Interaction between syllable structure and segmental properties: The case of glide distribution in Swiss French

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Segmental Processes in Interaction with Prosodic Structure (SPIPS)

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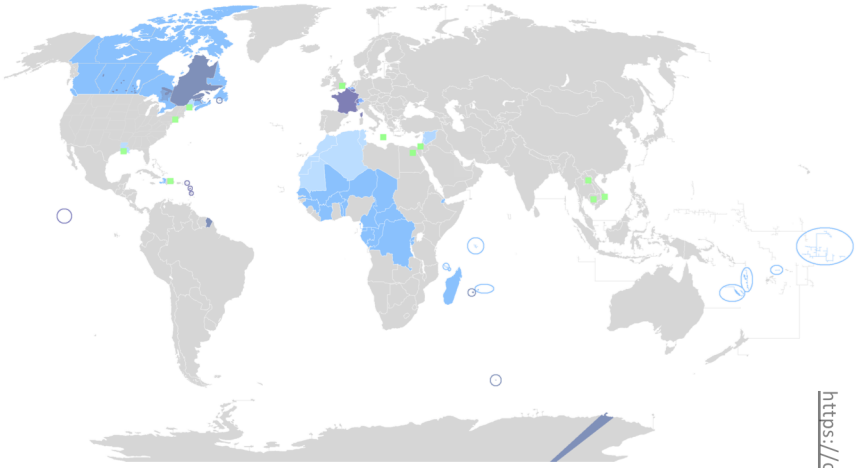
Today’s topic



- In French
  - Three phonetic glides [j w ɥ]
  - Alternation with the high vowels [i u y] in given contexts (syneresis-dieresis)

- In the literature
  - Analyses with different theoretical frameworks
  - Range of influencing factors
  - Regional variation

https://commons.wikimedia.org/wiki/File:New-Map-Francophone_World.PNG

Outline

- Distribution of glides and syneresis/dieresis in previous works
- The Swiss French varieties
- Glide distribution in Swiss French: Hypotheses

- Exploratory study
  - Methods and corpus
  - Results

- Discussion and future perspectives
- Conclusion

This work was in part presented at Journées FLORAL-(I)PFC 2018, see https://www.projet-pfc.net/wp-content/uploads/2019/01/2018_Andreassen.pdf

Where the glides are attested

Word-initial position

#GV	*yaourt* ‘yoghurt’	[**j**auʁt]
	ouest ‘West’	[**w**ɛst]
	huit ‘eight’	[**ɥ**it]
#CGV	*pied* ‘foot’	[p**j**e]
	couette ‘duvet’	[k**w**ɛt]
	puis ‘then’	[p**ɥ**i]
#CCGV		*j
	trois ’three’	[tʁ**w**a]
	fruit ‘fruit’	[fʁ**ɥ**i]

Word-medial position

VGV	*caillou* ‘stone’	[ka**j**u]
	Kway ‘windcheater’	[ka**w**e]
	nahuatl ‘Nahuatl’	[na**ɥ**atl]
VCGV	*moitié* ‘half’	[mwat**j**e]
	aquatique ‘aquatic’	[ak**w**atik]
	appui ‘support’	[ap**ɥ**i]
VCCGV		*j
	endroit ‘place’	[ãdʁ**w**a]
	autrui ‘others’	[otʁ**ɥ**i]

Word-final position

G#	*soleil* ‘sun’	[sɔlɛ**j**]
		*w
		*ɥ

Examples taken from Durand & Lyche (1999, p. 41-42)

Syneresis/dieresis: Two distinct groups

Non-derived forms

[i] ~ [j]
miette ‘crumb’ [miɛt] or [mjɛt]

[u] ~ [w]
mouette ‘seagull’ [muɛt] or [mwɛt]

[y] ~ [ɥ]
muette ‘dumb_{FEM}’ [myɛt] or [mɥɛt]

Derived forms

[i] ~ [j]
scie ‘$\text{saw}_{\text{PRS.3SG}}$’ [si]
sci+er ‘saw_{INF}’ [sije] or [sje]

[u] ~ [w]
joue ‘$\text{play}_{\text{PRS.3SG}}$’ [ʒu]
jou+er ‘play_{INF}’ [ʒue] or [ʒwe]

[y] ~ [ɥ]
sue ‘$\text{sweat}_{\text{PRS.3SG}}$’ [sy]
su+er ‘$\text{sweat}_{\text{INF}}$’ [sye] or [sɥe]

(Schane, 1968; Tranel, 1987; Walker, 2001)

Factors conditioning variation

Inherent sonority

The higher the sonority of the segment, the lesser the chance of being affected by syneresis.

i < u < y

scier 'saw$_{inf}$'	SYN
jouer 'play$_{inf}$'	↕
suer 'sweat$_{inf}$'	DIE

Position in the word

The closer the segment is to the word-initial position, the lesser the chance of being affected by syneresis.

nous dissocions 'we dissociate'	SYN
nous épions 'we spy'	↕
nous skions 'we ski'	DIE

Left segmental context

Syneresis is blocked after ObsLiq. In Midi French, syneresis might occur if the high vowel is part of the suffix.

nous oubli-ons 'we forget'	[bli] / *[blj]
nous câbl-ions 'we wire$_{imp}$'	[bli] / [blj]

Syneresis occurs less frequently after liquid [ʁ] and [l], and less frequently after voiced consonants in general.

(Klein, 1991, 1993; Lyche, 1979, on the basis of Martinet & Walter, 1973; Côté, 2018)

Regional variation

- Parisian French (Hansen, 2012)
  - Non-derived: Syneresis [mjɛt, mwɛt, mɥɛt], but some variation for [mwɛt, mɥɛt].
  - Derived: Syneresis [sje, ʁœlje], but some variation in initial syllable.

- Languedocien (Eychenne, 2009)
  - Non-derived: Inter-generational variation for [mjɛt] with syneresis observed in younger speakers, variation for [mwɛt], dieresis for [myɛt].
  - Derived: Dieresis [sije, epije], but inter-generational variation in word-medial syllable, with syneresis observed in younger speakers.

Regional variation

- Belgian French (Hambye & Simon, 2009, 2012)
  - Non-derived: Syneresis [mjɛt], dieresis [muɛt] but some variation. [y] not commented upon.
  - Derived: Dieresis in initial syllable [sije] but some variation. Syneresis in word-medial position [epje].
  - Authors' comment: Dieresis primarily observed in older speakers.

- Laurentian French (Côté, 2018)
  - Non-derived: Syneresis [mjɛt], variation for [mwɛt], dieresis [myɛt].
  - Derived: Dieresis [sije, ʁœlije] but some variation.

Swiss French in the Francophone landscape

"Only 11 of the 111 speakers in Henriette Walter's survey simultaneously illustrate 6 conservative/archaic features. […] the three Belgian speakers [...] and, with one exception, the four Swiss speakers."
(Pohl, 1986, p. 134, translation ours)

1. Preservation of 4 nasal vowels, including [œ̃]
2. Schwa absence
3. Length contrast in closed vowels in word-final position, [nu] vs. [nuː]
4. Length contrast in /a - ɑ/ in closed syllables, [pat] vs. [pɑːt]
5. Contrast /e - ɛ/, [pike] vs. [pikɛ]
6. Dieresis

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1. Preservation of 4 nasal vowels, including [œ̃] (Andreassen et al., 2010)
2. Schwa absence (Andreassen & Racine, 2016; Racine, 2008; Racine & Andreassen, 2012)
3. Length contrast in closed vowels in word-final position, [nu] – [nuː] (Racine & Andreassen, 2012)
4. Length contrast in /a - ɑ/ in closed syllables, [pat] - [pɑːt] (Racine & Andreassen, 2012)
5. Contrast /e - ɛ/, [pike] – [pikɛ] (Racine & Andreassen, 2012)
6. Dieresis

These recent studies show that not all characteristics are present in all areas of Romandy.

Swiss French: Regional characteristics

- Germanisms (from German or Swiss German)
- Dialecticisms (from Gallo-Romand)
- Archaisms (from Old Central French)
- Proper innovations

<u>Not one homogeneous variety</u>

- Regionalisms either located within a defined area of Romandy, or across Romandy and crossing the border to adjacent French regions.
- Archaisms also observed in peripheral parts of the francophone world.

(Where to place dieresis? As an archaic feature?)

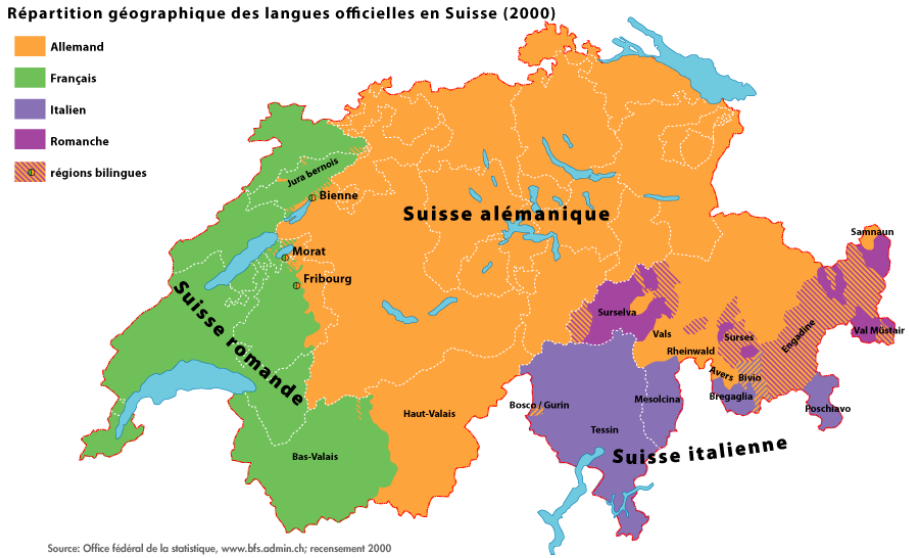


Photo: Wikipedia, Marco Zanoli

(Knecht, 1985; Kristol, 1979; Manno, 2004)

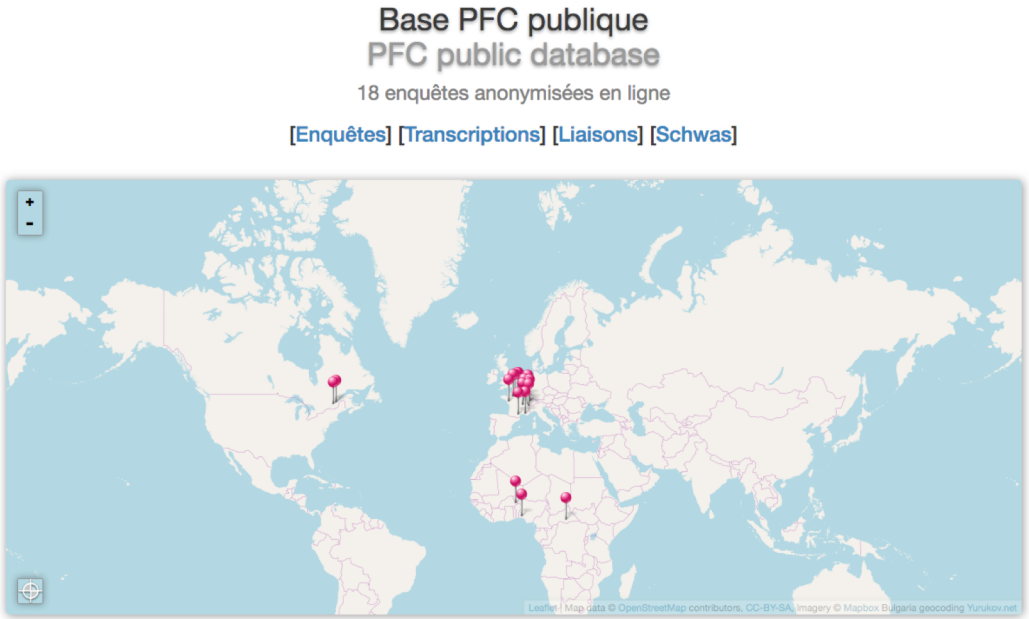
Glide distribution in Swiss French: Hypotheses

- Swiss French patterns with Belgian French → There is a higher degree of dieresis in Swiss French compared to Northern French (*"français septentrional"*).

- The strength of regionalisms may vary across Romandy → Given the proximity to France, Genève patterns more with Northern French than do speakers in more interior parts of the region.

Methods

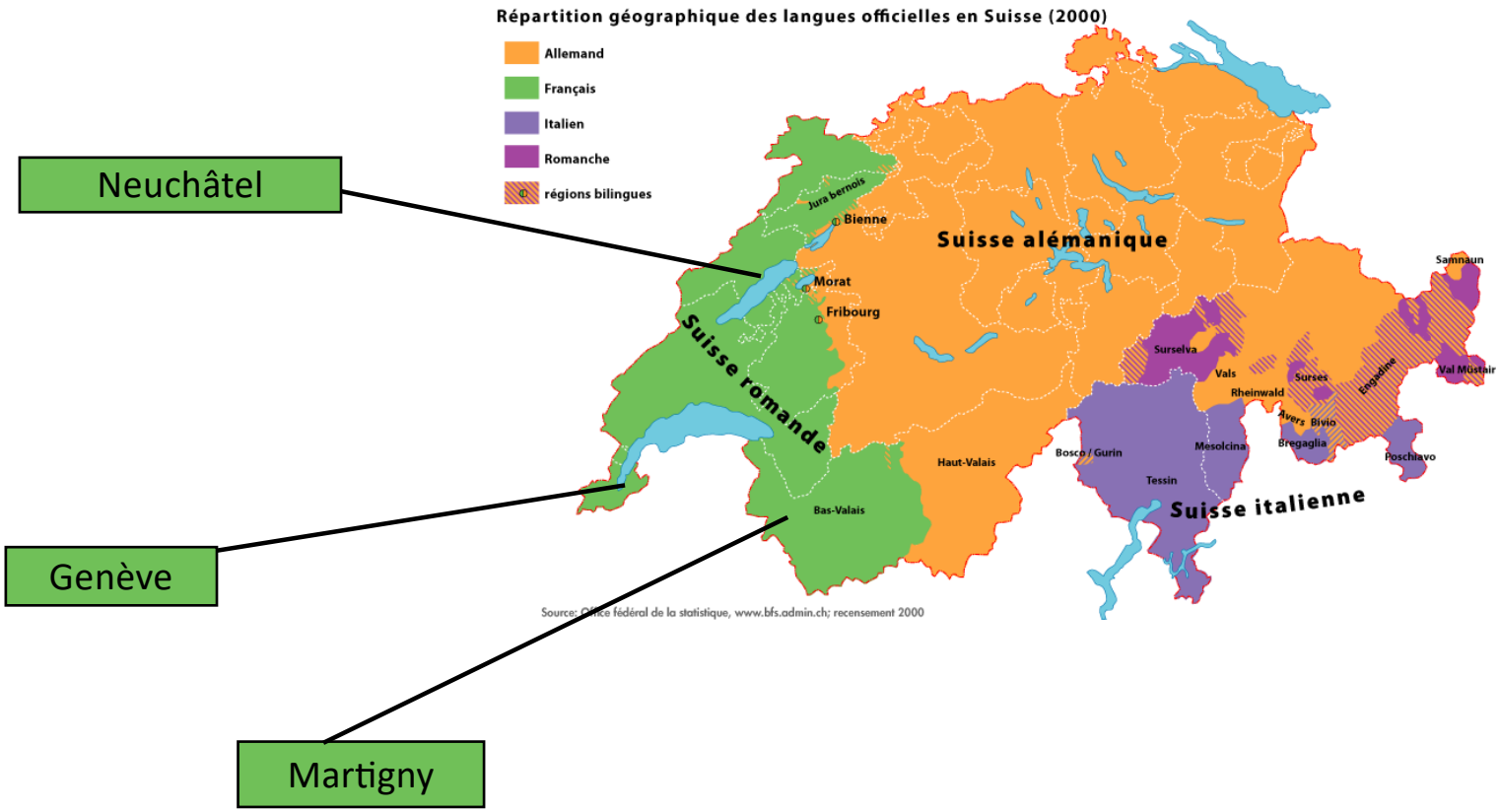
- Corpora collected using the interview protocol of the project *Phonologie du français contemporain* (Durand et al., 2002, 2009) and for Geneva, in a subproject supported by the research network *Alliance Campus Rhodanien* (https://campusrhodanien.unige-cofunds.ch/)
    - Wordlist
    - Text reading
    - Semiformal interview
    - Informal conversation



https://campusrhodanien.unige-cofunds.ch/projetsarchives/le-role-de-la-frontiere-franco-suisse-sur-la-prononciation-du-francais/

www.projet-pfc.net

Methods


Neuchâtel
Genève
Martigny
Répartition géographique des langues officielles en Suisse (2000)
Allemand
Français
Italien
Romanche
régions bilingues
Jura bernois
Bienne
Morat
Fribourg
Suisse romande
Suisse alémanique
Haut-Valais
Bas-Valais
Surselva
Vals
Rheinwald
Surses
Engadine
Samnaun
Val Müstair
Avers
Bivio
Bregaglia
Poschiavo
Bosco / Gurin
Mesolcina
Tessin
Suisse italienne
Source: Office fédéral de la statistique, www.bfs.admin.ch; recensement 2000

Methods

Investigation point	Number of informants	Year of recording	References
Neuchâtel	12	2009-2011	Racine (2011) Racine & Andreassen (2012)
Martigny	16	2011	Avanzi & Racine (not published) Andreassen et al. (2010)
Genève	13	2019	Racine, Côté, Prikhodkine, Chevrot & Matthey (2018, in progress)

Investigation point	Number of informants	Year of recording	References
Nantes (FR)	11	2005	Wauquier-Gravelines (2006)

Methods

- PFC wordlist
- Specific wordlists PFC Switzerland
  - 2011 (Martigny, Neuchâtel)
  - 2019 (Genève)

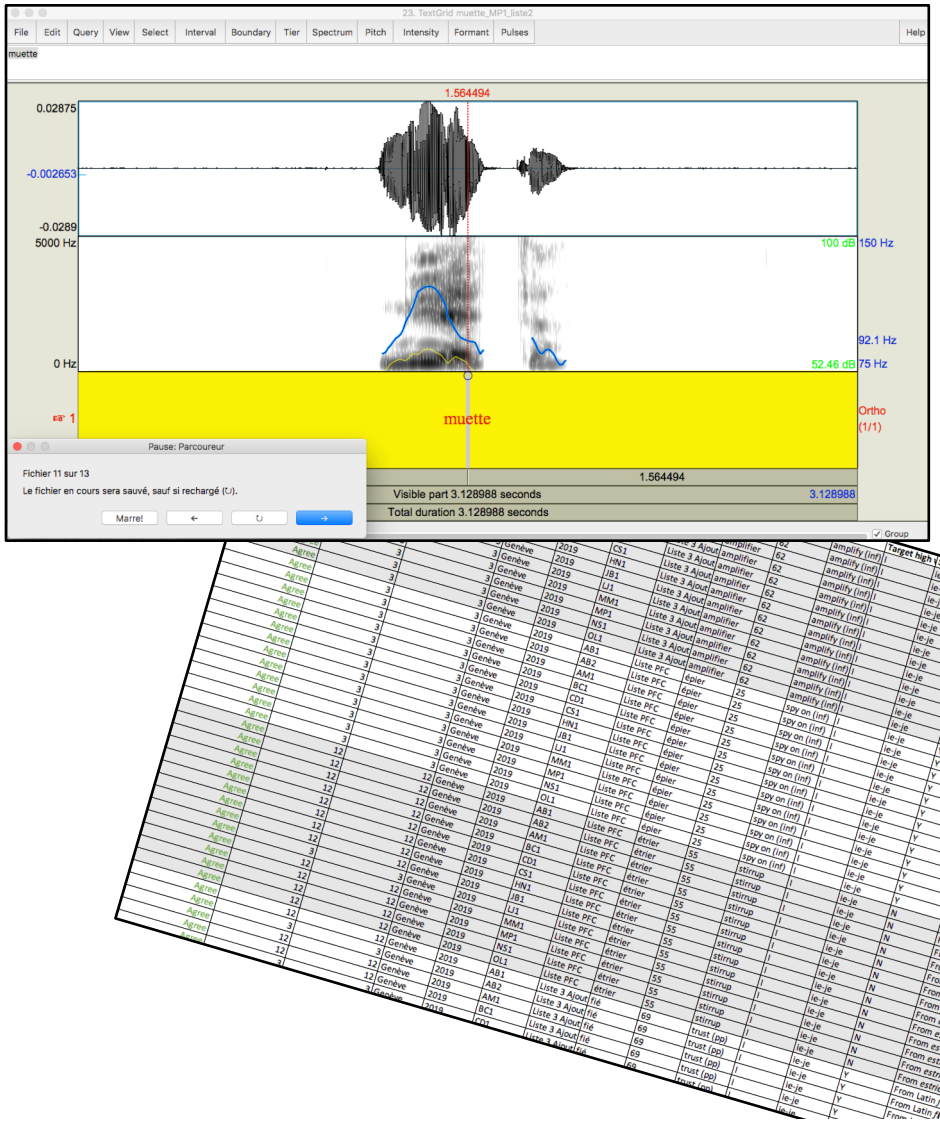
11 words x 28 SF informants (NE & MA) = 308 occurrences
19 words x 13 SF informants (GE) = 247 occurrences
9 words x 11 N. French informants (NA/FR) = 99 occurrences

Total number of occurrences = 654

	GE	MA	NE	NA/FR
amplifier	√			
épier	√	√	√	√
étrier	√	√	√	√
fier	√			
jouer	√			
manier	√			
méfier	√			
miette	√	√	√	√
mouette	√	√	√	√
muette	√	√	√	√
nier	√	√	√	√
nouer	√			
nuage	√	√	√	
nuée	√	√	√	
oublier	√			
relier	√	√	√	√
reliure	√	√	√	√
scier	√	√	√	√
suer	√			

Methods

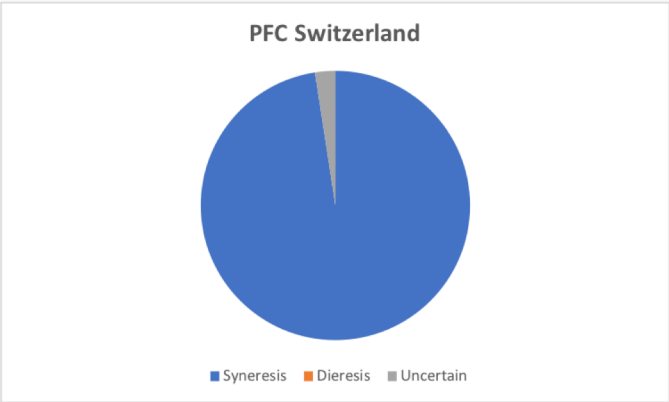
- Alignment text/sound & scripting in Praat (Boersma & Weenink, 2018).
- Auditory judgment and inspection of spectrogram if necessary.
  - Genève: 2 evaluators, 96,7% agreement.
  - Neuchâtel: 2 evaluators, 93,2% agreement.
- Coded for syneresis/dieresis, using the PFC coding system under development. Transitional glides not coded.
- Categorisation: Type of high segment, morphological complexity, left segmental context, position.

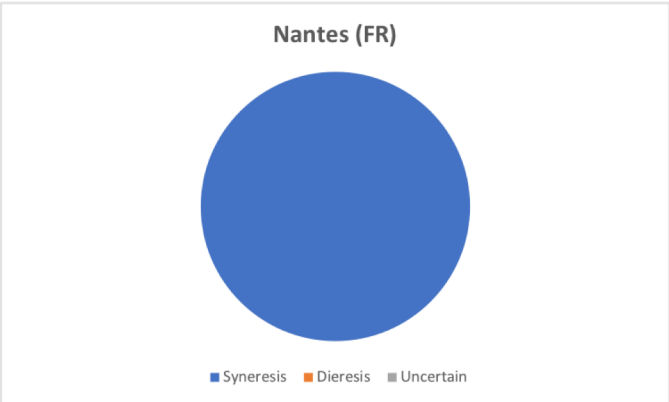


Non-derived context

miette – mouette – muette

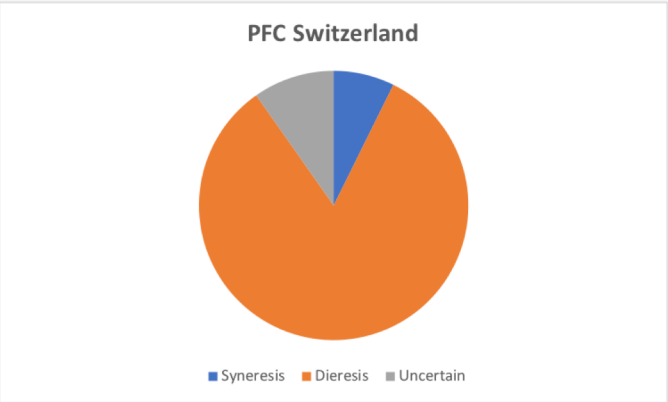
miette

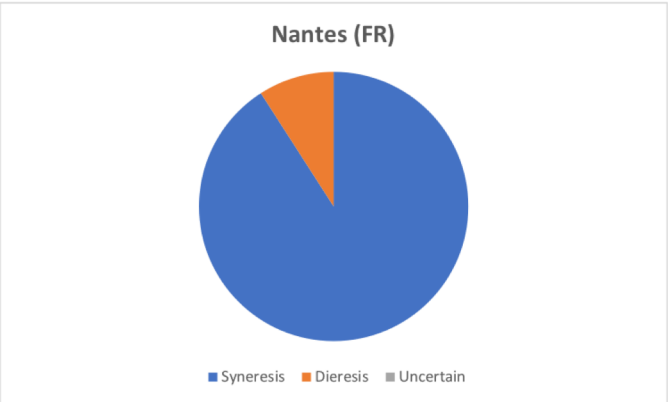




similarity

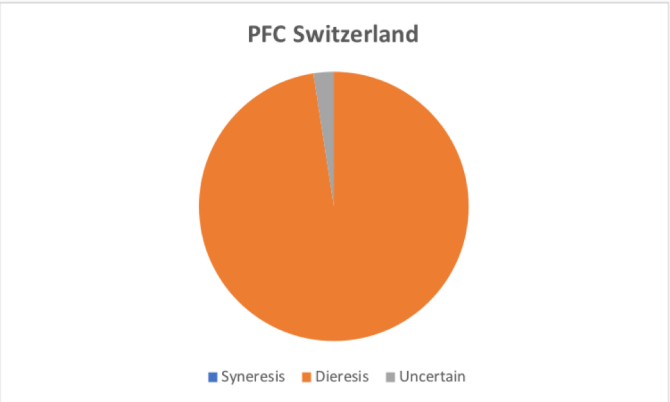
mouette

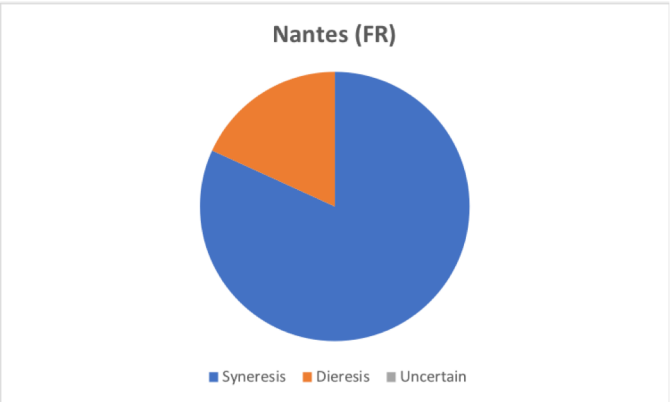




difference

muette





difference

Non-derived context: Summary

Hierarchy

i > u, y

Regional variation

/i/: Syneresis in Nantes and Switzerland (no variation)

/u, y/: Syneresis in Nantes, dieresis in Switzerland

Derived context

scier – jouer – suer

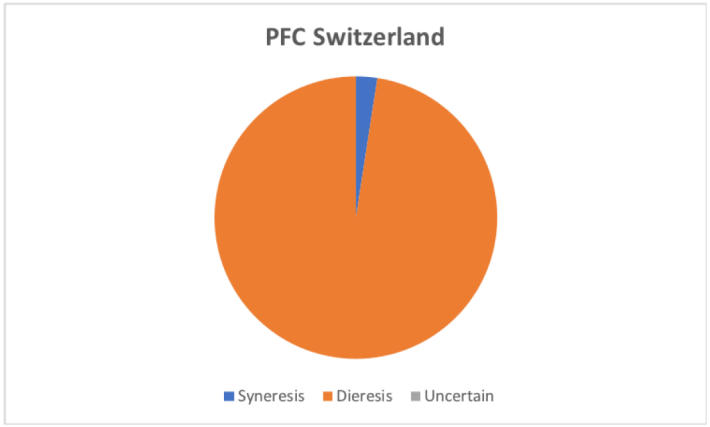
nier – nouer – nuée

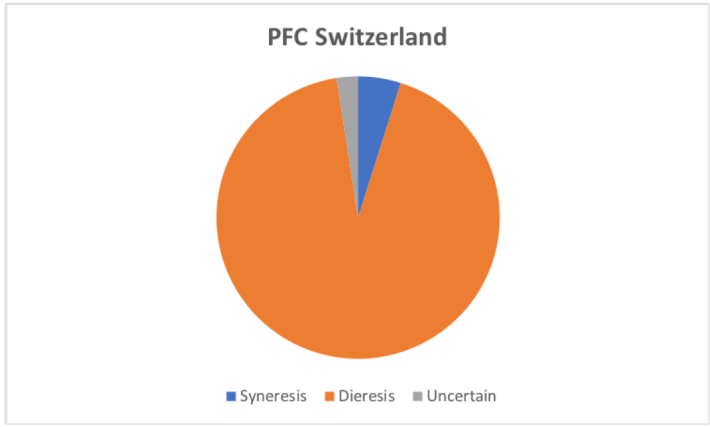
épier – méfier – manier – relier

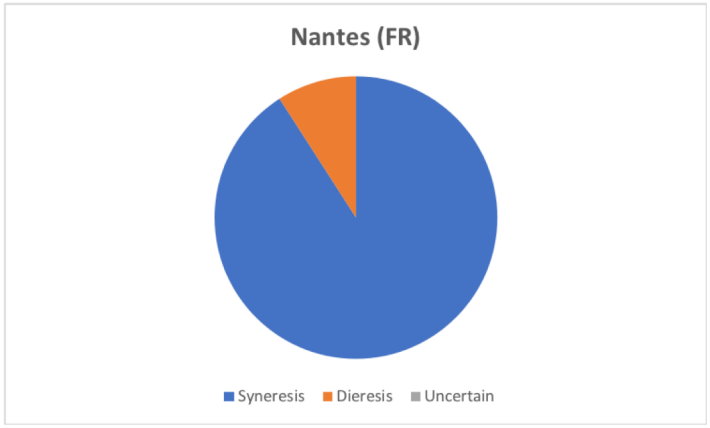
Initial syllable
/i/

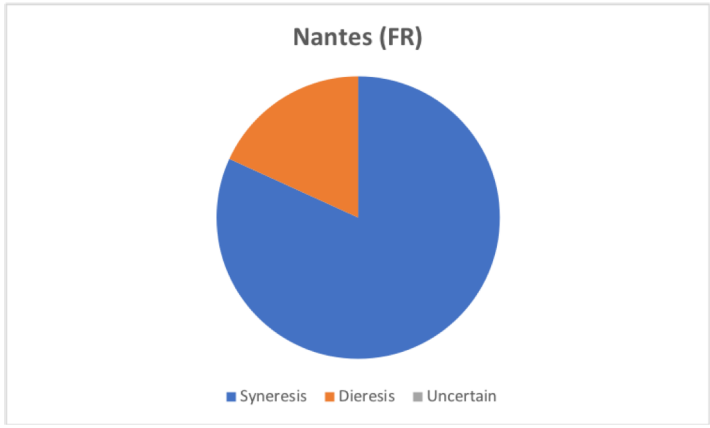
different behaviour
across regions

scier *nier*







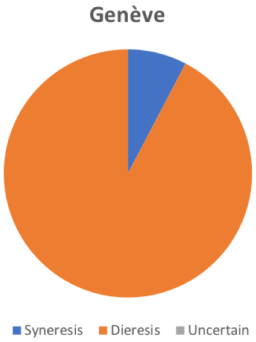


Initial syllable

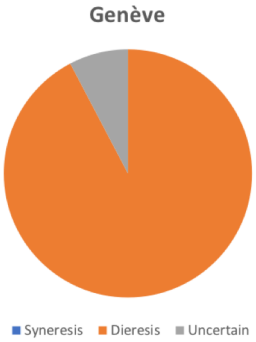
/i, u, y/ in Genève

similar behaviour for all vowels

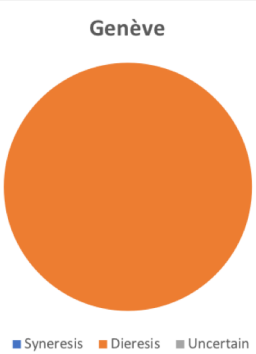
scier



nier

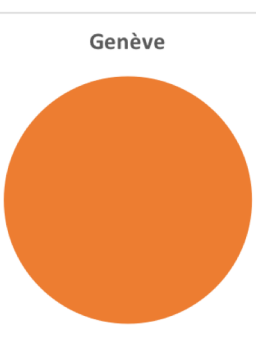


jouer

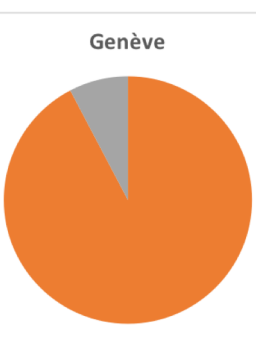


nouer

suer



nuée

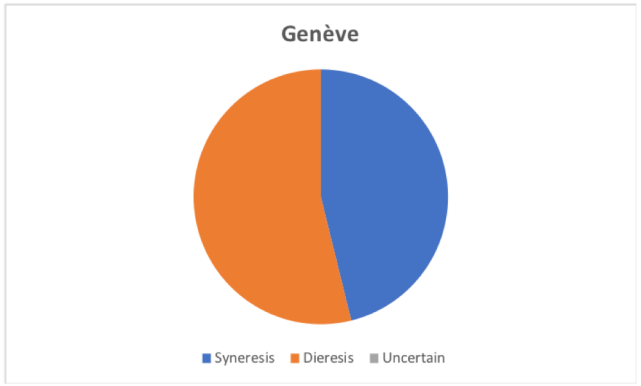


Different positions

/i/ in Genève

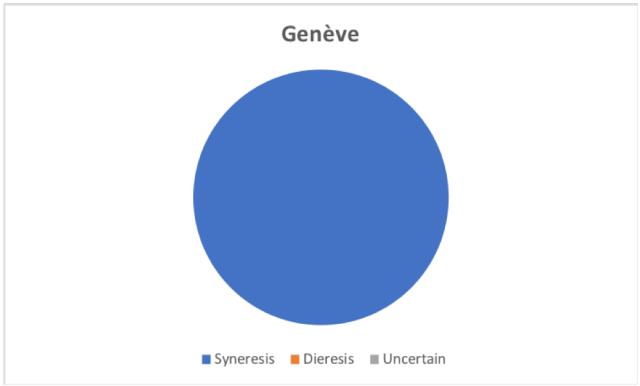
different behaviour in initial vs. non-initial syllable

fier



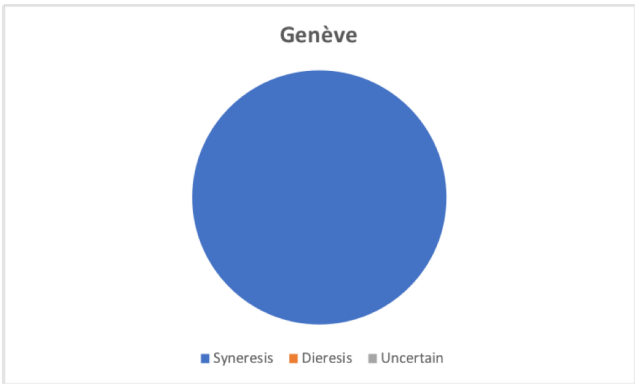
initial syllable

méfier



second syllable

amplifier



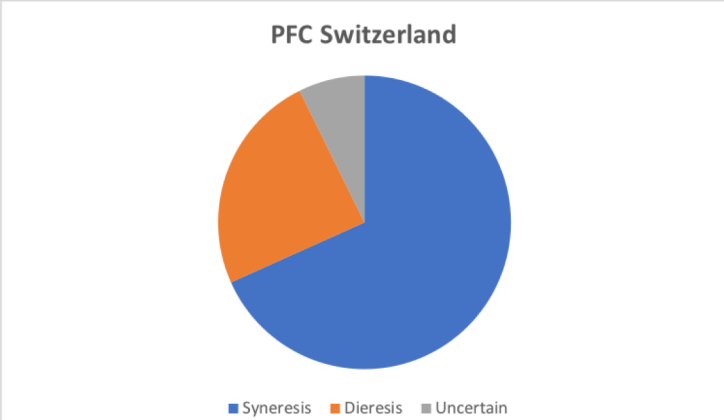
third syllable

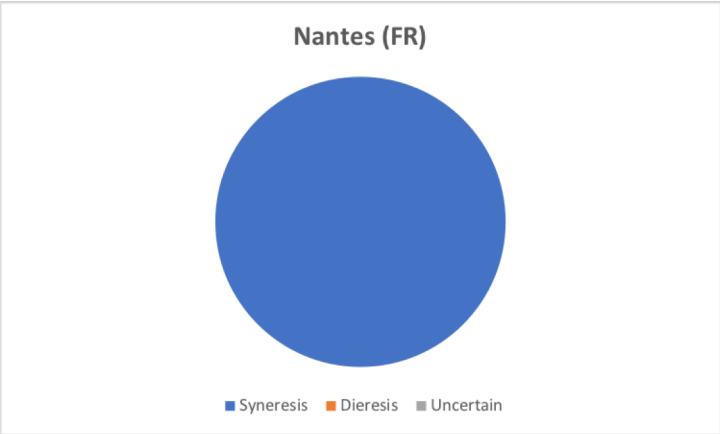
Medial syllable
/i/

different behaviour across regions

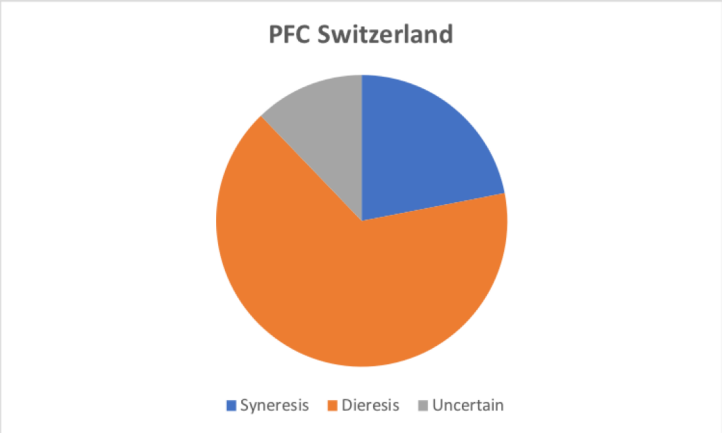
different behaviour across contexts particularly in Switzerland

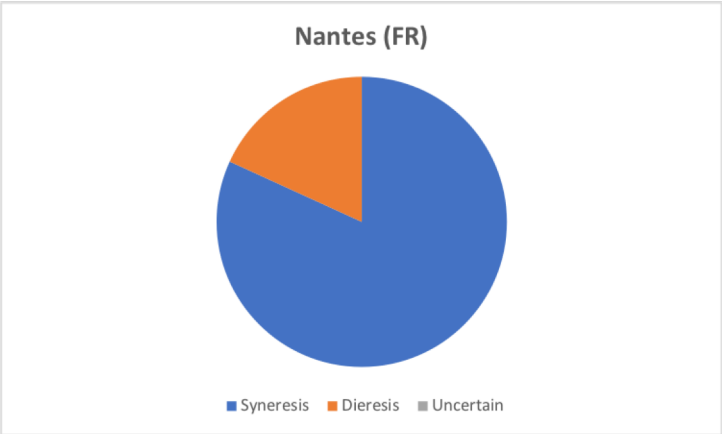
épier





relier



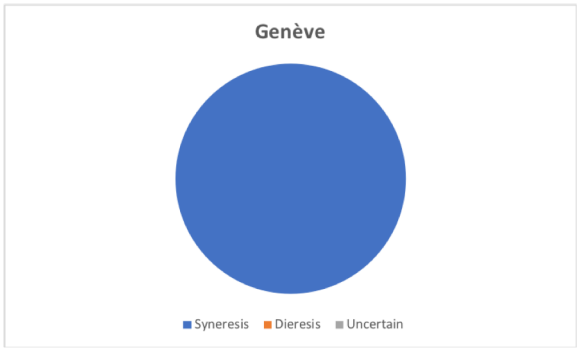


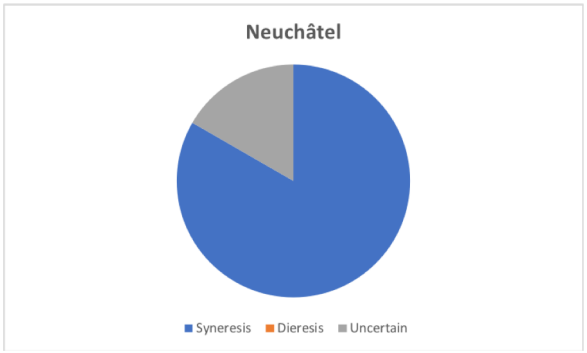
Medial syllable
/i/

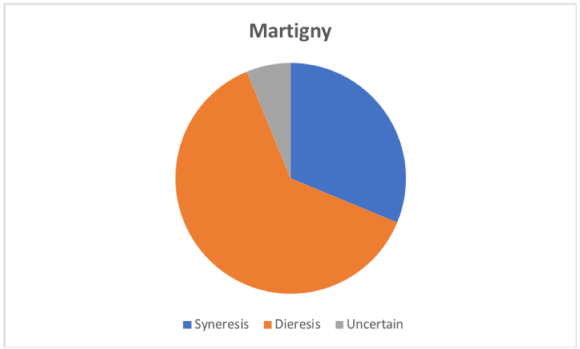
different behaviour across contexts in all Swiss regions

different behaviour across Swiss regions

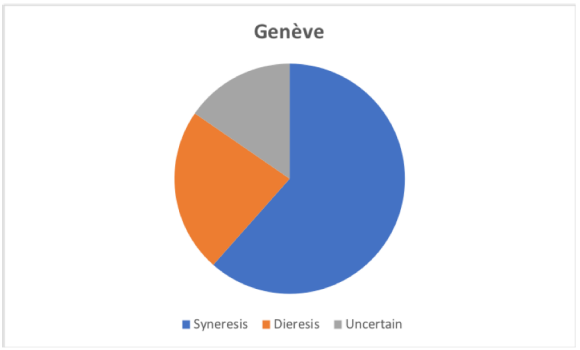
épier

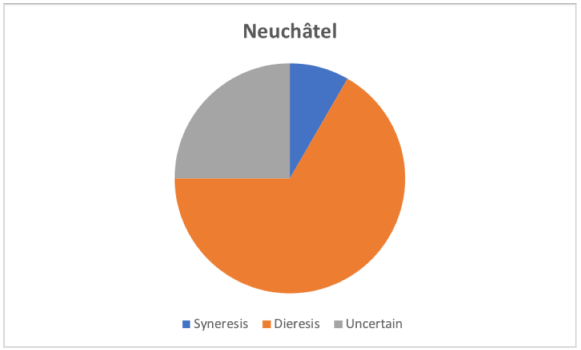


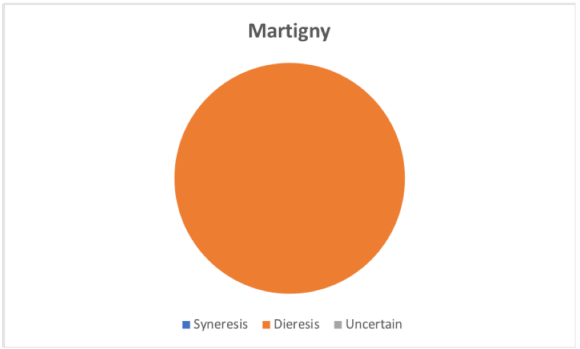




relier





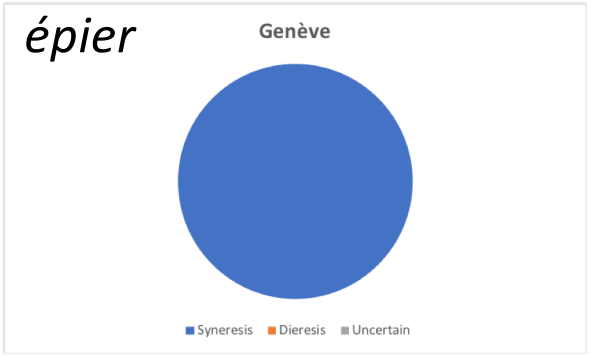


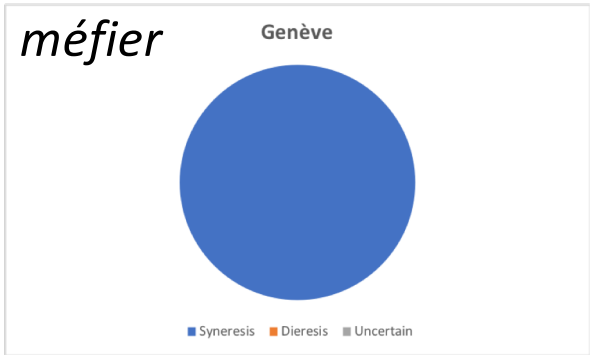
Medial syllable

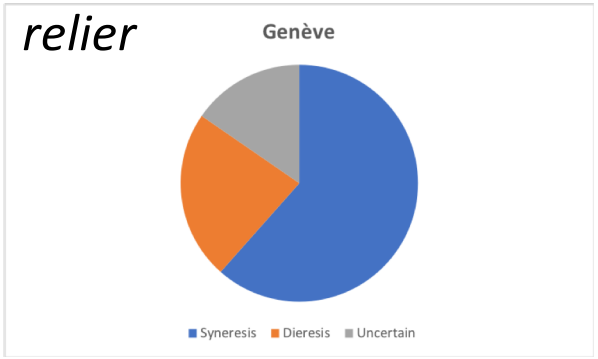
different segmental contexts in Genève

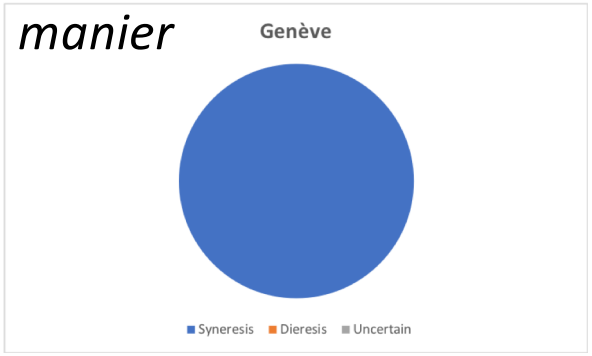
similar behaviour in a post-plosive, post-fricative, and post-nasal context

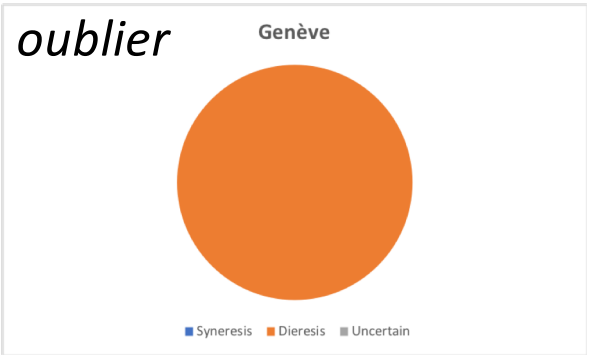
the post-liquid and the post-ObsLiq contexts form separate groups











Derived context: Summary

Hierarchy

i, u, y

(initial syllable: No vowel subject to syneresis in Genève)

Position

Medial syllable > initial syllable

(confirmed by Genève)

Left segmental context

Plosive > Liquid > ObsLiq

(fricative and nasal context also trigger syneresis in Genève)

Derived context: Summary

Regional variation

Initial syllable: Syneresis in Nantes, dieresis in Switzerland.

Medial syllable:

- Preference for syneresis in Nantes. Genève follows the same pattern.
- Neuchâtel: Syneresis after plosive, preference for dieresis after liquid.
- Martigny: Preference for dieresis after plosive, dieresis after liquid.

The hypotheses revisited

- Swiss French patterns with Belgian French → There is a higher degree of dieresis in Swiss French compared to Northern French.

  Yes.

- The strength of regionalisms vary across Romandy → Given the proximity to France, Genève patterns more with Northern French than do speakers in more interior parts of the region.

  Yes, but only for the word-medial syllable. Genève treats high vowels in the word-initial syllable in a similar fashion to the other Swiss French varieties.

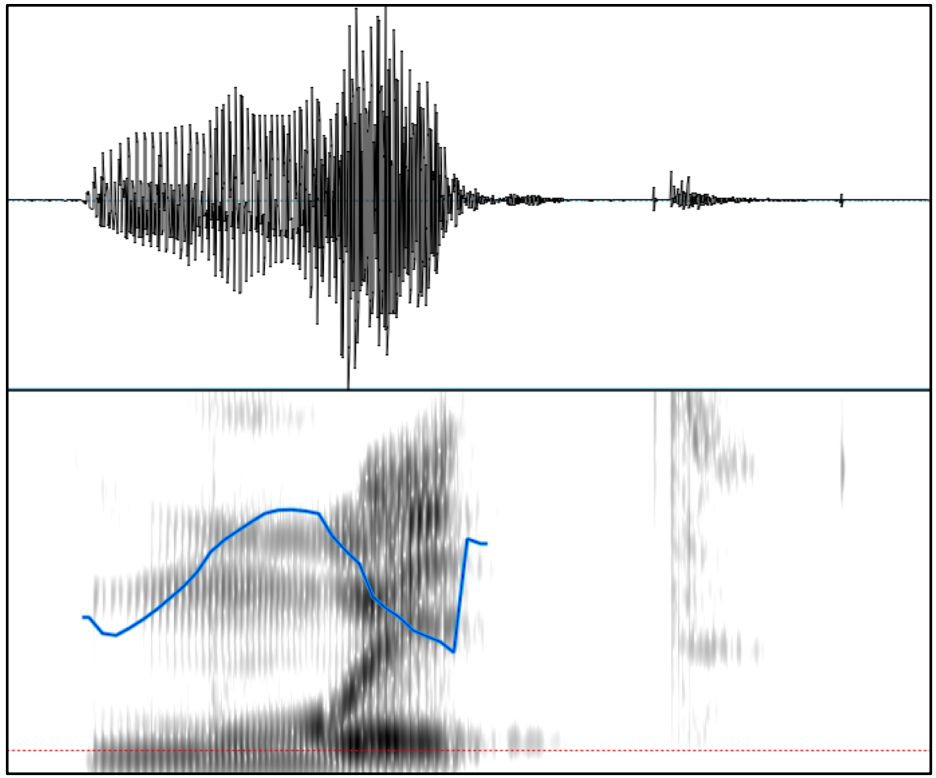
Discussion and future perspectives

Empirical approach: Put dieresis in Swiss French in a larger context

- Examine conversational data where the influence of orthography is minimised (cf. Kelly, 2015).

- Examine recent studies on Swiss French varieties in order to identify characteristics susceptible of influencing the usage of syneresis vs. dieresis.

    - Articulation speed (Schwab & Racine, 2012)
    - Accentual system and non-final syllable prominence (Avanzi et al., 2012; Sertling Miller, 2007)



mouette

judged as two syllables
non-final rise

Discussion and future perspectives

Empirical approach: Put dieresis in Swiss French in a larger context

- Examine conversational data where the influence of orthography is minimised (cf. Kelly, 2015).

- Examine recent studies on Swiss French varieties in order to identify characteristics susceptible of influencing the usage of syneresis vs. dieresis.

    - Articulation speed (Schwab & Racine, 2012)
    - Accentual system and non-final syllable prominence (Avanzi et al., 2012, Sertling Miller, 2007)

- Add data from the French region neighbouring Genève (Racine et al., 2018).
- Compare with PFC data from varieties where dieresis is attested, e.g. Midi French, Belgian French, Laurentian French.

Discussion and future perspectives

Diatopic and diastratic approach: Identify the distribution of syneresis in Romandy

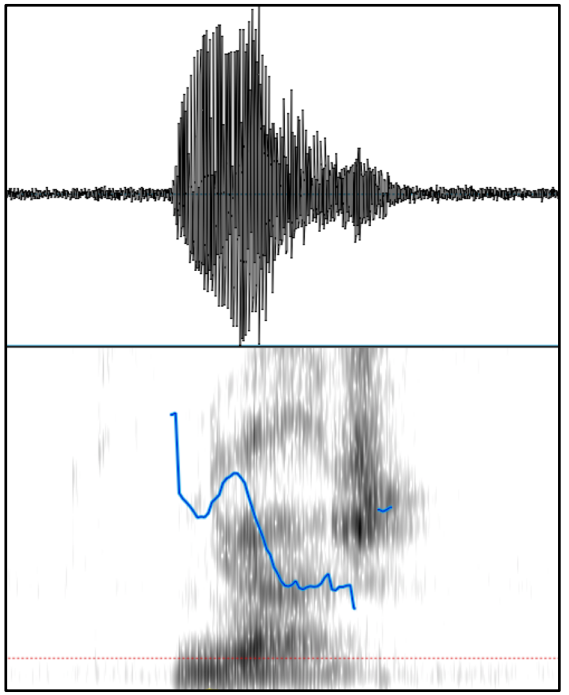
- Apply the extended PFC protocol on speakers from other areas than Genève, in order to reveal more solid tendencies.
    - The effect of sonority
    - The effect of syllable number
    - The effect of segmental context
- Examine whether syneresis is more frequent among young people, which could indicate an ongoing change (cf. observations in Midi French and Belgian French).

Discussion and future perspectives

Methodological approach: Strengthen and facilitate evaluation

nuage

judged as one syllable
non-final rise



Discussion and future perspectives

Methodological approach: Strengthen and facilitate evaluation

- On the basis of the Swiss PFC data, create a judgment task to be undertaken by native Swiss French speakers (cf. Kelly, 2015).
- Establish, on the basis of the judgment task, the acoustic characteristics that distinguish cases of syneresis and dieresis (cf. Kelly, 2015).

- Develop a coding system that permits extraction of tendencies from large datasets.

Discussion and future perspectives

Theoretical approach: Test existing analyses on Swiss French data

- “Traditional” aspects to look at:
  - Syllabification (onset, complex nucleus, epenthesis vs. hiatus)
  - Faithfulness and the role of morphology

- Classical derivational analysis: Schane (1968), Morin (1971), Dell (1972)
- Syllabic analysis: Kaye & Lowenstamm (1984), Klein (1991)
- OT analysis: Durand & Lyche (1999), Bullock (2002), Hall (2006)

Discussion and future perspectives

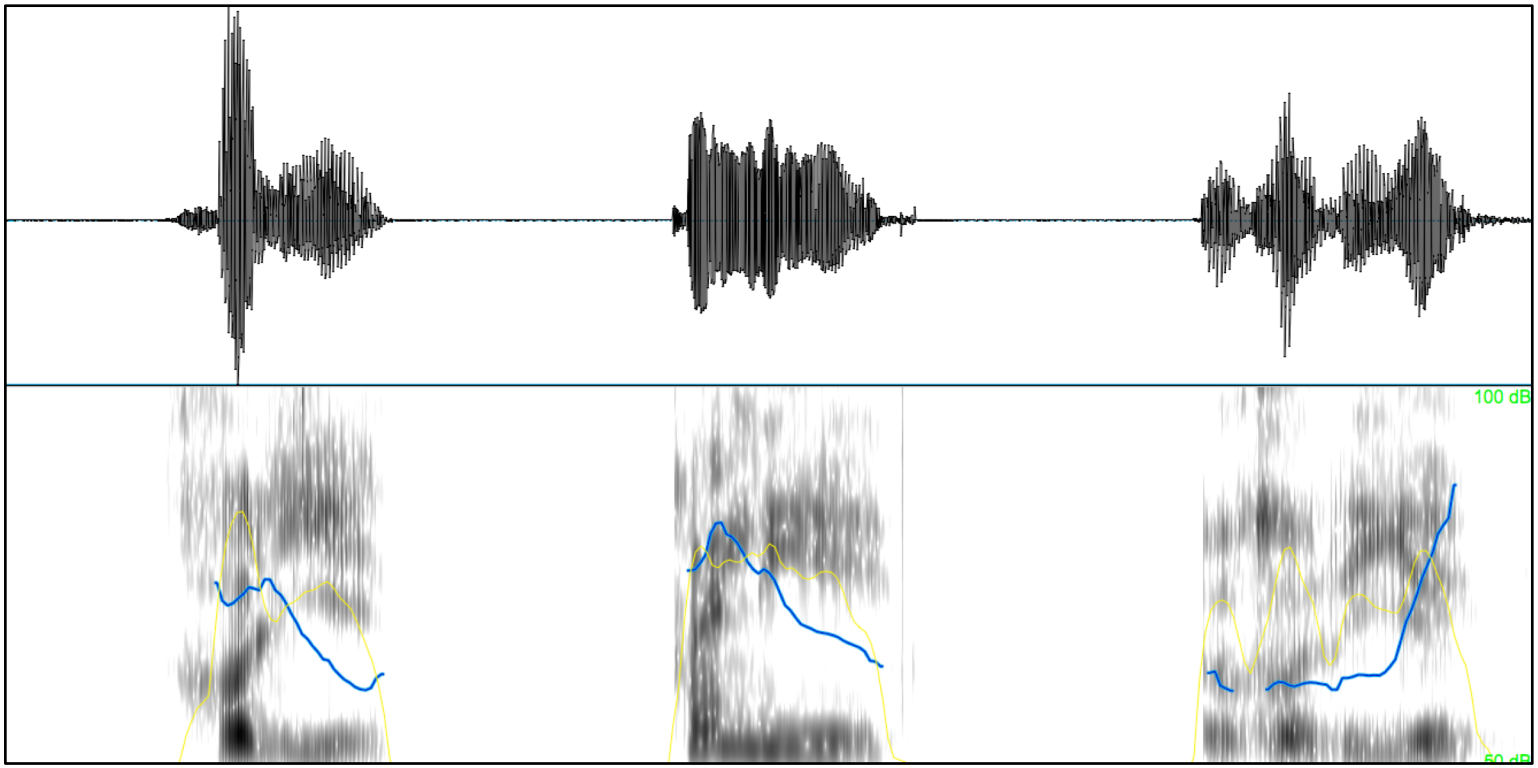
Theoretical approach: Test existing analyses on Swiss French data

- Phonetic reduction: Côté (2018)
  - Syneresis depends on the segmental context, number of syllables, articulation speed, frequency, i.e. factors that typically trigger reduction (cf. also French schwa).

- **Perhaps not a binary pattern, but a continuum between dieresis and syneresis, with gradual reduction towards syneresis and syllable deletion.**

relier

continuum, from clear syneresis to clear dieresis, with one instance judged as somewhere in between



Conclusion

- The dataset confirms that dieresis is strongly present in the Swiss French varieties.
- It also indicates a certain inter-variety variation.
- Only a deeper and broader examination of data can uncover the detailed distribution.

Conclusion

- The dataset confirms that dieresis is strongly present in the Swiss French varieties.
- It also indicates a certain inter-variety variation.
- Only a deeper and broader examination of data can uncover the detailed distribution.
- Once the distribution is identified, the data can serve as testing ground for the various theoretical approaches, and contribute to answering the following questions:
    - What is the nature of the glides?
    - What is their relationship with the high vowels?
    - What is the role of prosody?
    - What is the nature of the inter- and intra-speaker variation?

Interaction between syllable structure and segmental properties: The case of glide distribution in Swiss French

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Segmental Processes in Interaction with Prosodic Structure (SPIPS)

Tromsø, 19-20 September 2019

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