

Class 3: Extrinsic rule ordering

To do for next time

- Study questions for Tuesday (no more Thursday SQs after today): K&K ch. 5, pp. 45-62, K&K ch. 10, pp. 424-436, Kisseberth 1970 (it's short)
- Finish Palauan assignment, due tomorrow (Fri.) to my mailbox (Campbell 3125)

First: Sveta's point about the discussion of parentheses in today's reading from K&K ch. 9

- To capture Karok /ni+skak/ → [ni+škak] and /ni+ksah/ → [ni+kšah], $s \rightarrow \check{s} / i(C)___$
- In SPE, this expands into disjunctively ordered $s \rightarrow \check{s} / iC___$ and $s \rightarrow \check{s} / i___$
- So, if we had a form like /...iss.../, SPE predicts → [isš].
- Later (p. 349), K&K give /ʔissaha/ → [ʔiššaha]: rule schema applies to *both* potential targets.
- However, K&K say this isn't the best example: it may be really /ʔisaha/, with predictable lengthening applying after palatalization.
- But let's say we had an example of true /ss/, like hypothetical /nis+sara/ → [niššara].
- I think it's possible to rewrite the rule so that it will work under SPE expansion conventions...want to give it a try?

Overview: Now that we've reviewed the rule notation, we turn to the interaction of rules, using extrinsic rule ordering, which you may have encountered before as just plain "rule ordering".

Extrinsic rule ordering

If a language has more than one rule (and they all do), the rules have to find a way to get along. It's usually assumed that apply one by one in an order, but we can imagine other scenarios...

1. Imagine simultaneous application

Say we've got two rules:

labialization: $[-\text{labial}] \rightarrow [+ \text{round}] / u ___ V$

harmony: $u \rightarrow i / i C_0 ___$

- What happens to the underlying forms below if each rule just finds any segments in the underlying form to which it can apply and performs the structural change?

/dalbuge/ /dibumpo/ /griluda/

2. Ordered rules

If rules apply instead one by one (in *ordered* fashion), so that one rule's output is the next rule's input, there are two possible outcomes with the same two rules.

- Fill in the derivations:

	/dalbuge/	/dibumpo/	/griluda/		/dalbuge/	/dibumpo/	/griluda/
<i>labialization</i>				<i>harmony</i>			
<i>harmony</i>				<i>labialization</i>			

3. Intrinsic vs. extrinsic rule ordering

Can we tell just from looking at a set of rules what order they should apply in? There have been proposals to do just that—to impose an *intrinsic* rule ordering, determined by properties of the rules themselves, or properties of the rules and the underlying representations.

But if each language can order the rules the way it likes, rule ordering is *extrinsic*.

4. Evidence for extrinsic rule ordering?

We need languages or dialects that form a (near-)minimal pair for the ordering of two rules. Let's try an example from SPE (iffy, since one of the “rules” is outside the normal grammar).

Canadian raising in some English dialects: /aɪ/, /æʊ/ → [ʌɪ], [ɛʊ] before voiceless consonants.

[ʌɪd] vs.	[ʌɪt]	[gæʊdʒ] vs.	[k ^h ɛʊtʃ]
‘ride’	‘right’	‘gouge’	‘couch’

- Does anyone in the class (besides me) have this rule in their everyday speech?

Pig Latin rule of children's English language game: Initial consonant(s), if any, are moved to the end of the word, and [ɛɪ] is added to the end.

[p^hɪg læʔŋ] becomes [ɪgp^hɛɪ æʔŋleɪ]

- Notation practice: write the rule using transformational notation.
- If you have Canadian raising and are reasonably adept in Pig Latin, transform the following words into Pig Latin and have your neighbor carefully transcribe them:

<i>ice</i>	<i>might</i>
<i>try</i>	<i>sigh</i>

- Let's compare notes—did we find both orderings of “Pig Latin movement” and raising?

5. Types of rule interaction—Feeding

Rule1 feeds Rule2 if R2 is applicable to some form only because the form has undergone R1. (Informally, Rule1 creates a suitable input for Rule2.)

- Can you remember an example from the Russian data discussed in K&K?

Example: Guinaang Kalinga¹ (*Ethnologue*: dialect of Lubuagan Kalinga, Austronesian language from the Philippines with 12,000-15,000 speakers)

¹ Gieser, C.R. (1970). The morphophonemic system of Guininaang (Kalinga). *Philippine Journal of Linguistics* 1/2, 52-68 plus insert.

Assume there are lots of examples like (a), where the first stem vowel is not unstressed [o].

a) dábo	(hypothetical)	dinábo	(hypothetical)
b) dopá	‘fathom’	dimpána	‘he measured by fathom’
c) gobá	‘firing (pots)’	gimbána	‘she fired’
d) ?omós	‘bath’	?immósna	‘she bathed’
e) botá?	‘broken piece’	bintá?na	‘she broke’
f) ?odáw	‘requesting’	?indáwna	‘he requested’
g) bosát	‘sudden break’	binsátna	‘he snapped’
h) ponú	‘filling’	pinnúna	‘she filled’
i) to?óp	‘satisfaction’	tin?ópna	‘he satisfied’
j) sogób	‘burning’	siŋgóbna	‘he burned’
k) doŋól	‘report’	diŋŋólna	‘he heard’
l) ?olót	‘tightening’	?illótna	‘he made tight’
m)?owá	‘doing, making’	?iŋwána	‘he made, did’

- Account for the different allomorphs of the infix /-in-/. Give a derivation for [dimpána]. (Getting the features right in items (l) and (m) is hard—don’t worry much about it.)
- Can we get a feeding interaction with simultaneous application? (Let’s try it on [dimpána].)
- A variant on simultaneous application: apply all possible rules simultaneously; then do that again to the result; and so on until no more rules are applicable. Try it for [dimpána].

6. Types of rule interaction—Bleeding

Rule1 bleeds Rule2 if R2 is *not* applicable to some form because the form has undergone R1. (Informally, Rule 1 destroys a suitable input for Rule 2.)

Example: English regular plural

p ^h i-z	‘peas’	dag-z	‘dogs’	mit-s	‘mitts’	glæs-iz	‘glasses’
t ^h ou-z	‘toes’	læb-z	‘labs’	blouk-s	‘blokes’	fiz-iz	‘fizzes’
dæl-z	‘dolls’	salɪd-z	‘solids’	k ^h af-s	‘coughs’	bɹæntʃ-iz	‘branches’
p ^h æn-z	‘pans’	weɪv-z	‘waves’			bædʒ-iz	‘badges’
		saið-z	‘scythes’			wɪʃ-iz	‘wishes’
						ɡəɹɑʒ-iz	‘garages’

- Account for the three suffix allomorphs. Give a derivation for [wɪʃ-iz].

- Can we get a bleeding interaction with simultaneous application? repeated simultaneous application? (Try them for [wɪʃ-iz].)

7. Transparent vs. opaque interactions

In simple cases,² feeding and bleeding interactions are called *transparent*, because, if we think of the two rules in declarative rather than procedural terms, (i) they are both “satisfied” in the resulting form, and (ii) this is achieved without superfluous changes:

“don’t have unstressed [o] in the environment VC__CV”	}	<i>dimpána</i> —OK on both counts
“nasal must match following consonant in certain features”		
“adjacent obstruents must agree in voice”	}	<i>wɪʃ-iz</i> —OK and no unnecessary changes as in * <i>wɪʃ-ɪs</i>
“don’t have adjacent sibilants”		

In *opaque* interactions, this is not so.

8. Counterfeeding opacity

Rule2 counterfeeds Rule1 if R2 could feed R1, but R1 is ordered first, so it doesn’t get to apply. In the simplest cases, $A \rightarrow B / X_Y$ has been counterfed if there exist surface $XAYs$.

Example: Palauan³ (Austronesian language from the Republic of Palau with ~15,000 speakers)
I was going to ditch this example, but maybe it’ll be helpful for the assignment

<i>X</i>	<i>his/her/its X</i>		<i>X</i>	<i>his/her/its X</i>	
a) rákt	rəkt-él	‘sickness’	b) ðéel	ðel-él	‘nail’
c) sésəb	səsəb-él	‘fire’	d) ðəkóol	ðəkol-él	‘cigarette’
e) bóðk	bəðk-él	‘operation’	f) ʔiis	ʔis-él	‘escape’
g) ríŋəl	rəŋəl-él	‘pain’	h) búuʔ	buʔ-él	‘betel nut’
i) ðúbs	ðəbs-él	‘tree stump’			

- Account for length and quality alternations (you’ll need 2 rules).
- Why does this interaction not qualify as transparent? How is it different from bleeding?
- Can we capture this case with simultaneous rule application? repeated simultaneous application? Try it for [ʔis-él].

² In week 5 we’ll discuss recent papers by Eric Baković showing that counterfeeding doesn’t always cause opacity, and “counterfeeding opacity” isn’t always caused by counterfeeding; and similarly for counterbleeding.

³ Josephs, Lewis (1990). *New Palauan-English Dictionary*. Honolulu: U of Hawaii Press. Transcriptions are fairly broad (same as in the assignment), and there’s more to the phenomenon than what’s shown.

9. Counterbleeding opacity

Rule2 counterbleeds Rule1 if R2 could have bled R1, but R1 is ordered first, so it gets to apply.

In the simplest cases, $A \rightarrow B / X_Y$ has been counterbled if there exist surface Bs derived by the rule that aren't in the environment X_Y .

- Can you remember an example from the Russian data discussed in K&K?

Example: Polish (Indo-European language from Poland with about 43 million speakers)⁴

	<i>sg.</i>	<i>pl.</i>	
a)	trup	trupi	'horse'
b)	wuk	wuki	'bow'
c)	snop	snopi	'sheaf'
d)	kot	koti	'cat'
e)	nos	nosi	'nose'
f)	sok	soki	'juice'
g)	klup	klubi	'club'
h)	trut	trudi	'labor'
i)	grus	gruzi	'rubble'
j)	wuk	wugi	'lye'
k)	żwup	żwobi	'crib'
l)	lut	lodi	'ice'
m)	vus	vozi	'cart'
n)	ruk	rogi	'horn'

- Account for the voicing and vowel-height alternations (you'll need 2 rules).
- Why does this interaction not qualify as transparent? How is it different from feeding?
- Can we capture this case with simultaneous rule application? Repeated simultaneous application? Try it for [ruk].

⁴ Fragment of exercise on p. 72 of K&K.