><td rowspan="2">yes, using ( )</td></tr>
<tr><td>repeated simultaneous application</td><td>yes</td><td>no</td><td>no</td><td>yes</td><td>no</td></tr>
<tr><td>repeated simultaneous application + Proper Inclusion Precedence</td><td>yes</td><td>no</td><td>no</td><td>yes</td><td>no</td><td>yes</td></tr>
<tr><td>OT</td><td rowspan="2">ranking on universal set of constraints</td><td rowspan="2">yes</td><td rowspan="2">no, except when big jump is prohibited</td><td rowspan="2">yes</td><td rowspan="2">no, except fusion</td><td rowspan="2">yes</td><td rowspan="2">no (but see below)</td></tr>
<tr><td>Harmonic Serialism</td></tr>
</table>

- Harmonic Serialism can capture certain "countershifting" opacity (Rasin 2022), where it's not a question how *whether* a process applies, but *how* it applies—e.g. where does stress end up
- And of course, each theory also can have variants

9. Preferring specificity

- Proper Inclusion Precedence: If any two rules are in a specificity relation—as defined by lining up their structural descriptions, where longer is more specific—then apply the more-specific one first, possibly preempting the less-specific one
- Elsewhere Condition: If any two *adjacent* rules are in a specificity relation—as defined by the set of forms they could apply to—and both could apply to a form, then apply the more-specific one *instead of* the less-specific one.
- OT: both rankings are possible, but the more-specific constraint won't be noticeable unless it's ranked higher *(see tableau)*

Pāṇini's Theorem (so named by Prince & Smolensky)

Pāṇini: Sanskrit grammarian, lived around 2500 years ago

17th-century manuscript of his grammar treatise

- General >> specific: specific constraint doesn't do anything

	/akeʎ/	*ʎ	IDENT(lateral)	*ʎ#
a	akeʎ	*!		*
☞ *b*	akej		*	
	/akeʎos/	*ʎ	IDENT(lateral)	*ʎ#
c	akeʎos	*!		
☞ *d*	akejos		*	

- Specific >> general

	/akeʎ/	*ʎ#	IDENT(lateral)	*ʎ
a	akeʎ	*!		*
☞ *b*	akej		*	
	/akeʎos/	*ʎ#	IDENT(lateral)	*ʎ
☞ *c*	akeʎos			
d	akejos		*!	

10. The classic interaction typology, for reference

interaction	*definition*	*schematic derivation*	*result*
R1 feeds R2	R1 creates environment for R2 to apply to	/bind/ d → Ø / __# bin n → Ø / __# bi [bi]	transparent: • no [d#] on the surface • no [n#] on the surface
R1 counterfeeds R2	R1 applies too late to create environment for R2	/bind/ n → Ø / __# -- d → Ø / __# bin [bin]	opacity—*under-application*: • [n#] on surface, despite rule targeting *n#*
R1 bleeds R2	R1 destroys environment for R2 to apply to	/bind/ d → Ø / __# bin Ø → i/ C__C# -- [bin]	transparent: • no [d#] on the surface • no [i] inserted, because no surrounding *C__C#*
R1 counterbleeds R2	R1 applies too late to destroy environment for R2	/bind/ Ø → i/ C__C# binid d → Ø / __# bini [bini]	opacity—*over-application*: • [i] inserted, despite lack of surrounding *C__C#*

- A rule *under-applies* if there are surface instances of its structural description.
- A rule *over-applies* if there are instances in which it has applied, although the non-affected part of the structural description (the environment) is no longer present.

(The terms *under-application* and *over-application* come from Wilbur's (1973) discussion of reduplication. McCarthy 1999 adapts them for discussing opacity.)

11. Baković 2007, Baković 2011: dissociating opacity-vs-transparency from interaction type

Baković argues that the typology is **not** this, where the row labels and column labels are redundant...

	transparency	under-application opacity	over-application opacity
feeding	✓		
bleeding	✓		
counter-feeding		✓	
counter-bleeding			✓
non-interaction	✓		

...but rather (at least) this ...

	transparency	under-application opacity	over-application opacity
feeding	✓	✓	✓
bleeding	✓		
counter-feeding	✓	✓	
counter-bleeding	✓		✓
other	✓	✓	

...so process-interaction types actually don't account for opacity vs. transparency.

Let's go through Baković's typology:

12. Counterfeeding-on-environment[5] → under-application

Bedouin Arabic

- Arabic has huge regional variation
- Cross-cutting that, both linguists and the Arabic-speaking public recognize a major division of varieties of Arabic into Bedouin/nomadic versus sedentary
  - "Bedouin" varieties can be spoken by people who are actually nomadic, or who have nomadic heritage, or whose language is very Bedouin-influenced
- So I'm assuming McCarthy means that the following process interactions are typical of Bedouin varieties of Arabic across a geographic range (though not necessarily true of every single Bedouin variety)

underlying	/badw/	(Baković 2007, p. 222; from McCarthy 1999)
syllabify	badw	
a → i / __]$_{syllable}$	---	
[+high] → [+syllabic] / C__#	badu	'Bedouin'

? What would be the transparent outcome?

13. Counterfeeding-on-focus → under-application

Bedouin Arabic again, same source

underlying	/katab/	(Baković 2007, p. 222; from McCarthy 1999)
syllabify	ka.tab	
i → Ø / __]$_{syllable}$	---	
a → i / __]$_{syllable}$	ki.tab	'he wrote'

? What would be the transparent outcome?

- This is the one that's easier in OT, because we just need to invent a faithfulness constraint that prohibits the big change (in this case, from a to Ø)

[5] Term from McCarthy 1999.

14. "Surface-true counterfeeding" → transparency!

Singapore English: Baković 2011, p. 16;[6] from Mohanan 1992, Anttila et al. 2008

- Singapore English is often misunderstood outside Singapore as being a second-language variety
  - But in fact it is the native or dominant language of a large percentage of Singaporeans
  - Has influences from Malay, Mandarin Chinese, Hokkien, Tamil
- Singapore English shows huge variation depending on the speaker and the social context
  - The data here are meant to represent speakers with higher education, in a somewhat formal social context

Epenthesis: /reɪz+z/ → [reɪz+əz] (and, I infer, /reɪs/ → [reɪs+əz])
Deletion: /test/ → [tes] cf. /tɛst+ɪŋ/ → [tɛst+ɪŋ]
no data, but Degemination "deletes one of two tautosyllabic near-identical consonants" (p. 16)
/lɪst+z/ → [lɪs]

? In an SPE analysis, what rule order do we need to get [lɪs]? Why does B. call this result "transparent"?

15. Under-application without counterfeeding (Baković 2011 p. 8ff.)

"Disjunctive blocking" (p. 8)

? How would this rule schema apply to these words: V → [+stress] / __ $(C_2V)C_0$ # ?

/badupil/ /pikomsak/

Remember how expansion conventions work—abbreviates two rules, disjunctively ordered.

? In what sense do you think Baković means that under-application results?

[6] Page numbers for manuscript version

Non-derived-environment blocking—we'll save that till Lexical Phonology, but essentially it's when an additional mechanism in some rule theories, saying that a rule can't apply if its structural description was already met in the monomorphemic underlying form:

e.g. a → i / __ C# /likat/ *fails to apply* /noka+l/ → [nokil]

Blocking by phonotactic constraint (p. 12)

- Think of V → Ø, blocked by *CCC. Strictly speaking, the rule V → Ø under-applies in forms like _____

(Non-)triggering by phonotactic constraint (p. 13)

- Think of C → Ø, triggered by *CCC. Strictly speaking, the rule C → Ø under-applies in forms like _____

Restriction to certain morphological classes (Estonian V deletion in nominative singular only)

Optionality (French schwas may or may not delete)

Lexical exceptions (English *obesity* fails to undergo 'trisyllabic shortening')

16. Fed counterfeeding[7] on environment→ under-application

Lardil, as you've seen before (Baković 2011, p. 6; from Hale 1973)

	/dibirdibi/	/yilihili/	/wangalk/
Apocope: V → Ø / syllable syllable __ #	dibirdib	yilihil	--
Deletion: [–apical] → Ø / __ #	dibirdi	--	wangal
	[dibirdi]	[yilihil]	[wangal]
"apical" means made with the tongue tip ("apex")	'rock cod'	'oyster sp.'	'boomerang'

- Any guesses as to why it's called "fed counterfeeding"?

[7] Baković gets the term from Kavitskaya & Staroverov 2009

17. Fed counterfeeding on focus = "Duke of York" derivations[8]→ under-application

Nuu-chah-nulth

- Wakashan language of Vancouver Island
- Formerly and erroneously known as Nootka

[9]

Literacy kit and app,
ready for library checkout

[10]

ṅaasṅaasʔaqsa by Hesquiaht carver Tim Paul
in honor of Nuu-chah-nulth language revitalization

Labialization: [+dorsal] → [+round] / [+round] __
Delabialization: [+dorsal] → [–round] / __]$_{syllable}$

/muːq/	/ħaju+qi/	/ɬaːkʷ+ʃɪt͡ɬ/
muːqʷ	ħa.ju.qʷi	--
muːq	--	ɬaːk.ʃɪt͡ɬ
'throwing off sparks'	'ten on top'	'to take pity on'

(Baković 2011, p. 7; from Sapir & Swadesh 1978, McCarthy 1999, 2003, 2007a, 2007b)

? OT thoughts on this interaction?

	/muːq/			
☞ *a*	muːq			
b	muːqʷ			

[8] Term from Pullum 1976

[9] https://www.hashilthsa.com/news/2017-11-10/traditional-nuu-chah-nulth-language-taught-through-new-mobile-technology

[10] https://hashilthsa.com/news/2021-09-23/its-alive-now-and-we-can-talk-it-poles-name-references-first-woman

18. Counterbleeding → over-application

Yowlumne Yokuts (also spelled Yawelmani)

- Variety of Yokuts, language of California's Central Valley
- California statehood brought epidemics and war that greatly reduced the number of Yokuts people, and forced survivors to share territory with speakers of other languages

 [11]

Nicola Larsen, teaches Yowlumne language and culture classes at Tule River Reservation

Mary Santiago (center) ca. 1948, language teacher and survivor of forced removal from Madden Farm
(Frank & Goldberg 2010 p. 55)

UR	ʔili:+l		
[+long] → [–high]	ʔile:l	= ℙ	cf. /ʔili:+hin/ → [ʔile:hin] 'fans'
V → [–long] / __ C#	ʔilel	= ℚ	cf. /pana:+l/ → [panal] 'might arrive'
SR	ʔilel	'might fan'	

(Baković 2007, p. 223; from McCarthy 1999)

⁇ What would be the transparent outcome?

Since counterbleeding is so problematic in OT, here are some other famous cases:

- Canadian Raising vs. tapping in English ("Output-output Correspondence" helps)
- Serbo-Croatian *l*-vocalization (see Kenstowicz & Kisseberth 1979 ch. 3 exercise)

[11] facebook

19. Counterbleeding by mutual bleeding → transparent!

Lardil, as you've seen (I think?)

		a. /papi+ ɯɻ/	b. /tʲæmpæ+ɯɻ/
Epenthesis:	∅ ⟶ w / i __ u	w	
Elision:	V ⟶ ∅ / V __		∅
		[papi+wɯɻ]	[tʲæmpæ+ɻ]

Glosses: (25a) 'father's mother (acc. fut.)', (25b) 'mother's father (acc. fut.)'

(Baković 2011, p. 22 of ms.; from Hale 1973)

- In what sense is this mutual bleeding?

- OT analysis?

20. "Self-destructive feeding"→ over-application!

Turkish

UR	bebek+n		
∅ → i / C__C#	bebekin	= ℙ	cf. /ip+n/ → [ipin] 'your rope'
k → ∅ / V__+V	bebein	= ℚ	cf. /bebek+i/ → [bebei] 'baby (ACC)'
SR	bebein	'your baby'	

(Baković 2007, p. 226; from Sprouse 1997)

UR	ajak+sɯ		
[+cont] → ∅/ C__	ajakɯ	= ℙ	cf. /arɯ+sɯ/ → [arɯsɯ] 'his bee'
k → ∅ / V__+V	ajaɯ	= ℚ	cf. /ajak+ɯ/ → [ajaɯ] 'foot (ACC)'
SR	ajaɯ	'his foot'	

(Baković 2007, p. 227; from Kenstowicz & Kisseberth 1979)

? What would be the transparent outcome?

21. Here's another one from Lee 2007

Javanese

- Austronesian from Indonesia
- about 84 million speakers;
- data originally from Dudas 1976; Lee 1999
- Now written in Roman letters, formerly used an Abugida

cover, Kajawen magazine, 1933[12]

Kartini, Indonesian national hero

Pramoedya Ananta Toer, novelist

	'skin'	'school'	'house'
	/kulit+ne/	/sekolah+an/	/omah+ne/
n → Ø / C__	kulit+e	--	omah+e
h → Ø / V__V	--	sekola+an	oma+e
	[kulite]	[sekolaan]	[omae]

[12] https://en.wikipedia.org/wiki/Javanese_script#/media/File:Kajawen_1933-08-16-1_sampul.jpg

- ? Could this work in Harmonic Serialism?

22. Another type of feeding: American Sign Language (Padden & Perlmutter 1987)

- Sign language from the U.S., maybe 500,000 users

Marlee Matlin, actor

Christine Sun Kim, artist performed at Superbowl 2020

Connie Briscoe, novelist and L2 signer

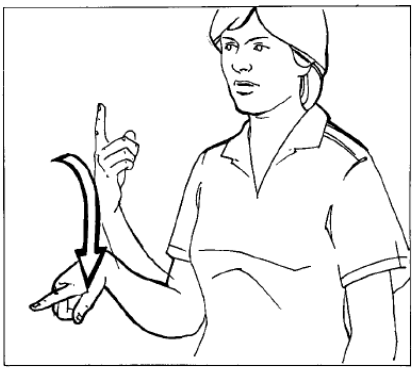
[13] Olivia Locher
[14] ashleybingphotography.com

- Rule of Weak Drop
    - Optionally, the non-dominant hand can be eliminated from a sign
    - Happens especially in fast or casual signing

full pronunciation *pronunciation with Weak Drop*

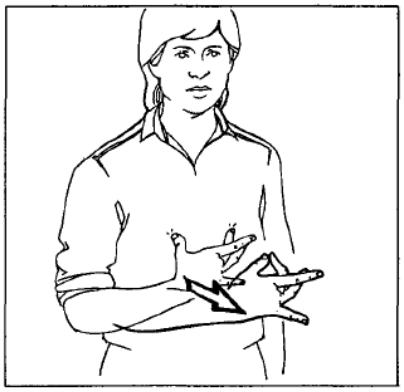
(23) **HAPPEN**

(24) **HAPPEN**



(p. 350)

(26) **INTERESTING**



(p. 351)

(29) **ANALYZE**

(28) **ANALYZE (Weak Drop)**

(p. 352)

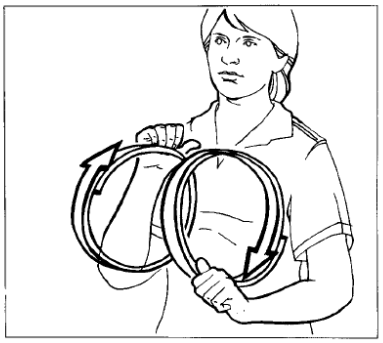
(31) **READ**

(30) **READ (Weak Drop)**

(p. 353)

- But Weak Drop is possible only if the movement in the underlying form of the sign is not "alternating"
  - nothing to do with when we say a morpheme or phoneme alternates!
  - "alternating" here = the hands move in opposition, not in synchrony
  - Examples of "alternating" signs—these have no Weak Drop version

(4) ACT



(p. 339)

(49) RAP

(p. 363)

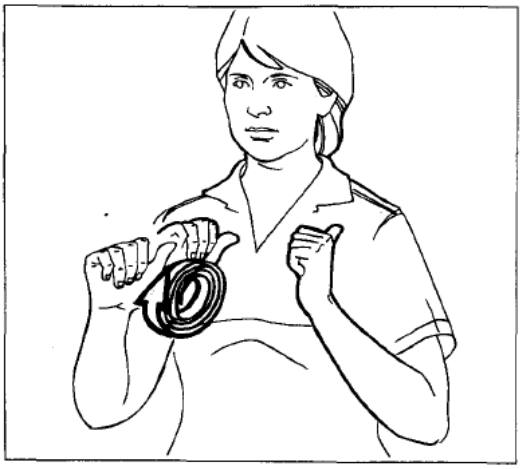
- There's a morphological rule that forms nouns from verbs, like ACTING from ACT
  - Adds "trilled" movement ("small, quick, stiff movements", p. 343)

(9) ACTING

(p. 343) *Note: ACTING is "alternating"*

- Another rule: Weak Freeze
  - Like Weak Drop, it optionally applies to two-handed signs
  - Keeps the non-dominant hand, but removes its movement
  - Can only apply to signs with "tense" movement (including trill)

(36) ACTING (WF)

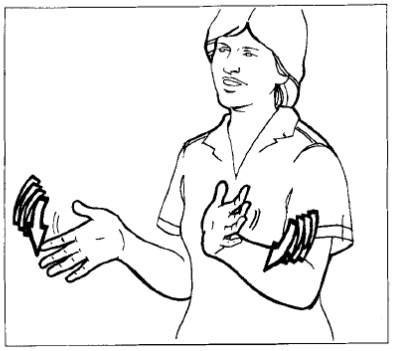


(p. 356)

- Let's figure out the order of Weak Drop and Weak Freeze
  - ? Try applying both orders to ACTING, then see next page

- As it turns out, ACTING does have a version with Weak Drop (sorry, no drawing)
- More examples of signs that can undergo both rules (pp. 364-365)
  - unfortunately, again no drawing for the Weak Drop version, but it exists in each case

(50) CHATTING



(52) CHATTING (WF)

this one doesn't tell us anything about ordering—can you see why?

(51) RAPPING

(53) RAPPING (WF)

this one supports the same ordering as ACTING does

? What does this tell us about the order?

- In one sense this is straightforward feeding: A → B, and B → C (two context-free rules)
  - But the only reason we can observe A → B is that B → C is optional
  - If both rules were obligatory, it would look like {A, B} → C
    - I think this would be an example of what Baković calls a **concealed free ride** (feeding-on-focus, technically transparent, but nonetheless part of the derivation is obscured by another)
  - So it's something like "feeding exposed by early stopping of the derivation"

23. "Non-gratuitous feeding" → over-application

Classical Arabic

UR	ktub		
$\emptyset \rightarrow V_i / \#\_\_CCV_i$	uktub	$= \mathbb{P}$	
$\emptyset \rightarrow ʔ / \#\_\_V$	ʔuktub	$= \mathbb{Q}$	cf. /al-walad-u/ → [ʔalwaladu]
SR	ʔuktub	'write (MASC SG)!'	'the boy (NOM)'

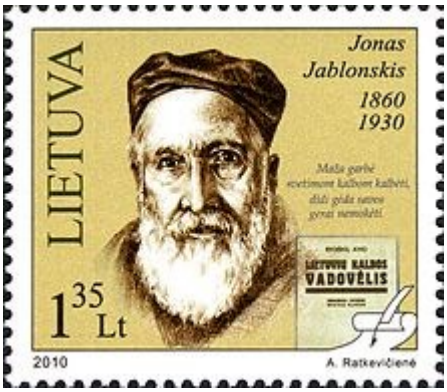
(Baković 2007, p. 231; from McCarthy 2007b)

? What would be the transparent outcome?

24. "Cross-derivational feeding" → over-application, in a sense

Lithuanian

- Indo-European language from Lithuania, 3 million speakers



Jonas Jablonskis, linguist

Jurgita Štreimikytė, retired WNBA player

- data from Baković 2007, p. 234ff.; see there for references
  prefix obstruents assimilate in voicing and palatalization :

at-koːpʲtʲi	'to climb up'	ap-kalʲbʲetʲi	'to slander'
ad-gautʲi	'to get back'	ab-gautʲi	'to deceive'
atʲ-pjʲautʲi	'to cut off'	apʲ-tʲemʲdʲiːtʲi	'to obscure'
adʲ-bʲekʲtʲi	'to run up'	abʲ-gʲiːdʲiːtʲi	'to cure (to some extent)'

(p. 234)

  epenthesis between stops of the same place (also palatalization before [i]):

atʲi-taikʲiːtʲi	'to make fit well'	apʲi-putʲi	'to grow rotten'
atʲi-tʲeisʲtʲi	'to adjudicate'	apʲi-pʲiːlʲtʲi	'to spill something on'
atʲi-duotʲi	'to give back'	apʲi-barʲtʲi	'to scold a little bit'
atʲi-dʲetʲi	'to delay'	apʲi-bʲerʲtʲi	'to strew all over'

(234)

- Baković 2005 argues that the right analysis here (and in English epenthesis before /-d/ and /-z/) should capture the idea that epenthesis occurs where a geminate *would have occurred* (because of assimilation).
  - Assimilation would have fed epenthesis (which in Baković's analysis is only triggered between identical segments), but assimilation doesn't end up needing to apply (bleeding

  ? Why is this hard for SPE?

That completes our tour of Baković's typology. But here are a couple more types:

25. Wolf 2011: "mutual counterfeeding" in Hindi-Urdu

- Indo-European language from India and Pakistan w/ about 240 million speakers [Lewis 2009]
- One language or two languages?
  - Colloquial spoken Hindi and Urdu are very similar
  - But formal Hindi has strong Sanskrit influence and formal Urdu has strong Arabic and Persian influence (vocabulary, turns of phrase)
  - Hindi is written with Devanagari, an abugida; Urdu is written in an adapted version of Perso-Arabic script (has extra letters compared to Arabic script)

[15]
Sign with both Hindi and Urdu (plus English)


[16]
Gurzal, Urdu poet and lyricist


Mannu Bhandari, Hindi writer

Data and analyses originally from Narang & Becker 1971, Bhatia & Kenstowicz 1972

? Fill in the SPE-style derivation, including predicted surface form for 'mind':

	/nikəl-na:/	/nikəl-a:/	/angən-on/	/ma:nəsi/
schwa deletion: ə →Ø / VC__CV				
V nasaliz't'n: $\begin{matrix} V \\ 1 \end{matrix}$ $\begin{matrix} C \\ [+nas] \\ 2 \end{matrix}$ $\begin{matrix} \{C \\ \#\} \\ 3 \end{matrix}$ → $\begin{matrix} 1 \\ [+long \\ +nas] \end{matrix}$				
	[nikəlna:] 'to come out'	[nikl-a:] 'came out'	[ã:gən-õ:] 'courtyard-*obl.pl.*'	? 'mind-*adj.*'

- Problem: surface form is actually [ma:nsi].
  ? What rule ordering does this require? What's the problem?

  ? What outcome do we get if both rules apply simultaneously to the input (no iteration)?

- See Bhatia & Kenstowicz (or Wolf) for arguments that the V nasalization rule doesn't actually exist in this language—nasal vowels are just underlying, so the problem goes away.

[15] https://en.wikipedia.org/wiki/Urdu#/media/File:Trilingual_road_sign_in_India.png
[16] https://en.wikipedia.org/wiki/Gulzar#/media/File:Gulzar_2008_-_still_38227.jpg

26. Wolf 2010: counterfeeding from the past

- The name comes from Wilson 2006.
- See the Wolf paper for more cases.

Samothraki Greek

- Variety of Greek, an Indo-European language from Greece with about 13.5 million speakers
- Samothraki is a Greek island close to Turkey

 [17]

Samothraki

[18]

Road sign with Greek script

	Kaisse 1975:	‘carry-past.theme-1.pl’	‘day’
		/fér+a+me/	/mér+a/
feeding:	r → Ø / V__V	fé+a+me	mé+a
	{a,e}→ i / __+{a,o}	fí+a+me	mí+a
		[fíami] (other rules apply to last V, I guess)	[mía]

feeding:		‘Greek’	‘old’	‘one’
		/romé+os/	/palé+os/	/mía/
	{a,e}→ i / __+{a,o}	romí+os	palí+os	--
	V → [-syll] / __+V	romj+ós	palj+ós	mjá
		[romjós]	[paljós]	[mjá]

? What’s the problem here for putting all three rules in an order? (Hint: *[fjámi])

- Gliding somehow doesn’t get to apply if it was originally fed by *r*-deletion. None of our theories predict this (I think), but OT with "candidate chains” does.

[17] https://en.wikipedia.org/wiki/Samothrace#/media/File:20020800_Chora_Samothrace_island_Thrace_Greece.jpg
[18] https://depositphotos.com/editorial/city-entrance-sign-chora-samothraki-island-thrakia-greece-europe-587879598.html

27. Whew! Where does this leave us?

- Terms like "opacity" or "feeding" are useful but too broad when it comes to figuring out what a theory predicts
- We need to dig into all these different process-interaction types to find out…
    - how robust the purported cases are—what types of process interactions really exist?
    - which theories can handle which process-interaction types?

Next: We've been assuming a theory where you put all the morphemes together and then apply the phonology. What if that's not adequate?

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