

Class 3: Extrinsic rule ordering

To do for next time

- Read K&K ch. 5 and turn in study questions on Tuesday
- Finish Malagasy assignment, due Tuesday

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 are ordered and apply one by one, 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 C₀ __

- 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/
labialization
harmony

 /dalbuge/ /dibumpo/ /griluda/
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—that is, to impose an *intrinsic* rule ordering (an ordering that is determined by properties of the rules themselves, or maybe properties of the rules and the UR).

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

4. Evidence for extrinsic rule ordering?

What we need is languages or dialects that form a (near-)minimal pair for the ordering of some rules. Let's try an example from SPE (this might not be legitimate, since one of the “rules” is outside the normal grammar).

Canadian raising rule of some English dialects: /aɪ/,/æʊ/ become [ʌɪ],[ɛʊ] before voiceless consonants.

[ʌaɪd] vs.	[ʌʌɪt]	[gæʊdʒ] vs.	[k ^h ɛʊtʃ]
'ride'	'right'	'gouge'	'couch'

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

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.

[p^hɪg læʔŋ] becomes [ɪgp^heɪ æʔŋleɪ]

- 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:

ice
try
might
sigh

- Now let's compare notes and see which “dialects” we've got—do we find both orderings of “Pig Latin movement” and raising?

5. Types of rule interaction—Feeding

Rule 1 feeds Rule 2 if 2 is applicable to some form that has undergone 1 but wouldn't be applicable to the same form if it had not undergone 1. (Informally, Rule 1 creates a suitable input for Rule 2.)

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

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

a) dábo	(hypothetical)	dínábo	(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'	tín?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 (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 is: all rules that can apply to the input do so, simultaneously; then, all ruled that can apply to the resulting form do so simultaneously; and so on until no more rules are applicable. How would that work for [dimpána]?

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

6. Types of rule interaction—Bleeding

Rule 1 bleeds Rule 2 if 2 is *not* applicable to some form that has undergone 1 but would have been applicable to the same form if it had not undergone 1. (Informally, Rule 1 destroys a suitable input for Rule 2.)

Example: English plural

pi-z	‘peas’
t ^h ou-z	‘toes’
dɔl-z	‘dolls’
p ^h æn-z	‘pans’
dɔg-z	‘dogs’
læb-z	‘labs’
k ^h ɪln-z	‘kilns’
k ^h læsp-s	‘clasps’
mɪt-s	‘mitts’
blouk-s	‘blokes’
k ^h af-s	‘coughs’
glɑs-iz	‘glasses’
fɪz-iz	‘fizzes’
bɪæntʃ-iz	‘branches’
bædʒ-iz	‘badges’
wɪʃ-iz	‘wishes’
gəɹɑʒ-iz	‘garages’

- Account for these three allomorphs—that includes choosing an underlying form. 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

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”	}	<i>dimpána</i> —OK
“adjacent obstruents must agree in voice” “don’t have adjacent sibilants”	}	<i>wɪf-ɪz</i> —OK

In *opaque* interactions, this is not so.

8. Counterfeeding opacity

Rule 2 counterfeeds Rule 1 if Rule 1 is ordered before Rule 2, and Rule 1 doesn’t apply, but would have applied if Rule 2 had been ordered first (Rule 2 would have fed Rule 1 if the order had been reversed).

In the simplest cases, a rule $A \rightarrow B / X _ Y$ has been counterfed if there exist surface representations containing XAY .

Example: Palauan²

(Austronesian language from the Republic of Palau with about 15,000 speakers)

X	<i>his/her/its X</i>	
a) rákt	rəktél	‘sickness’
b) sésəb	səsəbél	‘fire’
c) bótk	bətkél	‘operation’
d) ríŋəl	rəŋəlél	‘pain’
e) kúk-	kəkúl	‘nail’
f) réek	rəkél	‘rustling sound’
g) ðəkóol	ðəkolél	‘cigarette’
h) ʔiis	ʔisél	‘escape’
i) búuʔ	buʔél	‘betel nut’

- 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?

² Josephs, Lewis (1990). *New Palauan-English Dictionary*. Honolulu: University of Hawaii Press. Also my own fieldwork. These transcriptions are fairly broad, and there’s more to this phenomenon than what’s shown.

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

9. Counterbleeding opacity

Rule 2 counterbleeds Rule 1 if Rule 1 is ordered before Rule 2, and Rule 1 applies, but wouldn't have if Rule 2 had been ordered first (Rule 2 would have bled Rule 1 if the order had been reversed).

In the simplest cases, a rule $A \rightarrow B / X _ Y$ has been counterbled if there exist surface representations containing B that was derived by the rule in environments other than X_Y .

Example: Polish (Indo-European language from Poland with about 43 million speakers)³

	<i>sg.</i>	<i>pl.</i>	
a)	trup	trupi	'horse'
b)	wuk	wuki	'bow'
<hr/>			
c)	snop	snopi	'sheaf'
d)	kot	koti	'cat'
e)	nos	nosi	'nose'
f)	sok	soki	'juice'
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g)	klup	klubi	'club'
h)	trut	trudi	'labor'
i)	grus	gruzi	'rubble'
j)	wuk	wugi	'lye'
<hr/>			
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].

³ Fragment of exercise on p. 72 of K&K.