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)
• Malagasy assignment due tomorrow (Fri) to my mailbox (Campbell 3125, closes 5 PM)

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 they apply one by one in an order, but we can imagine other scenarios...

1. Imagine simultaneous application
Say we've got two rules:

> *labialization*: [–labial] → [+round] / u __ V
> *harmony*: u → i / i C_0 __

o What happens to the underlying forms below if each rule just finds any segments in the <u>underlying</u> 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.

o Fill in the derivations:

	/dalbuge/	/dibumpo/	/griluda/			/dalbuge/	/dibumpo/	/griluda/
labialization					*harmony*			
harmony					*labialization*			

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.

     [ɹaɪd] vs.   [ɹʌɪt]   [gæʊd͡ʒ] vs.   [kʰɛʊt͡ʃ]
     'ride'   'right'   'gouge'   'couch'

o   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 [eɪ] is added to the end: [pʰɪg læʔŋ] becomes [ɪgpʰeɪ æʔn̩leɪ]

o   Notation practice: write the rule using transformational notation.

o   <u>If you have Canadian raising</u> and are reasonably adept in Pig Latin, transform the following words into Pig Latin and have your neighbors carefully transcribe them:
     ice   might   try   sigh

o   Let's compare notes—which orderings of "Pig Latin movement" and raising did we find?

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 <u>creates</u> a suitable input for Rule2.)

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

Example: Guinaang Kalinga[1] (*Ethnologue*: dialect of Lubuagan Kalinga, Austronesian language from the Philippines with 12,000-15,000 speakers)
Assume there are lots of examples like (a), where the first stem vowel is not unstressed [o].

a) dábo	(hypothetical)	d**in**ábo	(hypothetical)
b) dopá	'fathom'	d**im**pána	'he measured by fathom'
c) gobá	'firing (pots)'	g**im**bána	'she fired'
d) ʔomós	'bath'	ʔ**im**mósna	'she bathed'
e) botáʔ	'broken piece'	b**in**táʔna	'she broke'
f) ʔodáw	'requesting'	ʔ**in**dáwna	'he requested'
g) bosát	'sudden break'	b**in**sátna	'he snapped'
h) ponú	'filling'	p**in**núna	'she filled'
i) toʔóp	'satisfaction'	t**in**ʔópna	'he satisfied'
j) sogób	'burning'	s**iŋ**góbna	'he burned'
k) doŋól	'report'	d**iŋ**ŋólna	'he heard'
l) ʔolót	'tightening'	ʔ**il**lótna	'he made tight'
m) ʔowá	'doing, making'	ʔ**iŋ**wána	'he made, did'

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

o 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.)

o Can we get a feeding interaction with simultaneous application? (Let's try it on [dimpána].)

o A variant on simultaneous application: apply all possible rules simultaenously; 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 underlines{destroys} a suitable input for Rule 2.)

Example: English regular plural

pʰi-z	'peas'	dɑg-z	'dogs'	mɪt-s	'mitts'	glæs-ɨz	'glasses'
tʰoʊ-z	'toes'	læb-z	'labs'	bloʊk-s	'blokes'	fɪz-ɨz	'fizzes'
dɑl-z	'dolls'	sɑlɪd-z	'solids'	kʰɑf-s	'coughs'	bɹæntʃ-ɨz	'branches'
pʰæn-z	'pans'	weɪv-z	'waves'			bædʒ-ɨz	'badges'
		saɪð-z	'scythes'			wɪʃ-ɨz	'wishes'
						gəɹɑʒ-ɨz	'garages'

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

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

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"
"nasal must match following consonant in certain features"   *dimpána*—OK on both counts

"adjacent obstruents must agree in voice"   *wɪʃ-ɨz*—OK, and no unnecessary
"don't have adjacent sibilants"   changes as in **wɪʃ-ɨs*

In *opaque* interactions, this is not so.

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[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.

8. Counterfeeding opacity

Rule2 counterfeeds Rule1 if R2 could feed R1, but R1 is ordered first, so R1 doesn't get to apply. In the simplest cases, A→B / X__Y has been counterfed if there exist surface *XAY*s.

Example: Palauan[3] (Austronesian language from the Republic of Palau, ~15,000 speakers ♫)

	X	his/her/its X			X	his/her/its X	
a)	ɾákt	ɾəkt-él	'sickness'	b)	ðɛ́ːl	ðɛl-él	'nail'
c)	sɛ́səb	səsəb-él	'fire'	d)	ðəkóːl	ðəkol-él	'cigarette'
e)	bóðk	bəðk-él	'operation'	f)	ʔíːs	ʔis-él	'escape'
g)	ɾíŋəl	ɾəŋəl-él	'pain'	h)	búːʔ	buʔ-él	'betel nut'
i)	ðúbs	ðəbs-él	'tree stump'				

o Account for length and quality alternations (you'll need 2 rules).

o Why does this interaction not qualify as transparent? How is it different from bleeding?

o Can we capture this case with simultaneous rule application? repeated simultaneous application? Try it for [ʔis-él].

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→B / X__Y has been counterbled if there exist surface *B*s <u>derived by the rule</u> that aren't in the environment *X__Y*.

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

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[3] Josephs, Lewis (1990). *New Palauan-English Dictionary*. Honolulu: U of Hawaii Press. Transcriptions are fairly broad, and there's much more to the phenomenon than what's shown.

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

	sg.	*pl.*	
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)	žwup	žwobi	'crib'
l)	lut	lodi	'ice'
m)	vus	vozi	'cart'
n)	ruk	rogi	'horn'

o Account for the voicing and vowel-height alternations (you'll need 2 rules).

o Why does this interaction not qualify as transparent? How is it different from feeding?

o Can we capture this case with simultaneous rule application? Repeated simultaneous application? Try it for [ruk].

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