The foot strikes back: a new defense of headedness and constituency in phonology

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Note:
the title of this talk is basically stolen

Marc van Oostendorp

σ strikes back: A defense of headedness and constituency in phonology

Abstract: Several phonologists have argued in recent years against constituent structure in phonology with a variety of arguments, claiming instead that all phonological relations are linear. Restricting itself to syllable structure, this paper claims, first, that the linearists necessarily disregard the conceptual evidence which we have in favour of constituency and headedness in phonology. Further it shows that the primary empirical pieces of evidence in favour of linearism are not valid, and that several other empirical arguments can be adduced against it. Finally, it is argued that by taking the linearist arguments seriously before rejecting them, we have improved our understanding of the nature of the syllable.

What are feet?

"The smallest constituent in metrical structure is the foot. I present three commonly encountered foot types: the moraic trochee, the syllabic trochee, and the iamb, and argue that this small inventory suffices as a complete inventory of bounded feet, accounting for widespread asymmetries in the typology of bounded stress assignment."

Hayes (1995, p.2)

- Feet are binary constituents, assumption implies the existence of some prosodic hierarchy

Do we need feet? Alternative 1: local prominence

- van der Hulst (various): grid marks
- Scheer and Szigetvári (2005): projection of nuclei
- Dubina (2012): stress = lexical H
- Spahr (2016): unspecified tonal node
- Some challenges for approaches that keeps stress strictly local:
  - How to incorporate weight sensitivity without stipulating it?
  - How to incorporate the notion of binarity?

Do we need feet? Alternative 2: local prominence + ‘neighborhood effects’

- Incorporation Theory (work by Faust, Ulfsbjorninn): grid marks (local prominence) plus incorporating grid marks from adjacent empty nuclei (derives weight sensitivity)
- Successful implementation for a variety of stress systems (from Arabic to Italian and more)

How I envision incorporation

Adapted from Faust & Ulfsbjorninn (2024)

(6) Incorporation in a CVCC sequence [pɔ́rko] ‘swine’

L3								*α					
L2		*				*		*					*
L1		*		*α		*	→	*					*
	C	V	C	V	C	V		C	V	C	V	C	V
	|	|	|		|	|		|	|	|		|	|
	p	ɔ	r		k	o		p	ɔ	r		k	o

Do we still need feet?

- Are there phenomena that suggest reference to actual word-level domains (call them bimoraic and/or disyllabic) that cannot be straightforwardly reduced to stress + stress clash effects (like rhythm)?
  - If no, who would miss feet?
  - If yes, feet might be useful after all
- But: how do we identify potential candidates?
- My claim: looking beyond stress (local prominence) can be useful
- One example: tonal accent (though there are others, such as tone sandhi in certain Chinese languages; e.g., Duanmu 1995, Zhu 2023)

Disclaimer

- I am not claiming that the issues I'll be discussing will be impossible to address in competing non-foot frameworks
- But…
- I am arguing that an honest engagement with the patterns in question is desirable for any comprehensive theory of word-level prominence, either by
  - Showing how these patterns can be incorporated into non-foot approaches OR
  - Arguing that said patterns are not within the scope of metrical theory (without cherry-picking certain aspects of it and disregarding others)

What I am claiming about feet based on evidence from accentual systems

- Prosodic systems can have more than one foot type
- Reflected in interactions of foot structure with...
  - Tones
  - Vowels
  - Consonants
- *All* relevant interactions can go in both directions, *including* consonants
  - Top-down: foot structure → tones, vowels, consonants
  - Bottom-up: tones, vowels, consonants → foot structure
- Bottom line: feet are useful

Re: more than one foot type

- Two related assumptions in ‘mainstream’ prosodic typology (e.g. Hyman 2006, 2009):
  - 1. ‘Stress’ cannot be contrastive below the level of the syllable
  - 2. Tonal contrasts within syllables must be attributed to lexical tone
- My view: certain privative tonal contrasts within stressed syllables (= tonal accent) should be attributed to two types of feet, rather than to lexical tone
- Growing amount of relevant work, mostly on ‘tonal accent’ (Iosad, Morén-Duóllja, Bye, Morrison, Kehrein, Hermans, Van Oostendorp, etc.)
- My focus: West Germanic tonal accent (aka Franconian), with reference to other relevant phenomena

Re: consonants influencing foot structure

- General insights from the literature (e.g., Honeybone 2008, 2012, Katz 2016 for overview):
  - Preference for ‘strong’ consonants at prosodic boundaries
  - Preference for ‘weak’ consonants in foot-medial position
- Franconian evidence: Voicing of word-medial C influences foot structure = ‘bottom-up process’ (not lenition), counter to traditional assumptions; see, e.g., Blumenfeld (2006), Rasin (2016)
- Unites foot-consonant interactions with tones and vowels: all can be bidirectional

Outline

- Background of Franconian Tone Accent (TA)
- Background on Word-prosodic Typology
- Interactions of feet, tones, and consonants in Franconian (and elsewhere)
- Why not lexical tone or grid marks?
- Conclusion

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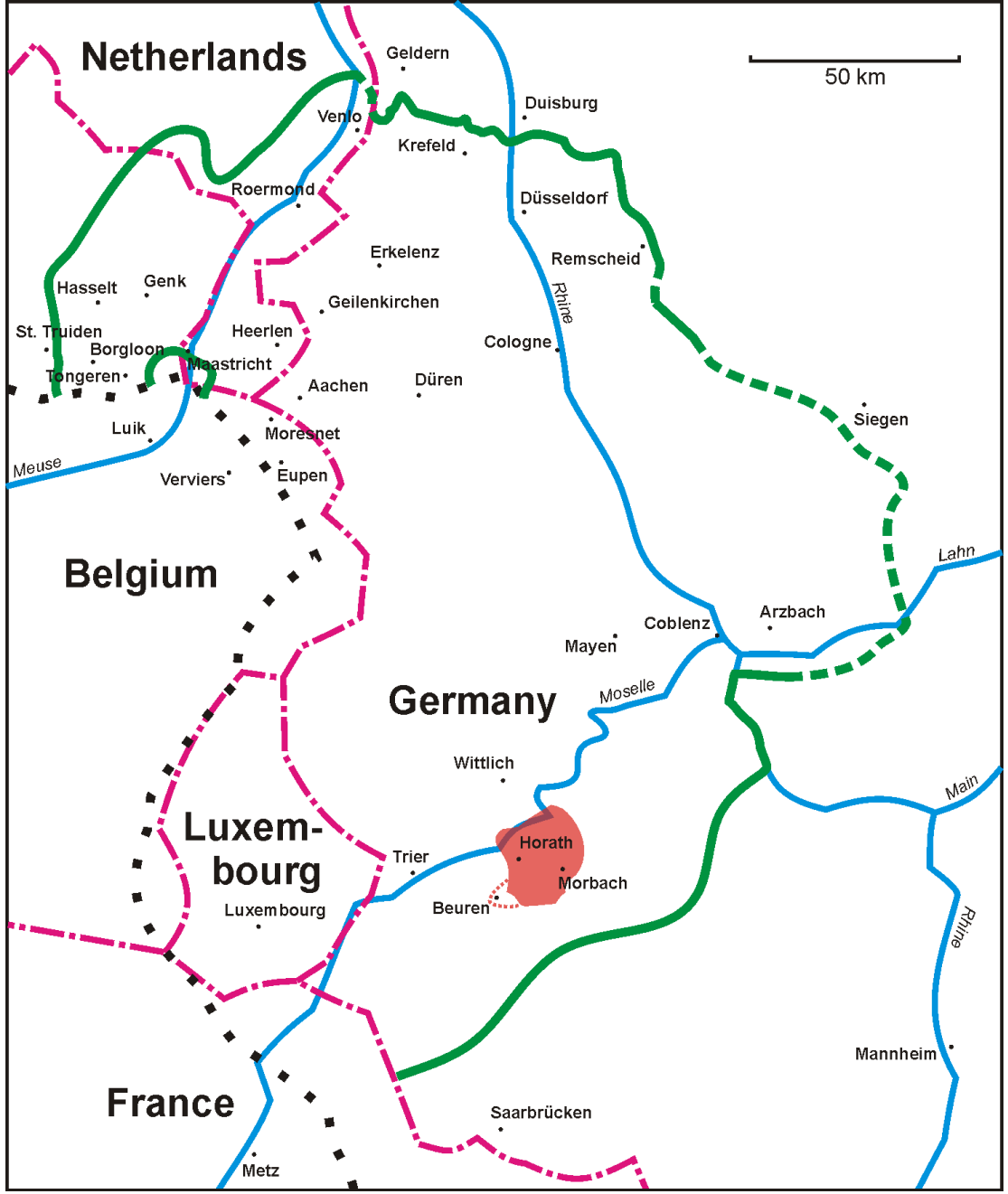
Background – Phonology of Franconian TA

- Two phonologically-contrastive tone accents in certain varieties of Franconian
- Typically restricted to heavy syllables with two sonorant moras
- Distinguish lexical items (examples from Arzbach Franconian)
  - [man^{1}] ‘basket’ vs. [man^{2}] ‘man’
- Distinguish morphologically related forms
  - [ʃtain^{1}] ‘stone-pl.’ vs. [ʃtain^{2}] ‘stone-sg.’

Franconian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Meuse
Verviers
Eupen
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bourg
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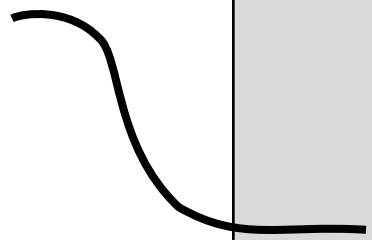
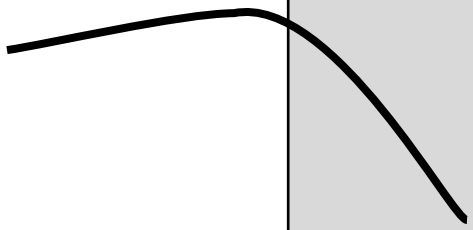
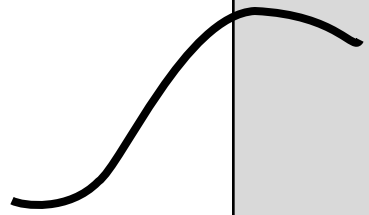
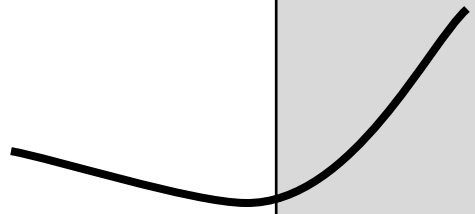
Trier
Morbach
Luxembourg
Beuren
Rhine
Mannheim
France
Saarbrücken
Metz

Background – Tonal Contours

Grey-shaded = post-tonic

	Cologne (Peters 2006)			
	Accent 1		Accent 2	
	σ	σ	σ	σ
Declarative				
Interrogative				

Other Correlates (more later)

Often, other effects accompany the tonal opposition

- Durational differences
- Vowel quality and quantity
- Consonant quality and quantity

Outline

- Background of Franconian Tone Accent (TA)
- Background on Word-prosodic Typology
- Interactions of feet, tones, and consonants in Franconian (and elsewhere)
- Related phenomena
- Why not lexical tone or grid marks?
- Conclusion

A debate in prosodic typology: The nature of word-prosodic representations

- One of the most controversially debated topics in phonological typology
- Word-prosodic typology often divides word-prosodic systems into two prototypes
  - Stress systems (e.g., English)
  - Tone systems (e.g., Thai)
- Several languages combine elements of both stress and lexically contrastive tone

The problem with tone accent systems

Tone accent systems seem to be located ‘somewhere between stress and tone’

Sometimes regarded as a subgroup of ‘pitch accent systems’

Oppositions between two word accents

Tone: the accents are (typically) primarily distinguished via their tonal melodies

Stress: the tonal contrast is restricted to stressed syllables – no tone without stress

The crucial question

Do such ‘intermediate systems’ have both word stress *and* lexical tone?

or…

Do the metrical representations of the accents differ, which influences the distribution of intonational tone?

Two traditional positions in the debate

"Mainstream": Hyman (2006, 2009, 2011)

- Stress is a property of syllables
  - → No effects of stress below the syllable level
  - → Tone accent contrasts must involve lexical tone

Traditional analysis of tonal accent

- For Franconian, e.g. Gussenhoven (2000, 2004, 2013), Peters (2006)

Two traditional positions in the debate

Alternative view: Van der Hulst (2011, 2012, 2014)

- Units below the syllable (moras) can carry accentual prominence
- Moras can be marked with diacritic accents / grid marks that indicate the location of prominence
- This prominence is usually realized as tone / pitch

A third view: foot-based opposition

- Both traditional approaches focus on the tonal correlates of accent but have trouble capturing other correlates (e.g. durational, segmental, distributional factors)
- Claim: We need a model that incorporates prosodic boundaries (foot boundaries), unlike van der Hulst's accent marks
- Term: 'Contrastive metrical structure' (e.g., Iosad 2016, Köhnlein 2016)
- Main claim: Tonal accent and related phenomena can emerge from different types of metrical feet

Some context

The general view that tonal accent is due to contrastive metrical structure is shared by some (though the details may differ)

- For Franconian, see e.g. Hermans (2012), Kehrein (2017), Van Oostendorp (2017), my work, Köhnlein & Cameron (2024)
- For North Germanic, see Morén (2005, 2007), Morén-Duolljá (2013), Iosad (2016)
- For Scottish-Gaelic, see Iosad (2013), Morrison (2019)
- For Attic Greek, see Kager & Martínez-Paricio (2014)
- For Uspanteko, see Köhnlein (2018), Köhnlein & Zhu (2019)

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Bottom-Up Interactions with consonant quality (Köhnlein & Cameron 2024)

Some Franconian dialects show synchronic interactions of accent and the voicing quality of word-medial consonants:

1. Disyllabic words with medial voiced (lenis) consonants always receive Accent 1.

Examples: Always [iː^{1}zən] ‘iron’, [drøː^{1}mən] 'to dream'

2. Disyllabic words with medial voiceless (fortis) consonants typically receive Accent 2, but may also receive Accent 1.

Examples: Typically [riː^{2}sən] ‘to tear’, but also sometimes [tøː^{1}pən] ‘tip-toeing’

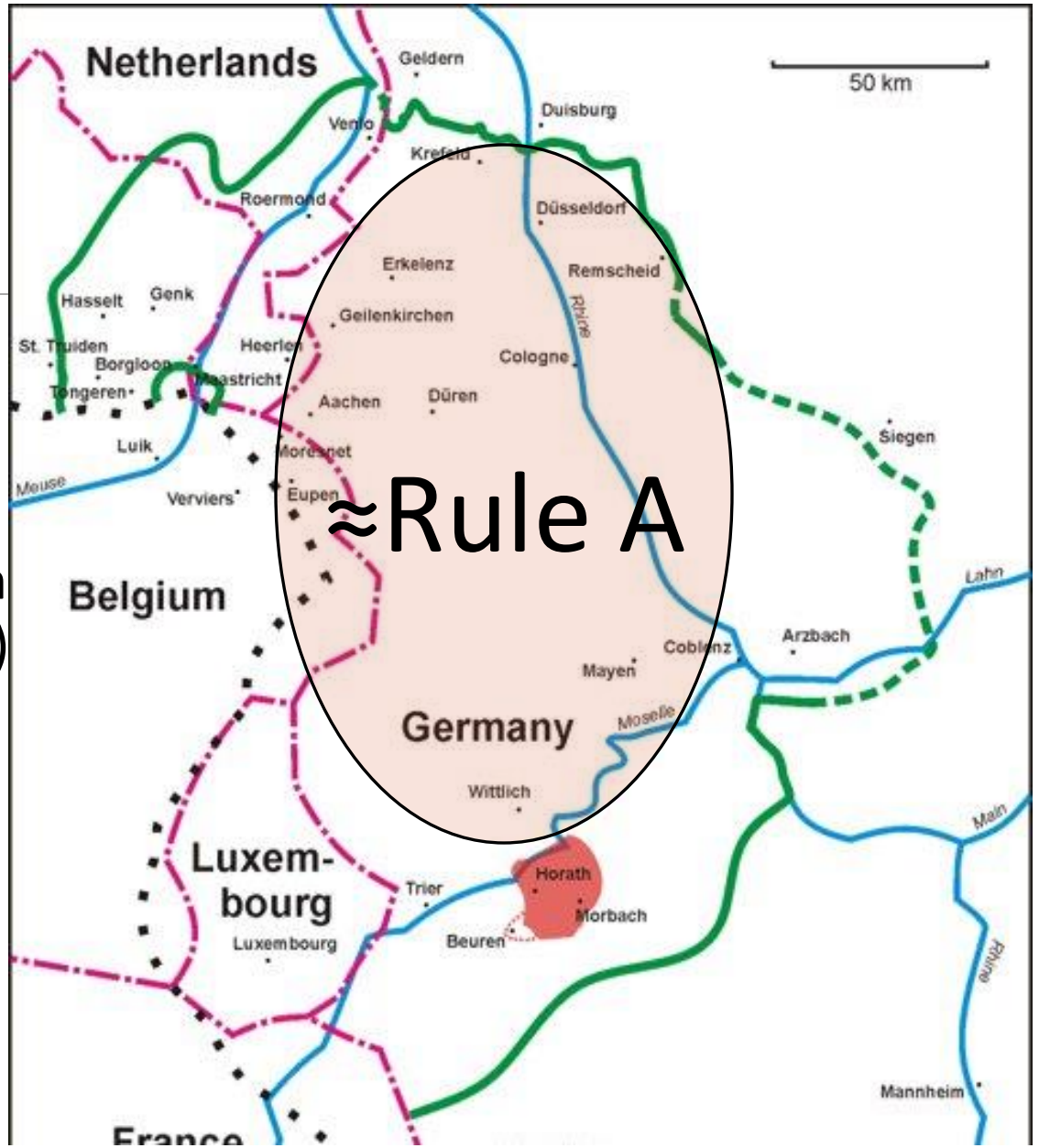
Data

- *Consonant Voicing* → *Tonal Accent in disyllables* diachronically established for a large dialect area (so-called Rule A)

  E.g. Bach (1921), Schmidt (2002), Köhnlein (2013, 2015), Boersma (2019)

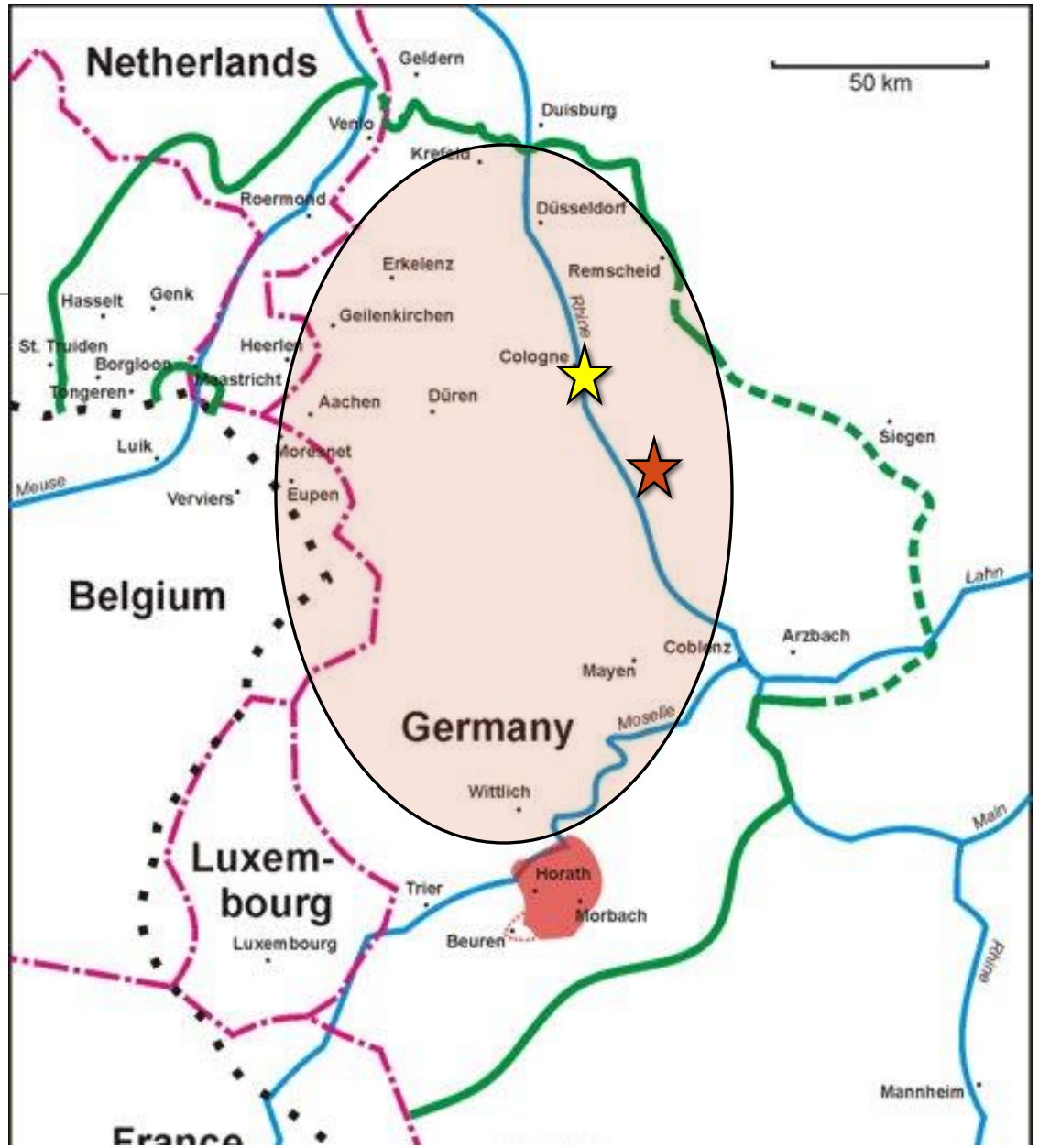
- Still present in some dialects

- (Synchronically opaque in other dialects due to additional sound changes)



Data

- Disyllabic words from two grammars
  - Müller (1900) - Aegidienberg
  - Münch (1904) - Cologne
- *Consonant Voicing* → *Tonal Accent* stated explicitly by both Müller (1900: §3) and Münch (1904: §20, 21)
- Some morphologically conditioned exceptions in past participles and adjectival paradigms
- A few possible (?) true lexical exceptions in Cologne, none recorded for Aegidienberg



Data – Cologne as an example

Voiced Consonants: Accent 1

[oː^{1}ɣə] ‘eye’

[lɔː^{1}ɣə] ‘sites’

[luː^{1}zə] ‘to delouse’

[freː^{1}zə] ‘to freeze’

Voiceless Consonants: Accent 2

[striː^{2}fə] ‘stripes’

[loː^{2}fə] ‘to run'

[riː^{2}sə] ‘to tear’

[ʃliː^{2}sə] ‘to split’

But sometimes also…

[ʃloː^{1}fə] ‘to sleep’

Data – Aegidienberg as an example

Voiced Consonants: Accent 1

[iː^{1}zən] 'iron'

[ʃuː^{1}vən] 'shove'

[jaː^{1}ɣən] 'to hunt'

[vɔː^{1}dər] 'words'

Voiceless Consonants: Accent 2

[riː^{2}sən] 'to tear'

[ʃuː^{2}fəl] 'shovel'

[klaː^{2}fən] 'to gossip'

[laː^{2}xən] 'to laugh'

But sometimes also…

[tøː^{1}pən] 'tip-toeing'

Data – Words with word-medial sonorants always have Accent 1

Accent 1 Cologne

[leː^{1}jə] 'to lie, tell a falsehood'

[drøː^{1}mə] 'to dream'

[meː^{1}nə] 'to mean’

[knaː^{1}lə] 'to bang, crack'

Accent 1 Aegidienberg

[leː^{1}jən] 'to lay'

[drøː^{1}mən] 'to dream'

[lyː^{1}nən] 'to pay'

[fyː^{1}rən] 'to lead'

Generalizations – Restated

1. Disyllabic words with medial voiced (lenis) consonants always receive Accent 1.

Always [iː^{1}zən] ‘iron’

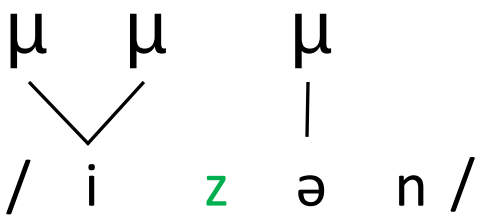
2. Disyllabic words with medial voiceless (fortis) consonants typically receive Accent 2, but may also receive Accent 1.

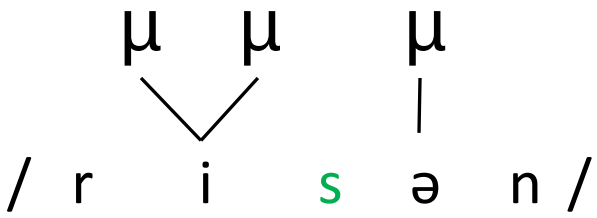
Typically [riː^{2}sən] ‘to tear’, but also [tøː^{1}pən] ‘tip-toeing’

Analytical Claim – Basic Ingredients

- General insights from the literature (e.g. Honeybone 2008, 2012, Katz 2016 for overview):
  - Preference for strong consonants (here: fortis obstruents) at prosodic boundaries
  - Preference for weak consonants (here: lenis obstruents, sonorants) in foot-medial position
- Traditional assumption: Lenition is a 'top-down process'
- Franconian: Voicing of word-medial C influences foot structure = 'bottom-up process' (not lenition), counter to traditional assumptions; see, e.g., Blumenfeld (2006), Rasin (2016)

Analytical Claim : Consonant → Foot





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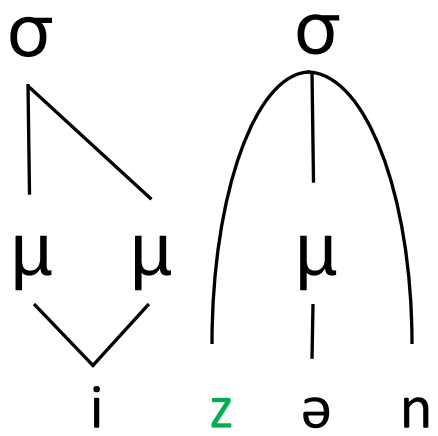

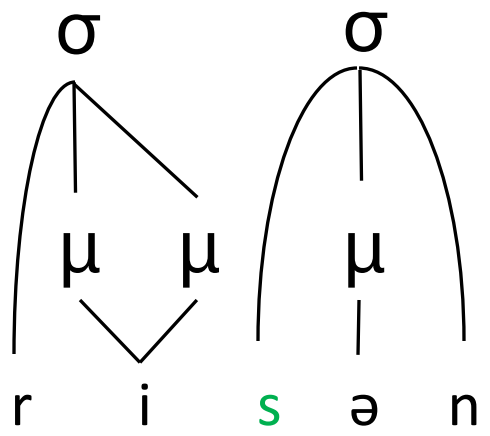

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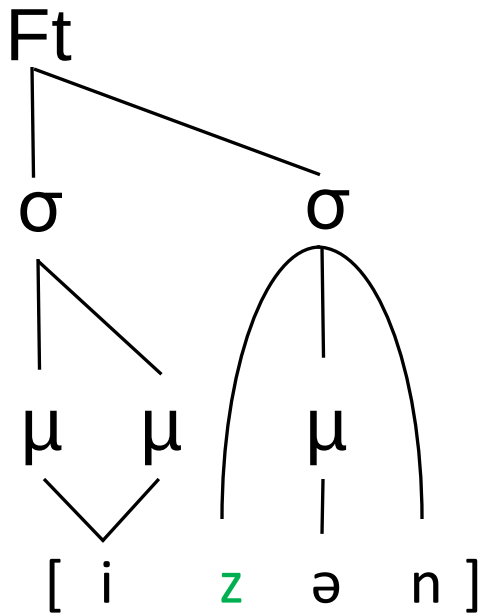
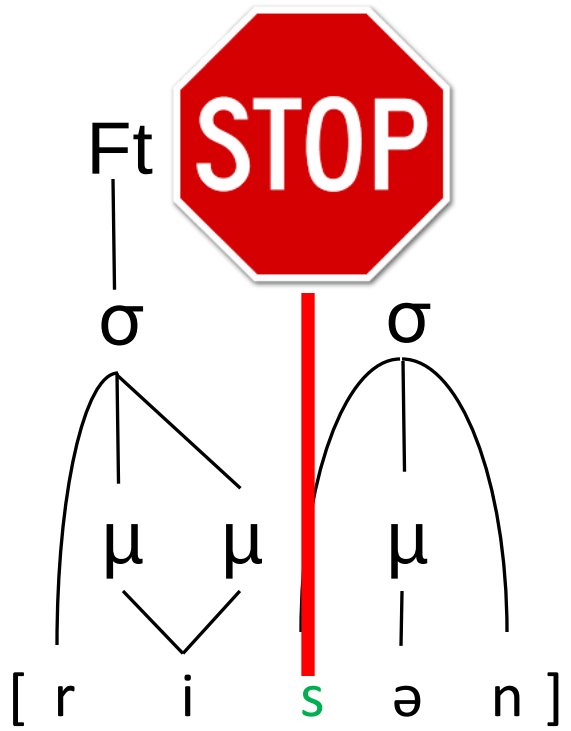


Accent 1



Accent 2

Surface Correlates of Foot Structure

- Accent-based foot structure correlates with…
  - Tonal differences (described in detail for Cologne, e.g. Gussenhoven & Peters 2004; basic description for Aegidienberg by Müller)
  - Durational differences (described in detail for Cologne, e.g. Gussenhoven & Peters 2004; Aegidienberg situation unclear)

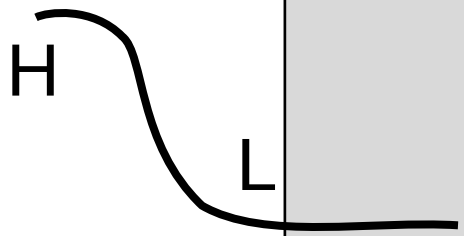
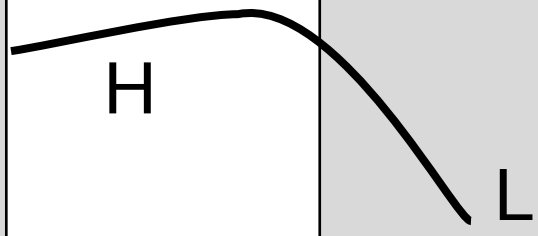
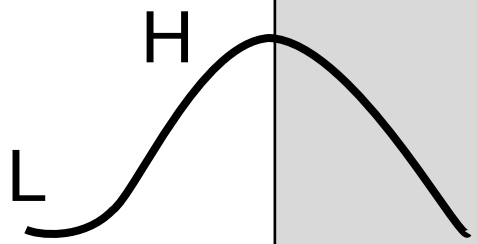
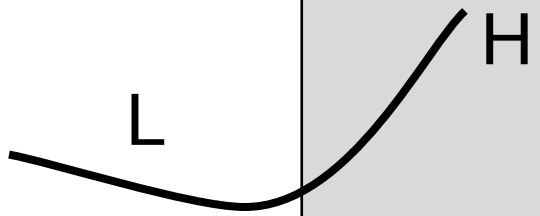
Other Surface Correlates

- Accent-based foot structure correlates with…
  - Tonal differences
  - Durational differences

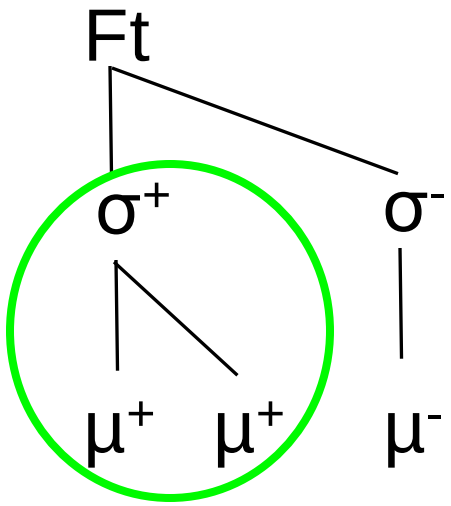
Tone in Franconian

- **Metrical analysis**: Tones map differently onto diverse metrical structures for Accent 1 and Accent 2 (my work, Hermans 2012, Kehrein 2018, Van Oostendorp 2018)

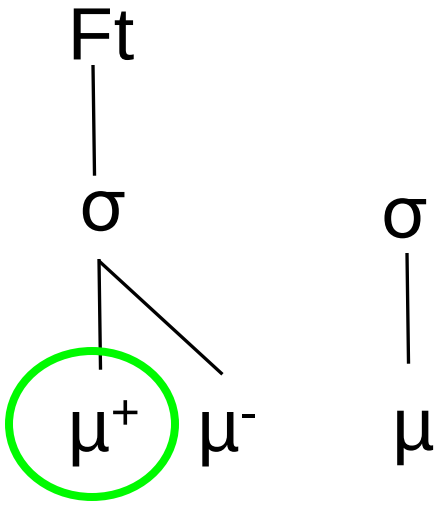
Tonal Contours Plus Tones

	Cologne (Peters 2006)			
	Accent 1		Accent 2	
	σ	σ	σ	σ
Declarative HL				
Interrogative LH				

Metrical Analysis – Foot Structures and Head Domains



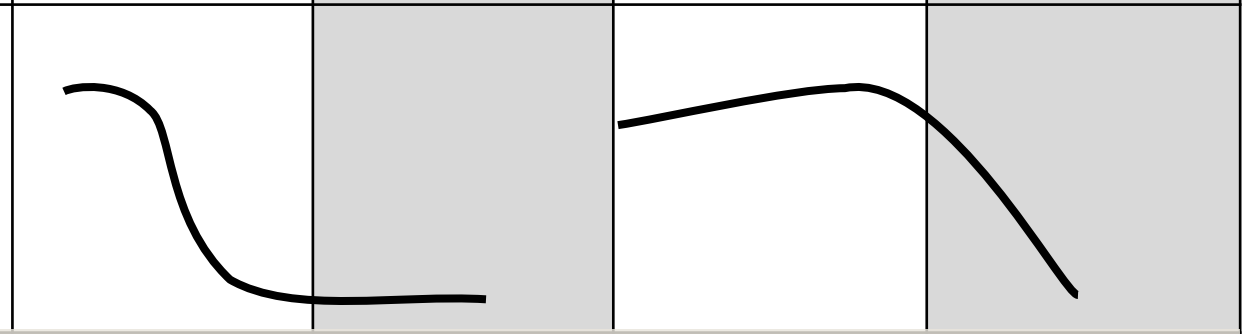
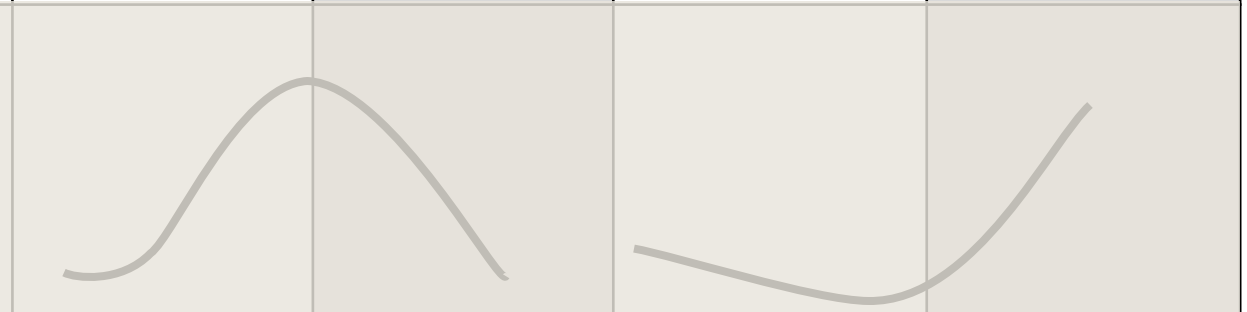
‘Syllabic’ Trochee
Accent 1



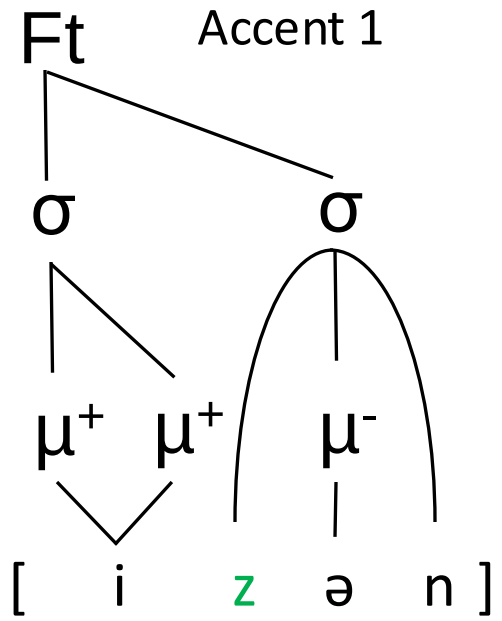
‘Moraic’ Trochee
Accent 2

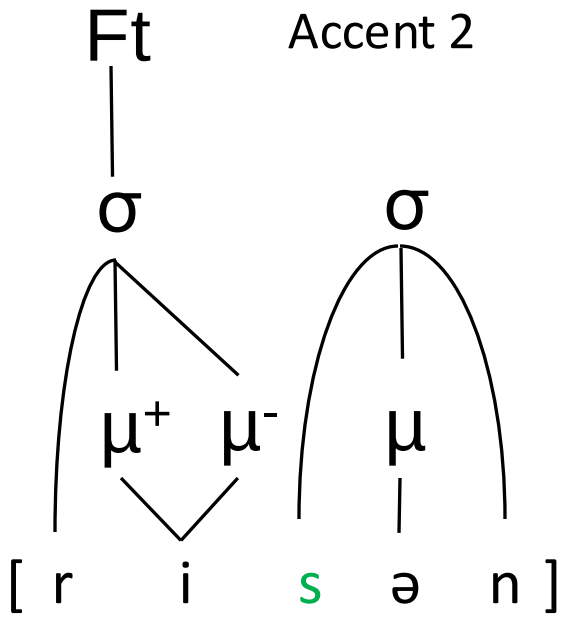
(e.g. Köhnlein 2011, 2016, 2018; see also Van Oostendorp 2018)

Analysis illustrated for declaratives

	Cologne (Peters 2006)			
	Accent 1		Accent 2	
	σ	σ	σ	σ
Declarative				
Interrogative				

Tones Licensed by ‘Strong’ Moras Only





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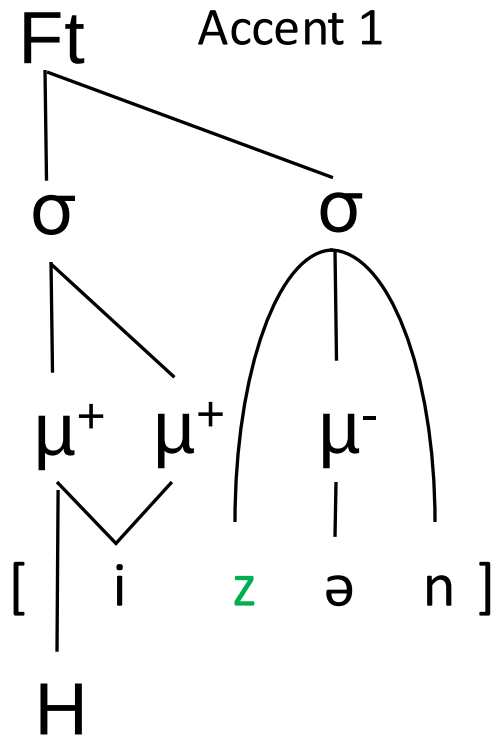

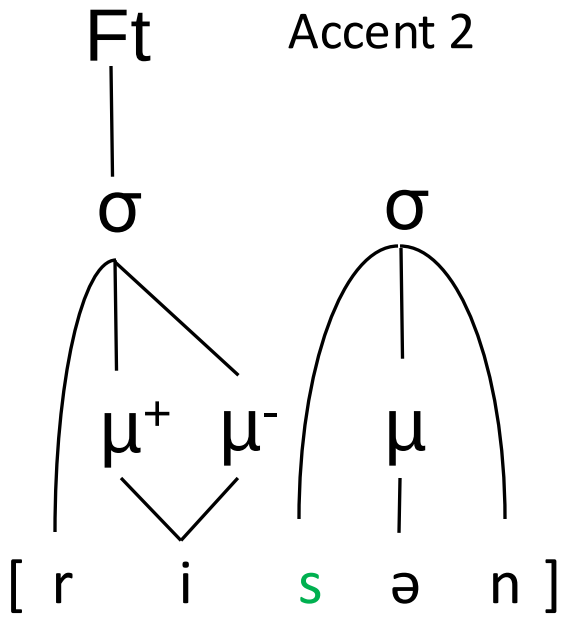

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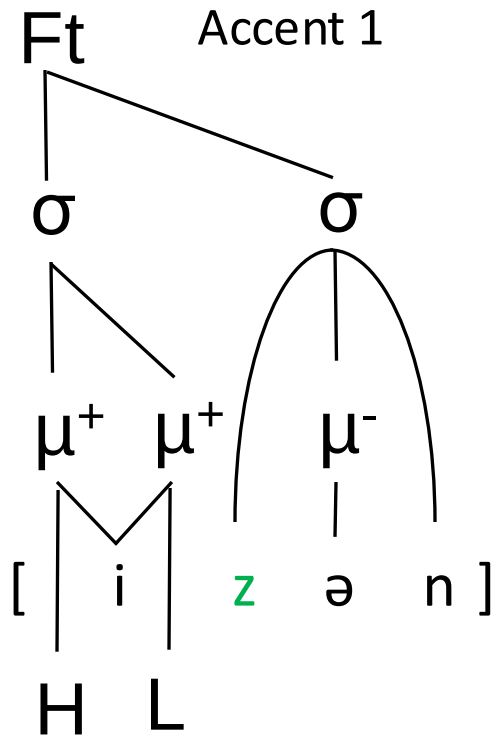
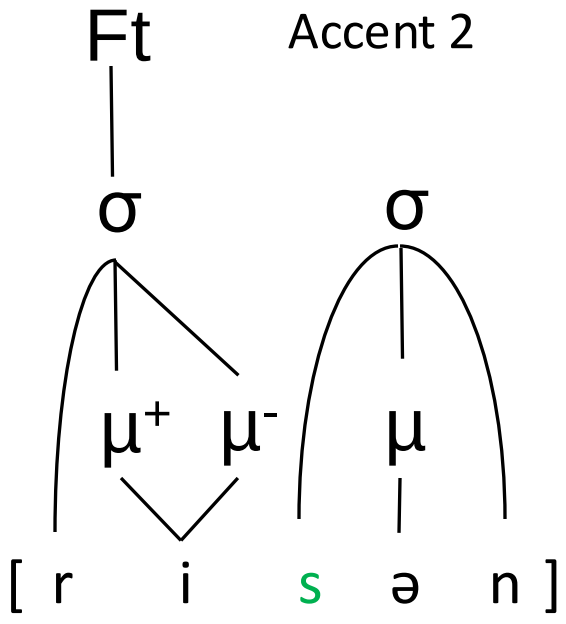
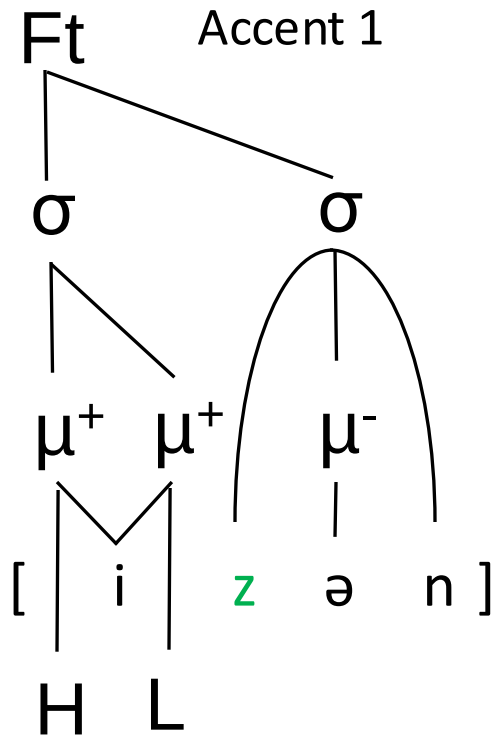
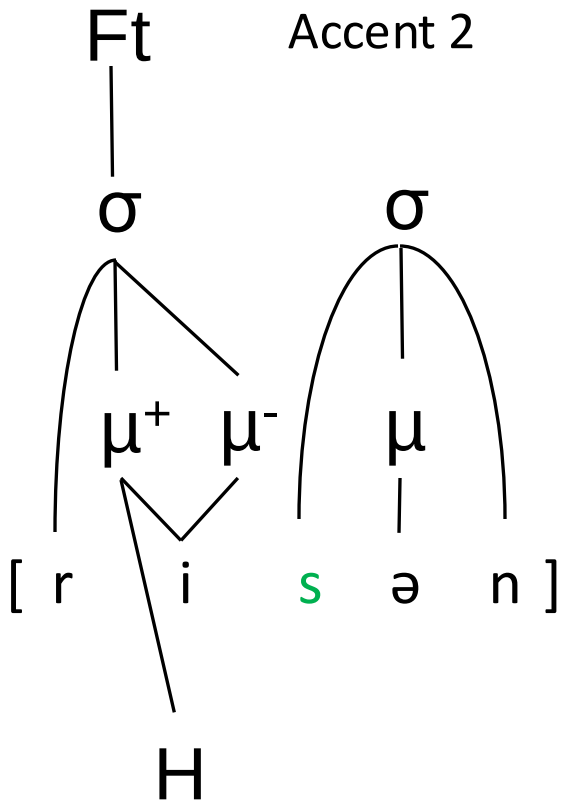




Tones Licensed by ‘Strong’ Moras Only





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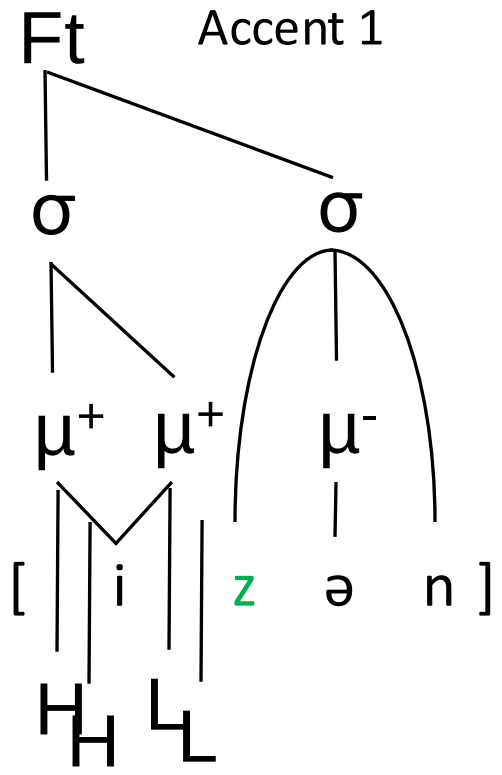

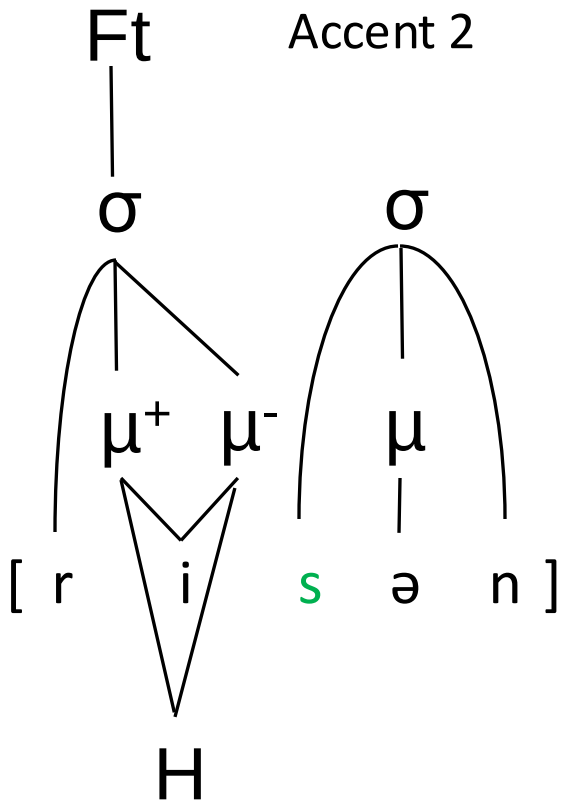

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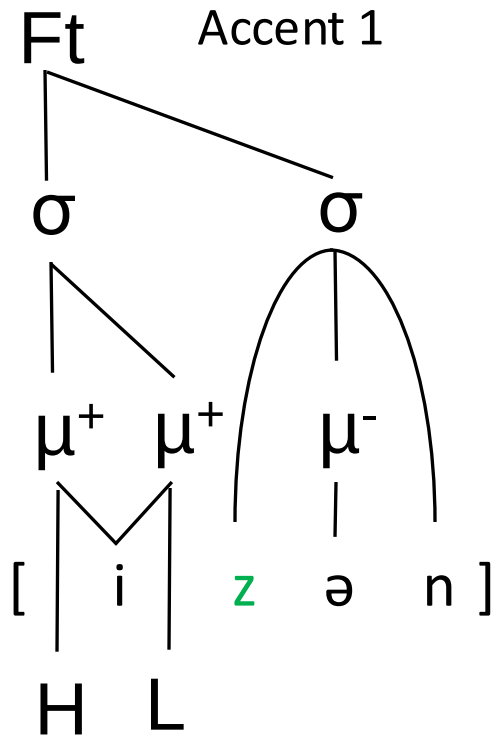
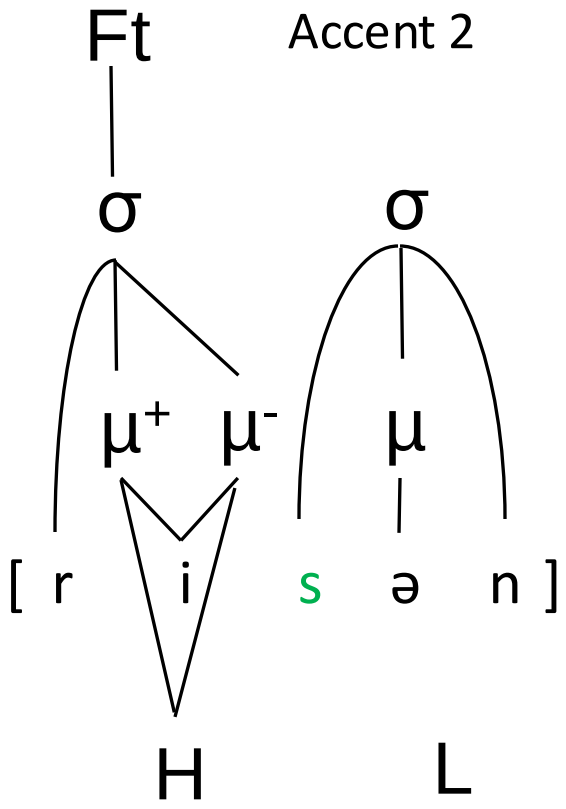
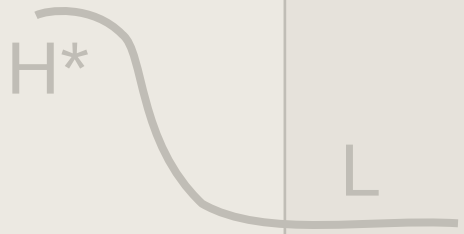
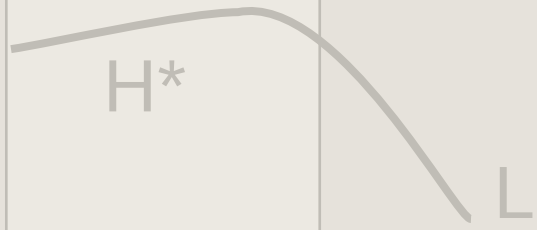
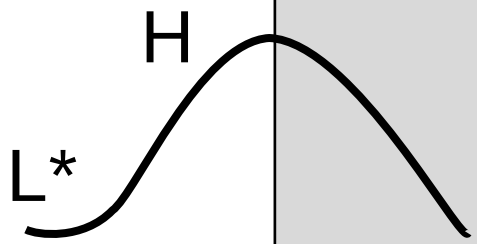
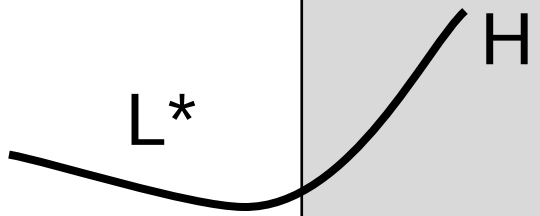




Analysis illustrated for interrogatives

	Cologne (Peters 2006)			
	Accent 1		Accent 2	
	σ	σ	σ	σ
Declarative H*L				
Interrogative L*H				

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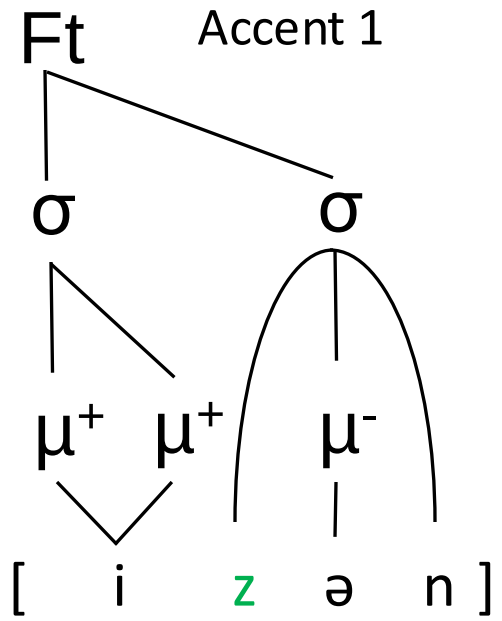

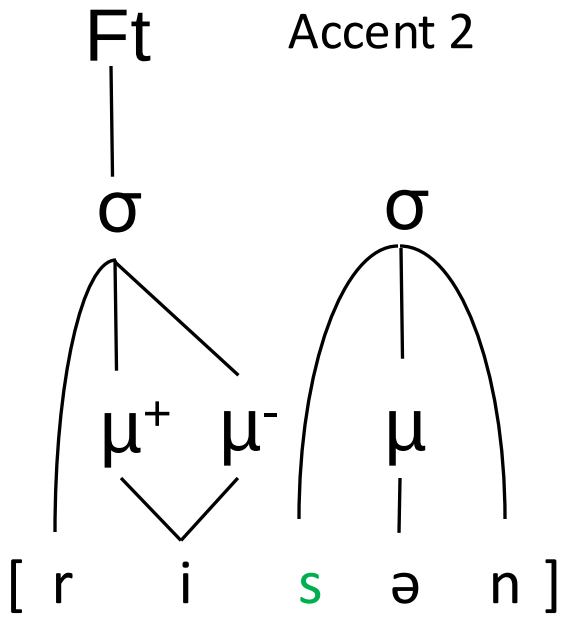

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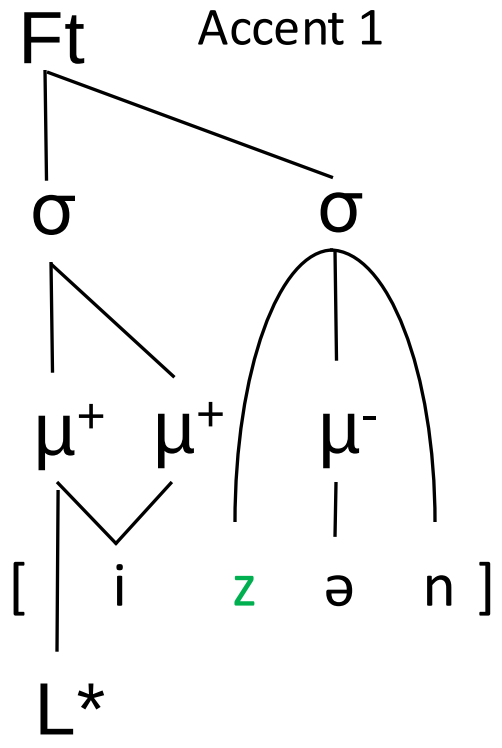

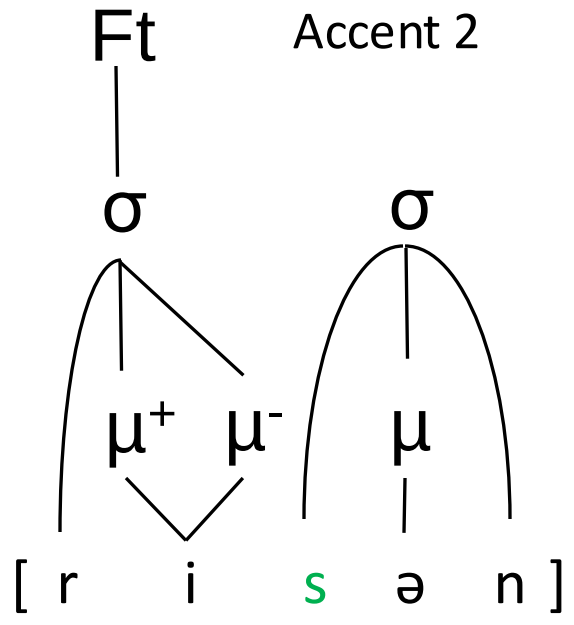

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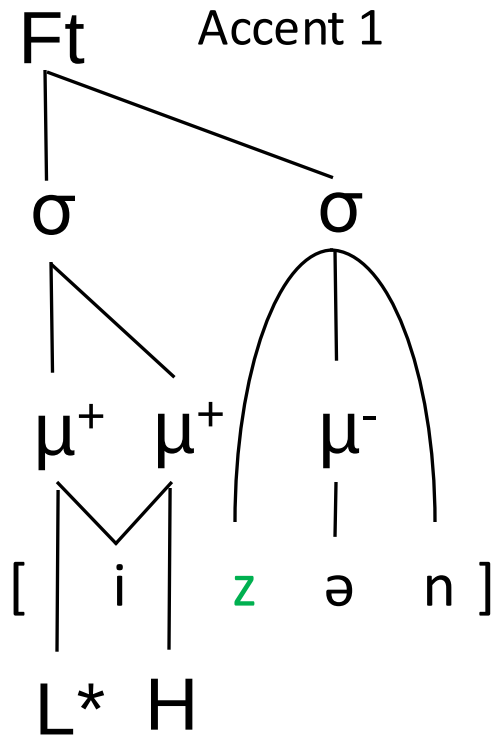

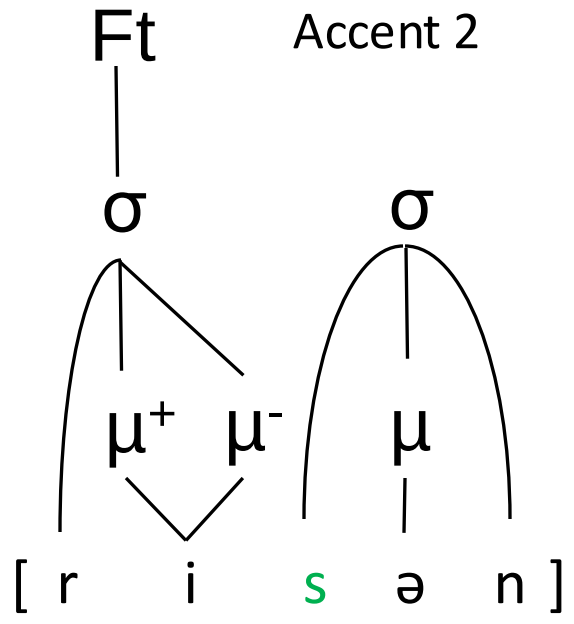

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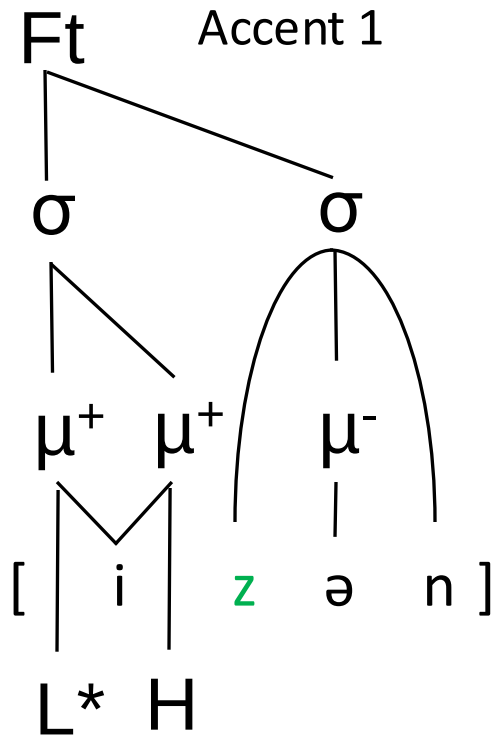

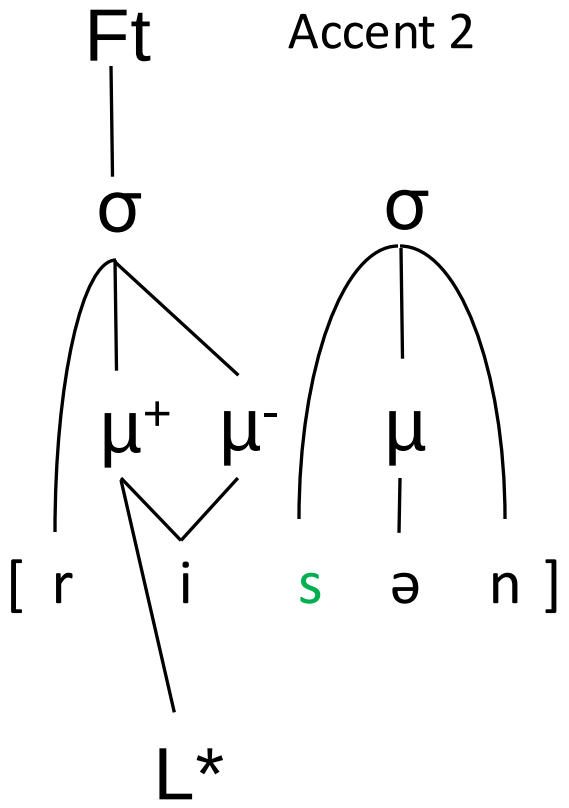

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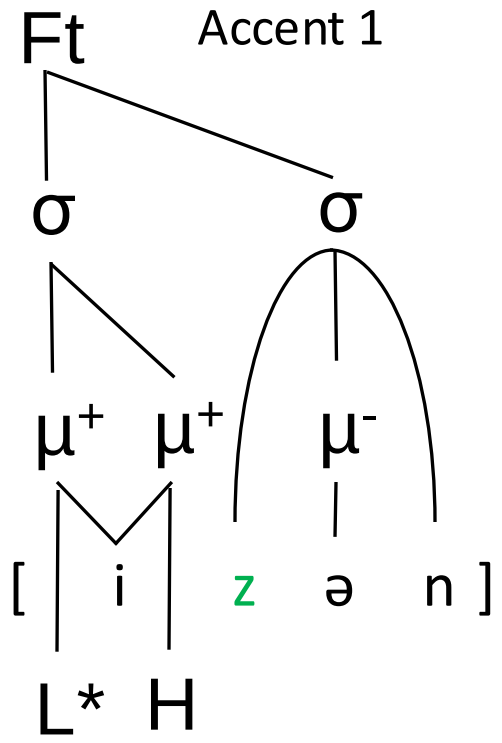

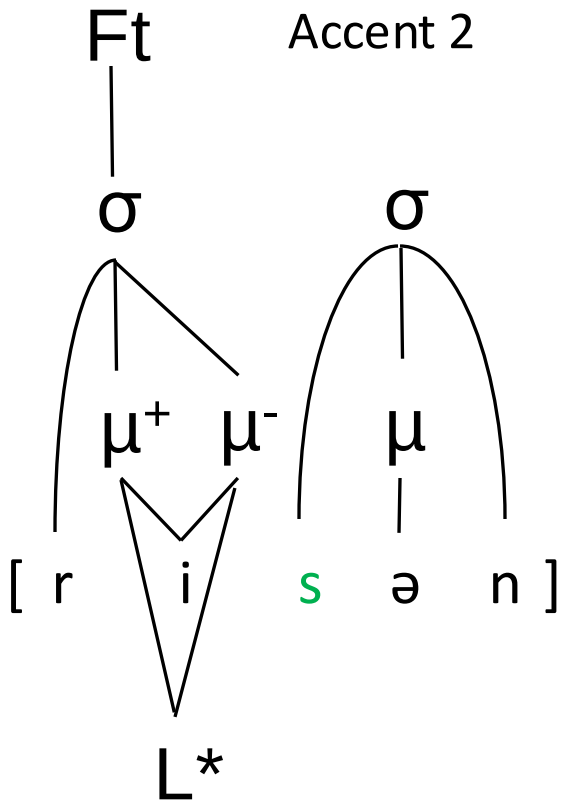

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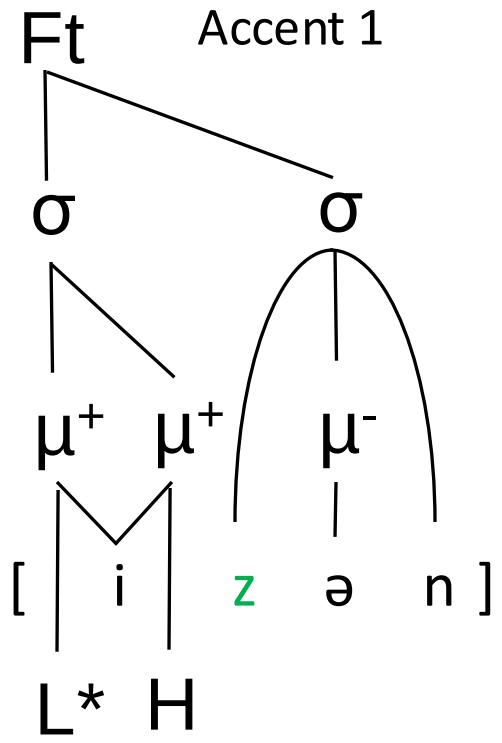
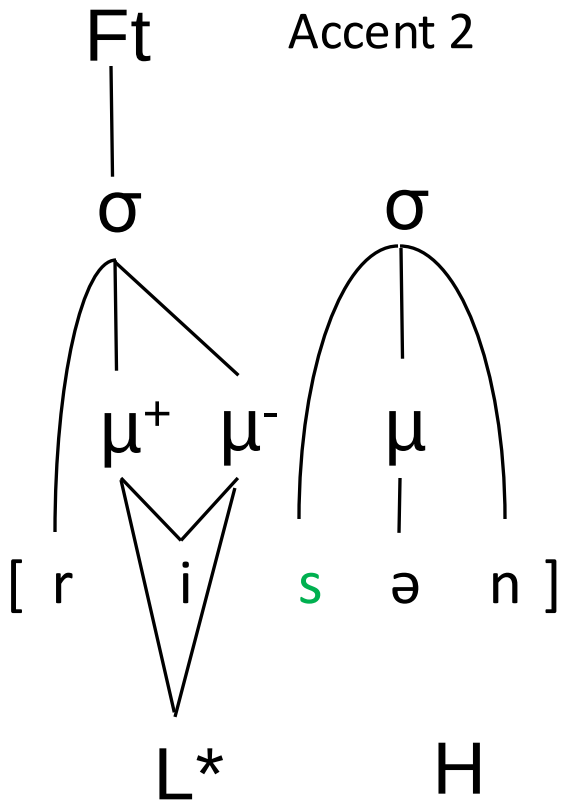




Other Surface Correlates

- Accent-based foot structure correlates with…
  - Tonal differences
  - Durational differences

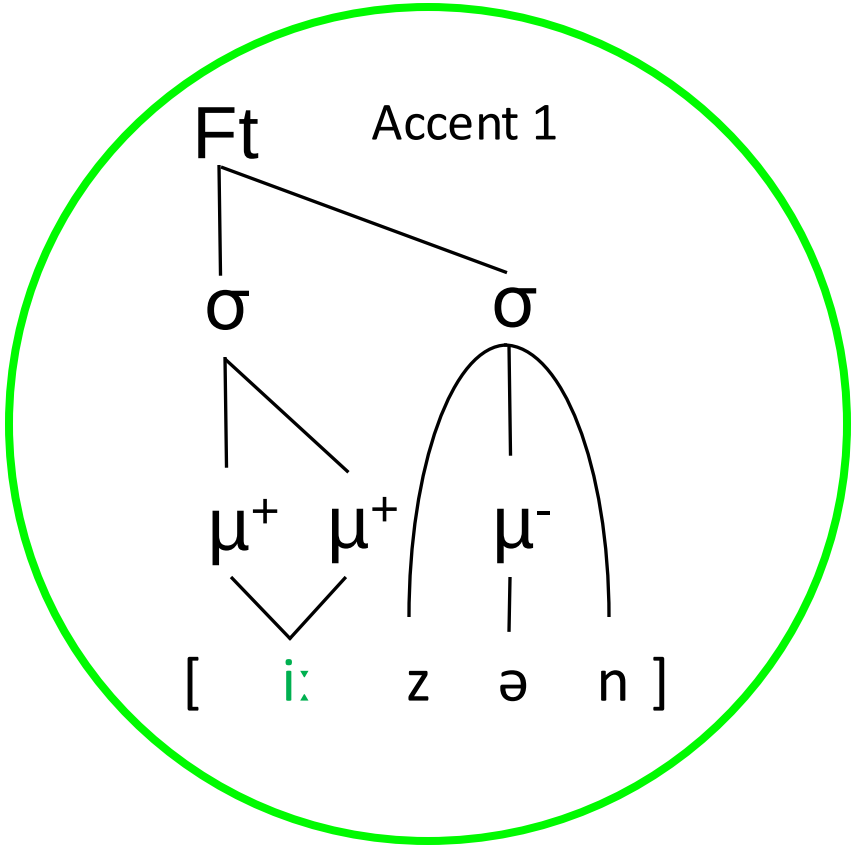
Duration in Cologne Franconian

- In Cologne and many other dialects, durational contrasts enhance the tonal opposition between Accent 1 and Accent 2
- Post-focal position: Distinctive correlate is **duration** rather than tone
- Accent 2 is significantly longer than Accent 1 (Peters 2006)
- Analysis in a foot-based approach
  - Duration as a correlate of foot structure expected under a foot-based approach
  - A foot has a certain **phonetic duration** (cf. Prince's and Odden's work on Estonian, to be discussed later)

Duration in Cologne Franconian

- Accent 2
  - Stressed syllable is the whole foot
  - Duration of the whole foot expressed in the stressed syllable: Syllable is overlong
- Accent 1
  - Stressed syllable + unstressed syllable is the foot
  - Duration of the foot only partially expressed in the stressed syllable
- Comparable to what has been claimed for Estonian in work by Prince (1980) and Odden (1997)

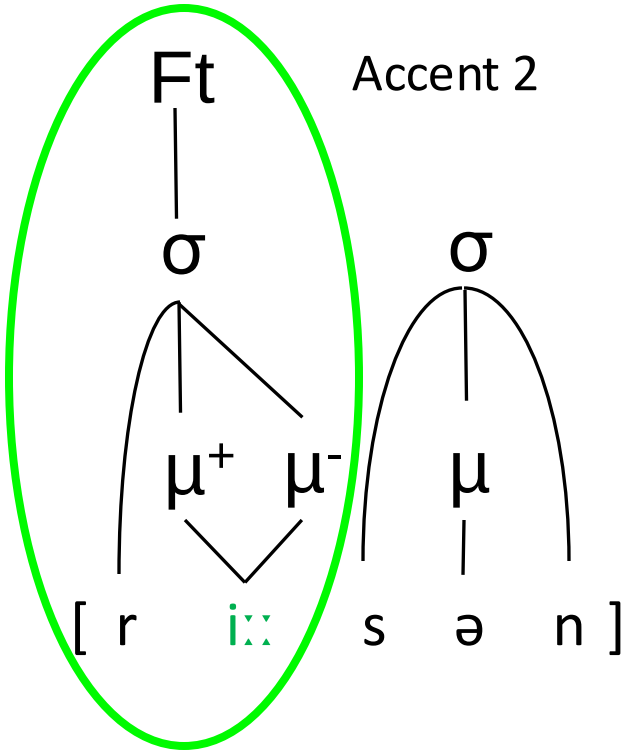
Durational correlates: Accent 1



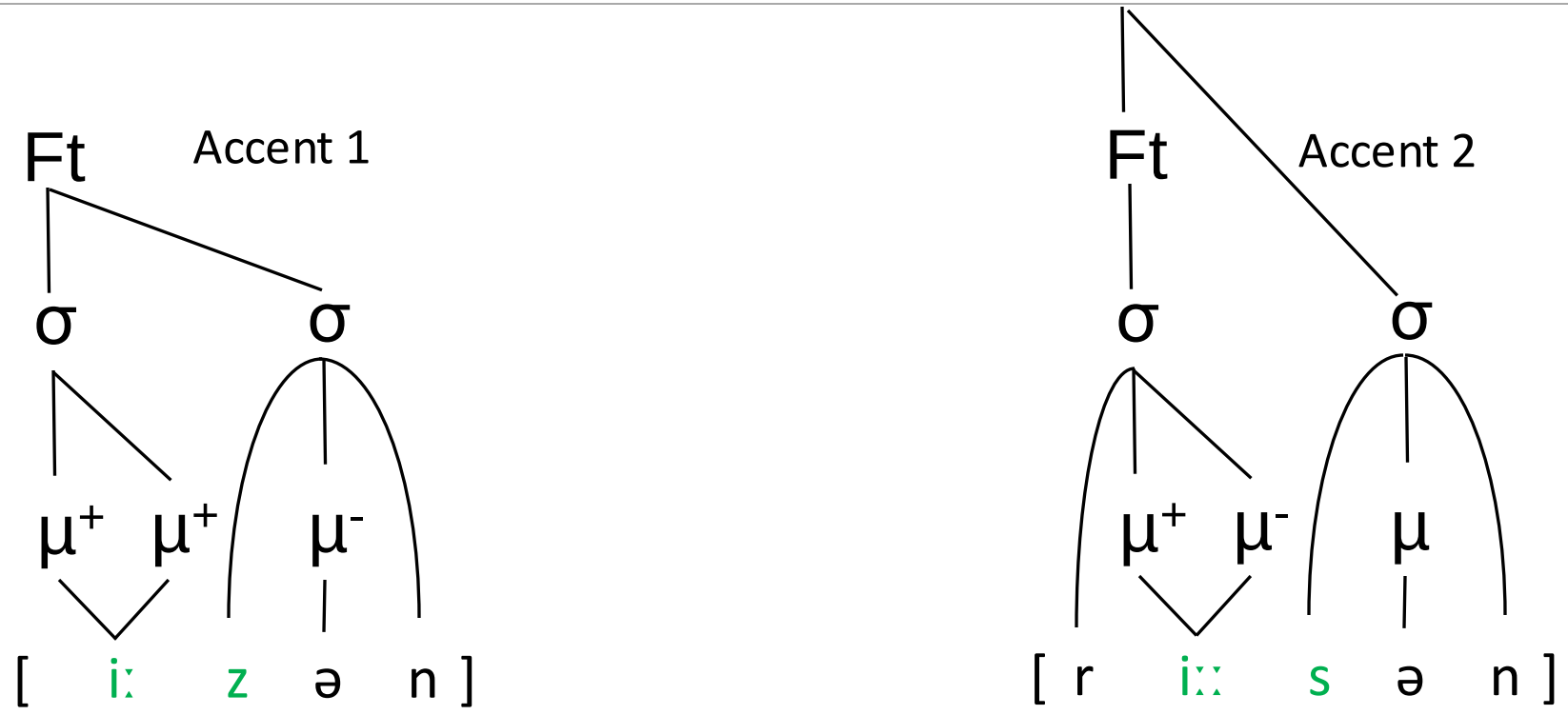
- Stressed syllable + unstressed syllable is the foot
- Duration of the foot only partially expressed in the stressed syllable: Syllable is long

Durational correlates: Accent 2

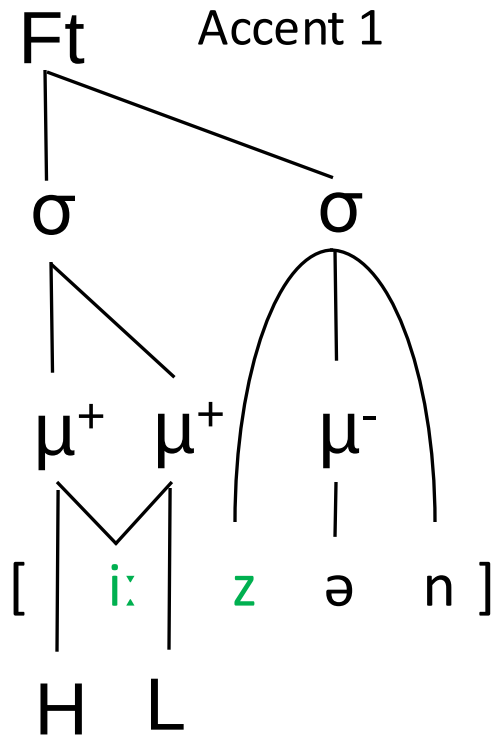
- Stressed syllable is the whole foot
- Duration of the whole foot expressed in the stressed syllable: Syllable is overlong

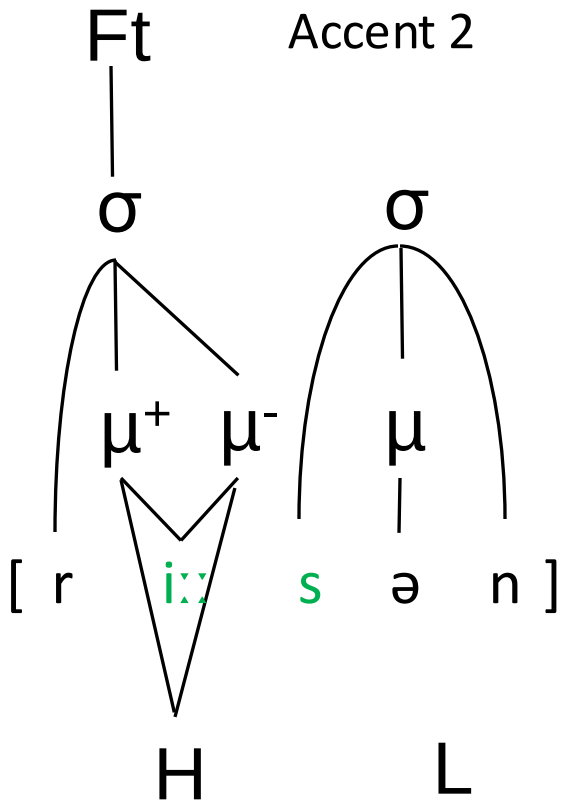


Durational correlates

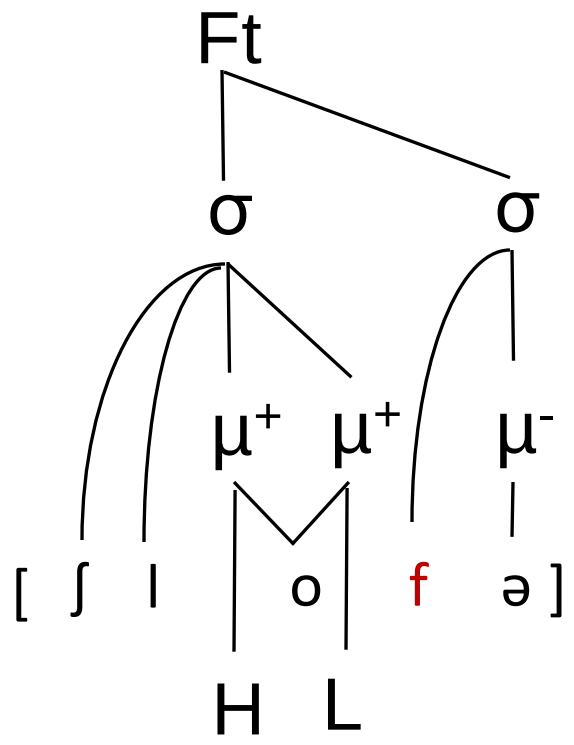


Durational correlates plus tone





Accent 1 with voiceless C: [ʃloː^{1}fə] ‘sleep’



- Lexicalized Accent 1 foot template (see Köhnlein 2011, 2016)
- Morphological evidence indicates that Accent 1 is the marked accent (e.g. Van Oostendorp 2005)
- Evidence that this is a bottom-up process, not top-down lenition

Parallels in Estonian

- Estonian is well known for its three-way durational opposition (Q1, Q2, Q3)

Quantity contrast in Estonian

a.	[sada] 'hundred'	[sa:da] 'send, imperative	[sa::da] 'to receive'
b.	[lina] 'flax'	[lin:a] 'town, gen-sg'	[lin::a] 'town, part-sg'

- Over time, the durational contrast between Q2 and Q3 has been accompanied by a pitch contrast (Lehiste 2003 for summary)
- Similar to Cologne, just that the longer accent has falling tone, and the shorter one level tone (Köhnlein 2015 for a diachronic account)

Consonant Gradation

- Consonant Gradation: morphophonemic alternations
- Five paradigms, most comparable cases to Franconian shown below
- Q2 = weak grade; Q3 = strong grade

	'sad'	*Grade*
Nom. Sg.	kur:p (Q3)	*strong*
Gen. Sg.	kurva (Q2)	*weak*
Part. Sg.	kur:pa (Q3)	*strong*
Nom. Pl.	kurvat (Q2)	*weak*
Gen. Pl.	kur:pate (Q3)	*strong*
Part. Pl.	kur:pi (Q3)	*strong*

	'pole'	Grade
Nom. Sg.	teivas (Q2)	*weak*
Gen. Sg.	tei:pa (Q3)	*strong*
Part. Sg.	teivast (Q2)	*weak*
Nom. Pl.	tei:pat (Q3)	*strong*
Gen. Pl.	teivaste (Q2)	*weak*
Part. Pl.	tei:pait (Q3)	*strong*

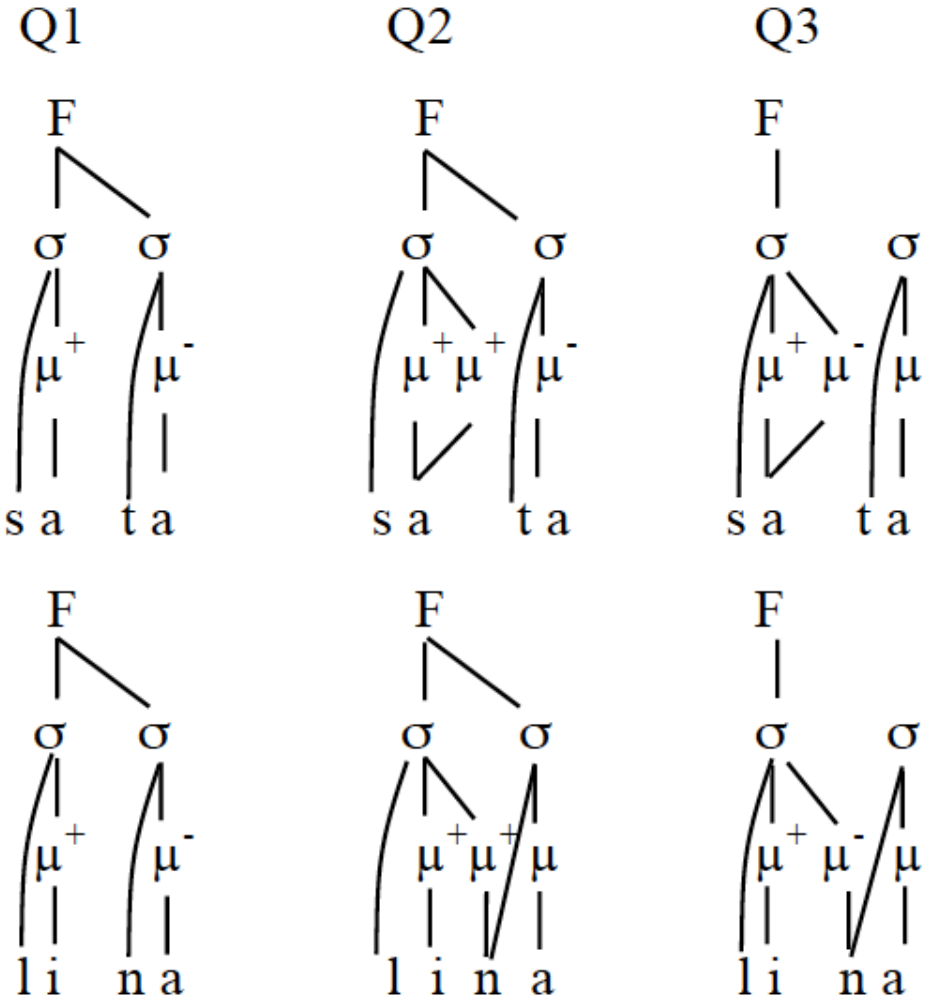
Theoretical approaches

- Vast amount of theoretical literature
- **Ternary analysis**: three degrees of vowel length (e.g. Hayes 1995, Bye 1997, Pöchtrager 2006)
- **Binary analysis I**: one or two V-slots, one or two moras (e.g. Ehala 2003, Spahr 2013, 2014)
- **Binary analysis II**: one vs. two moras, monosyllabic vs. disyllabic trochees (e.g. Prince 1980, Odden 1997, Prillop 2020 – we follow this line of work)

Foot-based approach (duration): Prince (1980), moraic version Odden (1997)

- Bimoraic syllables contrast in foot structure
- Durational differences express the difference in metrical structure on the surface
- Monosyllabic foot longer than first syllable of disyllabic foot (this is what we adopted for Cologne)

Surface representations for three degrees of overlength in Estonian



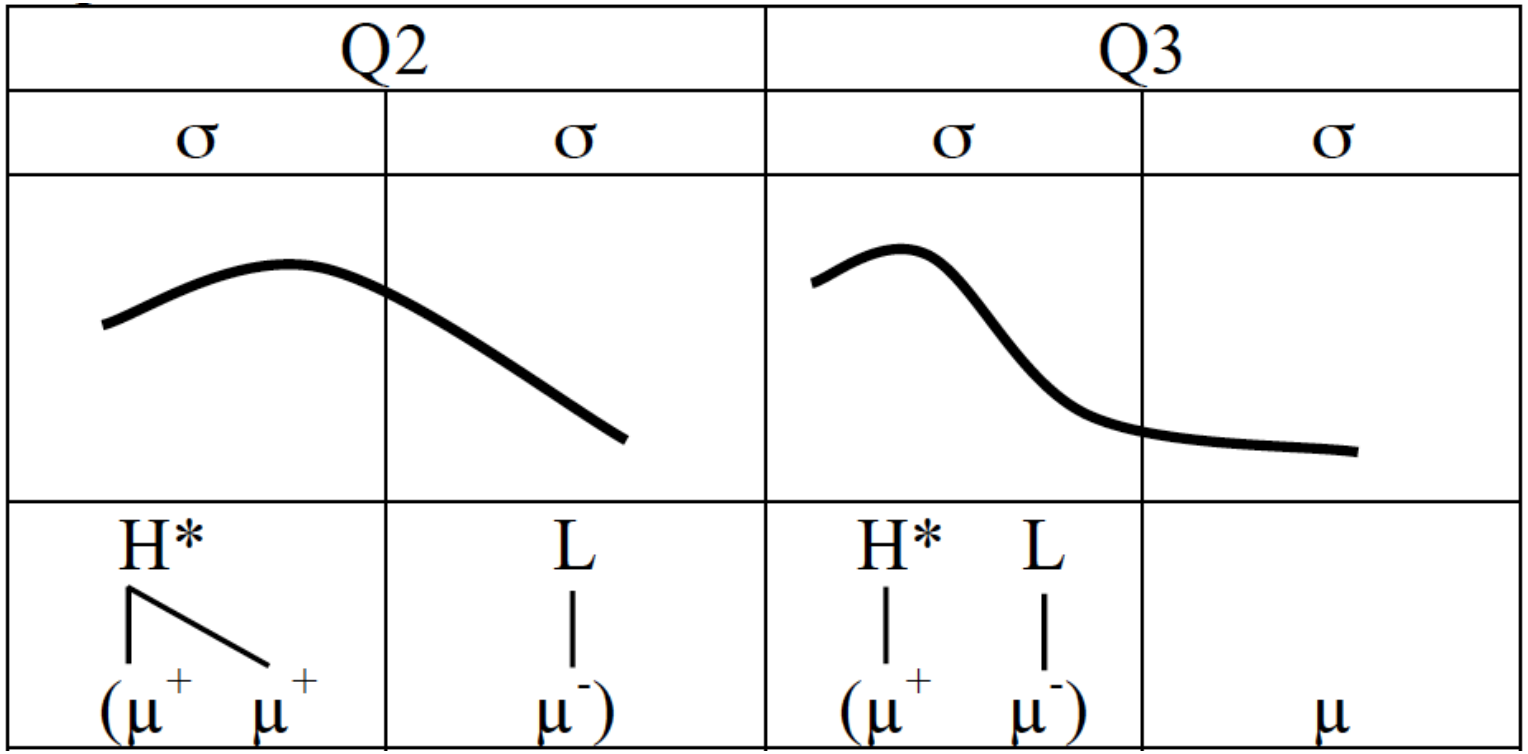
Q3:

- Monosyllabic foot
- Extra duration

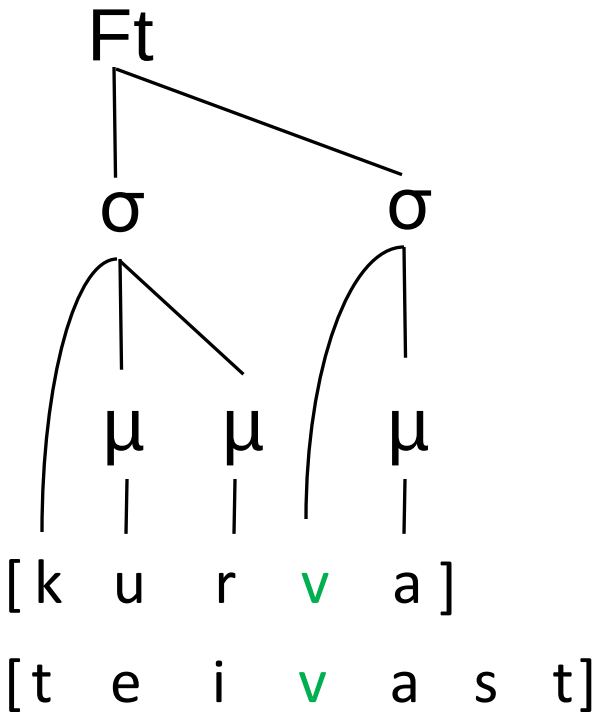
Foot-based approach (tone)

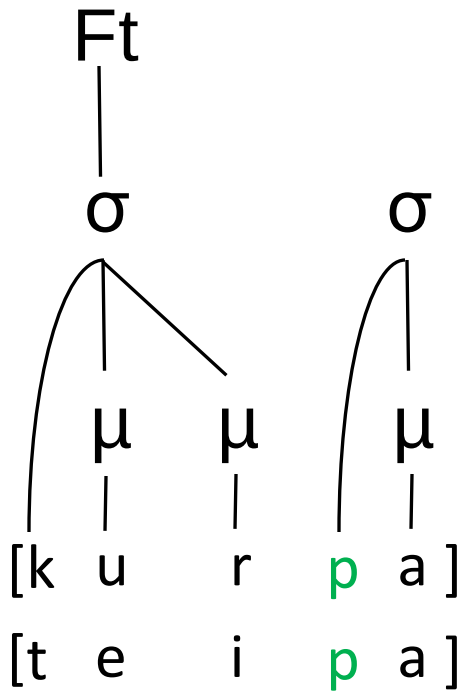
- Q3 = HL, Q2 = H
- Grammar: In Estonian, every mora can license tones, but strong moras avoid low tone (Constraint: *Hd/L, de Lacy 2002)
- Comparable to the analysis of Arzbach Franconian in Köhnlein (2011, 2016)

Effects of *Hd/L in Estonian (contours adapted from Lehiste 1997)



Foot-based Approach (Gradation)





	'sad'	'pole'
Gen. Sg.	kurva	tei:pa
Part. Sg.	kur:pa	teivast

Interim Summary

- Word-medial C voicing correlates with Tonal Accent in certain Franconian dialects (as well as with Estonian quantity)
- Additional correlates
  - Tone
  - Duration
- Unified analysis possible if we assume that:
  - Accent 1 / Q2 is a disyllabic foot, and Accent 2 / Q3 a monosyllabic foot
  - Consonantal strength can influence footing (at least in Franconian)
- Köhnlein & Smith 2021 for another possible bottom-up case in the history of German

Top-down interactions with consonant quality I: exceptions to final devoicing

Some dialects of Franconian did not apply final devoicing in apocopated Accent 1 words (at least) until the 20th century

Two sources of evidence

- Described in dialect grammars (Dupont 1910–11; Dupont et al. 2014; Leenen 1915)
- Results from 'Willems questionnaire' (1885), as discussed in Goossens (1978)

Example: Bree dialect (Dupont et al. 2014)

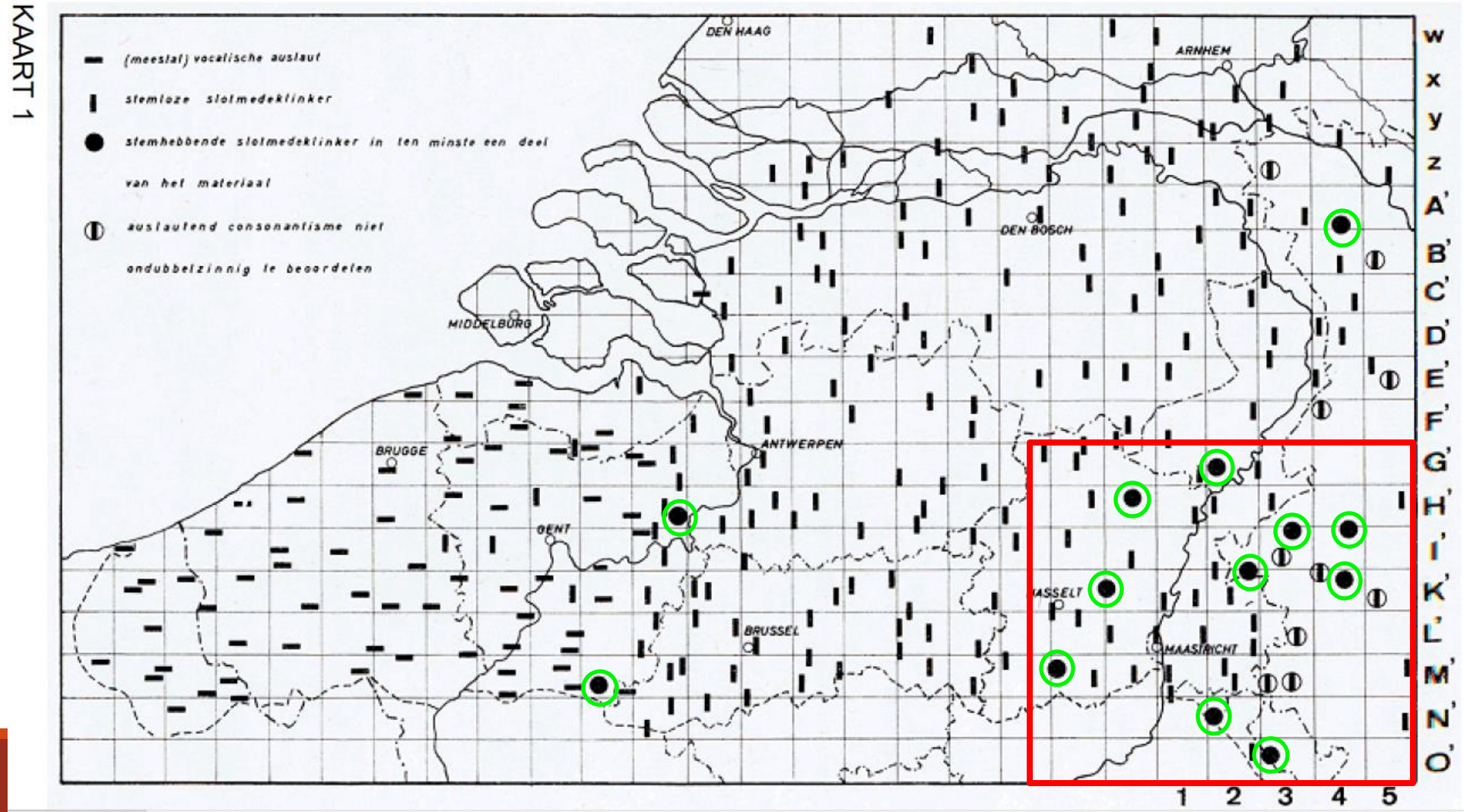
/bliiv/ ‘stay (stem)’

→ [bliif^{2}] ‘stay!’ vs. [bliiv^{1}] ‘(I) stay’

/glaaz/ ‘glass’

→ [glaas^{2}] ‘glass’ vs. [glaaz^{1}] ‘glasses’

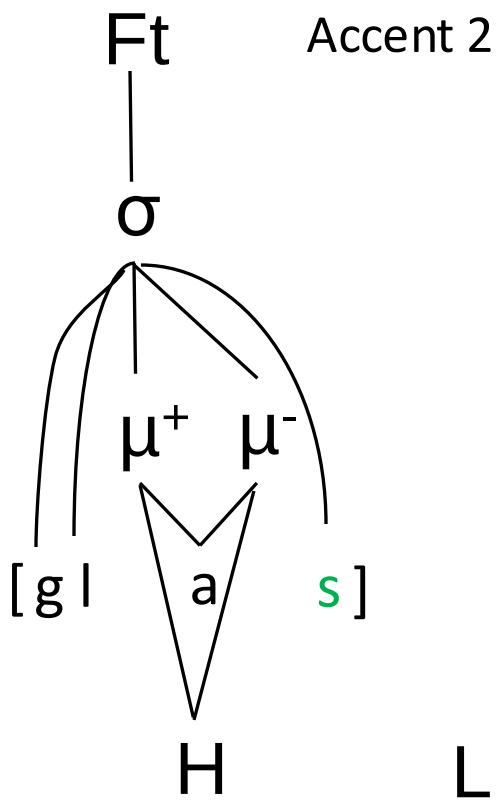
# Map from Goossens (1978)
Green = No FD in apocopated forms,
Red = Accent area (roughly)



How to account for this?

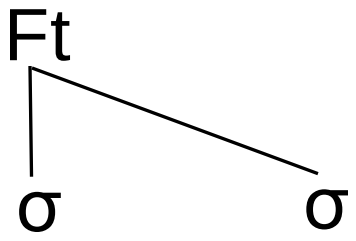
- The non-application of final devoicing appears to indicate that the Accent-1-final consonant is not ‘really’ word-final
- One possible analysis: ‘empty-headed syllables’ = syllables without a nucleus

Bree: /gla$_{\mu\mu}$z/ → [gla:s^{2}]

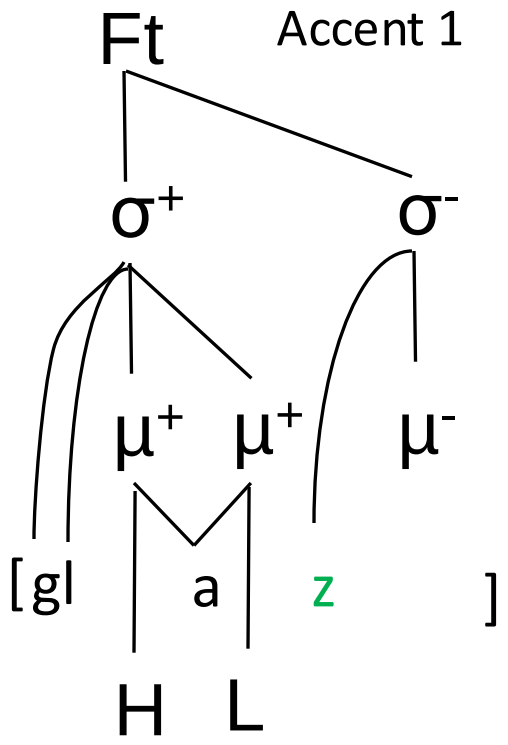


Plural morpheme = syllabic trochee: /gla$_{\mu\mu}$z/ + (σ_s.σ_w)

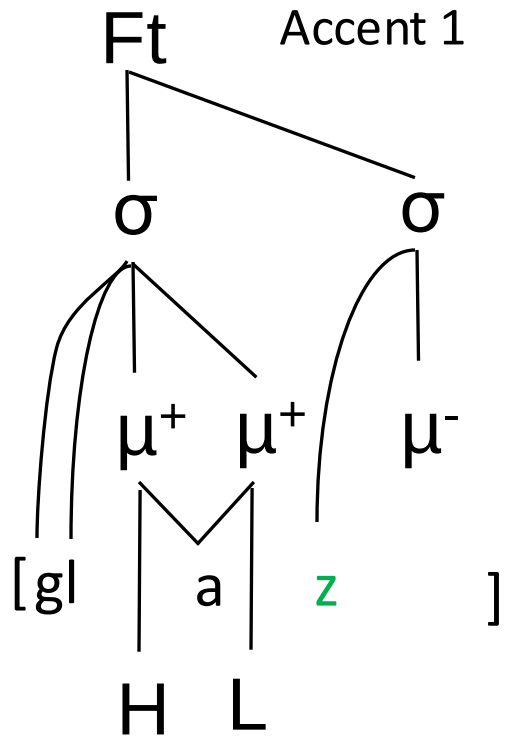
Generalised Non-linear Affixation (cf. Bermúdez-Otero 2012)

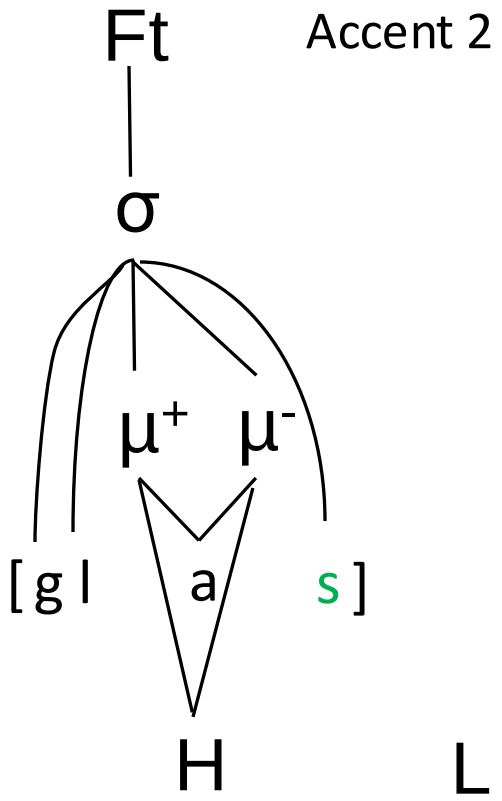
/gla$_{\mu\mu}$z/ + 

Plural morpheme = syllabic trochee
/gla$_{\mu\mu}$z/ + (σ_s.σ_w) → [gla:.z^1]

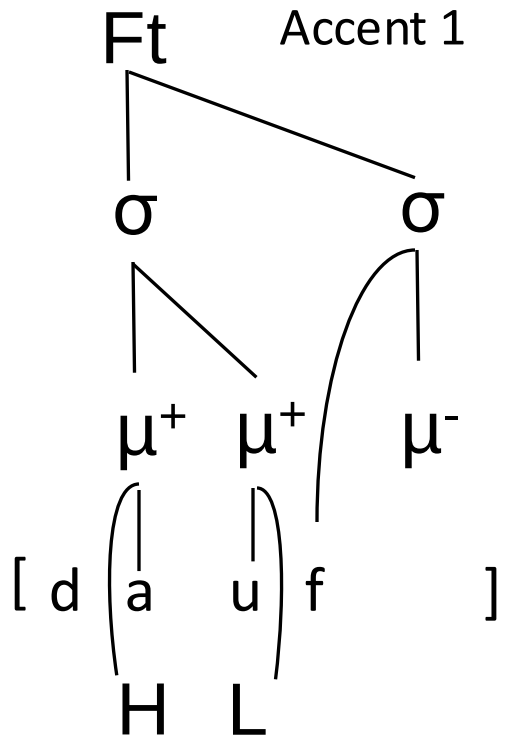


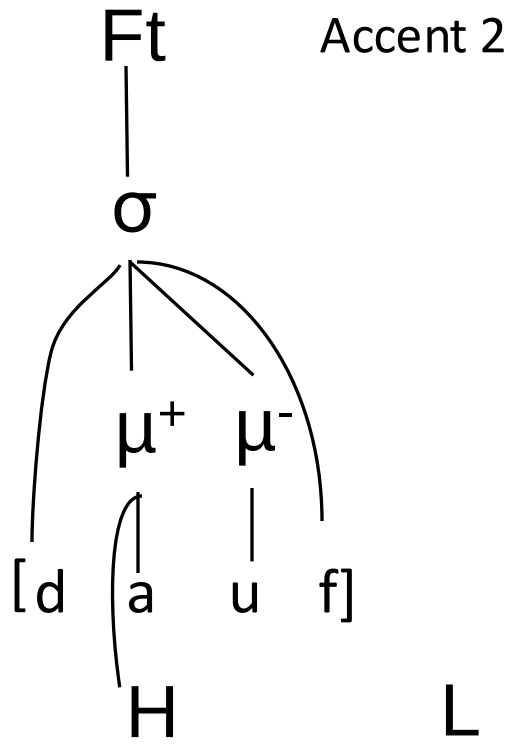
[glaaz[1]] ‘glasses’ vs. [glaas[2]] ‘glass’





Also helps to account for ‘monosyllabic’ minimal pairs: /dauf ($\sigma_s.\sigma_w$)/ (‘pigeon’, left) vs. /dauf/ (‘baptism’, right); examples from Mayen dialect





Top-down interactions with consonant quality II: word-final deletion (coalescence) under Accent 1

- Many German dialects delete word-final plosives in certain contexts (usually plurals, sometimes also datives)
- Phonotactic contexts differ across dialects, but always include /nd/ (obstruent must be phonologically voiced / lenis)
- All dialects with word-final consonant deletion also delete word-medially (Schirmunski 2010 (1962): 479)
  - [hʊnt] ‘dog’ vs. [hʊn] ‘dogs’
  - [kɪnt] ‘child’ vs. [kɪnɜ] ‘children’

Example from tonal accent: Horath (Reuter 1989)

Nom. Sg.	**Dat. Sg.**	**Nom. Pl**	
hont^{2}	hon^{1}	hɛn^{1}	‘dog’
bant^{2}	ban^{1}	bɛn^{1}	‘ribbon’
kent^{2}	ken^{1}	kenər^{2}	‘child’
lant^{2}	lan^{1}	lɛnər^{2}	‘country’

More cases (taken from Köhnlein 2018)

Word-final and word-medial consonant deletion in Horath Franconian

	nominative singular	*dative singular*	*plural*	
a.	kamp^{2}	kam^{1}	kɛm^{1}	‘comb’
	bant^{2}	ban^{1}	bɛn^{1}	‘ribbon’
	hont^{2}	hon^{1}	hen^{1}	‘dog’
	ʃaŋk^{2}	ʃaŋ^{1}	ʃɛŋ^{1}	‘cupboard’
	gaŋk^{2}	gaŋ^{1}	gɛŋ^{1}	‘walk’
	haŋk^{2}	haŋ^{1}	hɛŋ^{1}	‘slope’
b.	kent^{2}	ken^{1}	kenər^{2}	‘child’
	rent^{2}	ren^{1}	renər^{2}	‘cattle’
	lant^{2}	lan^{1}	lɛnər^{2}	‘country’
	bilt^{2}	bil^{1}	bilər^{2}	‘picture’
	valt^{2}	val^{1}	vɛlər^{2}	‘forest’
	rant^{2}	ran^{1}	rɛnər^{2}	‘edge’
	ʃilt^{2}	ʃil^{1}	ʃilər^{2}	‘sign’
	velt^{2}	vel^{1}	velər^{2}	‘game (animal)’

Analysis: Deletion in onset of unstressed syllable (Köhnlein 2018)

UR	**Nom. Sg.**	**Dat. Sg.**	**Nom. Pl**
	Ø	$(\sigma_s.\sigma_w)$	$(\sigma_s.\sigma_w)$ OR /ər/ (plus umlaut)
/hond/	hont^2	hon.n^1	hɛn.n^1
/band/	bant^2	ban.n^1	bɛn.n^1
/kend/	kent^2	ken.n^1	ken.nər^2
/land/	lant^2	lan.n^1	lɛn.nər^2

→ Items with Accent 1 behave like disyllables because they form a disyllabic unit (= a foot)

Outline

- Background of Franconian Tone Accent (TA)
- Background on Word-prosodic Typology
- Interactions of feet, tones, and consonants in Franconian (and elsewhere)
- Why not lexical tone or grid marks?
- Conclusion

Why not lexical tone?

- Lexical tone on Accent 2 has long been the standard analysis of tonal accent in Franconian (and elsewhere); e.g. Gussenhoven & Peters (2004) for Cologne
- Our claim: not useful for analysis of accent-consonant interactions
- Reason 1: Both Accent 1 and Accent 2 can end in H or L, depending on the pragmatic context (declarative, interrogative) → no overt tone-segment interactions
- Reason 2: Many processes target Accent 1 (exceptions to FD, consonant deletion), and the possible relation with lexical tone is unclear
- Reason 3: At least in Cologne, accent can sometimes be expressed with duration only – no tone-consonant interactions can be held responsible

Why not grid marks?

- Grid marks could be used to model tonal contrast (accent on first versus second mora)
- But: *local* prominence markers, yet accent-consonants interactions are often *non-local* (affecting segments that are not involved in the realization of the opposition)
- How to capture interactions of accent and voicing?
- How to capture interaction of accent and subtraction?

Outline

- Background of Franconian Tone Accent (TA)
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- Related phenomena
- Why not lexical tone or grid marks?
- Conclusion

Conclusion I: the usefulness of feet

- Goal: Demonstrating how interactions of foot structure and consonants can supplement independent evidence of two types of feet in the same prosodic system
- If correct, feet remain a useful tool in the analysis of prosodic systems
- Alternative: Providing an equivalent analysis in a footless framework

Thank you!

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