Gliding into a smaller inventory

A reanalysis of diphthongs in Bernese German

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1. Introduction
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3. /l/-vocalization
4. Phonetic properties
5. Conclusion

Bernese German

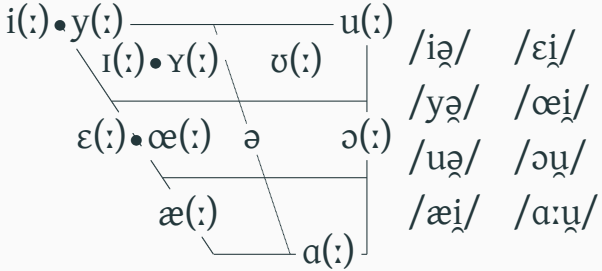
- High Alemannic variety in the German dialect continuum
- spoken mainly in the canton of Bern, Switzerland
- discussed here: Mittelland & Seeland
- one grammatical description (Marti 1985)
- not very consistent w/r/t phonology
- main question here: how many diphthong phonemes are there?

Bernese consonant inventory

	bilabial	labiod.	alv.	postalv.	velar	glottal
plosive	p b̥ (pː p)*		t d̥ (tː t)*		k g̊ (kː k)*	
affricate	p͡f		t͡s	t͡ʃ	k͡x	
fricative		f fː* ʊ	s sː	ʃ ʃː*	x xː*	h
nasal	m mː		n nː		ŋː	
lat. appr.			l lː			
rhotic			r			
glide			j			

(Marti 1985:42, *added)

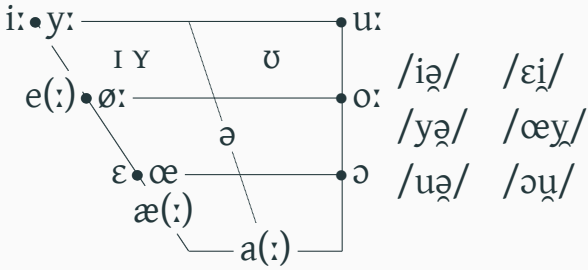
Bernese vowel inventory



(Standard German /aɪ̯/, /ɔʏ̯/, /aʊ̯/)

(Marti 1985:39–40)

MHG vowels



(Hermann 1998:47)

Development of MHG diphthongs

MHG		Bernese
/iə̯/	→	/iə̯/
/yə̯/	→	/yə̯/
/uə̯/	→	/uə̯/
/ɛi̯/	→	/ɛi̯/
/œy̯/	→	/œi̯/
/ɔu̯/	→	/ɔu̯/
?	→	/æi̯/
?	→	/ɑːu̯/

- /æi̯/ very marginal; only in /æi̯s/ ‘DEM’ (≠‘one’)
- Staub’s law: Vn → Vː, VV̯ / _ $\begin{bmatrix} +\text{cons} \\ +\text{cont} \\ -\text{son} \end{bmatrix}$ (Werlen 1977)
- /ɛn(ə)s/ → /æi̯s/ (Staub & Tobler 1885–)
- also found in Standard German loanwords like /ˈʃaɪ̯sə/ → /ˈʃæi̯sːɛ/ ‘shit’

/aːu̯/

- /plaːu̯/ ‘blue’, /kraːu̯/ ‘grau’, /kɛnaːu̯/ ‘genau’, /p͡faːu̯/ ‘peacock’, /ʃlaːu̯/ ‘smart’…
- from MHG /aː/ and /w/:
- MHG /blaː/, /blaːwəs/ ‘blue’, ‘blue.N.INDF’ (Hermann 1998:144)

More diphthongs!

- explained as non-phonemic by Marti (1985:31) because:
  - combinations of vowel + glide
  - umlauted versions of phonemic diphthongs
  - shortened/lengthened versions of phonemic diphthongs

More diphthongs!

- /æːi̯/ as in /tːræːjə/ ‘turn’, /kæːj/ ‘steep’
- /œːi̯/ as in /ʃlœːi̯ər/ ‘smarter’, /plœːi̯ələ/ ‘bruise’
- /ɑu̯/ as in /rɑu̯ft/ ‘bread crust’, /sɑu̯ft/ ‘well’
- marginal:
  - /ui̯/ in /p͡fui̯/ ‘ew!’
  - /ɔi̯/ in /hɔi̯/ ‘hi!’
  - /ɑːi̯/ as in /lɑːi̯(i)/ ‘(s/he) let (IRR)’ (Marti 1985)
  - /ɛːi̯/ /ksɛːi̯ə/, /ksɛːi̯i/ ‘(s/he) see (IRR)’ (Marti 1985)

Origin of additional diphthongs

- Staub's law: /rɑnft/ → /rɑu̯ft/
- hiatus resolution with epenthetic /j/: OHG **saːen* → /sæːjə/ 'sow'[1]
- deletion of intervocalic /h/: OHG **gaːhi* → /kæːj/ 'steep'
- (half-)umlauted versions of other diphthongs: /plɑːu̯/ 'blue' → /plœːi̯ələ/ 'bruise', /rɑu̯ft/ → /ræu̯ft/
- all not allophonic!

[1] also found in other Germanic languages; PG **seːanã* → Gothic *saian*, Old Saxon *saːian* (Kroonen 2012:428).

Triphthong /yə̯i̯/

- /myə̯i̯/ ‘struggle’, /plyə̯i̯ə/ ‘bloom’, /tːryə̯i̯ə/ ‘gain weight’
- /myə̯i̯/ from non-syllabic version of feminine *-i*, compare /lɑŋ/ ‘long’, /lɛŋːi/ ‘length’ (Marti 1985:30–31)
- but others from same hiatus resolution process as in **saːən* → /sæːi̯ə/

Di- and Triphthongs

iə̯	**ɛi̯**	æːi̯	ɔi̯
yə̯	**œi̯**	œːi̯	ɑːi̯
uə̯	**ɔu̯**	ɑu̯	æu̯
æi̯	**ɑːu̯**	ui̯	yə̯i̯
ɛːi̯	ɛːu̯		

bold: phonemic in Marti (1985)

Di- and Triphthongs

iə̯	**ɛi̯**	æːi̯	ɔi̯
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uə̯	**ɔu̯**	ɑu̯	æu̯
æi̯	**ɑːu̯**	ui̯	yə̯i̯
ɛːi̯	ɛːu̯		

bold: phonemic in Marti (1985)

/l/-vocalization

- started in the late 1700s, spreading from rural Emmental (Baumgartner 1940:74)
- /l/ became [w] ([u̯]) oder [ʊ̯] in certain positions, via [lˠ] (Haas 1983:1113)
- fairly widespread today (Leemann, Kolly, et al. 2014), not seen as a feature of Bernese (Christen 2001)

Affected contexts

context	not vocalized	vocalized
ə_#$_{\sigma}$	[ˈfɔkəl]	[ˈfɔku] ‘bird’
_#$_{\sigma}$	[ʃnælˑ]	[ʃnæwˑ] ‘fast’
_#$_{\sigma}$_	[ˈxælːər]	[ˈxæwːər] ‘cellar’

is [w] from/l/ phonemic?

- original distribution clearly allophonically conditioned, but:
  - not all geminates are vocalized; it's usually [ˈvɑlːis] 'Valais' and [ˈvɪlːɑ] 'villa', not [ˈvɑwːis] und [ˈvɪwːɑ]
  - not all singletons, either: usually [itɑlˈjænər] statt [itɑwˈjænər] 'Italian'
  - no [w] after closing diphthongs: /phɔu̯l/ 'Paul', /ʃtɛi̯l/ 'steep'; *[ʃtɛi̯w] – but [tɛːu̯] from earlier /tɛi̯l/ 'part'
  - after /uː/ we either find Ø, /muː/ from /muːl/ 'mouth', or /l/: /ʃvuːl/ 'gay', /k͡xuːl/ 'cool'
- all marginal cases, but: no synchronic automatic alternation

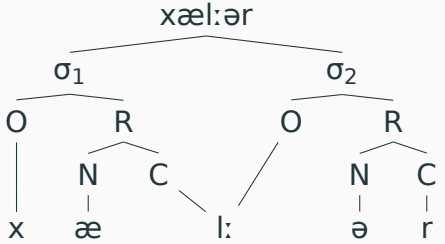
Di- and Triphthongs, updated

iə̯	ɛi̯	æːi̯	ɔi̯
yə̯	œi̯	œːi̯	ɑːi̯
uə̯	ɔu̯	ɑu̯	æu̯
æi̯	ɑːu̯	ui̯	yəi̯
ɛːi̯	ɛːu̯	ɔːu̯	ʊu̯
æːu̯	ɛu̯	œu̯	œːu̯
ɪu̯	ɪːu̯	ʏu̯	iu̯
iə̯u̯	yə̯u̯	uə̯u̯	

/l/-vocalization in geminates

- word-medial geminates are usually described as ambisyllabic, coda position of σ_1 and onset of σ_2 (Hayes 1989)
- this explains why /l/-vocalization applied to geminates (['xælːər] → ['xæwːər] ‘cellar’)
- vocalization in coda (rhime) position

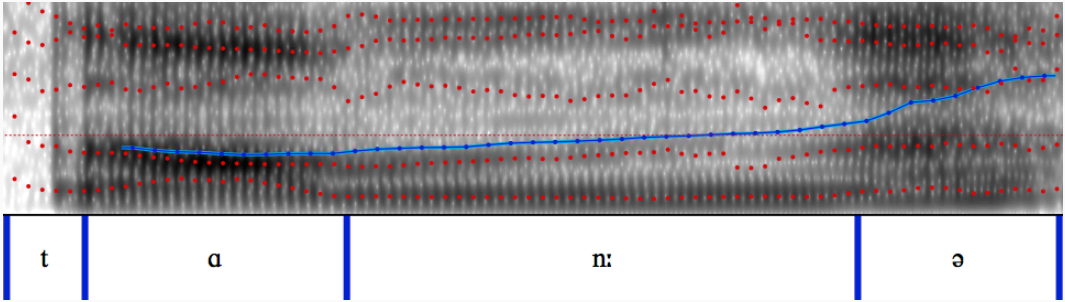
Syllable structure of [ˈxælːər]/[ˈxæwːər]



Homophony of /ɔu̯/ and earlier /ɔl/

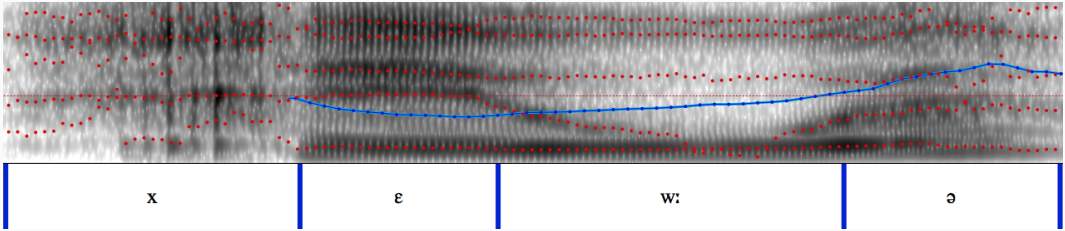
- /ɔ/ + vocalized /l/ are homophonous with Diphthong /ɔu̯/ inherited from MHG
- intervocalically: [ˈpːɔwːə] ‘built; pollen’
- important: second part of diphthong /ɔu̯/ is long before vowels, like vocalized earlier /lː/
- …true for all closing diphthongs!

Comparison with geminate consonants



data from Leemann & Kolly (2014)

Comparison with geminate consonants



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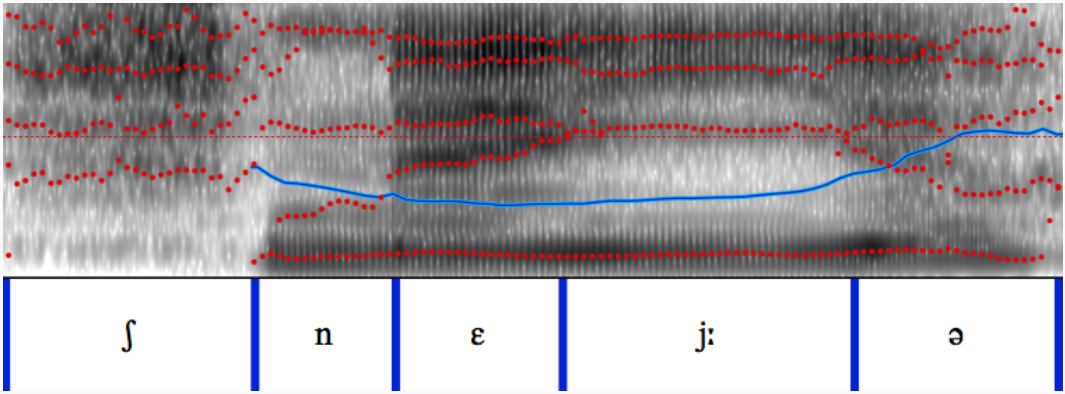


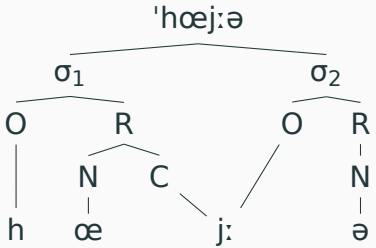
Comparison with geminate consonants

- all between 215 und 240 ms long
- considerably longer than surrounding (syllabic) vowels
- bigger phonetic study on relative duration to be done

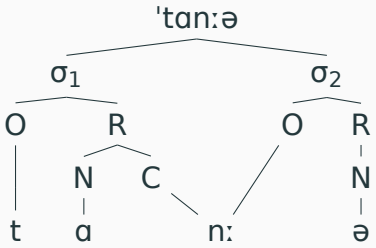
Analysis as glides

- large inventory of diphthongs, closing diphthongs all with [i̯] or [u̯]
- non-syllabic parts behave like geminate consonants
- analysis of closing diphthongs as /V/ + /j/ or /w/:
  - more economical than proposing ~30 diphthong phonemes
  - explains merger of inherited /ɔu̯/ and earlier /ɔl/
  - no marginal (diphthong) phonemes
  - captures behavior of /j/ and /w/ & their shared properties with other geminates
  - also explains triphthong /yə̯j/ as combination of diphthong + glide
  - explains /ʃtɛjl/ but not *[ʃtɛjw]: no more than one glide in coda

Syllable structure of /ˈhœjːə/ ‘make hay’



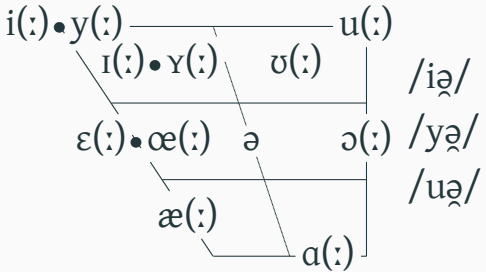
Comparison: syllable structure of /ˈtɑnːə/ ‘fir’



Bernese consonant inventory, updated

	bilabial	labiodental	alveolar	postalveolar	velar	glottal
plosive	p pː		t tː		k kː	
affricate	p͡f		t͡s	t͡ʃ	k͡x	
fricative		f fː v	s sː	ʃ ʃː	x xː	h
nasal	m mː		n nː		ŋː	
lat. appr.			l lː			
rhotic			r			
glide	wː		jː			

Bernese vowel inventory, updated



Typological perspective

- geminates generally rare
- if geminates, then glides often exempt (Maddieson 2008)
- Bernese only has geminated glides in 'V_V position under my analysis

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Abbreviations

DEM	demonstrative
INDF	indefinite
IRR	irrealis
MHG	Middle High German
N	neuter
OHG	Old High German
PG	Proto-Germanic