

The complex durational relationship of contour tones and level tones

Evidence from diachrony

Björn Köhnlein

1. Alternative theories on the genesis of the Franconian tone accents

In §3.1, I have mentioned two alternative theories of tone accent genesis in Franconian by Gussenhoven and by Kortland. In this appendix, I will discuss some problems of these two approaches. In both cases, my main objection is that they cannot account for the lexical distribution of the tone accents. As pointed out in my treatment of the tone accent genesis, Bach (1921) first observed that (later) Class 1 units must have been intrinsically longer than Class 2 units in the original system. Neither Gussenhoven's nor Kortlandt's theory incorporate Bach's findings into their genesis account. Gussenhoven (2000: 222–223) mentions the duration-based approach but dismisses the idea, partially because Class 1 is synchronically shorter than Class 2. Kortlandt ignores Bach's proposal, like virtually all other previous work on the subject. In itself, rejecting the idea that durational factors play a role in the genesis of the Franconian accent contrast is of course perfectly legitimate, but it implies that these proposals need to provide other explanations to account for the distributional facts.

My focus will be on Gussenhoven's proposal – many of the problematic issues can be applied to Kortlandt's approach in a similar way. Since I shall frequently refer to the lexical distribution in Franconian, I repeat Table 2 from the article below for convenience. Other critical discussions of Gussenhoven's theory can be found in Schmidt (2002), Boersma (2006, forthcoming), and Köhnlein (forthcoming). Kortlandt's approach is discussed in Köhnlein (forthcoming).

Table 1. Lexical distribution of the tone accents for Rule A, based on a MHG reference system (repetition of Table 2 in the article)

Class 1	
Phoneme group in MHG	Original context
Long mid and low vowels, opening diphthongs	all
Long high vowels	
Closing diphthongs	
Short vowels + sonorant	+ voiced onset + schwa
Lengthened vowels	
Class 2	
Phoneme group in MHG	Original context
Long high vowels	
Closing diphthongs	monosyllabic word
Short vowels + sonorant	
Lengthened vowels	+ voiceless onset + schwa

1.1 Gussenhoven (2000, 2004, 2013)

Gussenhoven’s account assumes that the genesis of the Franconian tone accent opposition is a consequence of a specific application of ‘Analogical Lengthening’ (AL) in Franconian dialects; roughly, AL refers to the lengthening of short vowels in some monosyllabic words, which occurred in many varieties of Germanic. In Franconian, following Gussenhoven, the process threatened to create homonymy in singular-plural pairs where the singular had a short vowel, and the plural had a long vowel. To avoid singular and plural forms becoming identical, speakers introduced a high lexical tone on the words that underwent vowel lengthening (Accent 2). This resulted in unmarked falling intonation for Accent 1 (HL) versus high level pitch on Accent 2, which derived from a high intonational tone and a high lexical tone (HH; the low intonational tone is blocked by the lexical H). The morphological contrast could thus be maintained because the language introduced a lexical H. In Gussenhoven (2013), the scenario is referred to as the ‘morphological account’; in what follows, I will sometimes use this formulation to refer to the approach.

Gussenhoven’s primary example is the contrast between [dax^{c2}] ‘day-SG’ and [dax^{c1}] ‘day-PL’; the presumable diachronic development of the two forms is presented in Table 2. To understand the proposal, let us go through the different historical steps. Originally, [dax] and [dayə] are differentiated by obstruent voicing – the word-final [x] in the singular is due to final devoicing of underlying /y/ – as well as by the plural marker, a schwa. As a first, uncontroversial step in

Gussenhoven's scenario, Open Syllable Lengthening (OSL), a common process in Germanic, lengthens the stressed vowel in the plural, which results in [daayə]. Since the stressed vowel in the singular occurs in a 'closed' syllable, it is not affected by the change. The process thus introduces a length contrast between a short vowel in the singular and a long vowel in the plural, a situation that is preserved in several varieties of West Germanic (e.g. Lahiri & Drescher 1999).

According to the morphological account, Open Syllable Lengthening is followed by apocope, which deletes the schwa in the plural form. Since /y/ is now in word-final position, it is subject to final devoicing, and [daayə] changes to [daax]. In a next step, the vowel in the singular form undergoes AL, which threatens to erase all phonological differences between the singular and the plural form. To avoid homophony, speakers of Franconian accompany AL of singular forms with a level pitch contour, as opposed to a falling pitch contour in the plural forms. A lexical high tone emerges in the singular, and the morphological contrast can be retained as an opposition between [da^Ha^Hx] and [da^Ha^Lx].

Table 2. Derivation of the difference between “day-SG” and “day-PL” in the chronology of Gussenhoven (2000, 2004, 2013)

Stage	(Pre-) Accent 2 “day-SG”	(Pre-) Accent 1 “day-PL”
Original	[dax]	[dayə]
Open Syllable Lengthening	[dax]	[daayə]
Apocope	[dax]	[daax]
Analogical Lengthening / Accent genesis	[da ^H a ^H x]	[da ^H a ^L x]

In what follows, I would like to provide arguments that this approach is problematic in several respects. First of all, it should be noted that there might be a general problem concerning the historical order of events. In the morphological account, it is crucial that apocope predated AL in Franconian (otherwise there would be no threat of homophony through AL). As pointed out in Schmidt (2002:217), however, this contradicts vast amounts of external diachronic evidence: the available facts indicate that Analogical Lengthening was particularly EARLY in Low Franconian and must have clearly predated apocope. Thus, widely accepted facts about the history of West Germanic seem to be at odds with the morphological account.¹

1. Notably, Eis (1958:66) points out that the earliest attestations of Analogical Lengthening in the medieval literature come from Low Franconian, for instance, from Heinrich von Veldeke. Veldeke was born in an area close to Maastricht – the Maastricht dialect is the main dialect that Gussenhoven makes reference to in his genesis scenario.

For the sake of the argument, however, let us assume that the general chronological scenario were in fact plausible. In this case, we do not yet arrive at the lexical distribution of the tone accents – after all, the discussion so far has addressed only singular-plural minimal pairs that were a consequence of Analogical Lengthening. To account for the distribution of the accents across the lexicon, the account employs two additional, phonetic mechanisms: (a) long high vowels have an intrinsically higher (F0) than low vowels, and (b) voiceless obstruents correlate with relatively high F0 (Gussenhoven 2004: 232). This serves to explain the preference for Class 2 (high level tone) on high vowels/closing diphthongs if they are followed by a voiceless obstruent. Class 1, then, has falling tone because the vowels in question are either long mid or low vowels, or long high vowels that are followed by voiced obstruents.

One might wonder, however, whether intrinsic F0 on vowels should really be expected to lead to a difference between a level tone and a contour tone, rather than to a split between two tone heights. After all, in the relatively few languages that seem to show effects of intrinsic vowel height on the development of tone, the result are two level tones (e.g. H vs. L in the Mon-Khmer language U; see Svantesson 1989), rather than a level tone and a contour tone. Furthermore, while it is well known that obstruent voicing can affect the tone height of neighboring vowels, it is commonly assumed that voicing-induced tone spreads from a consonant to a vowel on the right, rather than to a vowel on the left (see Kingston 2011 for a concise discussion of different mechanisms of tonogenesis). Thus, while the morphological approach refers to attested mechanisms, the specific way in which these mechanisms are employed to derive the actual contrasts is less straightforward.

Let us also take a look at the empirical predictions these two phonetic mechanisms make, independent of the question how plausible they might be. As we have seen, the scenario accounts for the distribution of tone accent on long mid and low vowels by assuming that, due to their relatively low intrinsic F0, they receive falling tone rather than high level tone. Things are less clear-cut, however, when it comes to high vowels/closing diphthongs, which can or cannot belong to Class 1 depending on the voicing quality of the following consonants. As an example, recall the Mayen forms for “pigeon” and “baptism”, which are [tauf^{c1}] and [tauf^{c2}], respectively. As discussed in §3 of the article, the word for “pigeon” derives from a disyllabic form with a VOICED intervocalic obstruent (MHG *tûbe*) and now belongs to Class 1. The word for “baptism” derives from a disyllabic form with a VOICELESS intervocalic obstruent (MHG *toufe*), and it belongs to Class 2 synchronically. While this follows straightforwardly from the duration-based approach, the morphological account has severe problems to account for these (fully regular) developments – at least if we take the proposed chronological order seriously (on this issue, see also Boersma forthcoming).

Table 3. Problematic derivation of the difference between “baptism” and “pigeon” in Franconian under the chronology of Gussenhoven (2000, 2004, 2013)

Stage	(Pre-) Accent 2 “baptism” (Mayen)	(Pre-) Accent 1 “pigeon” (Mayen)
Original	[taufə]	[tauvə]
Open Syllable Lengthening	–	–
Apocope	[tauf]	[tauf]
(Analogical Lengthening)/ Accent Genesis	[ta ^H u ^H f]	[ta ^H u ^L f]

Why is that so? Consider Table 3, where I give hypothetical original forms for the two items in question in the Mayen dialect, abstracting away from issues like diphthongization and spirantization in the item for “pigeon” (both are irrelevant for our purposes). The conceptual problem of the morphological account emerges from the presumable diachronic order OSL > Apocope > AL. Along the lines of the scenario, apocope removes the final schwa in both cases, and final devoicing changes [dauv] to [dauf]. Thus, after apocope, the items should have been structurally identical. The emerging question is on which basis speakers would assign them different accents. For instance, why would they not give a high lexical tone to both forms? After all, following the presumed phonetic mechanisms, closing diphthongs followed by a voiceless obstruent should be the perfect phonetic environment for the introduction of a lexical high tone.

At first sight, Gussenhoven’s suggestion that apocope was a variable process even after the introduction of tone (as well as the other processes involved, Gussenhoven 2000:233) might appear to be a possible way out of this problem. However, this assumption obscures the proposed chronology of events – it seems counterintuitive to crucially rely on a certain chronological order if all processes involved are assumed to still occur variably AFTER the introduction of tone. Furthermore, this assumption also severely weakens the morphological explanation of the tonogenesis: if the processes would indeed have applied variably, it is unclear why speakers would have perceived Analogical Lengthening as a threat of homophony in alternations of the type “day-SG” vs. “day-PL” – if they somehow felt the need to keep the forms apart, speakers could simply have retained the schwa plurals to avoid homophony. Instead, they supposedly preferred to give up a perfectly regular morphological alternation in favor of one with phonologically more complex singular forms, which not only led to subtractive morphology but also introduced an entirely new feature to the language (lexical tone).

Problems with regard to the lexical distribution also occur in contexts where long high vowels, closing diphthongs, or short vowels were originally followed by sonorant consonants. The morphological account does not offer a principled explanation for the accent distribution in these groups. As an example, consider a minimal pair with a short vowel plus a nasal: Arzbach has a contrast between the nouns [fal^{c1}] “trap” and [fal^{c2}] “case” (Köhnlein 2011). [fal^{c1}] derives from a disyllabic word, MHG *valle*, and [fal^{c2}] from a monosyllabic word, MHG *val*; this pattern is perfectly in line with the observation that words with voiced intervocalic consonants ALWAYS receive Class 1 after apocope.

The morphological account does not explain these facts adequately. This is demonstrated in Table 4: we would expect a homonym pair [fal], where both forms should eventually receive the same accent. Notice that even if we assume variability in the application of the different rules, the problem is not solved: since the morphological account does not discuss regularities in the accent assignment for combinations of vowels plus sonorants, it is unclear what the predicted outcome should be. Concerning vowel plus sonorant combinations, Gussenhoven (2000:234) only addresses morphologically related minimal pairs like [bein^{c2}] “leg-SG” versus [bein^{c1}] “leg-PL”, which he attributes to analogy from cases like [dax^{c2}] “day-SG” versus [dax^{c1}] “day-PL”. Yet this ignores the diachronic regularities: the lexical distribution indicates that “leg-PL” belongs to Class 1 NOT because this allows speakers to differentiate a singular form from a plural form but because it originally had a plural schwa (MHG *beine*) that was absent in the singular (MHG *bein*). Undoubtedly, morphological alternations are important for the SYNCHRONIC analysis of the phenomenon; yet from a diachronic perspective, they are epiphenomena of a phonologically conditioned sound change.

Table 4. Problematic derivation of the difference between “trap” and “case” in Franconian under the chronology of Gussenhoven (2000, 2004, 2013)

Stage	(Pre-) Class 2 “case” (Arzbach)	(Pre-) Class 1 “trap” (Arzbach)
Original	[fal]	[falə]
Open Syllable Lengthening	–	–
Apocope	[fal]	[fal]
(Analogical Lengthening)/ Accent genesis	[fa ^{H1H}]	[fa ^{H1L}]

In summary, we can conclude that the approach defended in Gussenhoven (2000, 2004, 2013) is conceptually problematic in several respects. It is at odds with established facts about the history of West Germanic and does not provide principled explanations for large parts of the lexical distribution.

1.2 Kortlandt (2007)

Kortlandt (2007) attempts to derive the Franconian tone accent opposition from preglottalization of voiceless stops. If a stop was preglottalized, this led to the development of a level tone on the preceding vowel (at least in Rule A), deriving Class 2. Vowels followed by non-preglottalized stops received Class 1. First of all, there is no independent evidence (be it synchronic or historical) indicating that stops in Franconian ever were preglottalized. Furthermore, it should be noted that Kortlandt's approach faces problems when we look at the whole distribution. If we grant that the presence of pre-glottalization can derive the opposition of Class 1 and Class 2 for long high vowels/closing diphthongs plus stops, the first potential problem emerges when it comes to long non-high vowels, which always belong to Class 1, independent of what type of consonant followed them. To account for this, Kortlandt (2007:2) argues that "glottalization was lost after non-high long vowels and diphthongs at an early stage"; yet he does not provide any phonetic motivation as to why this should have happened after non-high vowels only, nor does he provide evidence for a parallel development in another language.

Somewhat similar to Gussenhoven's approach, Kortlandt's scenario also leaves the predictable accent distribution on long high vowels, closing diphthongs, and short vowels plus sonorants unexplained – the approach only discusses cases where vowels are followed by obstruents. I presume that this large part of the distribution would somehow have to be attributed to analogy, but I am not sure what kind of analogical principles could be held responsible.

References

- Bach, Adolf. 1921. Die Schärfung in der moselfränkischen Mundart von Arzbach (Unterwesterwaldkreis). *Beiträge zur Geschichte der Deutschen Sprache und Literatur* 45. 266–290.
DOI: 10.1515/bgsl.1921.1921.45.266
- Boersma, Paul. 2006. *The history of the Franconian tone contrast*. Amsterdam: University of Amsterdam manuscript.
- Boersma, Paul. Forthcoming. The history of the Franconian tone contrast. In Wolfgang Kehrein, Björn Köhnlein, Paul Boersma & Marc van Oostendorp (eds.), *Segmental structure and tone*. Berlin: Walter de Gruyter.
- Eis, Gerhard. 1958. *Historische Laut- und Formenlehre des Mittelhochdeutschen*. Halle: Niemeyer.
DOI: 10.1515/9783111392479
- Gussenhoven, Carlos. 2000. On the origin and development of the Central Franconian tone contrast. In Aditi Lahiri (ed.), *Analogy, levelling, markedness*, 215–260. Berlin/New York: Mouton de Gruyter. DOI: 10.1515/9783110808933.215
- Gussenhoven, Carlos. 2004. *The phonology of tone and intonation*. Cambridge: Cambridge University Press. DOI: 10.1017/cbo9780511616983

- Gussenhoven, Carlos. 2013. From Cologne to Arzbach: An account of the Franconian ‘tone reversal’. In Eva-Liina Asu & Partel Lippus (eds.), *Nordic prosody. Proceedings of the XIth Conference, Tartu 2012*, 11–24. Frankfurt am Main: Peter Lang.
- Kingston, John. 2011. Tonogenesis. In Marc van Oostendorp, Colin J. Ewen, Elizabeth Hume & Keren Rice (eds.), *The Blackwell companion to phonology*, 2304–2333. Malden, MA: Wiley-Blackwell. DOI: 10.1017/s0952675713000079
- Köhnlein, Björn. 2011. *Rule reversal revisited: Synchrony and diachrony of tone and prosodic structure in the Franconian dialect of Arzbach*. Utrecht: LOT Dissertation Series.
- Köhnlein, Björn. Forthcoming. A tonal semi-reversal in Franconian dialects: Rule A vs. Rule B. *North-Western European Language Evolution* 68(1). DOI: 10.1075/nowele.68.1.03koh
- Kortlandt, Frederik. 2007. The origin of the Franconian tone accents. *Amsterdamer Beiträge zur älteren Germanistik* 63(1). 1–3.
- Lahiri, Aditi & B. Elan Dresher. 1999. Open syllable lengthening in West Germanic. *Language* 75(4). 678–719. DOI: 10.2307/417730
- Schmidt, Jürgen E. 2002. Die sprachhistorische Genese der mittelfränkischen Tonakzente. In Peter Auer, Peter Gilles & Helmut Spiekermann (eds.), *Silbenschnitt und Tonakzente* (Linguistische Arbeiten 463), 201–233. Tübingen: Niemeyer. DOI: 10.1515/9783110916447.201
- Svantesson, Jan-Olof. 1989. Tonogenetic mechanisms in northern Mon-Khmer. *Phonetica* 46. 60–79. DOI: 10.1159/000261829