Diachronic phonological analysis

LING 451/551

Winter 2011

Overview

- Parallels between synchronic, diachronic phonology
- Restructuring
- Reconstruction practice

Terminology and symbols

- Related forms
  - Synchronic
    - Alternants, allomorphs: Hungarian [kalap]~[kalab]
  - Diachronic
    - Cognates: Latin *ped* : English /fʊt/
- Sounds of related forms
  - Synchronic
    - Alternating segments: Hungarian [p]~[b]
  - Diachronic
    - Sound correspondences: Latin [p] : English [f]

Synchronic vs. diachronic analysis

- Kenstowicz 1994: 115
  - “Application of the Comparative Method involves discovering the sound correspondences between presumed cognate words and trying to assign a unique protoform…The entire procedure is similar in certain ways to the discovery of a word’s synchronic underlying representation on the basis of its phonetic alternants.”

Analysis

- Synchronic
  - URs + rules which describe underlying to surface (phonetic) forms
  - Underlying representation: Hungarian /kalap/
- Diachronic
  - Proto-forms + sound changes which describe Proto-language to daughter languages
  - Proto-form: Proto-Indo-European *ped/pod

Rules

- Synchronic
  - Phonological rule:

    Hungarian [-son] → [αvoiced] / ___ [-son, αvoiced]
- Diachronic
  - Sound change: PIE *p > Proto-Germanic *f

Rule types

- Synchronic
  - Neutralization
    - Hungarian [-sonorant] → [αvoiced] / ___ [-sonorant, αvoiced]
      - neutralizes difference between /p/, /b/; /t/, /d/ etc. before obstruents
  - Allophonic
    - English [-son, -cont, -vd] → [+spread glottis] / { ___ V [+stressed]
      #___ }
      - creates “new sounds”

Rule types

- Diachronic rules
  - Merger
    - Early Modern English /ɒ/ (lot), /a:/ (*palm*) > American Eng. /ɑ/ (*lot, palm*)
  - Split: creates new sounds
    - Middle English /u/ > /ʊ/, /ʌ/ everywhere but in Northern England
	N. England	elsewhere
– *cud*	[kʊd]	[kʌd]
– *could*	[kʊd]	[kʊd]
– *putt*	[pʊt]	[pʌt]
– *put*	[pʊt]	[pʊt]

Rule types

- Synchronic
  - context-sensitive
    - / in rule
    - [-sonorant] → [αvoiced] / ___ [-sonorant, αvoiced]
  - context-free
    - Turkish [+syllabic, -high, +back, -round] → [+low]
- Diachronic
  - conditioned
    - "Later Yod Dropping"
      - American English /j/ > 0 / [+cor] ___
      - no [j]: *tune, duke, new, enthusiasm, suit, presume, lewd vs.*
      - [j]: *cute, argue, mute, beauty, puny, few, view, Hugh*
  - unconditioned
    - PIE *p > Germanic *f

What is sound change really?

- Proto-Indo-European

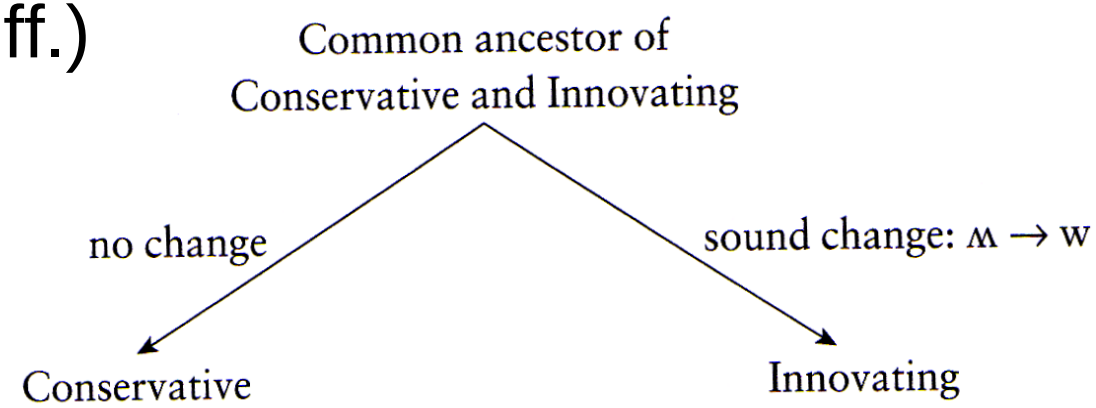
  ↓ *p > *f
- Proto-Germanic
- What really happened?
- Representations changed
  - scenario 1
    - maybe initially in some restricted context, e.g. #__; [p f]; /p/ → [f] / #___; still /p/
    - maybe later everywhere except *s__; [f p], /f/ → [p] / s__; /f/
    - maybe later everywhere; /f/ (Proto-Germanic)
  - scenario 2
    - maybe initially everywhere more conservative speakers' [p]s produced as [f] by more innovative speakers; then /f/ for innovative speakers

Restructuring

- ‘A naïve and false conception of the relation of phonological rules and sound change is that the phonology of a language at any one time is simply the accumulation of the sound changes that have happened in the past. The reason this is not true is a phenomenon called **restructuring**.’ (Hayes, p. 224)
- ‘a major shift in a linguistic system induced by reinterpretation of the older generation’s output by a younger, language-acquiring generation.’ (Hayes, p. 226)

Sound change may be restructuring

- English (Hayes 224 ff.)



- Differences between 3 varieties
  - Common ancestor of Conservative and Innovating
    - *which* [ʍɪʧ], *witch* [wɪʧ]: /w/, /ʍ/
  - Conservative American English
    - *which* [ʍɪʧ], *witch* [wɪʧ]: /w/, /ʍ/
  - Innovating American English, "ʍ > w"
    - [wɪʧ] for both: /w/

The modern systems in more detail

- ‘Older speakers’ = Conservative
- ‘Younger speakers’ = Innovating

Older Speakers
two phonemes, /w/ and /ʍ/
Phonological rule of /ʍ/ Voicing: ʍ → [+voice] in all but careful speech

Younger Speakers
one phoneme: /w/
no /ʍ/ Voicing rule

Restructuring

- Common Ancestor presumably similar to Conservative
  - /w/, /ʍ/; ʍ Voicing
  - careful speech [w]~[ʍ]
  - casual speech [w]
- Younger speakers reinterpret as [w] (= /w/)

Another case of restructuring

(70) a.
$V \rightarrow \emptyset$ / ____ #
$Gl \rightarrow \emptyset$ / C ____ #
[we] → [o]
[o] → [i]
[e] → [i] / # ____
[m,n] → Ø / ____ #
$V \rightarrow \emptyset$ / ____ #
[m] → [b]
[s] → [h]
[h] → Ø / ____ #

Proto-Algonquian to Arapaho sound changes.

b.

*meto:ni	'mouth'	*eleniwa	'man'
meto:n		eneniw	
meti:n		eneni	
meti:		ineni	
beti:		inen	

Development of Proto-Algonquian in Arapaho. Presumably every stage involves restructuring.

*aθemwa	'dog'
aθemw	
aθem	
eθem	
eθe	
eθ	

*mo:swa	'moose'
mo:sw	
mo:s	
mi:s	
mi:h	
bii	

$V \rightarrow \emptyset$ / ____ #
Gl $\rightarrow \emptyset$ / C ____ #
[we] $\rightarrow$ [o]
[o] $\rightarrow$ [i]
[e] $\rightarrow$ [i] / # ____
[m,n] $\rightarrow \emptyset$ / ____ #
$V \rightarrow \emptyset$ / ____ #
[m] $\rightarrow$ [b]
[s] $\rightarrow$ [h]
[h] $\rightarrow \emptyset$ / ____ #

*maxkeseni	'moccasin'
maxkesen	
maʔkesen	
maʔesen	
moʔesen	
moʔoson	
moʔohon	
woʔohon	
woʔoho	
woʔoh	

(cf. F mahkes-ehi, C maskisin, M mahkɛsin, O mahkisin)

‘Restructuring’ of rule system

- ‘Rule inversion’
- Earlier stage

  /a/ → [b] / X __ Y
- Later stage

  /b/ → [a] / ~X___~Y (not always exact complement of X, Y)

English r-loss and intrusive r

- Non-rhotic dialects of English
- *robin* [ˈrɒbən], *bar* [bɑ:], *bird* [bɜ:d]
  - r-loss: /r/ → 0 / __{C, #}
  - alternations: *star* [stɑ:], *starry* [ˈstɑ:ri] (/r/ still in UR)
  - restructuring of *bar* and *bird*
- r-insertion *("intrusive r")* (later than r-loss, inverted)
  - 'a process which automatically inserts an 'r' between two words if the first vowel ends in …[ɑ:], …[ɔ:], … [ɪə] or …[ə], and the second word begins with a vowel'
  - *Obama* [oˈbɑ:mə], *Obama is* [oˈbɑ:məˈrɪz]
  - 0 → [r] / V ___ V

    -high

    +back

    -tense

Reconstruction

- Balto-Finnic languages. [ä] = [æ]; Estonian [d g] = voiceless unaspirated

	Livonian	Finnish	Estonian	
a.	säv	savi	savi	'clay'
b.	tämm	tammi	tamm	'oak'
c.	säpp	sappi	sapp	'bile'
d.	lüm	lumi	lumi	'snow'
e.	sül	süli	süli	'womb'
f.	töb	topi	tobi	'sickness'
g.	ä:rga	härkä	härg	'ox'

- What was the form of the common ancestor? How did the languages develop from the common ancestor?

Some vowel correspondences

- ä : a : a
  - L säv : F savi : E savi
- ü : u : u
  - L lüm : F lumi : E lumi
- ö : o : o
  - L töb : F topi : E tobi
- ä : ä : ä
  - L ä:rga : F härka : E härg
- Kenstowicz: ‘it is reasonable to suppose that Livonian [ä] and [ü] in [a-d] [and ö in f.] derive from earlier back vowels via a process of vowel fronting (*umlaut*) caused by a no longer pronounced front vowel [in Livonian].’
  - why reasonable? F, E don’t do this
- Re Livonian: ‘these rules must have applied in the order indicated at some earlier stage of the language and perhaps reflect a corresponding chronology’

umlaut	$V \rightarrow [-back] / \_\_\_\_ C_0$ [i]
apocope	[i] $\rightarrow \emptyset / \_\_\_\_ \#$

More vowel correspondences

- 0 : i : 0
  - L tämm : F tammi : E tamm
  - L säpp : F sappi : E sapp
- 0 : i : i
  - L säv : F savi : E savi
  - L lüm : F lumi : E lumi
  - L sül : F suli : E suli
  - L töb : F topi : E tobi
- a : a : 0
  - L ä:rga : F härka : E härg
- in Estonian there is ‘a more general apocope process that has deleted final vowels…It is regularly suspended in words of the shape CVCV.’
  - constraint against making words “too short”

More data

- [V:] = [VV]

	Livonian	Finnish	Estonian	
a.	ko:r	kaari	kaar	‘rib’
b.	mo:	maa	maa	‘land’
c.	o:da	hauta	haud	‘grave’
d.	so:na	sauna	saun	‘sauna’
e.	ja:lga	jalka	jalg	‘foot’
f.	suormәd	sormet	sormed	‘finger’
g.	vierda	verta	verd	‘blood’
h.	o:r’a	harja	hari	‘sandbank’

More vowel correspondences

- L [o:] : F [aa] : E [aa]
  - L [ko:r] : F [kaari] : E [kaar]
- L [o:] : F [au] : E [au]
  - L [so:na] : F [sauna] : E [saun]
- ‘The simplest hypothesis is that [F and E are conservative and] Livonian has two separate sound changes: **a:* > *o:* and **au* > *o:*.’

Consonant correspondences

- L 0 : F h : E h
  - L o:da : F hauta : E haud
- ‘The most plausible analysis postulates a rule deleting *h in Livonian. The alternative would be a prothesis rule inserting [h] in the historical development of Finnish and Estonian.’
  - Presumably more plausible to posit one sound change (for one language) rather than 2 identical changes in 2 other lgs.
  - But more data would be nice
    - ‘The first analysis would be supported by vowel-initial cognates in Finnish and Estonian...’

Long/short vowel correspondences

- L [a:] : F [a] : E [a]
  - L [ja:lga] : F [jalka] : E [jalg]
- L [uo] : F [o] : E [o]
  - L [suormə̆d] : F [sormet] : E [sormed]
- L [ie] : F [e] : E [e]
  - L [vierda] : F [verta] : E [verd]
- L [o:] : F [a] : E [a]
  - L [o:r’a] : F [harja] : E [hari]

Long/short vowel correspondences

- Kenstowicz posits for Livonian

  V → V: / ___ liquid {C,#}

- L [sül] ‘womb’: F, E [süli]
  - ‘suggests that [Lengthening] precedes the loss of final vowels; at the point where apocope applies, the form is *süli and hence lacks a closed syllable.’

Livonian diphthongs

- ‘Livonian diphthongization of [long?] mid vowels’
- More data
  - L [suo] ‘marsh’ : F [soo]
  - L [miez] ‘man’ : F [mees]

Livonian [r’]

- L [r’] : F [rj] : E [r]
  - [o:r’a] : [harja] : [hari]
- ‘the palatalized consonant of Livonian [o:r’a] reflects an original palatal glide (preserved in Finnish) that has merged with the liquid, presumably after vowel lengthening.’
- ‘In Estonian the glide has vocalized to [i] after apocope’

Final analysis

- Reconstructions + sound changes

*savi, *tammi, *sappi, *lumi, *süli, *topi, *härka, *ka:ri, *ma:, *hauta, *sauna, *jalka, *sormet, *verta, *harja

Livonian

V → [−back] / ____ C_0 [i]

[i] → Ø / ____ #

[h] → Ø, [a:] → [o:], [au] → [o:]

V → V: / ____ [l,r]

[o:] → [uo], [e:] → [ie]

umlaut precedes apocope

liquid lengthening precedes diphthongization and apocope

diphthongization precedes [a:] → [o:]

Estonian

V → Ø / ____ #

[j] → [i] / C ____ #

apocope precedes glide vocalization

Showing developments of proto-forms in daughter languages

- Check analysis for unaccounted for details
- Proto-Balto-Finnic to Livonian
	*savi	*lumi	*topi	*süli
> (umlaut)	sävi	lümi	*töpi	(vacuous)
> (i-apocope)	säv	lüm	tö**b**	*sül
	*tammi	*sappi
> (umlaut)	tämmi	säppi
> (i-apocope)	tämm	säpp

- *härka *hauta

  > (h-del) ärka auta

  > (au monoph) oota

  > är**g**a oo**d**a

Diachronic phonology summary

- Many parallels with synchronic analysis
- But more complex
  - first requires synchronic analysis of more than one system