

## Class 11, 5/7/2018: Paradigm Uniformity II

### 1. Assignments

- Read: Steriade, Donca (2000) “Paradigm uniformity and the phonetics-phonology interface,” in *Papers in Laboratory Phonology 5*, ed. Broe and Pierrehumbert.
- Homework #4 is handed out, due in a week.

### 2. Today

- How *SPE* dealt with paradigm uniformity; data-romp through antepenultimate stress in English.
- The historical evidence supporting paradigm uniformity
- Phonotactic effects of paradigm uniformity

#### TREATMENT OF PARADIGM UNIFORMITY EFFECTS IN *SPE* PHONOLOGY

### 3. The bifurcation

- Inheritance of derived phonological properties: the cycle
- Resistance to acquisition of properties: word-internal boundaries.

### 4. Cyclic effects

- Already covered by Kie, but a quick example:  
English secondary stresses are (roughly) left-to-right binary, no clash, in the pretonic domain.
- Examples from Hayes (1982, *LI*).

àbracadábra	Kàlamazóo		
Lùxipalílla	Hàrdecanúte		
Pèmigewásettl	Àllamakée		
Òkefenókee	Ìllilouéte		
Nèbuchadnézzar	Màttamuskéet		
pàraphernálla	Àntigonísh		
Kìlimanjáro	Gàllipolís		
Pòpocàtepétl	Òkalòacóochee	Àpalàchicóla	Àntanànarívo
Hànàmànióa	ìpecàcuána	ònòmàtopóeia	hàmamèlidánthemum

This not respected in suffixed forms, where the principle seems to be inheritance, modulated by the need to avoid clashes and initial lapses:

morphologically derived long words typically do not display the pattern of secondary stress found in monomorphemic words: compare *subliminálity* with *Òkefenókee*, *demòcratizátion* with *Àpalàchicóla*, and *Macàssarése* with *Gàllipólís*.

- Analytic possibility: do not foot what is already footed on a prior cycle, but do resolve certain clashes and the resulting lapses: *specificity*

## 5. Boundary effects: the distribution of preantepenultimate stress

- There are no stems whatever ending in stressed plus three stressless: “Hi, I’m \*['pæmələnə]”
- Within the learned vocabulary, a few affixes give rise to the pattern.
- With *productive* suffixes, pre-antepenultimate stress seems rather normal and possible in new words:

-ing *monitoring, jettisoning*  
 -eth *seventieth*  
 -ish *Madison-ish*

- *SPE*: the productive suffixes are treated with “#”.
  - Rule 1: [ ] → [# #]
  - Rule set 2: X #] ation → X ] ation; etc., for the less-productive affixes.
  - Stress rules apply in domains bounded by # #.
  - In translated form (prosodic structure), this is still a living analytic option, see e.g. Peperkamp, S. (1997). *Prosodic Words*. HIL dissertations 34. The Hague: Holland Academic Graphics.

## 6. Treatment of these effects with Paradigm Uniformity

- These receive a uniform treatment under Paradigm Uniformity constraints.
  - Overapplication: carrying over result of phonology in base
  - Underapplication I: carrying over the base in a way that prevents phonology from affecting it.
- Making this handout, I now realize the translation is incomplete:
  - Underapplication will still need some device, such as Stratal OT, to prevent application of phonology to “outer” affixes.
  - For an example see McPherson and Hayes (2015, *Phonology*) on the continuum of outerness in Tommo So.

## 7. Exercise

- Socrates: while we’re at it, look for possible Paradigm Uniformity effects in these data, which are from my effort to check the \*PREANTEPENULTIMATE constraint

abominable  
applicable  
communicable  
estimable  
inalienable  
incalculable  
inextricable  
innumerable  
inseparable  
interminable  
inviolable  
irremediable  
navigable  
permeable  
tolerable  
venerable  
actionable  
enviable  
fashionable  
fissionable  
impressionable  
knowledgeable  
objectionable  
perishable  
practicable  
questionable  
reasonable  
seasonable  
serviceable  
variable  
amiable  
amicable  
formidable  
indefatigable  
malleable

caricature  
temperature  
literature

communicative  
palliative  
speculative  
cumulative

accuracy

adequacy  
advocacy  
candidacy  
celibacy  
confederacy  
degeneracy  
delicacy  
immediacy  
intimacy  
intricacy  
legitimacy  
literacy  
obstinacy

occupancy  
militancy  
hesitancy  
relevancy  
irrelevancy  
residency  
presidency  
expediency  
incompetency  
constituency

idiocy

## 8. Something that probably emerges from this discussion

- Paradigm Uniformity is sensitive to the paradigm involved; i.e. we may need to be quite specific about the morphological relations present.

### MORE ON HISTORICAL CHANGE: KIPARSKY'S SWISS VILLAGERS

## 9. Where this work is gathered together

Kiparsky, Paul (1982) *Explanation in Phonology*. Dordrecht: Foris.

## 10. A bit of history

- Phonology in the 70's
  - The post-*SPE* analytic bonanza continued — find a phonology, be aware of its history, go to town ...
  - Kisseberth discovered conspiracies and people started worrying about them.
  - Selkirk and others started theorizing about phrasal phonology

- Novel theories of rules ordering flourished.
- An anti-abstractness rebellion took place, led by Bybee.
- Stampean's made an early attempt at rule-based Markedness-driven phonology
- The Prosodic Revolution began<sup>1</sup> with attention to autosegmental tone (Leben, Goldsmith) and syllables (Kahn, others).
- Ideas that came to the field from Kiparsky's work during this time.
  - Realist approaches to historical change, with restructuring  
I.e. not evolution from grammar to grammar
  - Emphasis that the child doesn't necessarily learn the language accurately — we must predict the failures as well as the successes (see Hayes LSA plenary handout 2015, gushing and extending)
  - The understanding that Kisseberth's conspiracies always have targets that match cross-linguistic markedness — proto-OT
  - His attempts to *predict* rule reordering led Kiparsky to invent the concept of opacity and the standard rule ordering taxonomy.
  - An interest in productivity and how to assess it, now massively pursued through experimentation.
  - Emphasis on paradigm uniformity as an explanatory principle
- Kiparsky's final (ambivalent) recipe for predicting language change:
  - combo of avoiding opacity and enforcing paradigm uniformity
- The last paper explains why he got sort of tired of the historical project — imperfect changes get frozen in place, leading to a less optimal grammar.
- Kiparsky's work eventually shifted to metrics, prosodic structure, and soon Lexical Phonology

## 11. The Swiss villagers

- They are representative of the geographic distribution of paradigmatic change: spotty, not the grand wave.
- Each spot represents an individual tyke, dumb but charismatic, who created a language change from errorful language learning and persuaded her cohort to adopt it.

## 12. Significance

- These are cases of “analogical” change where the alternation was rendered less salient, but not eliminated.

## 13. German Umlaut

- As a sound change long ago, it was assimilation: stressed stem vowel is fronted when a front vowel follows.
- English had it too, as traces like *geese* and *mice* indicate.

---

<sup>1</sup> Saying this is a silly, since it was only new to generativists; see e.g. W. S. Allen's *Accent and Rhythm* (1973) for superb non-generativist work on syllables, feet, etc.

- Sharing in the low-level allophony that erupted in grammar post Anglo-Saxon conquest (E. Sapir, *Language*).
- In both languages, the vowels of atonic syllables reduced to schwa.
  - This removed the phonological basis for Umlaut, which however remained rather productive!
  - HAVE FRONT VOWEL IN PLURALS, SUBJUNCTIVES, 3RD SG. PRESENTS ...
- German orthography is matched to this principle, as it spells the outputs of Umlaut with the two dots that we know as “umlaut” diacritics.

#### 14. Sources for this work

- Sturdy dialectologists of the first half of the 20th century, documenting the speech of village people (Switzerland, and indeed much of Europe).
- He cites Wanner and Enderlin, which I have not consulted.

#### 15. A conservative village, representing the Canton of Schaffhausen

- There is allophony of /o/, which lowers to [ɔ] before most coronals
  - Kiparsky’s examples include [r, t, d, s, ʃ<sup>2</sup>].
  - /l/ is not a trigger, perhaps due to tongue body position?
- Forms with [o]:<sup>3</sup>
  - [foll], [holts] ‘wood’, [gold] ‘gold’
  - [grob], [ops], [hobəl], [xnopf], [dobə], [ofə], [xopf]
  - [xoxxə], [xnouxxə], [rokk], [kflogə] ‘fly-past.part.?’ , [bogə]
- Lowering to [ɔ]
  - [hɔrn] ‘horn’, [tɔrn], [ʃɔrə]
  - [rɔss] ‘horse’, [xrɔttə], [lɔsə], [ksɔttə], [bɔdə], [pɔʃt]

#### 16. The allophonic rule (in current features)

$$\left[ \begin{array}{l} +\text{syllabic} \\ -\text{high} \\ +\text{back} \end{array} \right] \rightarrow [+low] / \text{---} \left[ \begin{array}{l} +\text{consonantal} \\ +\text{coronal} \\ -\text{lateral} \end{array} \right]$$

- The purpose of [+back] is to keep the rule from applying to the /ø/ phoneme.
  - [plɔtsli] ‘suddenly’, [frøʃʃ] ‘frog’

#### 17. In Schaffhausen, the allophone interacts with morphology/Umlaut in the expected way

- We tend to think we understand this! Allophones are “late” and automatic, a sort of late spell-out of the results of the deeper phonology.

<sup>2</sup> My IPA-ifications of Kiparsky’s transcriptions: [ʃ] for [š], [œ] for unlauded [ɔ]

<sup>3</sup> My glosses are conjectural, Kiparsky provides none.

<i>Phonemic form</i>	<i>Surface form of base</i>	<i>Umlauted (surface) form</i>
/bogə/	[bogə]	[bøgə]
/bodə/	[bɔdə]	[bødə]

### 18. The dialect of Kesswil

<i>Phonemic form</i>	<i>Surface form of base</i>	<i>Umlauted (surface) form</i>
/bogə/	[bogə]	[bøgə]
/bodə/	[bɔdə]	[bœdə]

### 19. Couldn't this just be lowering of *all* non-low round vowels in this environment?

- No! Instances of [ø] that are not derived by Umlaut are not changed.
  - [pløtsli] 'suddenly', [frøʃʃ] 'frog' are the same in this dialect.

### 20. Intuitive expression

- Umlaut is a backness alternation, and so the Umlaut of [ɔ] ought to be [œ].

### 21. Socrates

- Work out grammars that derive both Schaffhausen and Kesswil dialects.
- Your answer must be restrictive, explaining the surface distribution of [œ].

### 22. This is not the only time this happened

- Standard German permits two pronunciations of the vowel that is the Umlaut of /a/.
  - A lautgesetzlich one, reflecting the fact that the original version of the sound change *raised* [a] to [ɛ] (naturally enough, since the trigger was normally an [i]).
- Conservative dialect

<i>Phonemic form</i>	<i>Surface form of base</i>	<i>Umlauted (surface) form</i>
/naxt/	[naxt] 'night'	[nɛxt-ə] 'nights'
/bet/	[bet] 'bed'	

- Innovating dialect

<i>Phonemic form</i>	<i>Surface form of base</i>	<i>Umlauted (surface) form</i>
/naxt/	[naxt]	[næxt-ə]

	‘night’	‘nights’
/bet/	[bet]	
	‘bed’	

- Where [bet] demonstrate that this is not a sound change of [ɛ]-lowering.

### 23. A puzzle for me

- Standard German has a “branch” of Umlaut that isn’t fronting:
  - /au/ umlauts as [ɔɪ] or [ɔy], spelled *äu*.
  - I believe this reflects the modern reflexes of a historical alternation like /u:/ → [y:].
- If the relevant dialects had this, it’s a little puzzling that children apprehended the alternation so strongly as fronting.
- Perhaps the origin of standard [æ] and Kesswil [œ] took place at a time when Umlaut was a cleaner process.

## THE PRINCIPLE OF PHONOTACTIC LIBERALITY IN PARADIGM UNIFORMITY

### 24. Trying to express the principle

- If you inspect the inventory of monomorphemic forms, you will get a rather strict phonotactics.
- But when forms occur in paradigms, a wider variety of legal forms emerges.

### 25. Sources of richer phonotactics in paradigms

- Suppressed phonology
  - like *'monitoring*, not *\*mo'nitoring*
- Overapplied phonology, like *su,blimi'nality*
- Mere concatenation, like
  - “Hello, my name is Bill \*[trɛbd]. I and all the other \*[trɛbdz] are very pleased to meet you.”
  - Yet: *rubbed, dubbed, ribbed*, etc.
  - Socrates: what constraints could account for this pattern, including Paradigm Uniformity?

### 26. An example pointed out by Kiparsky from Leonard Bloomfield’s *Language* (1933)

p. 366: “In the Central-Western type of American English, ...”

[ǎ] is a plain allophone in some environments: / \_\_\_ rp, rk  
*dark, sharp*  
 ['dǎrk], ['ʃǎrp]

also, “before the clusters [rd, rt] followed by “primary suffix” [-ə, -ŋ]”

*barter, Carter, garden, marten (Martin)*

[ˈbɑːrə], [ˈkɑːrə], [ˈgɑːdn̩], [ˈmɑːrtŋ]

“Before a secondary suffix [-ə, -ŋ], however, the longer variant is used, as in

*starter, carter* (‘one who carts’), *harden*

[ˈstɑːrə], [ˈkɑːrə] [ˈhɑːdn̩]

“Here the existence of the simple words *start, cart, hard* (whose [a] is not subject to shortening), has leave to the favoring of the normal, longer variant.”

[ˈstɑːt], [ˈkɑːt] [ˈhɑːd]

- Socrates: figure this one out with constraints and rankings

## 27. Modern cases of this type

- Sugahara, M. & Turk, A. (2009) Durational correlates of English sublexical constituent structure. *Phonology*. 26, 03, p. 477-524

## 28. A characteristic pattern

- “Optional cyclicity”: a rule must be made optional when it applies on an inner cycle, but then obligatory when the stem occurs by itself.
- This seems at least inelegant to me: what is actually optional is whether you carry forward the effects of the base form on the derived form, per the principle of constraint ranking.

## 29. A classic example from the urtext of Paradigm Uniformity in OT

- Laura Benua (1997) *Transderivational Identity: Phonological Relations between words*.
- Epenthesis:
- Generally, words in Tiberian Hebrew do not end in consonant clusters.
  - There are a tiny number of lexical exceptions,
  - plus a larger class of systematic exceptions.
- Example:

Epenthesis in Tiberian Hebrew is demonstrated in (85) with the monomorphemic word [səʔer] ‘book’, which is related to the input root /sɪpr/ (compare [sɪʔrɪ] ‘my book’, in which the root’s consonant cluster surfaces intact in a heterosyllabic parse).

- Jussives are formed by final vowel loss from imperfective base, yet often there is no epenthesis:

## Jussive Truncation

	<u>Imperfective</u>	<u>Jussive</u>	
a.	yīš.bē	yīšb	'take captive'
	yīφ.tē	yīφt	'be simple'
	yēš.te	yēšt	'drink'
	yēβ.ke	yēβk	'weep'
	yīš.ṭe	yēšt	'drink'
	yaš.qe	yašq	'cause to drink'
b.	yīy.lē	yī.yel	'uncover'
	yīβ.ne	yī.βen	'build'
	tīφ.nē	tē.φen	'turn'
	yīβ.zē	yī.βez	'despise'
	yīš.ʔē	yī.šaʔ	'gaze'
	not attested	yī.ḥad	'rejoice'

- Figure out an analysis in Classical OT.

**30. A simple example**

- Benua: [lær] is ok in some dialects of English, but only as the truncated version of *Larry* ['læri].