

Word-Level Prosodic Typology

Day 5: Foot structure and incorporation
(plus possibly some diachrony)

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Exercise 1

This class in one slide

- Commonly overlooked generalization: not one but two hierarchies of metrical strength
 - Hierarchy 1 (more widely discussed): Foot Head > **Unparsed** > **Foot Dependent**
 - Hierarchy 2 (less widely discussed): Foot Head > **Foot Dependent** > **Unparsed**
- Why is that?
 - My claim: two licensing scales (top-down versus bottom-up) lead to reversal between **Foot Dependent** and **Unparsed**; implementation language-specific
- Why should we care?
 - Theory evaluation (focus today: foot model vs. incorporation model)
 - Prosodic typology

Note

- Slides based on a talk given at the Old World Conference in Phonology in Cambridge
- Framed like a linguistic argument with a biased evaluation

Roadmap

- I. A well-established strength hierarchy: evidence for feet?
- II. Faust & Ulfsbjorninn (2025): incorporation > foot structure
- III. The foot strikes back I: a second scale
- IV. The foot strikes back II: how licensing derives both scales with feet
- V. Conclusion

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A well-established hierarchy: evidence for feet?

- Observation in literature on foot structure
 - Foot heads (FH) are the strongest metrical position
 - Unparsed (UP) positions are intermediate
 - Foot dependents (FD) are weakest
- One widely cited example: FH > UP > FD in metrically sensitive optional vowel reduction in Dutch (e.g., Kager 1989, van Oostendorp 2000; Nazarov 2019 for a different approach)
- *Nothing reduced* *FD reduced* *FD + UP reduced* **UP reduced*
- a. [(fò.no)lo(ɣí:)] b. [(fò.nə)lo.(ɣí:)] c. [(fònə)lə(ɣí:)] d. **[(fò.no)lə(ɣí:)]*
- → Not all unstressed syllables are equal: evidence for foot structure?

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Footless alternatives to stress 1: local prominence

- Not all theories of metrical structure employ constituents
 - van der Hulst (various): grid marks
 - Scheer and Szigetvári (2005): projection of nuclei
 - Dubina (2012): stress = lexical H
 - Spahr (2016): unspecified tonal node
 - Andersson (2020): universal boundary symbol
 - ...
- One challenge: how to deal with Dutch-type systems where not all unstressed syllables are equal

Footless alternatives to stress 2: local prominence + incorporation

- Principle of **incorporation** (work by Faust, Ulfsbjorninn): grid marks (local prominence) plus incorporating/'stealing' grid marks from adjacent nuclei
- Couched within Strict CV
- Incorporation can occur for various reasons, relevant today: lapse resolution, as per Faust & Ulfsbjorninn (2025) = F&U

How incorporation does the job for Dutch (F&U, p.7)

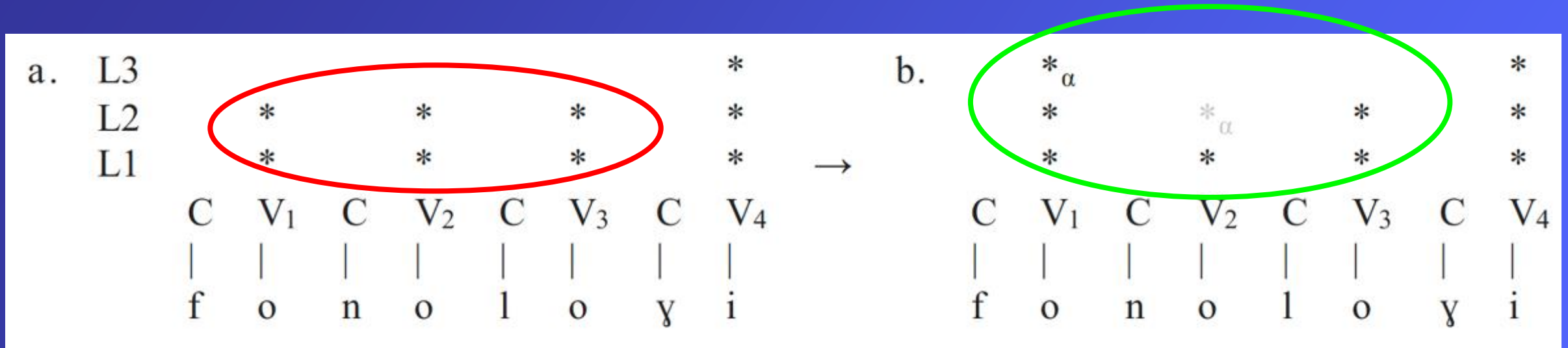
a.

L3							*	
L2	*		*		*		*	
L1	*		*		*		*	
	C	V ₁	C	V ₂	C	V ₃	C	V ₄
	f	o	n	o	l	o	y	i



- Final primary stress, Vowels 1-3 each have two gridmarks (222 = lapse)

How incorporation does the job for Dutch (F&U, p.7)



- Incorporation from the left = 2 2 2 → 3 1 2 = lapse resolved
- Incorporation from neighbors predicts 3rd > 2nd, excludes 2nd > 3rd

Faust & Ulfsgbjorninn's (2025): we can do the prominence hierarchy better

- F&U's main arguments against feet: unclear why unparsed syllables should be stronger than parsed dependents
- Why incorporation is better, in the words of F&U, p. 21: “[The Hierarchy of prosodic strength] is derived for free: it is a prediction of the approach, not something that requires additional assumptions.”

→ **Are we witnessing the death of the foot?**

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A more comprehensive empirical landscape: not one but two hierarchies

- The empirical picture is more complicated than $FH > UP > FD$
 - Not discussed in F&U, but also not (explicitly) discussed in the broader typological literature on metrical strength
- Not one but two hierarchies
 - Hierarchy 1: $FH (1^{st}) > UP (3^{rd}) > FD (2^{nd})$ (Dutch; good news for incorporation)
 - Hierarchy 2: $FH (1^{st}) > FD (2^{nd}) > UP (3^{rd})$ position (examples below; less good news for incorporation)
- My claim: both hierarchies taken together = **good news for the foot**

Evidence for Hierarchy 2:

FH (1st) > FD (2nd) > UP (3rd)

- Some examples from different types of phenomena across language families
 - Vocalic (trochaic) pattern: Old English (Germanic); also Smith (2024) for related patterns in Old Frisian and Old Norse
 - Consonantal (trochaic) pattern: Koyo (Bantu)
 - Tonal (trochaic) pattern: Suzhou Wu (Sinitic)
- Here: ‘standard’ foot-structure approach without recursion; not crucial for the empirical point

Vocalic pattern: Old English

- “High vowels delete after a heavy syllable or after two light syllables if they are themselves in an open syllable” (Dresher & Lahiri 1991: 252)
 - Bermúdez-Otero (2015), Goering (2016): delete unparsed vowels after an initial bimoraic trochee
 - $(g\acute{o}_{\mu\mu})d\textcolor{red}{u}_{\mu} \rightarrow g\acute{o}_{\mu\mu}d\emptyset$ ‘good, nom. pl. neut.’
 - $(w\acute{e}_{\mu}r\textcolor{red}{u}_{\mu})d\textcolor{red}{u}_{\mu} \rightarrow w\acute{e}_{\mu}r\textcolor{red}{u}_{\mu}d\emptyset$ ‘troops’
 - $(l\acute{o}_{\mu}f\textcolor{red}{u}_{\mu}) \rightarrow l\acute{o}_{\mu}f\textcolor{red}{u}_{\mu}$ *lóf ‘praises’
 - Bottom line: FD stronger than UP
- Unexpected with incorporation, works with feet

Consonantal patterns: Koyo (Bantu)

- Prosodic stem contains from one to four CV syllables, fourth one limited to the durative verb suffix -gV
- Fewer consonant contrasts from first syllable onwards (Hyman 2019: 67, Harris & Hyman 2023: 493)

[illegible]

Consonantal patterns: Koyo (Bantu)

- Harris & Hyman: positional prominence makes first syllable strongest, first two syllables form disyllabic foot
- Inferred representation: $(C_{18}V.C_{12}V)C_6V-C_1V$

18	C_1 :	p	b	w	m	mb	t	l	s	n	nd	ts	dz	y	ɲ	ndz	k	h	ŋg
12	C_2 :		b		m	mb	r	l	s	n	nd			y	ɲ	ndz	g		
6	C_3 :				m		r	l	s	n							g		
1	C_4 :																g		

- Bottom line: FD stronger than UP position
- → Unexpected with incorporation, works with feet

Possible complaint:

“But this is tone, not stress!”

From Harris & Hyman (2023):

- “[W]e can see very clearly how segmental prominence can manifest itself even in the absence of stress accent.” (p. 497)
- “[T]he prosodic stem can be larger than **a bisyllabic foot**. [...] A case in point is Koyo.”

Tonal pattern: Suzhou Wu (Sinitic)

- Seven lexical tones: 5 bimoraic, 2 monomoraic; 49 sandhi combinations
- General metrical pattern (Zhu 2023a: 1649): disyllabic trochee preferred, unless dependent would be heavier than head

Suzhou metrical feet (Zhu 2023a,b)

$(\sigma^+_{\mu} \cdot \sigma^-_{\mu})$ 😊 = full parse

$(\sigma^+_{\mu\mu} \cdot \sigma^-_{\mu})$ 😊 = full parse

$(\sigma^+_{\mu\mu} \cdot \sigma^-_{\mu\mu})$ 😊 = full parse

* $(\sigma^+_{\mu} \cdot \sigma^-_{\mu\mu})$ 😞 $\rightarrow (\mu^+ \cdot \mu^-) \mu^-$ 😊 = 3rd mora **unparsed**

Suzhou tonal distribution

$(\sigma_{\mu T} \cdot \sigma_{\mu T})$

$(\sigma_{\mu T \mu T} \cdot \sigma_{\mu T})$

$(\sigma_{\mu T \mu T} \cdot \sigma_{\mu T \mu T})$

$(\mu_T \cdot \mu_T) \mu \quad * (\mu_T \cdot \mu_T) \mu_T$

Zhu (2023a: 1653): “only footed moras are toned on the surface”
(Zhu 2024 for further phonetic evidence that these are toneless moras)

→ Light-heavy sandhi: FD stronger than UP position

→ Unexpected with incorporation, works with feet

Suzhou patterns in summary

Zhu (2023b: 209-210)

- Metrical heads: “optimal licenser of tones”
- Metrical dependents: “non-optimal licenser of tones, yet still need to be toned”
- Unfooted moras: “**the weakest of the three**, lose all underlying tones [and] cannot be toned at all.”

Interim summary

- Two hierarchies of metrical strength
 - Foot Head > **Unparsed** > **Foot Dependent** (incorporation-friendly)
 - Foot Head > **Foot Dependent** > **Unparsed** (excluded by incorporation; see F&U: p. 21)
- Can be expressed with feet if we assume that the relative prominence of foot dependents and unparsed positions can be reversed
- But... why do we get that reversal?

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Deriving the patterns from licensing constraints

- Köhnlein (2011, 2016) on Franconian tonal accent: two opposing forces in the licensing of tone
 - In some dialects, foot heads avoid L
 - In other dialects, all tones (including L) must be licensed by foot heads
 - Sometimes heads avoid L, sometimes L must go to a head
- Extension to strength scales:
top-down vs. bottom-up structure-licensing scales
- Expressed with unified implicational OT-style constraints (Anttila & Bodomo 2000; Köhnlein 2011, 2016); could be done in other frameworks

Top-down licensing: relation of feet to structure

- Foot heads prefer hosting 'heavier' structure, such as full vowels (= FV) in Dutch (*here*: structure = feature/segment/tone)
- Foot dependents prefer carrying lighter, non-prominent structural load, such as schwa in Dutch; can lead to reduction
- OT: conceptually in line with positional markedness
 - Sonority-based: de Lacy (2002, 2007) OR
 - Underspecification-based (such as featureless schwa in Dutch, e.g., van Oostendorp 2000)

Top-down licensing: informal definitions and scale

- FOOT-HEAD → STRUCTURE: A foot head 'wants' to license (prominent) structure
- FOOT-DEPENDENT → NOSTRUCTURE: A foot dependent does not 'want' to license (prominent) structure
- Unparsed syllables cannot be referenced
- Resulting scale = Hierarchy 1 (Dutch type)
 - Foot Head (attracts structure) > Unparsed (agnostic) > Foot Dependent (avoids structure)

Top-down wins in Dutch

(fò.**no**)lo.(ɣí:) → (fò.**nə**)lo.(ɣí:)

- Relevant constraint: FOOT-DEPENDENT → NoSTRUCTURE (here: FD → ə)
 - Violated by foot dependent [o] in 2nd position (FD) → reduced to [ə]
 - Not relevant for unparsed [o] in 3rd position → not reduced
- Works with incorporation and with feet
- See appendix for OT tableaux of all three attested reduction patterns

Bottom-up licensing: relation of structure to feet

- Structure prefers to be licensed by metrical units such as feet or, even better, foot heads
- Preference for strongest possible position → no bottom-up constraint specifically targets foot dependents
- OT: conceptually in line with positional licensing (Walker 2011) or positional faithfulness (e.g., Beckman 1999)

Bottom-up licensing: constraints and scale

- STRUCTURE → FOOT-HEAD: Structure 'wants' to be licensed by a foot head
- STRUCTURE → FOOT: Structure 'wants' to be licensed by a foot (= head *or* dependent)
- Once again, unparsed positions cannot be referenced
- Resulting scale = Hierarchy 2 ('Anti-Dutch' type)
 - Foot Head (1st, primary target) > Foot Dependent (2nd, secondary target) > Unparsed (3rd, not a target)

Bottom-up wins in Old English

$(wé_{\mu}ru_{\mu})d\textcolor{red}{u}_{\mu} \rightarrow (wé_{\mu}ru_{\mu}d)\emptyset$ 'troops'

- Relevant constraint: $V \rightarrow F\tau$
 - Satisfied by footed [u] in 2nd position; violated by unparsed [u] in 3rd position
→ [u] in 3rd position deletes
- Unexpected with incorporation, works with feet
- See appendix for OT tableau and a few additional notes

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Conclusion I: the core of the argument

- Not one, but two scales of metrical strength
 - Hierarchy 1: Foot Head > Unparsed > Foot Dependent
 - Hierarchy 2: Foot Head > Foot Dependent > Unparsed
- Foot structure: different outcomes of bottom-up versus top-down licensing
- Incorporation: less clear
 - FH (1st) > UP (3rd) > FD (2nd) follows from F&U
 - FH (1st) > FD (2nd) > UP (3rd) excluded by F&U
- → Foot structure sees another day

Conclusion II: the bigger picture

- This talk has been inspired by the claims F&U (2025)
 - Main goal: clarify the empirical picture
 - Additional goal: work towards a principled analysis of these patterns with foot structure
- Independent of what the ‘better’ theory of stress/metrical structure is: without F&U’s paper, I may not have revisited this issue

Thank you

- A special thanks goes to Noam Faust & Shanti Ulfsbjorninn for their thought-provoking work on metrical theory
- This research is supported by the National Science Foundation (BCS-1845107)

Appendix

OT Tableaux

Top-Down wins in Dutch: reduction of FD only in semi-formal speech style

	fonolo(yí:)	FD → ə	FAITH	FV → Ft
a.	→ (fò.nə)lo.(yí:)		*	*
b.	(fò.no)lə.(yí:)	*!	*	
c.	(fò.no)lo.(yí:)	*!		*
d.	(fò.nə)lə.(yí:)		**!	

But bottom-up can still play a role:
low-ranked FAITH in casual speech style

Top-Down

Bottom-up

	fonolo(yí:)	FD → ə	FV → Ft	FAITH
a.	(fò.nə)lo.(yí:)		*!	*
b.	(fò.no)lə.(yí:)	*!		*
c.	(fò.no)lo.(yí:)	*!	*	
d.	→ (fò.nə)lə.(yí:)			**

No reduction at all when FAITH dominates in formal speech style

Top Down

Bottom up

	fonolo(yí:)	FAITH	FD $\rightarrow$ ə	FV $\rightarrow$ Ft
a.	(fò.nə)lo.(yí:)	*!		*
b.	(fò.no)lə.(yí:)	*!	*	
c. $\rightarrow$	(fò.no)lo.(yí:)		*	*
d.	(fò.nə)lə.(yí:)	**!		

Bottom-up wins in Old English: deletion of unparsed high vowel*

		Top-Down		Bottom-up
	(we.ru).du	V → FT	MAX-HIGHV	FD → NoSTRUC
a.	→ (we.rud)ø		*	*
b.	(we.rø).du	*!	*	
c.	(we.ru).du	*!		*
d.	(we.rø)dø		**!	

derivational/stratal model where root structure is in place and preferably preserved after the vowel is lost. Alternatively, this could be modelled by assuming that foot dependents preferably do not dominate vocalic features (see constraint REDUCE in Kager 1997).

More on Koyo

More formal OT constraint definitions

Top-down licensing: constraints and scale

- FOOT-HEAD → STRUCTURE: Assign one violation mark for every foot head that does not license structure (= feature/segment/tone)
- FOOT-DEPENDENT → NOSTRUCTURE: Assign one violation mark for every foot dependent that licenses structure (= feature/segment/tone)
- Unparsed syllables cannot be referenced
- Resulting scale = Hierarchy 1 (Dutch type)
 - Foot Head (attracts) > Unparsed (agnostic) > Foot Dependent (avoids)
 - Slides for Dutch in appendix

Bottom-up licensing: constraints and scale

- STRUCTURE → FOOT: Assign one violation mark for every feature/segment/tone that is not licensed by a foot (= foot head *or* foot dependent)
- STRUCTURE → FOOT-HEAD: Assign one violation mark for every feature/segment/tone that is not licensed by a foot head
- Once again, unparsed positions cannot be referenced
- Resulting scale = Hierarchy 2 ('Anti-Dutch' type)
 - Foot Head (1st, primary target) > Foot Dependent (2nd, secondary target) > Unparsed (3rd, not a target)
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Vocalic iambic pattern: Yidin^y

- Final vowels often delete in odd-syllable words (= when they are unparsed by a foot; e.g., Dixon 1977a, b, Hayes 1995, Hall 2000)
- Evidence from...
 - Allomorph selection
 - Stem alternations

Allomorph selection in Yidin^y

- Hall (2000: 10): “The production of even-parity through allomorphy is extensive in Yidin^y. Ten affixes have alternate forms for attaching to odd and even parity bases, always with the result of an even-parity output.”

a. $/\text{bun}^y\text{a} + \begin{bmatrix} \text{ni} \\ \text{n} \end{bmatrix} / \rightarrow \text{bun}^y\text{án} \quad \text{‘woman – GENITIVE’}$

b. $/\text{gudaga} + \begin{bmatrix} \text{ni} \\ \text{n} \end{bmatrix} / \rightarrow \text{gúdagáni} \quad \text{‘dog – GENITIVE’}$

Stem alternations

- Hall (2010: 15): “There are also about 80 nominal roots that have both 2- and 3-syllable allomorphs. The 2-syllable forms always appear when the root is unaffixed [...].”
- Note: not entirely predictable across the lexicon

reducing roots

gad^yara ~ gad^yar ‘possum’
bigunu ~ bigun ‘shield’
wayili ~ wayil ‘red bream’

non-reducing roots

gud^yara ‘broom’
dyudulu ‘brown pigeon’
galgali ‘curlew’

Some diachrony

Some basics

The Franconian tone accents...

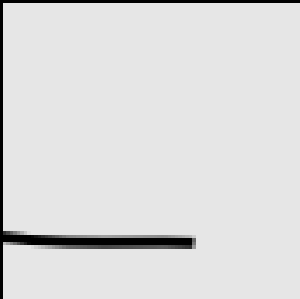
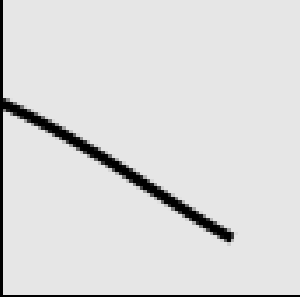
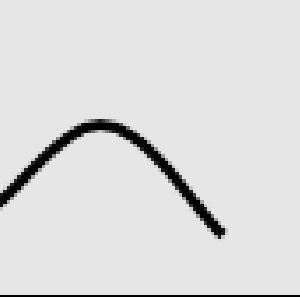
- are two phonologically distinctive word accents (Accent 1 and Accent 2)
- are usually restricted to heavy syllables with two sonorant 'moras' (VV, VR)
 - VV = Long Vowel (V), diphthong; VR = Short vowel plus coda sonorant (R)
- distinguish lexical items
[ʔʔʔ¹] 'basket' vs. [ʔʔʔ²] 'man'
- distinguish morphological units
[ʔtain¹] 'stone-pl' vs. [ʔtain²] 'stone-sg.'

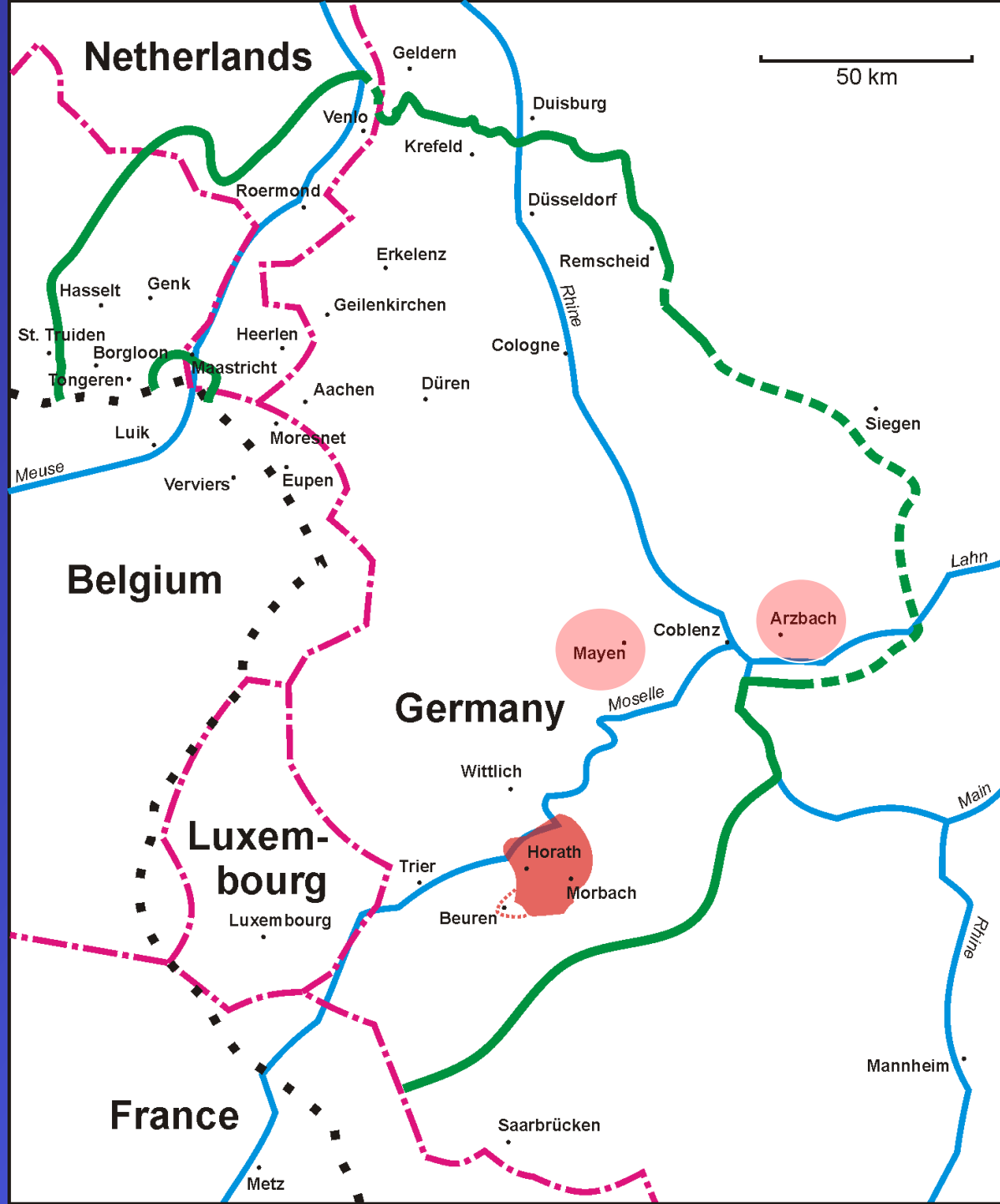
Cross-dialectal variation

- 1. The realization of the accents can differ, sometimes drastically
- 2. What words get Accent 1 and Accent 2 can differ across dialects
- Categorized with a somewhat idiosyncratic system (different 'rules', Rule A, Rule B, Rule A2, etc.)

A default 'Rule-A' system (Cologne, Peters 2006)

Phrase-medial realizations

Context	Accent 1		Accent 2	
Declarative, non-final position				
Interrogative, non-final position				



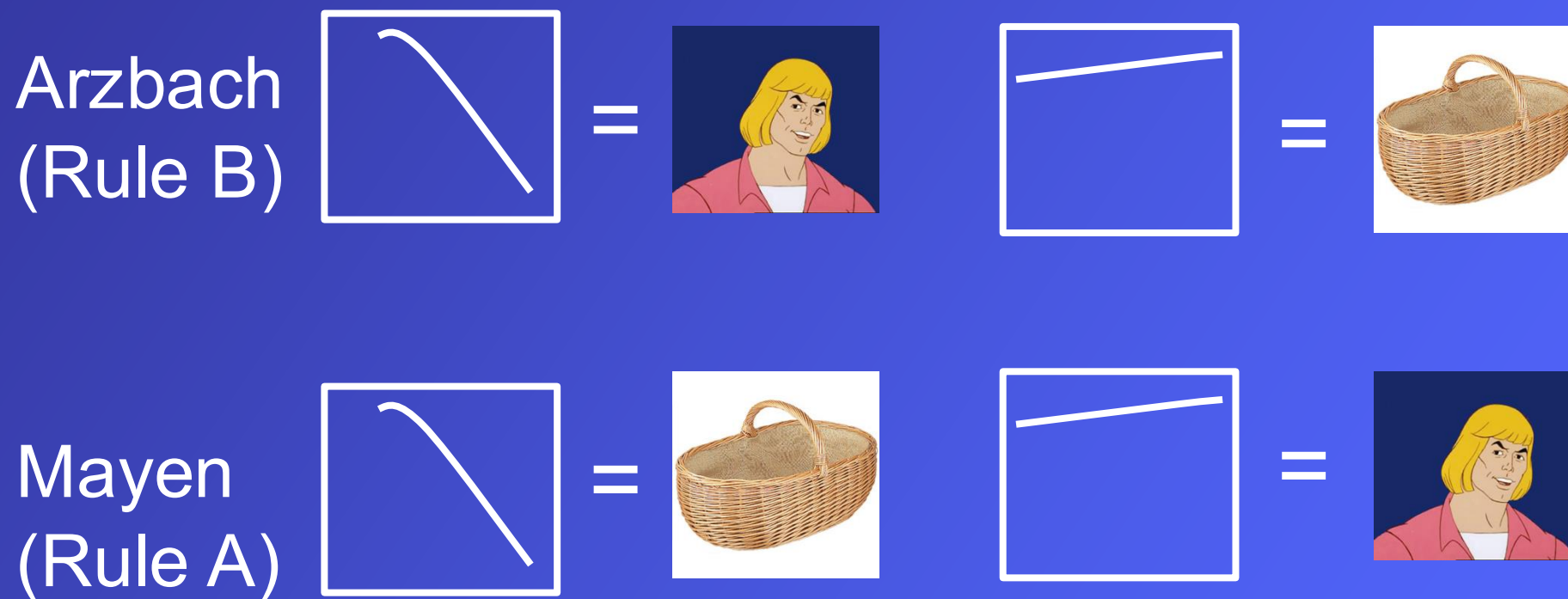
Adolf Bach's findings and claims

- In 1921, Adolf Bach writes about his findings in the Moselle-Franconian dialect of Arzbach:

“The dialect of Arzbach displays a strange fact: We find a falling tone almost always where we don't find it [in other dialects], and vice versa.”

Bach 1921, S. 266. [My translation]

The Arzbach Reversal



Was Bach correct?

- After Bach's claims no additional research in the area for almost 90 years
- Different opinions on how reliable the data are
- Some accepted Bach's findings, but also critical voices

Doubts

- “[It is possible] that Bach has merely mixed up the terms for TA1 and TA2, the dialect belonging to Rule A.”

de Vaan 1999, S. 27

My dissertation in a nutshell

- Fieldwork in Arzbach (always at the house of the Gerharz family)
 - Perception tests
 - Production tests
 - Diachronic and synchronic analyses (incorporating data from other dialects)

Accent 1 vs. Accent 2 in Arzbach Franconian (my fieldwork)

Example:

[ət hɔtn man gəzɛ:n]

‘it has a man/basket seen’

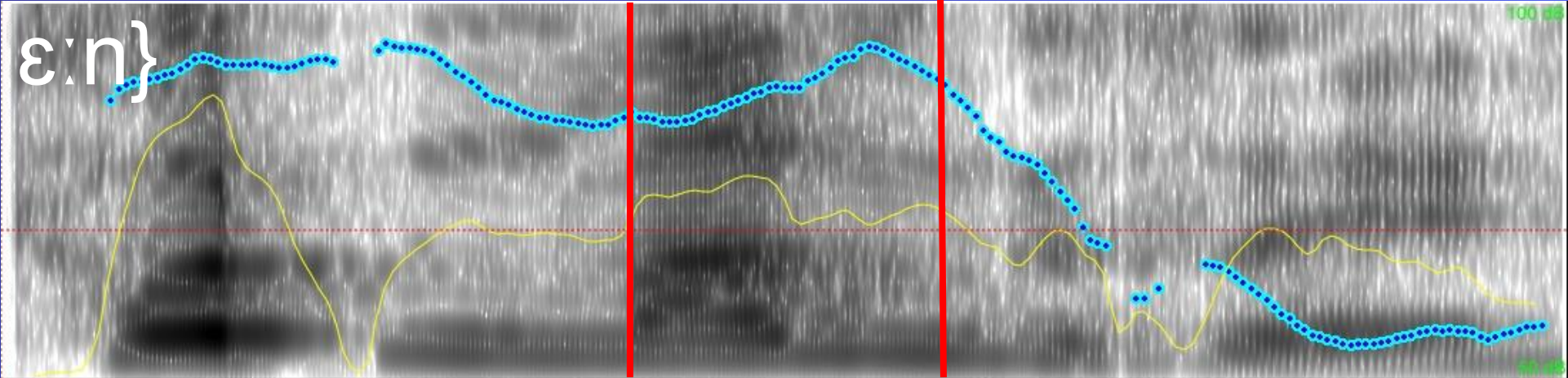
[man¹] ‘basket’



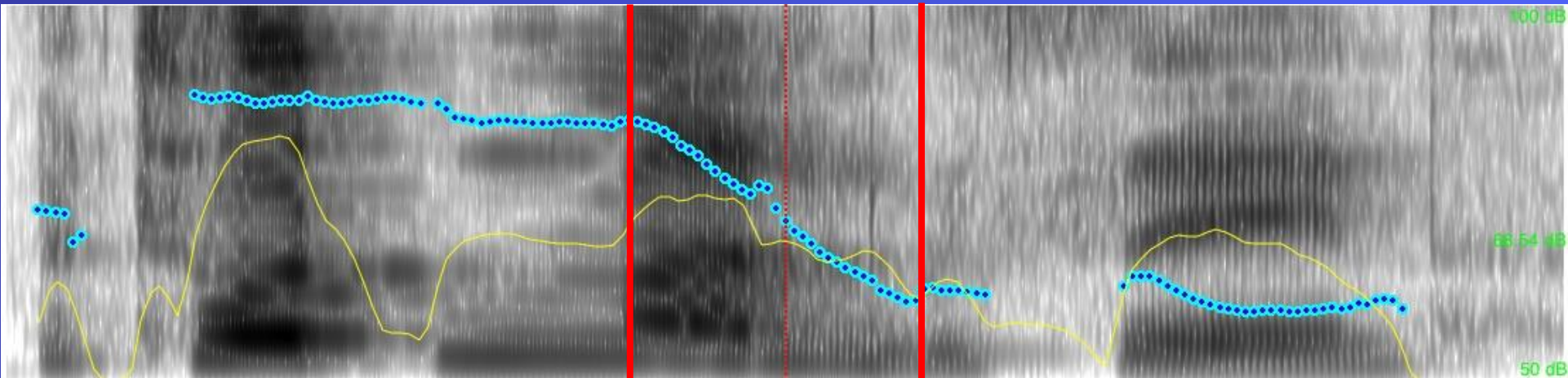
[man²] ‘man’



{ət. h ɔ t n m **a** **n** gə z

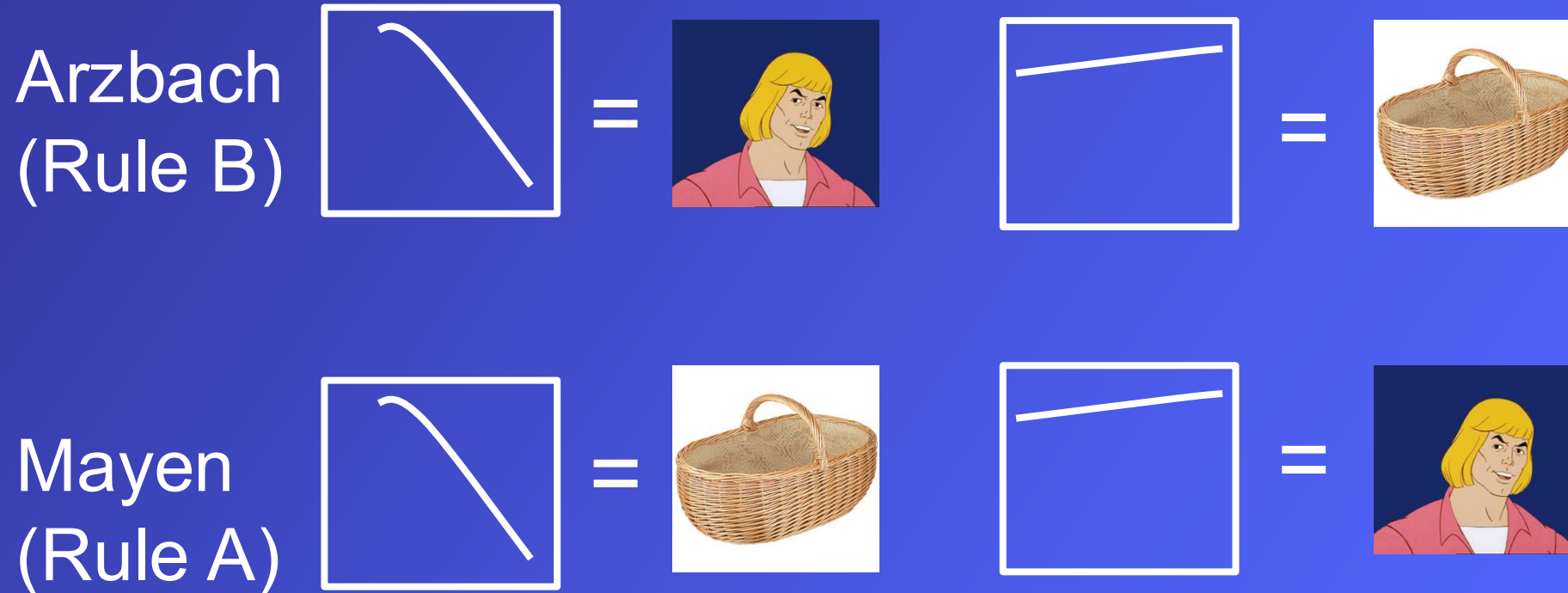


[man¹] 'basket'

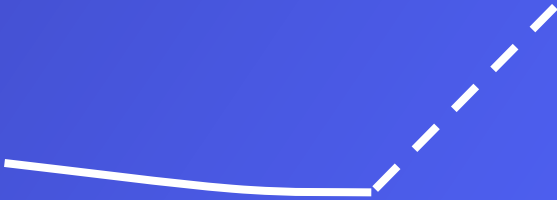


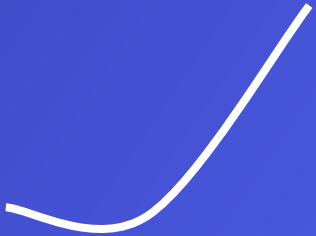
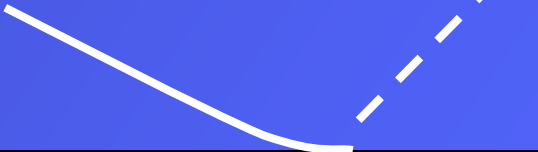
[man²] 'man'

The Arzbach Reversal in declaratives



Non-reversed tonal contours: Interrogative, non-final position

Mayen (Rule A, Schmidt 1986)	
[man ¹] 'basket' 	[man ²] 'man' 

Arzbach (Rule B, Köhnlein 2011)	
[man ¹] 'basket' 	[man ²] 'man' 

Semi-reversal across dialects

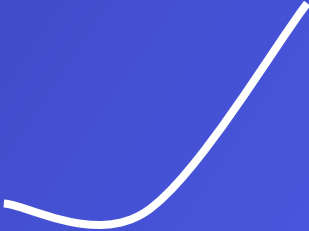
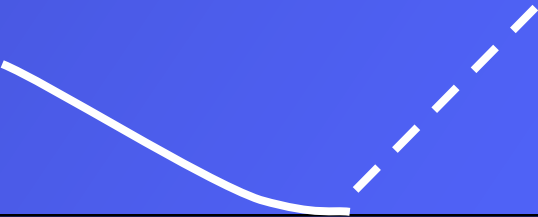
- Declarative melodies in Rule B the opposite of Rule A
- Interrogative melodies in Rule B similar to Rule A

Reversal within Rule B

- Opposing patterns of tonal alignment
 - Accent 1 has a later fall than Accent 2
 - Accent 1 has an earlier rise than Accent 2

Tonal contours in Arzbach: Non-final focus position

Declaratives	
[man ¹] 'basket'	[man ²] 'man'
	

Interrogatives	
[man ¹] 'basket'	[man ²] 'man'
	

Questions I will talk about today

- How did tonal accent arise?
- How did the semi-reversal in Arzbach (Rule B) arise?

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- How did tonal accent arise?
- How did the semi-reversal in Arzbach (Rule B) arise?

Diachrony: Bach's Generalization

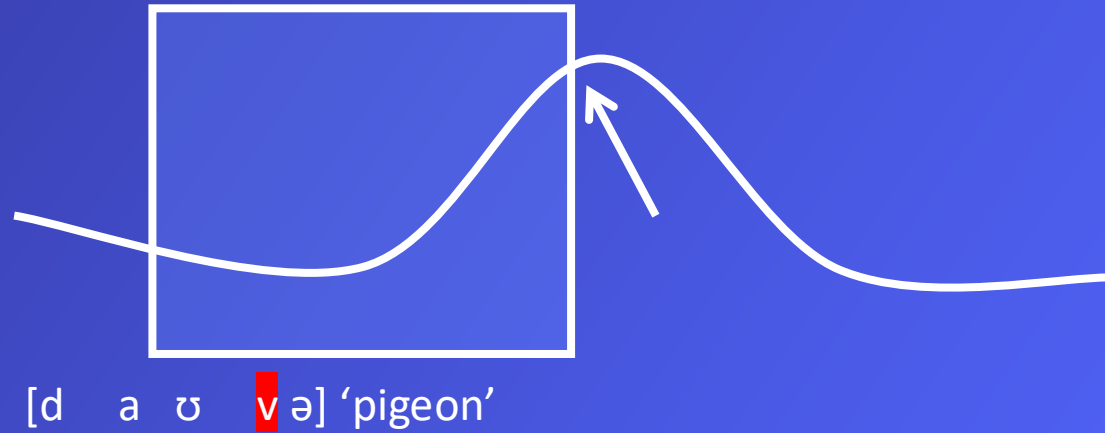
- Bach (1921): Distribution of tonal accent reflects an original durational difference between two groups of vowels
- Relatively long: Accent 1; relatively short: Accent 2
- Basic idea used in Schmidt (2002), Köhnlein (2013, 2015), Boersma (2017), Köhnlein, Cameron & Coppola (forthcoming)
- Alternative approach: Gussenhoven (2000, 2004, 2018)

Towards the genesis

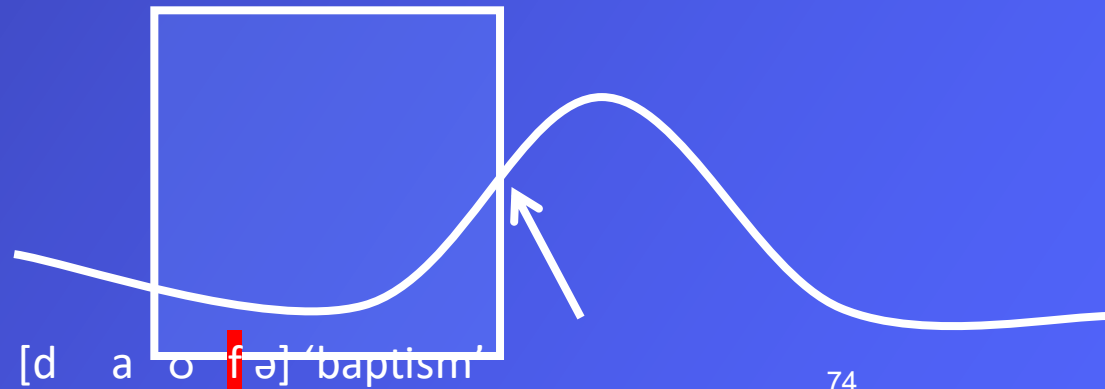
- Franconian originally had a rising-falling contour to mark focus (Köhnlein 2013, 2015)
- The initial rise started in the accent syllable
- The shape was influenced by the duration of the syllable rhyme
- Apocope triggered tonal accent (cf. Schmidt 2002; see also Hasenclever 1904)
- Details and distributional dialect typology discussed in Köhnlein, Cameron & Coppola (forthcoming)

Original situation

Pre-Accent 1

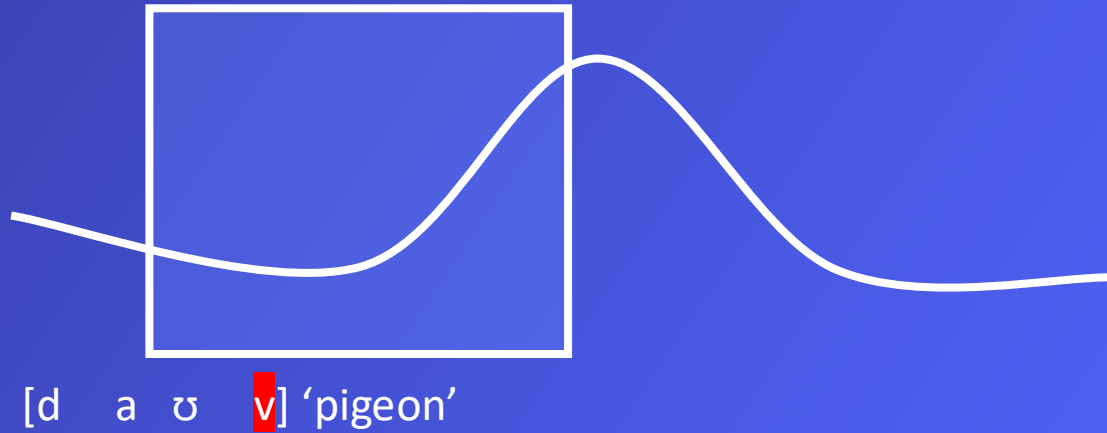


Pre-Accent 2

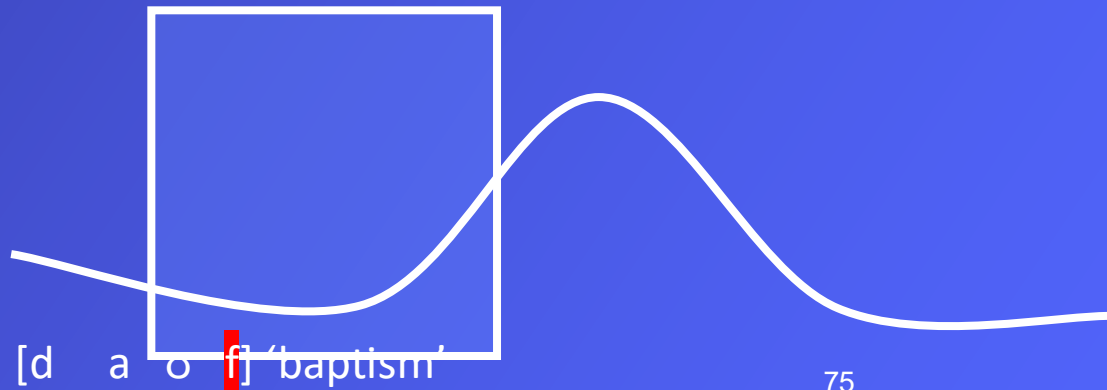


Apocope

Pre-Accent 1

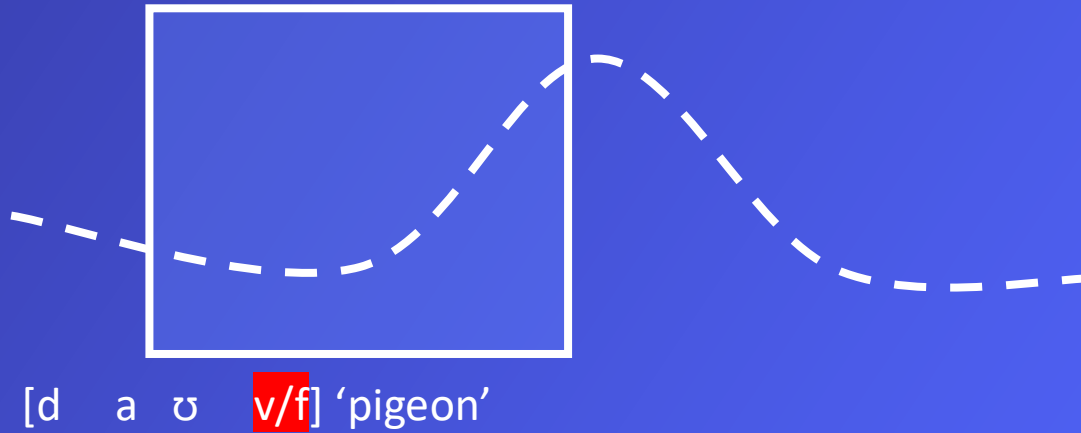


Pre-Accent 2

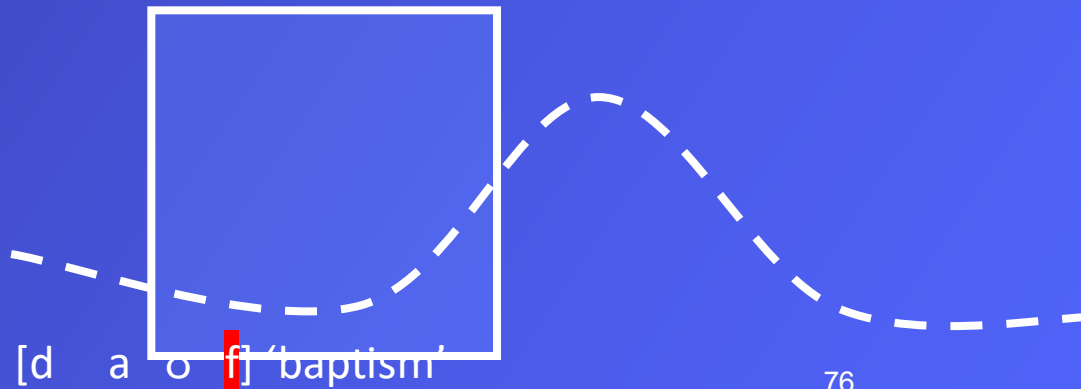


Tendency to devoice

Pre-Accent 1

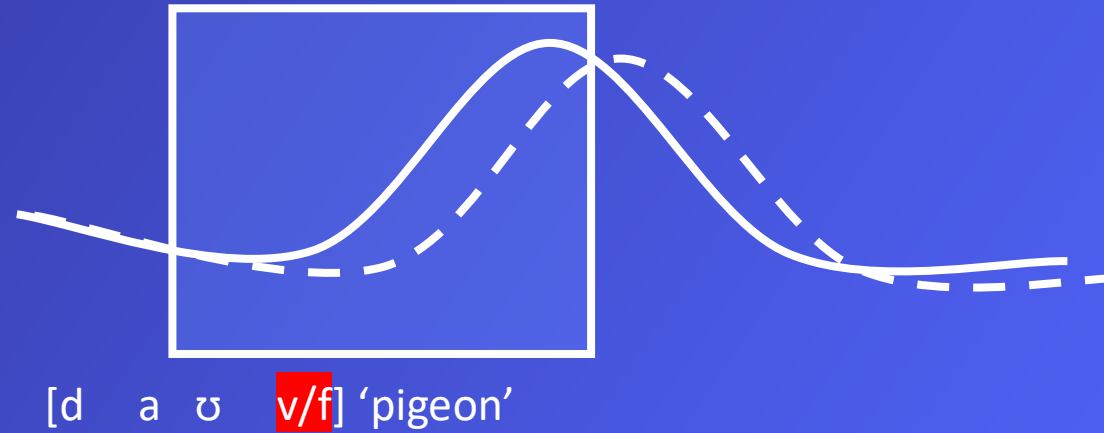


Pre-Accent 2

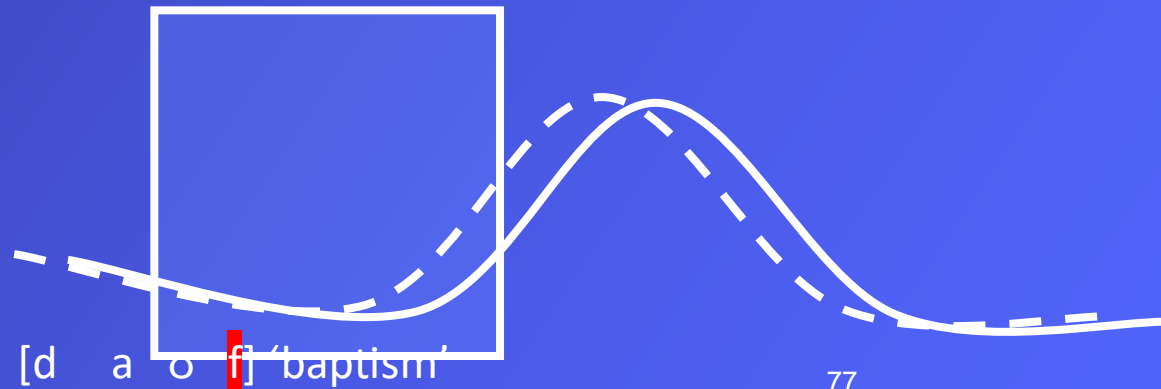


Exaggeration of tonal contrast

Pre-Accent 1

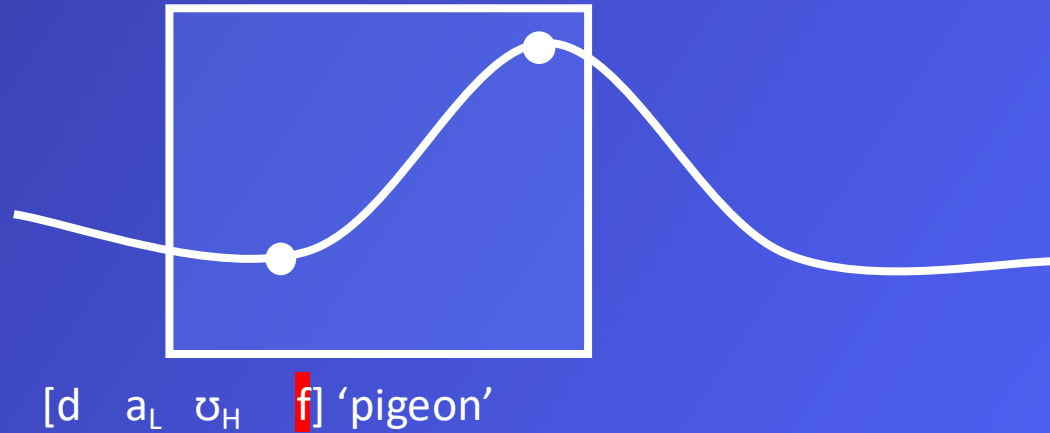


Pre-Accent 2

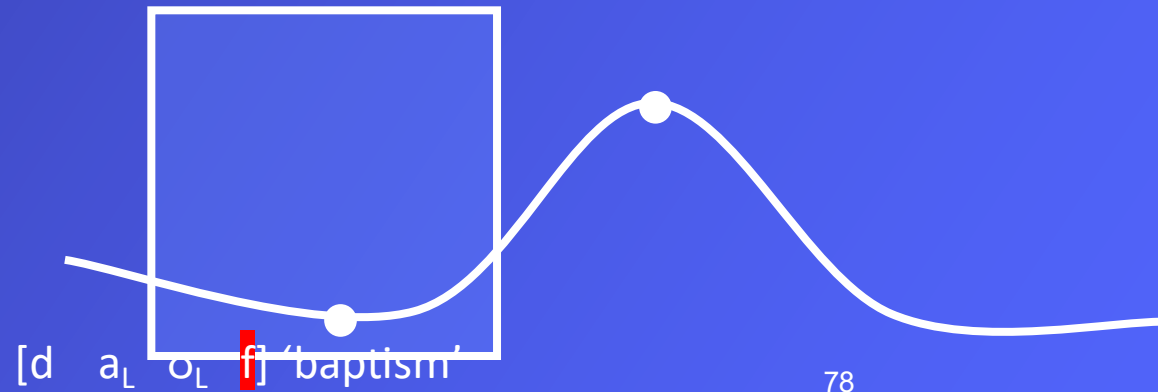


Genesis of tonal accent

Accent 1

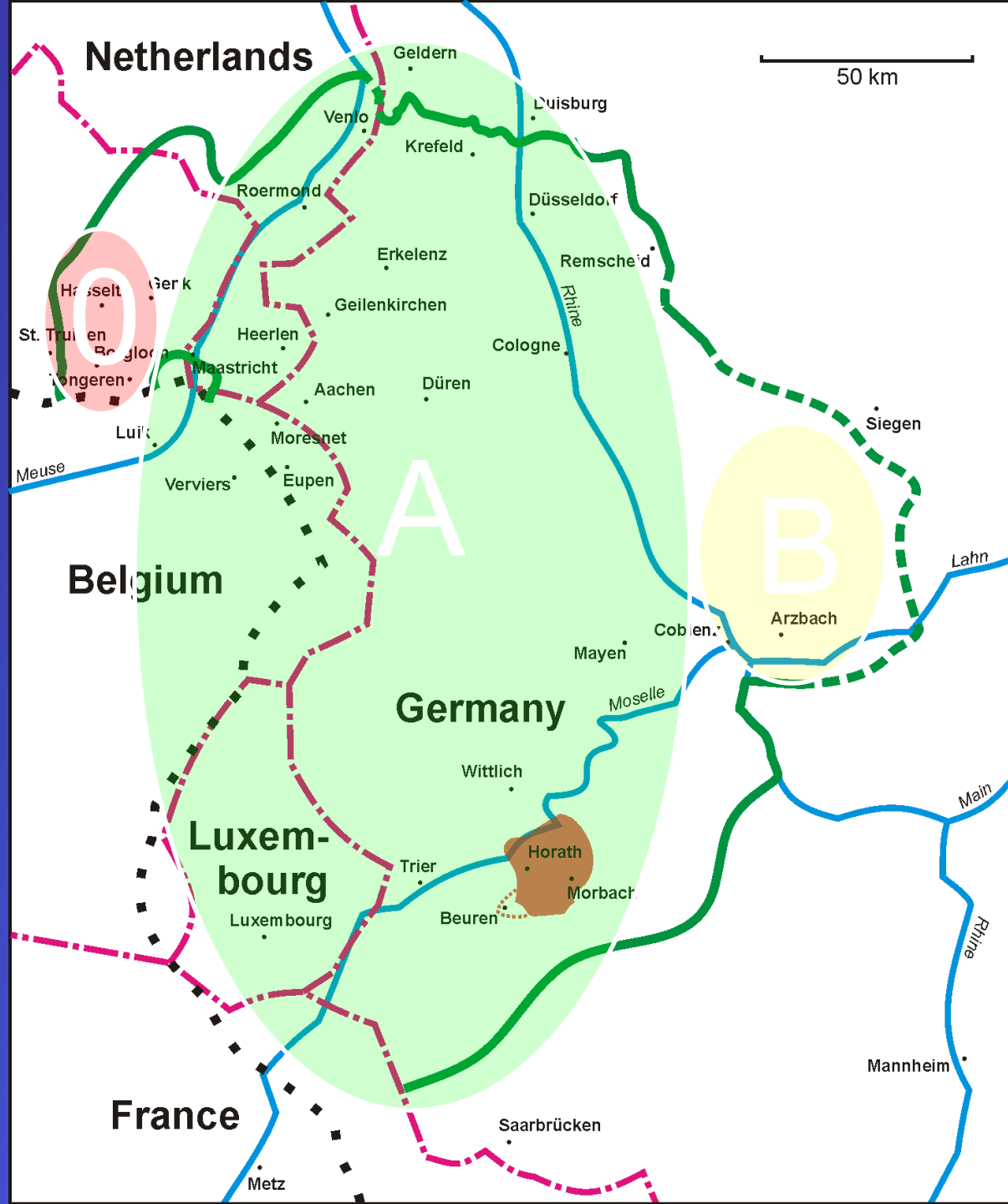


Accent 2



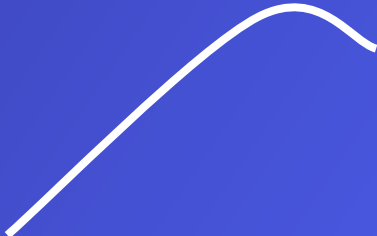
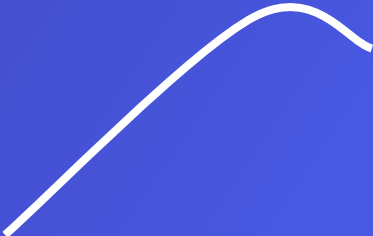
Questions I will talk about today

- How did tonal accent arise?
- How did the semi-reversal in Arzbach (Rule B) arise?



Tonal contours in Rule 0

Hasselt (Peters 2004)

Non-final foc	Accent 1	Accent 2
Declarative		
Interrogative		

Comparing contours across dialects

	Accent 1			Accent 2		
Area	0	A	B	0	A	B
Declarative						
Interrogative						

Comparing contours across dialects

	Accent 1			Accent 2		
Area	0	A	B	0	A	B
Declarative						
Interrogative						

Comparing the contours: results

- Declarative contours very different

$$0 \neq A \neq B$$

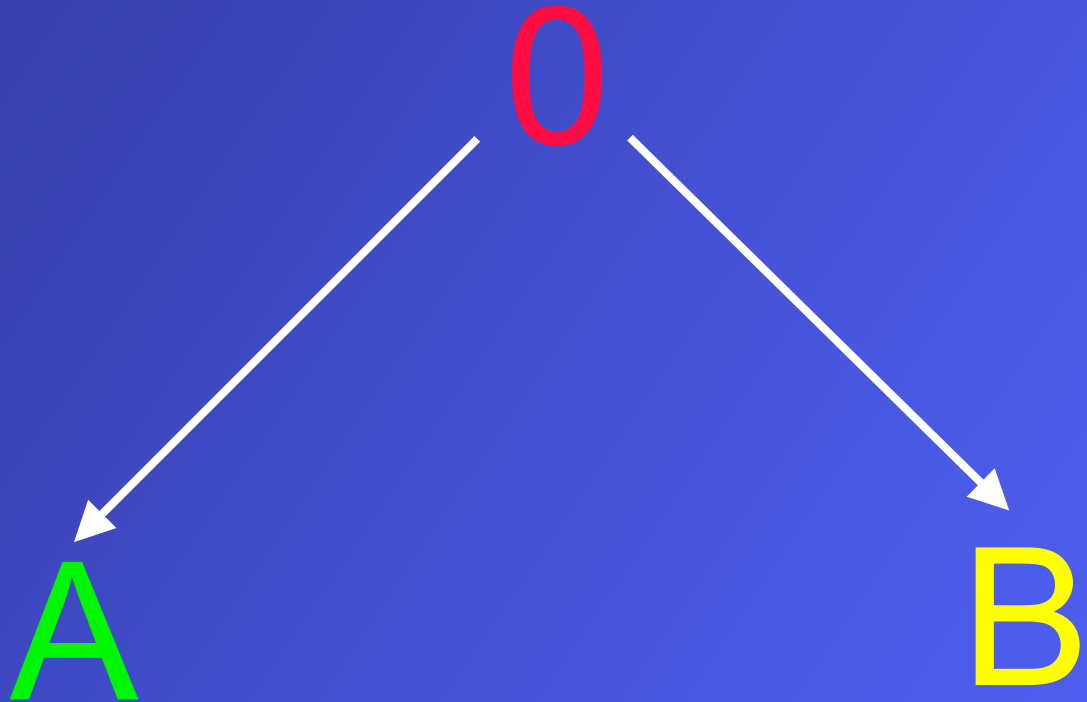
- Interrogative contours very similar

$$0 \approx A \approx B$$

My proposal

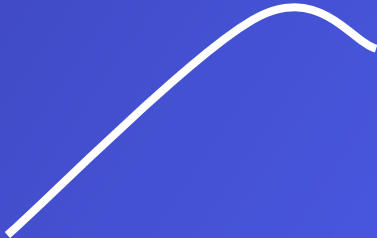
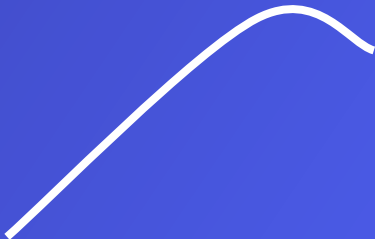
- Proposal: interrogatives intonation reflects an old common stage of Franconian
- Rule 0 (rising contours in declaratives and interrogatives) is the predecessor of Rule A and Rule B

My proposal



Tonal contours in Rule 0

Hasselt (Peters 2004)

Non-final foc	Accent 1	Accent 2
Declarative		
Interrogative		

Explaining the developments towards Rule A and Rule B

- The first questions are:
 - Why did declaratives change?
 - Why did interrogatives remain conservative?

Why did declaratives change?

- In most intonational languages, default (nuclear) stress is marked with high tone or falling tone, certainly in declaratives (Bolinger 1972)
- → rising declarative intonation is marked (certainly in West Germanic)

Why did declaratives change?

- Claim: Rule A and Rule B both gave up the marked declarative intonation but chose different adaptation strategies
- ‘Goal’ 1: high pitch/tone in the nuclear syllable for both accents
- ‘Goal’ 2: high tone as most important tone in focus syllable (starred tone)

Why did interrogatives remain conservative?

- Rising intonation in question is the cross-linguistically unmarked question intonation
- Therefore, there was no “pressure” to adapt these contours
- Consequence: they remained the same

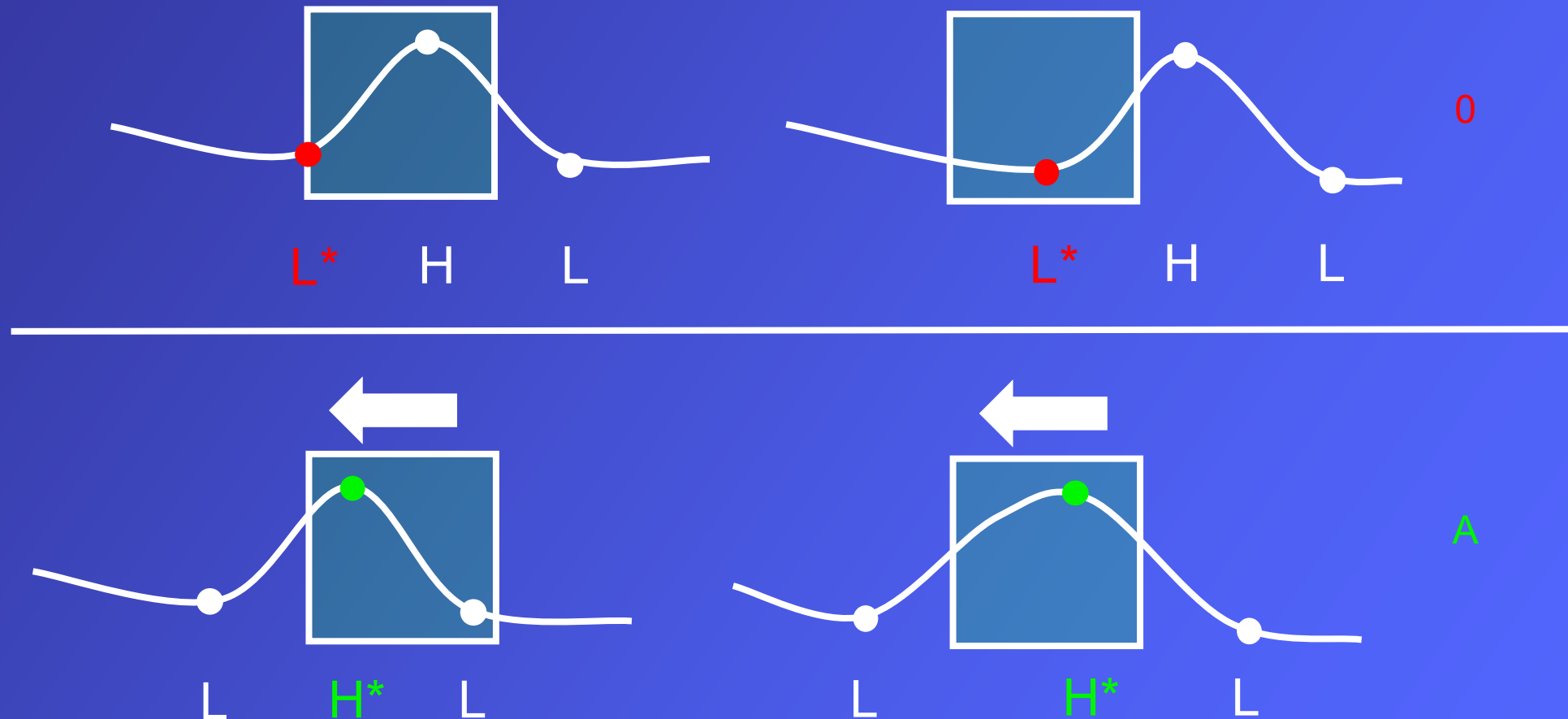
Two strategies to optimize the marked declaratives

- Horizontal adjustments Rule A
- Vertical adjustments Rule B

Rule A

Leftwards shift

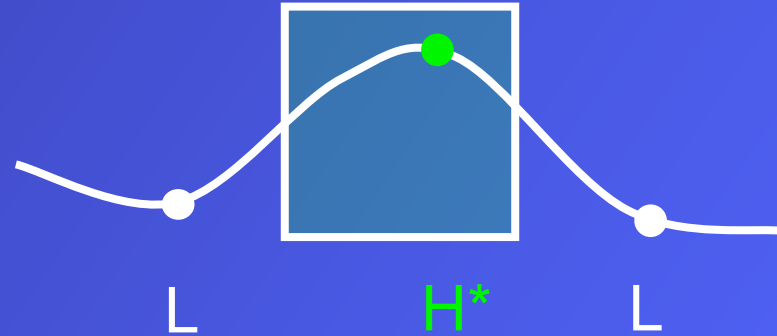
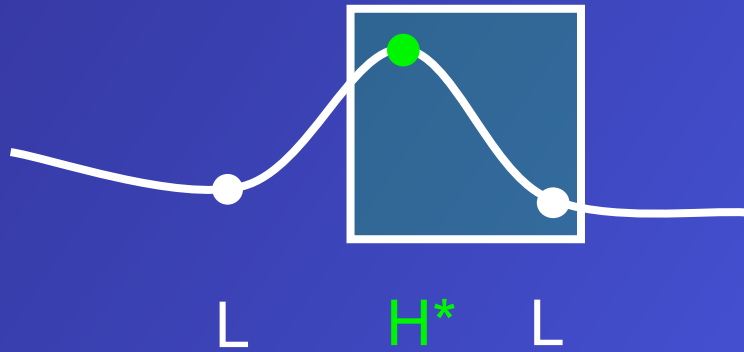
L^*HL (**Rule 0**) becomes LH^*L (**Rule A**)



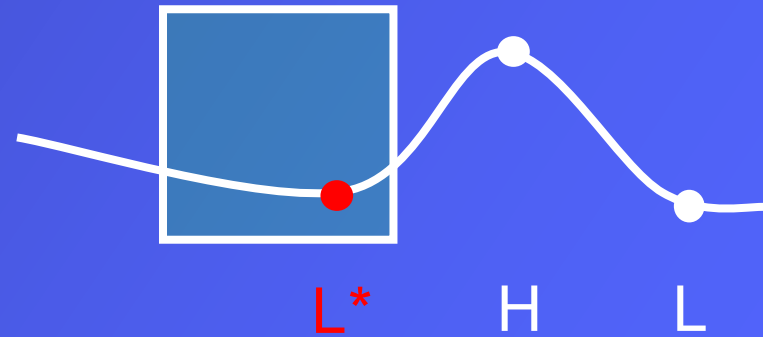
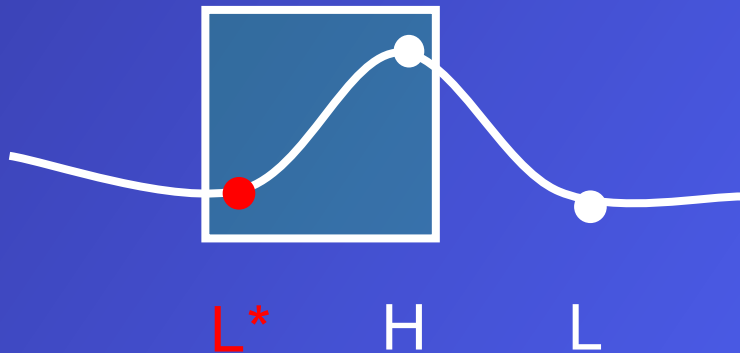
Rule A

The recent system

Declarative



Interrogative



Two strategies to optimize the marked declaratives

- Horizontal adjustments Rule A
- Vertical adjustments Rule B

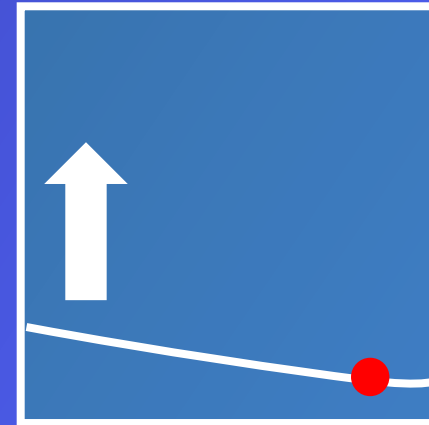
Rule B

Vertical adjustment (focus σ)



L^*

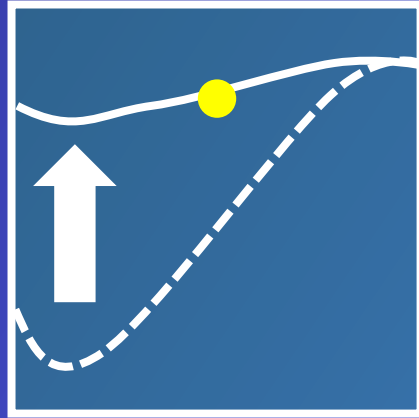
H



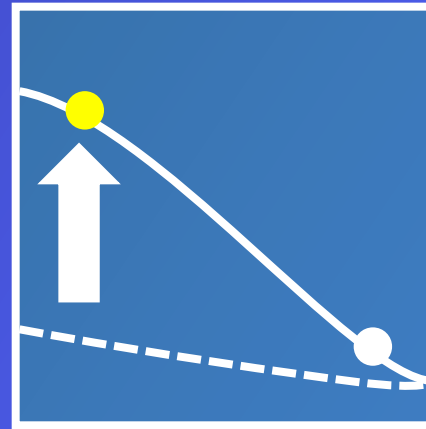
L^*

Rule B

Vertical adjustment (focus σ)



H^*



H^*

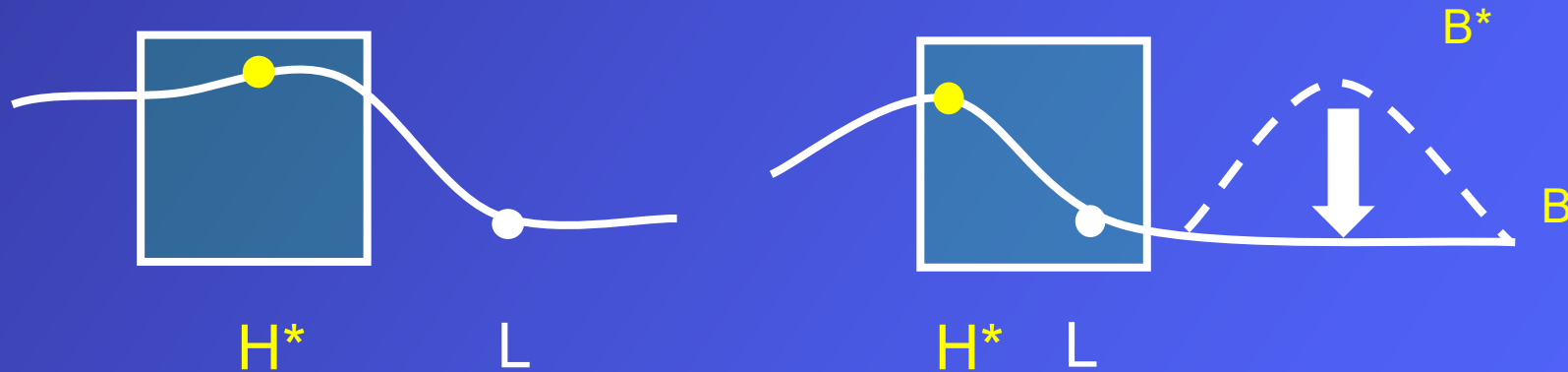
L

As you can see...

- These different strategies derive the reversed accent contours in Rule A and Rule B
- But...
- If we look at the whole sentence intonation, there is one problem: the post-nuclear contour for Accent 2

Rule B

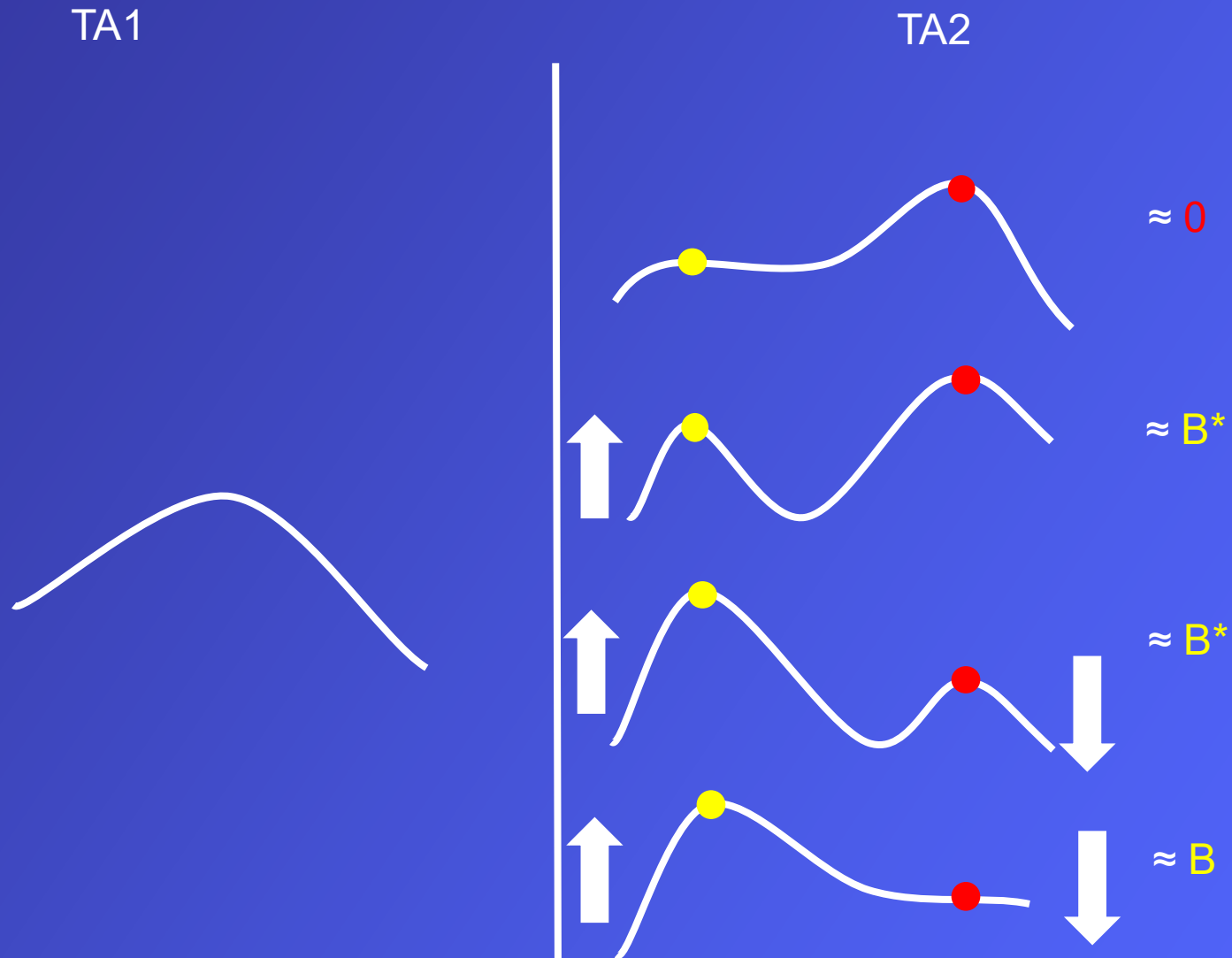
Vertical adjustment (post-focal)



Rule B*

- Two-peak realization of TA 2 (in Declarative)
- Unattested as a 'stable system' in Franconian
- However the dialect of Borgloon (basically Rule 0, data from Peters 2007) seems to come very close
- 4 alternative realizations of Accent 2 in phrase-final position, some look like 0, some like B*, some like B

Borgloon: final position



Rule B

Vertical adjustment (post-focal)



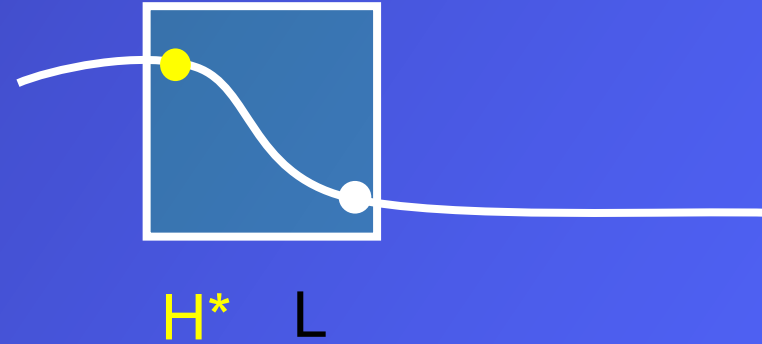
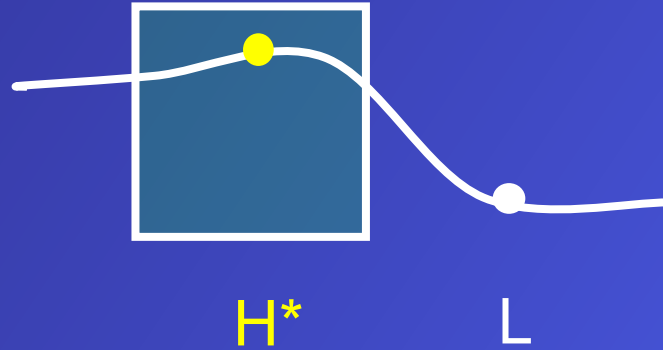
Why Rule B* → Rule B

- HLH is a very marked tonal contour in languages (Bolinger 1972), and certainly in dialect areas neighboring to Rule B / West Germanic in general (e.g. Schmidt 1986, Gilles 2005, Peters 2006)
- Second H can disappear due to “total downstep” (e.g. Meussen 1970)

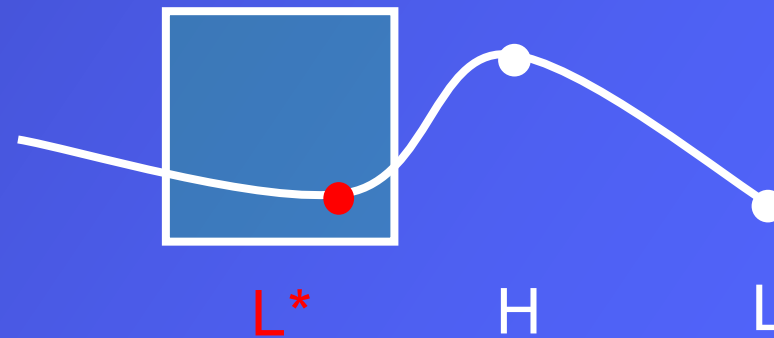
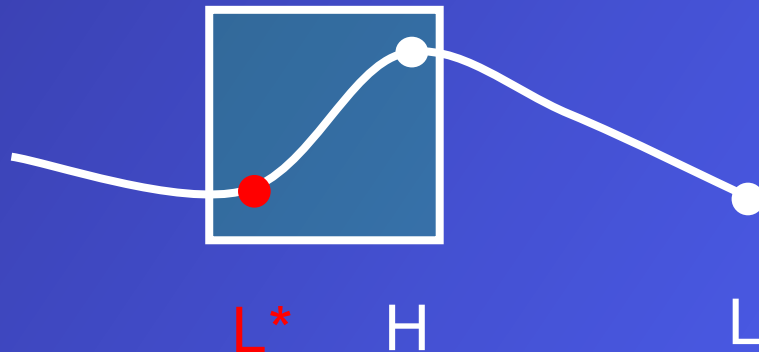
Rule B

The recent system

Declarative



Interrogative



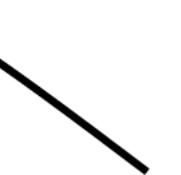
Summary diachrony

- Original system Rule 0 had rising contours in declaratives *and* interrogatives
- Difference between Rule A and Rule B is the result of different adjustments of pitch contours, leading to a high starred tone in declaratives
- Two different strategies
 - Leftward shift → Rule A
 - Vertical adjustments → Rule B
- These diverse strategies lead to *reversed tonal contours* in focus syllables

Similarities in North Germanic

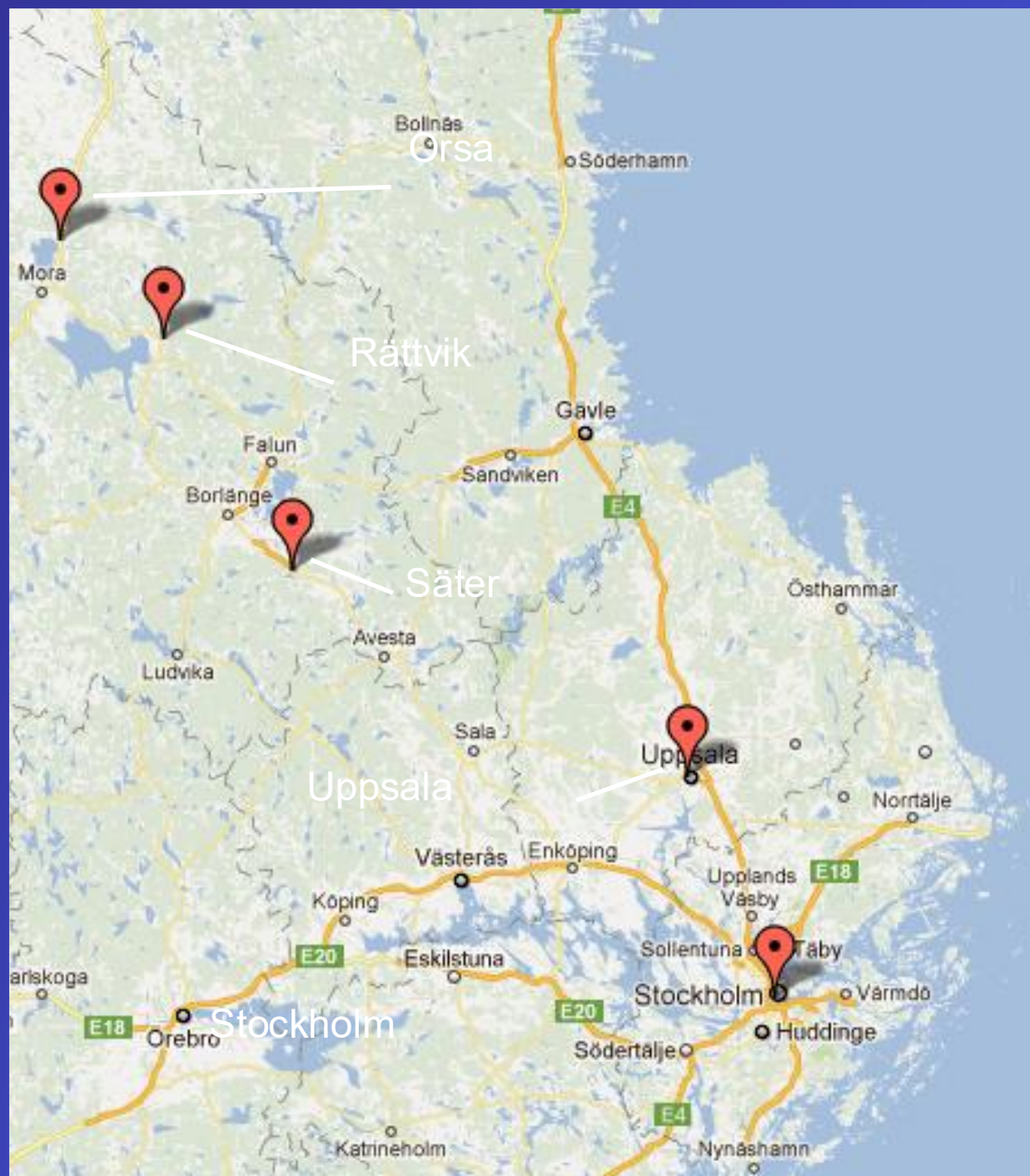
Central Swedish contours

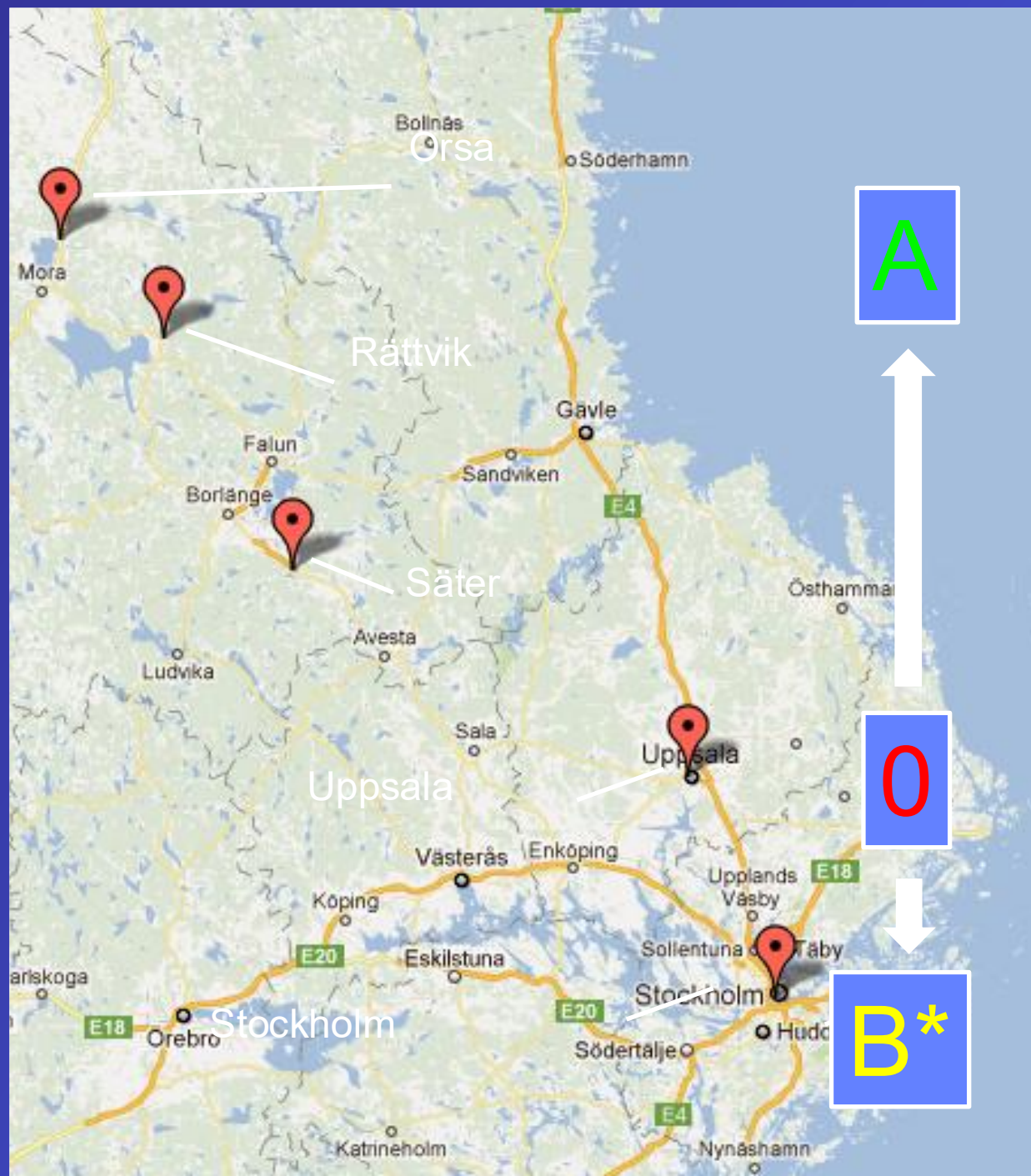
Minimal pair	[¹ and-ən] ‘duck-the’			[² andə-n] ‘spirit-the’		
Accent type	σ	Accent 1		σ	Accent 2	
Tonal contour						
Syllable structure	σ	σ	σ	σ	σ	σ
	(H)	LH _P	L%		HL	H _P L%

Accent type	Accent 1		Accent 2	
Syllables	σ	σ	σ	σ
Type 2B (e.g. Urban East Norwegian)				
Type 2A (e.g. Central Swedish)				
Type 1B (e.g. Dala Swedish)				
Type 1A (e.g. Malmö Swedish)				

Similarities in North Germanic

- Claim: both proposed adjustments are attested in North Germanic dialects (we will look at Swedish)
- *leftward shift*: first proposed in Meyer (1937), formalized in Riad (1998, 2000), confirmed by Engstrand (2002); opposite view in Bye (2004, 2007, 2011)
- *Vertical adjustments*: my claim, in line with Meyer, contra Riad
- Crucial difference to Franconian: affected all contours (no difference between declaratives and interrogatives)





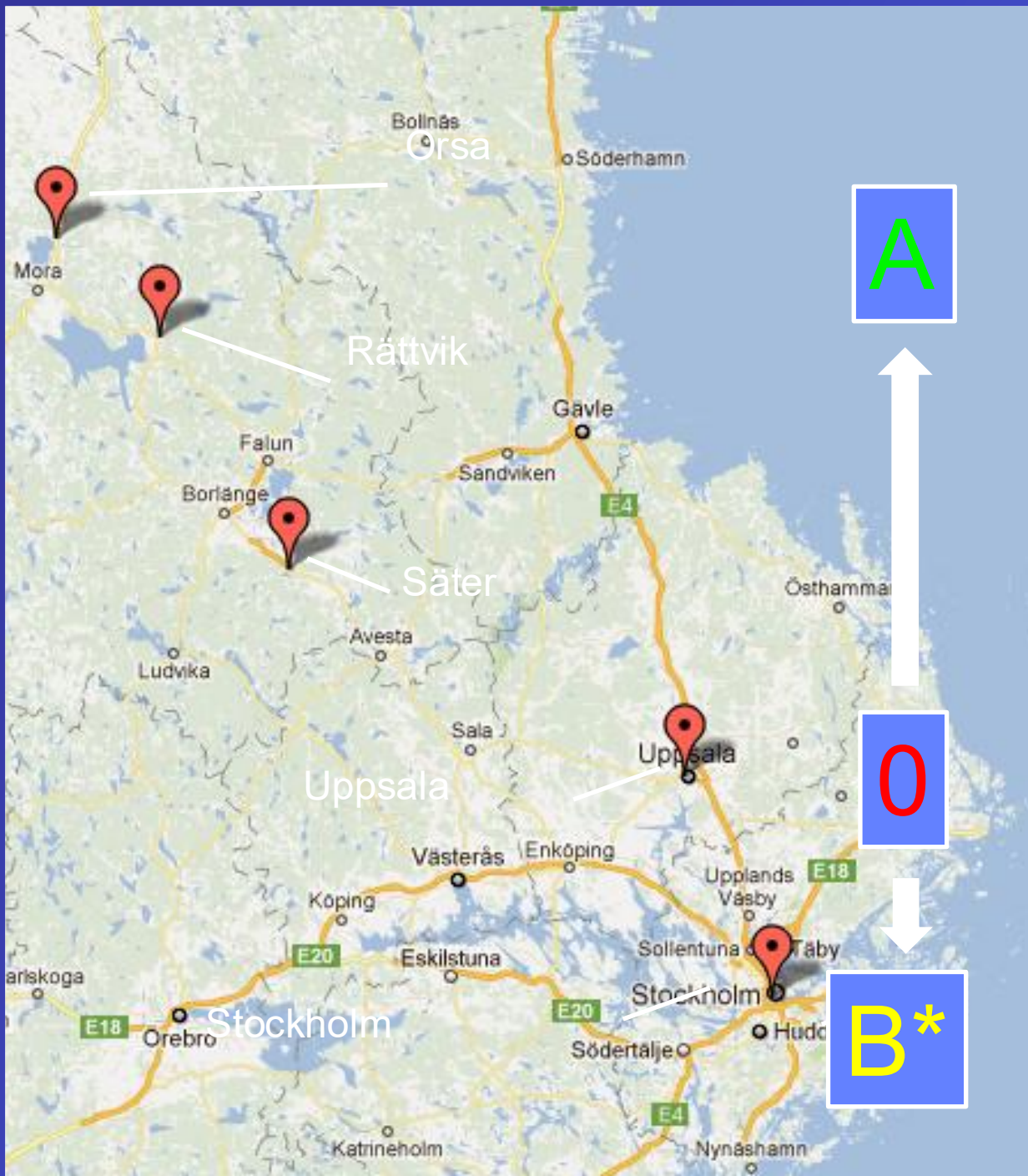
A



0



B*



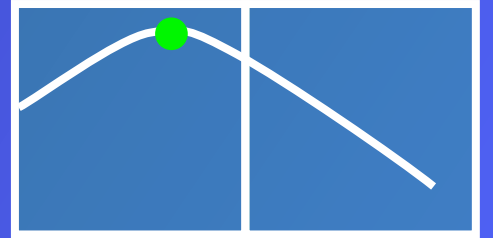
A

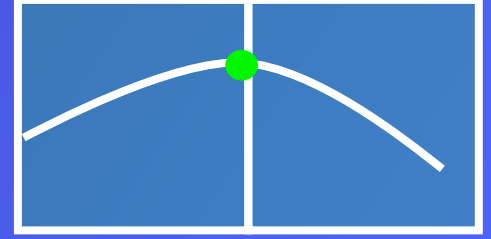
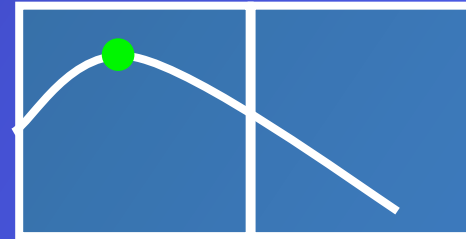
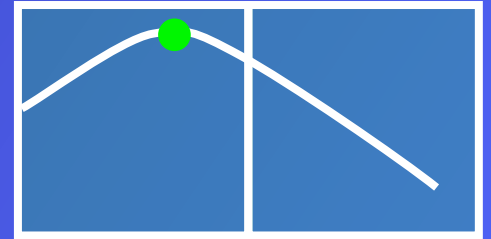
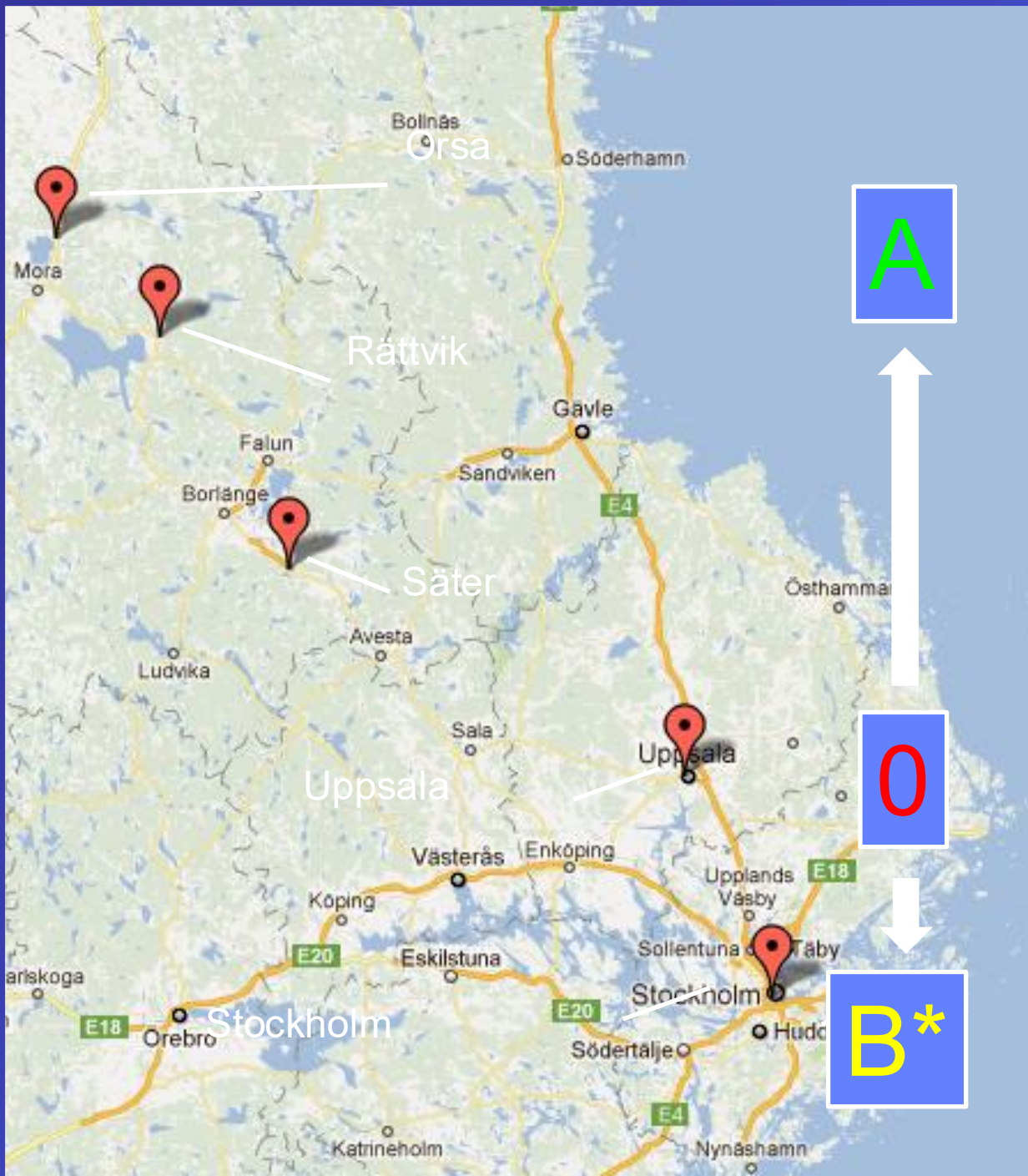


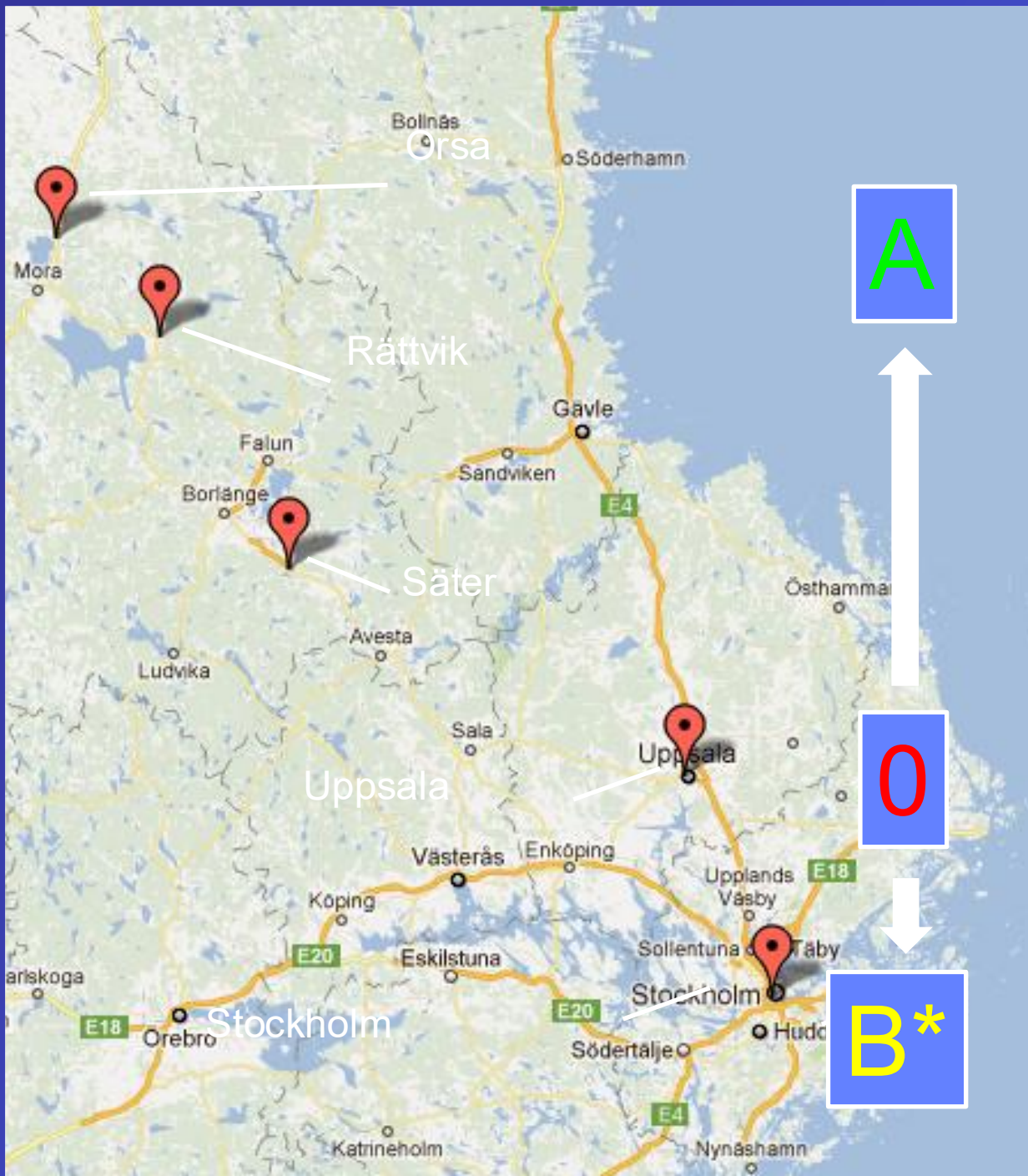
0



B*



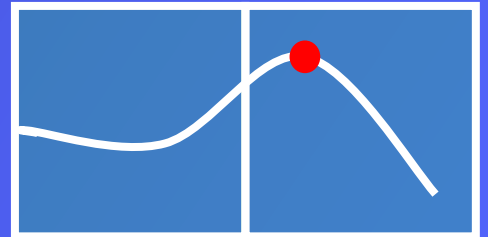
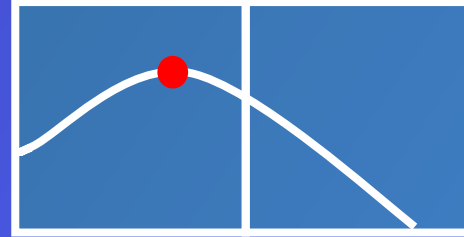
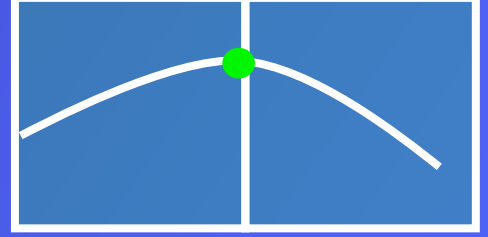
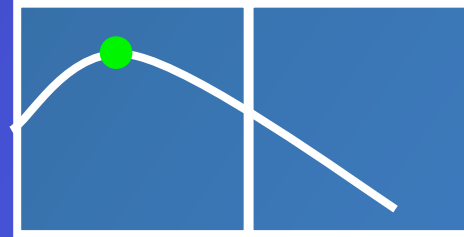
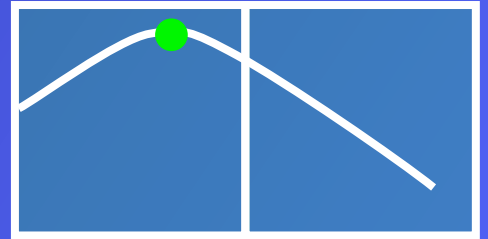


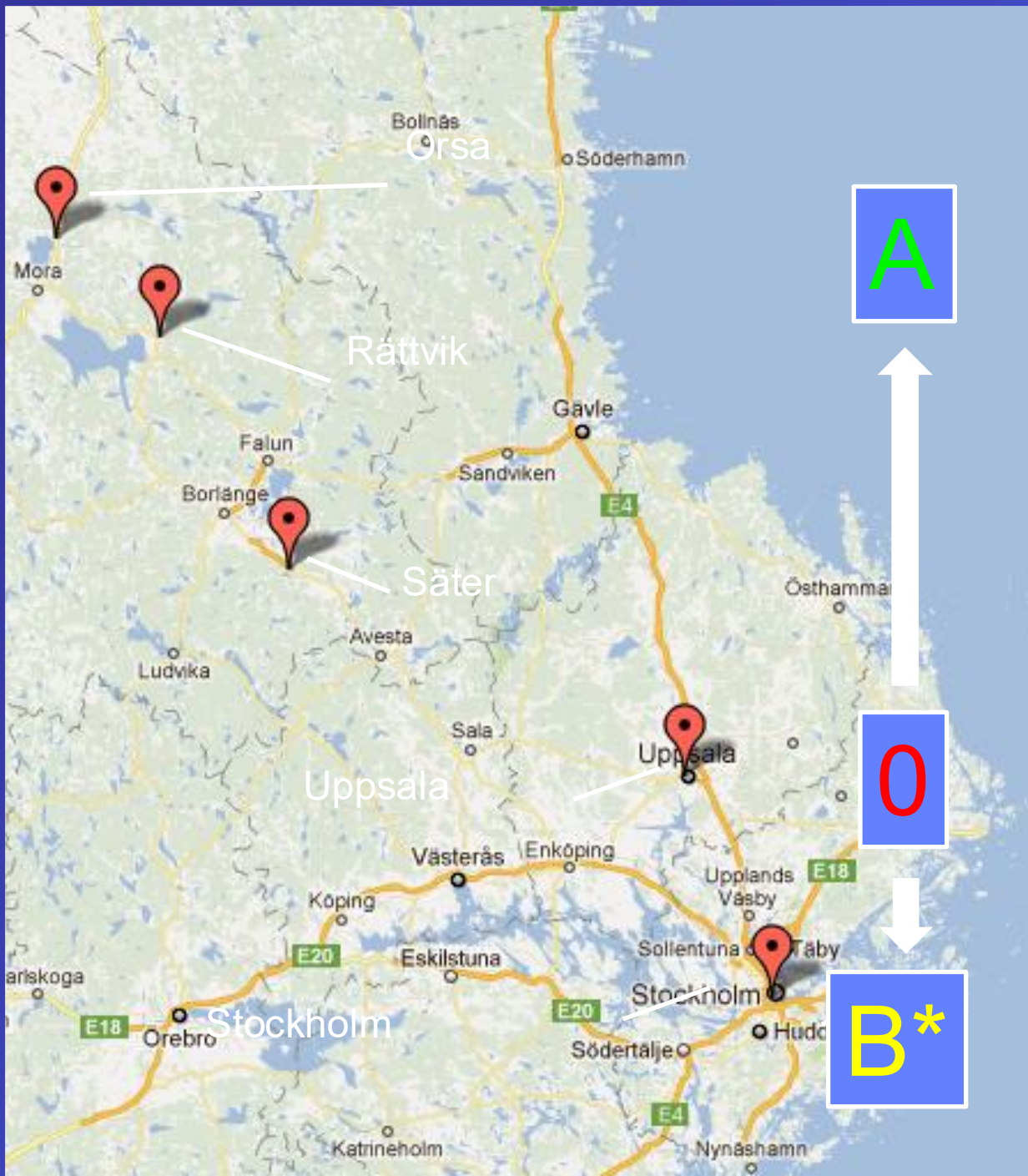


A

0

B*





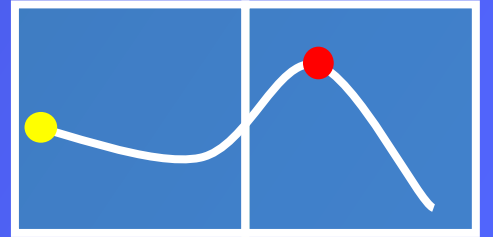
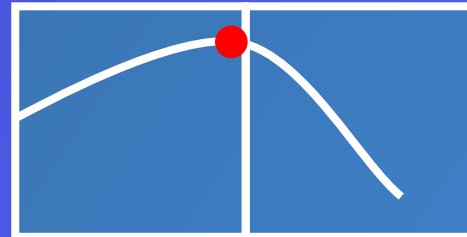
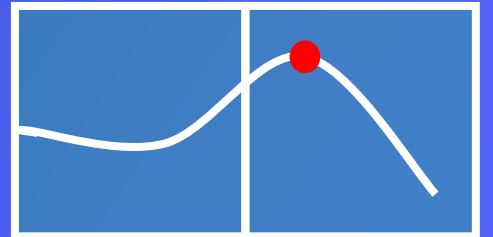
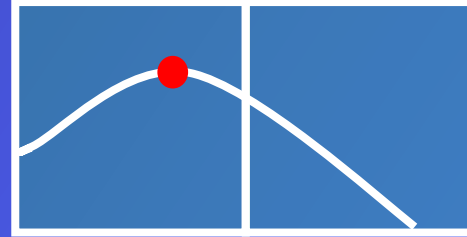
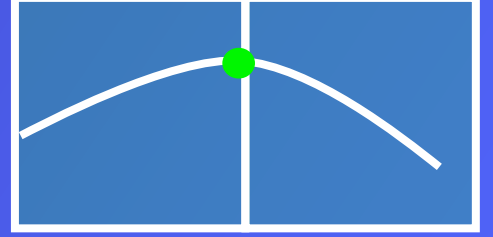
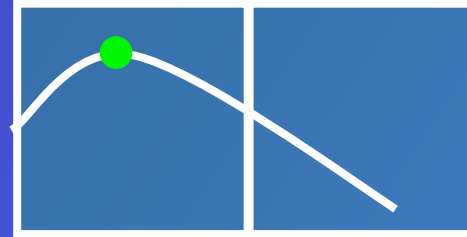
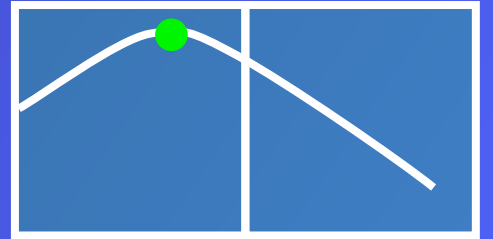
A

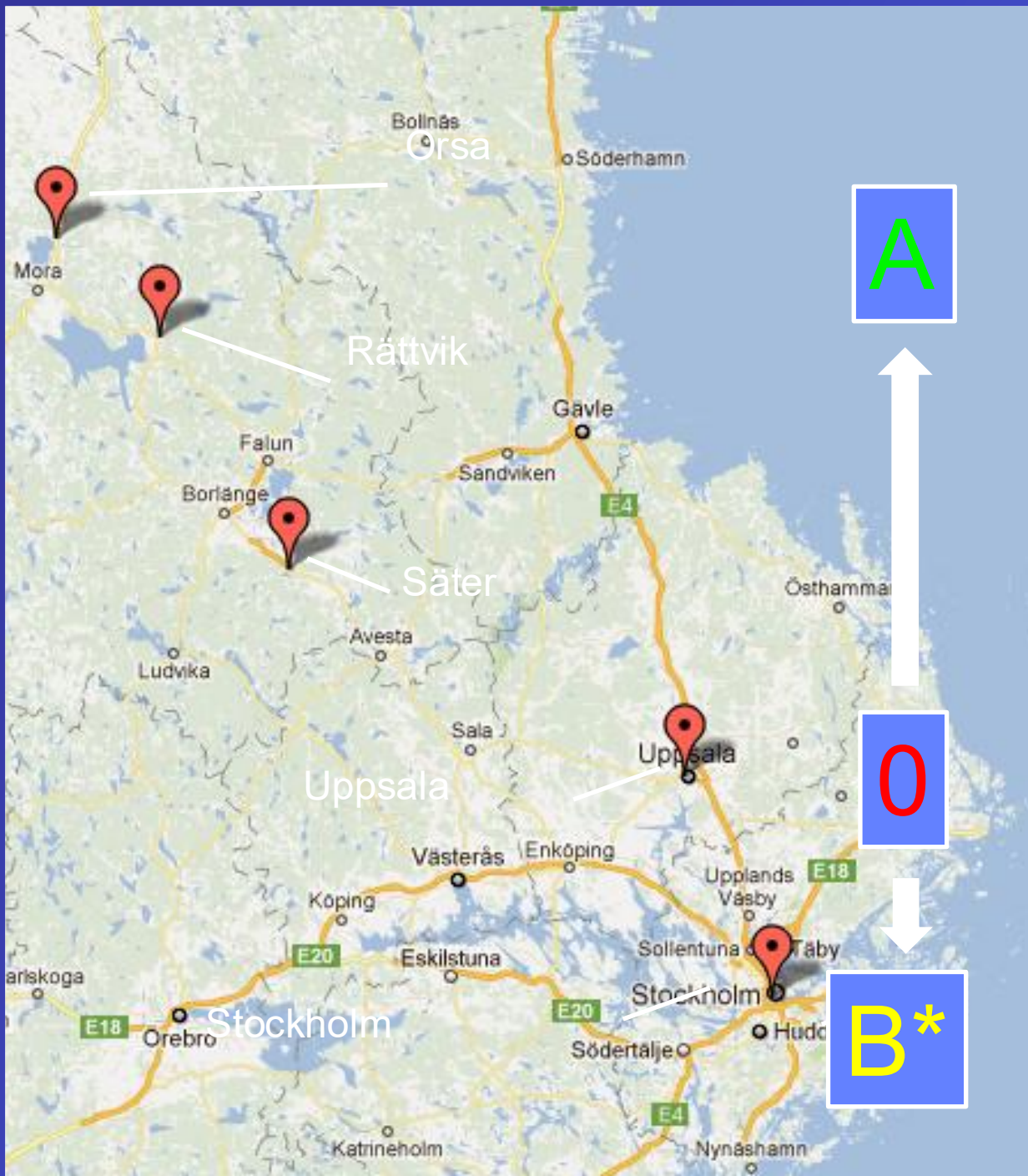


0



B*





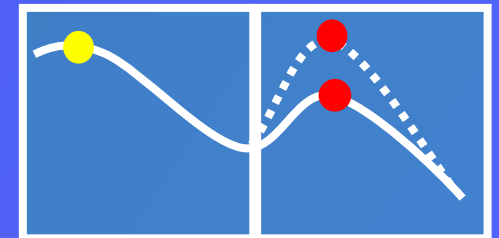
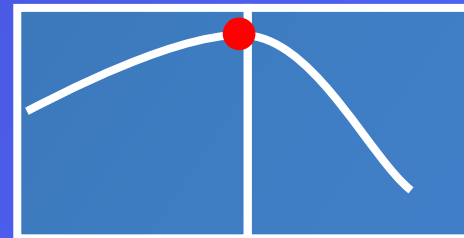
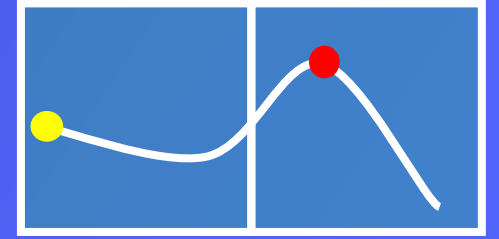
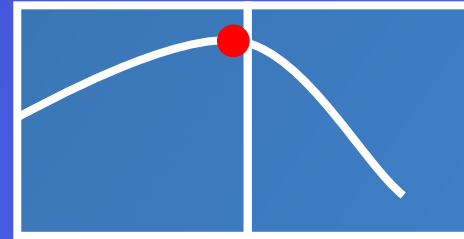
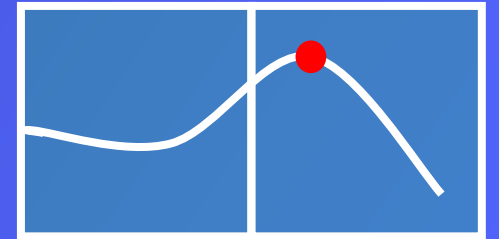
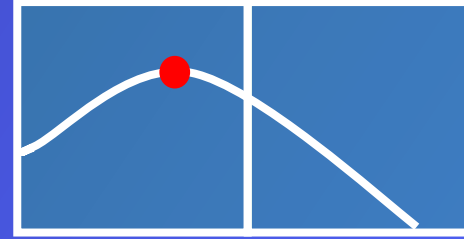
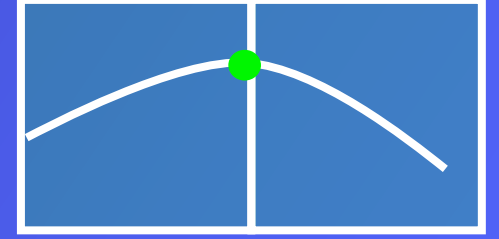
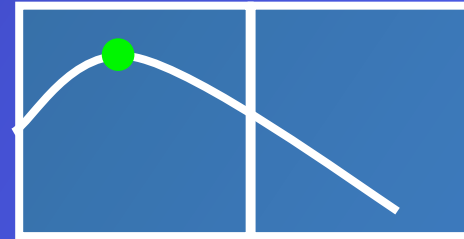
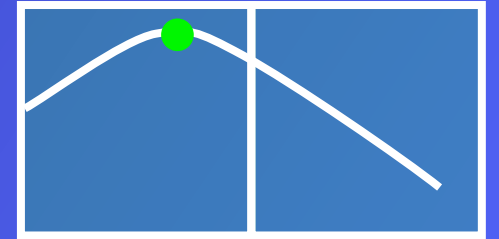
A



0



B*



Two questions

- Why are **Rule B***-like systems so widespread in North Germanic?
- Are there **Rule B**-like systems as well (Accent-2 peak earlier than Accent-1 peak)?

Why are **Rule B***-like systems so widespread in North Germanic?

- Recall: HLH marked contour, possibly eliminated in Franconian **Rule B** throughout
- However: Stockholm variety has high social prestige, Franconian Rule B doesn't → better chances for HLH to spread and survive in North Germanic

Are there **Rule B**-like systems systems as well?

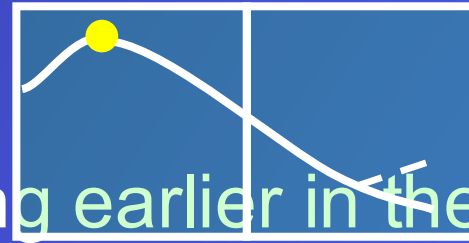
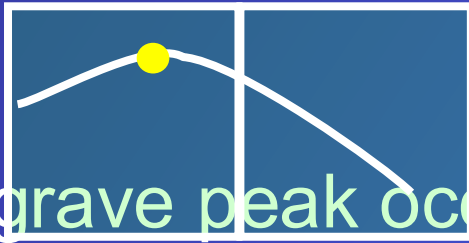
- Possible case 1:
Estonian Swedish (Meyer 1937, 1954)

- Peak in Accent 2 earlier than in Accent 1



Are there **Rule B**-like systems systems as well?

- Possible case 2:
Närpes (Finland Swedish, Svärd 2001)



- “[...] **grave peak** occurring **earlier in the** word than the acute peak” (Svärd 2001: 163)
- However: contrast perceptually neutralized, sometimes (small) second peak (**B***)

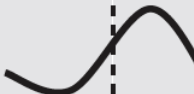
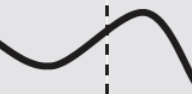
Are there **Rule B**-like systems as well?

- Both systems are foreign varieties
- High prestige of Stockholm variety may be less important, if it is at all
 - tendency to eliminate second peak, like in Rule B in Franconian

Summary North Germanic

- Original system had rising focus intonation throughout (like **Rule 0**); in line with Meyer (1937)
- Differences between modern systems are the result of different adjustments of pitch contours (leftward shift like in **Rule A**, horizontal adjustments like in **Rule B**)

A comparison (from Köhnlein 2013)

Franconian dialects	Contours Franconian		Contours Scandinavian		Scandinavian dialects
	Class 1	Class 2	Accent 1	Accent 2	
Rule A (Cologne) <i>Leftward shift</i>					Orsa <i>Leftward shift</i>
Rule 0 (Hasselt) <i>Original stage</i>					Uppsala <i>Original stage</i>
Rule B* (unattested) <i>Initial pitch raising</i>					Stockholm <i>Initial pitch raising</i>
Rule B (Arzbach) <i>Final pitch lowering</i>					Nuckö, Närpes <i>Final pitch lowering</i>