Vowel quantity and the fortis-lenis distinction in North Low Saxon

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2. Theoretical Basis

2.1. Phonological background

Having provided an overview of the research questions regarding LG overlength or pitch phenomena, I turn now to the linguistic background my analyses are based upon. The recordings and perception tests conducted for this survey are designed to fill a gap in the phonetically based research on LG phonology. The study aims at pinpointing whether the investigated LG dialects employ vowel length (binary or ternary), vowel quality (tense vs. lax) or distinct tonal contours (TA1 vs. TA2) as means of expressing lexical or morphological contrasts.

Since the assumed distinction is typically found in monosyllables (because of the reduction of bisyllables to monosyllables due to apocope), monosyllabic minimal pairs were used for the recordings as well as the later perception test. The pairs contain a non-apocopated item with a long vowel or an apocopated item with long vowel and originally voiceless intervocalic obstruent (defined as Expected Length Degree 2 and/or TA1), and an apocopated/syncopated item with a supposedly overlong vowel because of an originally voiced intervocalic obstruent (defined as Expected Length Degree 3 and/or TA2). Also, some recordings with short vowels (defined as Expected Length Degree 1) were made to complete the picture. The focus of the study lies, however, with the possible difference between long vowels and overlong vowels.

The phonetics / phonology interface is theoretically most relevant with respect to the phonetic observations. I assume here the viewpoint of Kraehenmann (2003:6f.) and Kingston (2007) that, though we may find no immediate one-to-one relation between both domains, there is at least an indirect connection. Phonetics (production as well as perception) can provide indications on the phonological structure, i.e. the underlying taxonomy of the language. Kingston (2007:435) phrases this as follows.

“The phonetics interfaces with phonology in three ways. First, phonetics defines distinctive features. Second, phonetics explains many phonological patterns. These two interfaces constitute what has come to be called the ‘substantive grounding’ of phonology (Archangeli & Pulleyblank 1994). Finally, phonetics implements phonological representations.”

Furthermore, I am working with Boersma’s (2007a) bidirectional phonology and phonetics (BiPhon) model to formally express the interrelation of the phonetic and the phonological domain. It employs five levels of representation that are minimally required for describing phonological and phonetic comprehension as well as production.

In the BiPhon model, two levels of phonological representations are assumed, the underlying form and the surface form. While the elements of the underlying form are in the lexicon and determined by a grammar (in the production direction by syntax, morphology; in the comprehension direction by the phonology), the surface form is the phonological surface representation of the utterance. In production, it is

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13 For different views see among many others Ohala (1990), or Hale & Reiss (2000).
computed from the underlying form by the phonological grammar; in comprehension, it is computed from the auditory form by the perception grammar. The phonetic representation consists similarly of two levels, i.e. the auditory form (also: overt form) and the articulatory form. In my analysis, I will be only concerned with the two phonological levels of representation, and the phonetic representation of the auditory form resulting from the phonetics-phonology interface.

Figure 2. BiPhon model

This formal model has been applied to grammatical analyses (e.g. Apoussidou 2007, Boersma 2007a) using the Optimality Theory (OT) framework (Prince & Smolensky 1993, 2002, 2004; McCarthy & Prince 1995b). The major difference between OT and the earlier rule-based approaches is that the constraints of OT are violable while rules do not allow for violations. The constraints are hierarchically ranked and evaluate an input form (e.g. an underlying form), adhering to the basic tenet of minimal violation (Prince & Smolensky 1993, 2002; McCarthy & Prince 1999). Out of a set of possible output forms (e.g. candidate surface forms) that are generated by a candidate generator (GEN), the winner is determined by the criterion of minimally violating the ranked constraints. The candidate that is (relatively) optimal wins. For the constraint ranking, I assume with Tesar & Smolensky (1993) and Topintzi (2005) that the hierarchy is not necessarily total, i.e. constraints may need to be crucially unranked with respect to each other, being evaluated in parallel (see chapter 5). Since these constraints are rendered equally important, no variation in the sense of Anttila (1995, 2006) occurs.

Some notes on the internal structure of the words that constitute the outputs of the constraint ranking are in order here. They are subject to the prosodic hierarchy. Segments may be licensed by morae. These units of syllable weight do not stand in a one-to-one relation to the segments. Rather, they can be seen as being represented on a different prosodic tier. The segments are parsed by syllabic structure, as may also be the case with morae. The syllables are grouped into syllable feet, depending on language-specific requirements. The highest prosodic domain used in this thesis is the prosodic word (PrWd), which contains all prosodic properties of a single (isolated) utterance – probably except for morphemic content. The domains of phonological phrase and intonation phrase lie beyond the domain of the PrWd in an utterance. They are not treated specifically in this dissertation. An illustration of the relevant part of the hierarchy follows in Figure 3 below.
Figure 3. The prosodic hierarchy

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<table>
<thead>
<tr>
<th>PrWd</th>
<th>Foot</th>
<th>Syllable</th>
<th>Segment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ω</td>
<td>Φ</td>
<td>O</td>
<td>Σ</td>
</tr>
</tbody>
</table>
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The metrical domain of the foot

“groups smaller units within a word, such as syllables and morae, into bigger units. Each foot has exactly one head syllable (marked with ‘s’ for ‘strong’; ‘w’ stands for ‘weak’), and each prosodic (i.e. content) word has exactly one head foot, no matter how many feet it contains” (Apoussidou 2007:10).

The next lower domain is the syllable. It is divided into onset (O) and rhyme (R), the latter one being again divided into nucleus (Nu) and coda (Co). These positions are filled by segments, i.e. vowels (V) in the nucleus, and consonants (C) in the coda.\(^{14}\)

The syllable may act as a prosodic unit, i.e. carry suprasegmental features such as tone.

I employ here Hyman’s (1985) amended Mora Theory with its assumption of morae as units of syllable weight, expressing an indirect notion of length. Crucial to this approach is that onsets are associated to nuclear morae.\(^{15}\) This avoids descriptive problems with e.g. compensatory lengthening (CL) due to onset deletion.\(^{15}\) Syllables containing one mora count as light (L); syllables containing two morae count as heavy (H); syllables containing more than two morae count as superheavy (S).

Figure 4. Informal tree structure of foot and syllables

Since the interpretation of morae as purely phonological entities of syllable weight is somewhat more abstract than length-related approaches to morae, one could argue for the postulate of another icon (e.g. \(W\) for weight) to mark this property. I do, however, not follow this line of reasoning and continue to use the mora as my representation of weight.

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\(^{14}\) Note that sonorant consonants (R) behave differently from obstruents in that they can also occur in nuclear position, e.g. in Limburgian (Paul Boersma p.c.).

\(^{15}\) Moraic Theory as outlined by Hayes (1989) predicts that the deletion of onsets should not yield CL. The reason is that in this framework onsets are assumed to be non-moraic because they do not contribute to syllable weight. However, this creates a descriptive problem when the loss of an onset does lead to CL as is indeed the case in Samothraki Greek (Kavitskaya 2002:27f.).
The informal tree structure in Figure 4 above illustrates the (possible) individual levels of representation from the foot down to the segmental level.\footnote{Note that it is usually either a moraic representation or the onset/rhyme differentiation that is employed, not both representations in parallel.}

The segments can be further split up into \textit{features} (see sections 5.1 and 6.1 for the structure of vowels and consonants, respectively). Root nodes (or x-slots) constitute the segmental docking points of the features or feature nodes (Cohn 2003, Kraehenmann 2003) as introduced in the framework of Feature Geometry.\footnote{Martens (2001).}

The node I will be mostly concerned with in my analysis is the laryngeal node. It dominates the laryngeal specifications of segments (i.e. voice, spread glottis), distinguishing between voiceless (or fortis) on the one hand, and voiced (or lenis) on the other hand. What I argue for later is that it is the structural complexity of a consonant, i.e. the presence or absence of the laryngeal node (and the Sonorant Voice node, see Rice 1992) that ultimately determines its inherent weight in the investigated LG dialects.

Some information on the language area follows below.

\section*{2.2. The dialect areas}

The area of investigation is the North Low German language region located in the federal states of Niedersachsen, Bremen, Hamburg, and Schleswig-Holstein: The dialects that I am discussing in this survey are the local varieties of the villages of Kirchwerder and Altenwerder (i.e. so-called ‘Masch’-dialects of Hamburg)\footnote{Appel (1994:5f.).}, and the dialect of Alfstedt. They lie pivotally within the LG language area that shows consistent schwa deletion in the word endings. The whole North Low German region is termed among others \textit{North Low Saxon} in the literature (e.g. Stellmacher 1983). The area is marked in the map in Figure 5, the lighter shade of grey denoting the ‘core area’ as defined in the \textit{Niederdeutsche Grammatik} by Lindow et al. (1998).

The term ‘dialect’ I use in this survey denotes a speech form that is a variety of a superordinate language system. It is regionally restricted and has no normative character.\footnote{Appel (1994:5f.).} The latter point is, however, equally valid for the LG language as a whole. There exists no defined standard for the LG language system. This is marked by the lack of a (generally accepted) standardized orthographical system. There are some non-obligatory guidelines (e.g. the spelling systems brought forward by Saß 1956, the Loccumer Richtlinien from 1977, or the updated version by Kahl & Thies 2002) that may or may not be adhered to. A measurement of the degree of divergence of the individual dialects from a LG ‘standard’ is therefore not practicable.\footnote{See Herrgen et al. (2001) for measurements of Standard High German and its local varieties.}

Some diachronic linguistic characteristics of the pivotal North Low Saxon area as compared to Standard German are the lack of the 2$^{nd}$ (High German) sound change, and the loss of final schwa. That does not mean, of course, that synchronic North Low Saxon is by any means linguistically uniform. The LG dialects may vary...
from village to village, especially by means of vowel or diphthong qualities. These qualitative differences are of no concern to this study. I therefore do not provide an according qualitative analysis of dialects.\textsuperscript{20}

What now follows is some brief general information on the three investigated LG dialect areas. They are indicated on the map in Figure 5 with ‘Kw.’ for Kirchwerder, ‘Aw.’ for Altenwerder, and ‘Alfs.’ for Alfstedt.

2.2.1. Kirchwerder

The village of Kirchwerder (Kw.) is one of the four parishes in the Vierlande region south east of the city of Hamburg. It is a rural community with approximately 8,900 inhabitants. Especially the senior citizens (age 65+) are familiar with the local LG variety.

The sociolinguistic aspects of this dialect are currently investigated within the research project ‘Hamburgisch: Sprachkontakt und Sprachvariation im städtischen Raum’ at the University of Hamburg.\textsuperscript{21} Older descriptions of the dialect were provided by Otto von Essen (1958, 1964).

2.2.2. Altenwerder

The village of Altenwerder (Aw.) was located at the southwestern periphery of the city of Hamburg. Nowadays, it has no inhabitants any more. The reason is that the extension of the Hamburg Harbor was planned and put into practice from the 1970s on, which means that the approximately 2,000 original inhabitants had to be relocated to neighboring areas near Hamburg. The last residents left around 1980.

This destruction of the community structure may pose a problem with respect to the continuity of the dialect, since all original inhabitants moved to other LG dialect areas, or to areas with a mainly Standard German speaking community. However, the neighboring LG areas some Altenwerder speakers have moved to (Finkenwerder, Moorburg, Neugraben, Neuenfelde, etc.) used to have rather closed LG communities that did not allow for mingling with the Aw. speakers. Thus, it is likely that the Aw. dialect – if spoken at all anymore – has not been influenced much by other LG dialects. Rather, the general ‘threat’ of Standard German being present in every aspect of life is what may have had an impact on Aw. LG as spoken by the informants.

On the other hand, it could also be reasonable to assume that the dialect was kept as it used to be, trying to keep something from the old home and traditions alive. This is indeed the case with the interviewed informants. This group of Altenwerder speakers have close friendship ties and meet on a regular basis, talking only in the dialect.

All in all, the local variety of Altenwerder can be assumed to be still spoken and preserved. Influences from other speaker communities can naturally not be

\textsuperscript{20} Wiesinger (1983a) provides the general isoglosses for the vowel differences. See also Behrens (1954) for some differences with respect to diphthongization, and Martens (2001) for vowel differences within the Hamburg varieties.

\textsuperscript{21} Bieberstedt et al. (2008).
excluded. These aspects are investigated also in the context of the project on language contact in the Hamburg region mentioned above.

2.2.3. Alfstedt

The last dialect of the study, the local variety of the village of Alfstedt (Alfs.), is spoken some 60 km to the west of Hamburg. The village has less than 900 inhabitants and is basically only reachable by car. There is no direct public transportation or interstate to Alfstedt. This means that the community is as isolated as it can get, bearing in mind the influence of the Standard High German language via national television broadcasting, radio, etc. At least, outside influences from other LG dialects are kept to a minimum. This defines the area as a close to ideal object of investigation in terms of dialect geography.

The Low German language is used actively not only by senior citizens (age 65+) but also by the middle-aged and younger generation (age range 20 to 65). Classes in the local variety are also taught in elementary school.\(^{22}\)

2.3. Research history of North Low German

The North Low German dialects that have already been investigated in earlier linguistic studies are marked as white squares in the map of Figure 5.\(^{23}\) The legend is provided in section (A) of the appendix.

We see that a rather vast linguistic literature exists on the North Low Saxon dialects. The goal of the majority of the works is to provide a synchronic socio-linguistic / statistic survey (Stellmacher 1990), or to develop a pattern of the diachronic sound changes from a reconstructed proto-system, or to give a purely phonetic description of the dialect. Synchronic phonological analyses in generative, metrical, or autosegmental frameworks have been published only after 1968 (Bellamy 1968; Dixon 1968; Chapman 1993; Appel 1994). As far as I know, only the metrical approach brought forward by Chapman (1993) treats the issue of LG vocalic overlength. A synchronic tonal account for the assumed differences in pitch movements is missing up to now, as is an implementation in Optimality Theory.

\(^{22}\) There is a Low German schoolbook specifically for this region: *Ik bün al hier! Plattendüütsch Lesbook*. Schriftenreihe des Landschaftsverbandes Stade, Vol. 8 (1996).

\(^{23}\) I do not claim to cover the totality of the North Low German publications. For a detailed overview on the published works within the federal state of Niedersachsen see Appel (1994:14ff.). See also the North Low Saxon google-map at <http://maps.google.com/maps/ms?hl=de&ie=UTF8&msa=0&msid=101985790644615809284.0004536464642c561dfdfb&t=p&ll=53.794162,8.371582&spn=2.887865,7.91156&z=7> with references cited in Appel (1994), and in the online-bibliographies of the Institut für niederdeutsche Sprache / Bremen, and of the Digitaler Wenkeratlas / Marburg.
In order to be able to develop an informed analysis, I provide a chronological overview on the discussion of LG vocalic overlength and the corresponding distinct pitch contours (or: tonal accents) in the following sections. Although the list of works is not complete, it covers the most important studies, and gives a (hopefully) adjuvant impression of the spectrum of linguistic theories. Note, however, that it is merely a summary of the literature. I do not intend to discuss all of the approaches reported below in the light of my own analysis right away. It may suffice to say at the moment that virtually all of the surveys connect the synchronic presence of overlength or tonal phenomena in North Low Saxon to the diachronic deletion of schwa in unstressed syllables.

2.3.1. The early descriptive works until 1938

The early dialect descriptions are mainly concerned with giving a diachronic account for the development of the synchronic speech sounds. Phonetic details are mentioned more or less in passing. Except for Zahrenhusen (1909) in his survey of the dialect of Horneburg, all of the studies recognize clear differences in the vowel durations.

2.3.1.1 J. Hobbing (1879)

Hobbing describes the articulatory details of the speech sounds in the dialect of Greetsiel (No. 47 of Figure 5), his mother tongue (L1). He recognizes four degrees
of length for the vowels: reduced, short, long, and overlong (Hobbing 1879:9). A disadvantage of his work is that he bases his assumptions not on speech data but on his own speaker intuition. The lack of examples for the reduced length in the text is an additional drawback. We can only speculate that these vowels may be restricted to unstressed positions. The short, long, and overlong are distributed across all vowel qualities, and appear to be in line with the length categories mentioned above in Table 1. Hobbing’s transcription of the diphthongs implies furthermore a differentiation between normal diphthongs and configurations with one overlong element. What is not mentioned is a difference in pitch movement.

2.3.1.2 Hugo Kohbrok (1901)
The point of departure for the survey of Kohbrok (1901) is the village of Wesseln near Heide (No. 18 of Figure 5). The author assumes six degrees of length for the local dialect: overshort, short, half-short, half-long, long, and overlong (Kohbrok 1901:22). The individual length degrees are contextually determined, and hence phonetic rather than phonological in nature. The overshort centralized Vs may occur only in unstressed position. Half-short Vs result from half-long or long Vs in certain sentence contexts (not specified by Kohbrok). The author utilizes the notions of *fortis* and *lenis* to describe the contrast between voiceless and voiced obstruents, respectively. In connection to a preceding V, he finds that half-long Vs occur in pre-fortis position, and long Vs in pre-lenis position. The development of the overlong Vs is described as being connected to a certain sound law first introduced for the Rhenish vernacular by Nörrenberg (1884) but not further specified by Kohbrok. The author assumes that the difference between the dialect of Wesseln and the Rhenish dialects is based in the fact that in the latter ones, a combination of dynamic and musical accent is found. It developed on the stem vowel of words that are reduced by the deletion of the final syllable. This tonal effect is not found in the LG dialect of Wesseln (Kohbrok 1901:24). It is only the duration of the deleted final syllable that is transferred to the preceding stem syllable. Kohbrok (1901:24) notes that “this prolongation is so substantial that the monosyllabic word maintains completely the quantity value of the bisyllable.”

Overlength developed when an originally voiced C followed after a long V or diphthong. A prerequisite is that deletion of an unstressed schwa took place.

Overlength did not arise if schwa deletion in inter-sonorant position resulted in the syllabification of the final sonorant C (e.g. [rɪm] ‘rhyme-Sg.’). The reason is that a bi-syllabic status of the word was maintained, and no lengthening of the nucleus in compensation for the loss of a syllable occurred.

2.3.1.3 H. Zahrenhusen (1909)
Zahrenhusen (1909) investigates the dialect of Horneburg near Stade (No. 31 of Figure 5). He notices a rather expansive diversity in the phonetic inventories of the

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24 My translation. “Diese Verlängerung ist so beträchtlich, dass das jetzt einsilbige Wort vollständig den Quantitätswert des zweisilbigen behält.”

25 See also section 2.3.1.3.
local varieties in the region. For Horneburg, he assumes the presence of four main
degrees of vowel quantity: overshort, short, long, and overlong. In addition to these
four lengths, the author gives three more middle degrees of half-long, half-short and
lengthened short. They are contextually determined and may be regarded as
phonetic. The author undertakes no measurements to substantiate his intuitions.

Interestingly, Zahrenhusen (1909:7f.) abstracts away from absolute vowel
durations and implements the notion of the mora as a timing unit. Overshort Vs (i.e.
short vowels in unstressed position) are non-moraic. Short and long Vs are referred
to as being monomoraic and bimoraic, respectively. The overlong Vs and the
triphthongs are accordingly assumed to be trimoraic. The status of the overlong
segments results from the transfer of the mora from the deleted schwa to the
preceding long pre-lenis V (Zahrenhusen 1909:7). A change in the tonal contour to a
dragging tone (or ‘circumflexed intonation’ as the author terms it) does not occur in
the dialect. This means that the contrast Zahrenhusen describes for the dialect of
Horneburg is a fourfold length contrast.

Zahrenhusen notes that apocope in post-fortis position did not result in
overlength. The same is true for schwa deletion after the sonorants [l m n r]. Neither
syncope in -.RoR# sequences (resulting in the syllabification of the final sonorant C)
nor apocope in -R# endings triggered vocalic overlength in the preceding vowel. A
full long V of the preceding syllable (i.e. the nucleus of the preceding syllable)
remains long in both cases.

With respect to the sonorant Cs, Zahrenhusen finds that [l m n η] (not r since in
the relevant cases it has already been reduced) can be lengthened after a preceding
short V when apocope or syncope occurred (Zahrenhusen 1909:9, 17). In these
cases, it is the R that is assumed to receive the mora of the schwa. The old geminates
that were still present in MLG are by comparison all singletons synchronically.

2.3.1.4 Theodor Rabeler (1911)
The dialect area in question is located approximately 25 km to the east of the city of
Lüneburg in the district of Bleckede (No. 38 of Figure 5). The phonetic data of this
‘Geest’ dialect constitutes the main part of the speech material of the article. In
addition, the dialects of the bordering villages of the districts of Uelzen and
Dannenberg are also included in the analysis.

Rabeler first provides an articulatory phonetic description of the sounds of these
LG dialects. He distinguishes between three kinds of syllable accents (Rabeler
1911:159f.) that can apply to syllables containing vowels, diphthongs or creaky
vowels in the nucleus:

i) strongly cut accent,
ii) weakly cut accent, and
iii) two-peaked accent.

26 ‘R’ denotes in this context any sonorant consonant (rather than syllable rhyme), ‘ . ’ denotes a syllable
boundary, ‘ # ’ denotes the end of a word.
i) appears in closed syllables with a strong accented short V. ii) occurs in syllables with a long V preceding a sonorant C or a syllabic obstruent-sonorant cluster. iii) appears only in syllables with overlong V under primary word stress where a schwa of a succeeding syllable was deleted (Rabeler 1911:160). As to Rabeler, a characteristic of the latter phenomenon is a sudden decrease of intensity and pitch (i.e. a rapid fall of the tonal contour) in the final part of the V or in the following sonorant. He tends towards the interpretation that an additional minor increase in intensity follows as a second peak in the succeeding C.

The phonetic measurements he conducted with Marbe’s ‘Sprachmelodieapparat’ yield five phonetic degrees of vowel length in main stressed syllables (Rabeler 1911:165f.). The specific vowel durations, and the accent categories they may occur in follow below.

Rabeler detects
a) short vowels (0.07 sec - 0.1 sec) occurring in words of accent category i),
b) half-long vowels (0.11 sec - 0.18 sec) like the first part of a diphthong in words of accent category ii), or in un-apocopated words of accent category i) ending in lenis C,
c) simple long vowels (0.19 sec - 0.24 sec) in words of accent category ii), including the slightly longer creaky vowels,
d) boosted long vowels (0.31 sec - 0.38 sec) in pre-sonorant position, and
e) overlong vowels (0.39 sec - 0.44 sec) in words of the accent category iii).

The author states that all of those length groups overlap with one another, though a slight gap occurs between group c) and d).

He also finds that heavily stressed Vs in monosyllabic words exhibit either a simple tone contour or a circumflected tone contour (i.e. in boosted long and overlong Vs) (Rabeler 1911:168). The simple tone contour shows a level tone, possibly a high tone H or a mid tone M. The circumflected tone contour of the boosted long Vs exhibits a rising-falling tone movement with a single high peak at about the middle of the vowel. The circumflected tone contour of the overlong Vs differs from this slightly in its movement. The first part (about 0.3 sec) is level or slightly rising, whereas the second part (about 0.1 sec) decreases rapidly in its intensity (or rather: pitch).

Rabeler paints a phonetically detailed picture for the dialect area of Bleckede. His study is the first that provides phonetic measurements. A phonological analysis beyond the diachronic descriptions of sound changes, e.g. in terms of morae as seen for Zahrenhusen (1909) above, is not given.

2.3.1.5 Gesinus Kloëke (1913)

The focus of Kloëke’s study lies on the LG dialect of the island of Finkenwerder (No. 33 of Figure 5). It is the westernmost island in the river Elbe and is located in direct adjacency to Altenwerder. The author lists a number of vowel quality differences that exist between the dialects of Finkenwerder and Altenwerder but
does not mention any tonal or quantitative differences between the two dialects (Kloeke 1913:11f.).

Similar to the earlier dialect descriptions we have seen already, the author distinguishes between five degrees of length in the vowels: short, lengthened short, half-long, long and overlong (Kloeke 1913:30). The intermediate durations lengthened short and half-long result from the segmental context the V occurs in (i.e. pre-sonorant short vowel, and pre-fortis long vowels, respectively).

Kloeke explains the overlong duration occurring in vowels and diphthongs as the result of either the contraction of two syllables, or the deletion of an immediately adjacent or post- lenis schwa (Kloeke 1913:31). The liquida [l] does not allow this development.

A dragging tone or circumflected tonal contour is not observed.

2.3.1.6 Heinrich Sievers (1914)

Sievers’ study is concerned with the local variety of the area of Stapelholm in the federal state of Schleswig-Holstein (No. 13 of Figure 5). His investigation is based on phonetic observations, and he notes that a differentiation of the vowel length degrees into sub-short, short, half-long, long, and overlong can only have relative meaning (Sievers 1914:29). He abstracts away from these highly structured durational categories, arriving at a ternary distinction of vowel quantity of short, long, and overlong (Sievers 1914:31). He provides no other reason than descriptive ease for his choice.

This level of abstraction is substantially different from the sevenfold classification suggested in Stammerjohann (1914).

Sievers also establishes a connection between the occurrence of overlength and a dragging tone or ‘circumflex’. He assumes that the reduction of bisyllabic structure by apocope to a monosyllabic configuration concentrates the duration and the expiratory movement of the bisyllable in the remaining single syllable (Sievers 1914:265). The result is the intonational contour of a bisyllable mapped onto a monosyllabic word.

2.3.1.7 Rudolf Stammerjohann (1914)

The investigation of the dialect of Burg in the Dithmarschen region (No. 21 of Figure 5) is – similar to the survey conducted by Rabeler (1911) – based on the phonetic analyses of speech material recorded with Marbe’s ‘Sprachmelodieapparat’. Stammerjohann identifies seven so-called ‘quantities’ by means of the duration measurements: sub-short, short, lengthened short, half-long, long, and lengthened long and overlong. They are grounded in the phonetics and actually denote durational steps rather than prosodic or phonological categories. This is evident from the fact that the allocation of items to the durational degrees is entirely based on the measured duration values of the nuclei and therefore highly context-dependent.

According to the author, Vs are sub-short only in unstressed syllables (transcribed as ə). Diachronically short as well as long Vs are generally shortened in this position. The lengthened short degree (i.e. historically short vowels before
fricative) can be interpreted as being allophonic of the short length degree. The durational deviation is, with a range of minimally 10 ms to 20 ms, considerably small here. The half-long degree (i.e. historically long vowels before plosive, and historically short vowels before l) represents an allophonic variation of long Vs that unite historically long vowels before fricative, recent diphthongs and triphthongs resulting from the vocalization of post-vocalic r, recent pre-nasal diphthongs, and historically long pre-nasal vowels. The lengthened long Vs developed from diachronically long vowels. They occur word-finally in pre-lenis position and before l. In (almost) all of the forms given by Stammerjohann, the diachronic form contained a schwa in the second syllable. The mean duration values for this length degree are given as 310 ms to 380 ms. Stammerjohann (1914:78) notes that the overlong degree is in fact also lengthened long. The difference between the two degrees is that the overlong vowels occur in open syllables, resulting in an excess in their duration with mean values of 390 ms to 440 ms (an outlier value occurs at 530 ms).

The author defines a ratio for the individual duration steps of $1:2:3:4:5.5:7:9$ (Stammerjohann 1914:78). The values are comparable to the ones obtained by Rabeler (1911) for the dialect of Bleckede.

Stammerjohann (1914:71) detects no circumflexed intonation. In the cases where Rabeler (1911) notes circumflexed contours (i.e. two-peaked tonal accents for the overlong vowels of the dialect of Bleckede) only single peaked, lengthened overlong syllables occur in Burg. Thus, no difference between the tonal contours of long Vs and lengthened long Vs is observable.

The lengthening of the syllables to overlong configurations corresponds to the findings of the earlier investigations. Not only Vs may bear overlength, but also combinations of short Vs plus sonorant Cs. A prerequisite is in any case the deletion of schwa.

2.3.1.8 Hugo Larsson (1917)

The next work I am treating from the early period of linguistic investigations on the LG dialects is the study of the dialect of Altengamme close to Kirchwerder (No. 36 of Figure 5). Larsson identifies for this variety the duration differences overshort, short, half-long, long, and overlong (Larsson 1917:19). This phonetically based division is in the spirit of the preceding works on LG dialect systems.

The syllables with overlong Vs or diphthongs show a single intensity peak followed by a rapid decrease in intensity. No dragging tone by means of a second syllable peak is detectable.

Larsson distinguishes between final syllabic nasals and final long nasals. Both have developed due to syncope of schwa in the morphological ending (Larsson 1917:18). He palpably transcribes syllabified nasals only in position after long vowels and diphthongs, while transcribing long nasals only after short vowels. Larsson (1917:18) assumes on the basis of the syllable cut theory that sequences of long vowel or diphthong followed by an assimilated nasal are weakly cut and contain two syllable peaks, the second peak lying on the syllabified nasal; short vowels followed by an assimilated nasal are strongly cut with only one syllable
peak, having a long nasal in a single conflated syllable. Therefore, it is really the length of the nuclear vowel that decides on the status of the final nasal. Larsson’s examples (given here in his own style of transcription) are [nën] ‘to take’ < MLG nemen and [vän] ‘to cry’ < MLG weinen ending in a syllabified nasal,27 and [zij] ‘to sing’ < MLG singen, [biː] ‘inside’ < MLG binnen and [herf] ‘to have’ < MLG haben with a long final nasal. Cases with apocope after sonorant geminate (e.g. [kan] ‘jug-Sg.’ < MLG kanne) are not discussed separately but can be assumed to fall into the second category of strongly cut syllables terminating in a long nasal.

Almost all of the studies presented so far base their discussion of the dialects on phonetic observations in combination with historical-linguistic findings and speaker intuitions. It is only Zahrenhusen (1909) and Sievers (1914) who implement more abstract notions beyond absolute duration values in their analyses (i.e. morae and relative length) to express the different length degrees. Only their approaches may be termed in this sense truly phonological. They can be seen as the basis for later phonological analyses working with three distinct degrees of vowel length for LG.

2.3.1.9 Otto Bremer (1929)

The phonetical and historical-linguistic focus of linguistic research continues in the following work. The influential study brought forward by Bremer (1929) is not concerned with a single LG dialect but rather the North Low Saxon variety as a total. His work is based on phonetic observations. The author postulates a prosodic phenomenon Schleifton (i.e. dragging tone) for the area from the western to the eastern coast of northern Germany, namely the so-called ‘Waterkant’ between the mouth of the river Weser and the mouth of the river Oder. Bremer assumes that the same phenomenon also occurs in Standard German (1929:1). He notes that the Schleifton results from

“a transfer of the duration (compensatory lengthening) as well as of the tone of the syncopated or apocopated unstressed ι to a preceding sonorant sound (vowel or nasal or liquid). This development occurs if the sonorant is in immediately preceding position, or if a w, a formerly voiced s, a spirant g (or [non-spirant] b, d, g) occurs in between the sonorant and the ι.” (Bremer 1929:1; my translation)28

Translated to recent prosodic research, this means that the conflation of two adjacent syllables results in a H(igh) L(ow) tonal contour. The H stems from the nuclear vowel whereas the L is left behind by the deleted schwa. By this, the tonal contour alludes to the original syllable structure. The implicit assumption made by stating the HL contour for words with schwa deletion is such that words that show no schwa

27 [â] denotes a vowel quality that lies in between [a] and [o] (Larsson 1917:16), presumably [a].
28 “Es handelt sich um eine Übertragung sowohl der Zeitdauer (Ersatzdehnung) als auch des Tones des aus- und zum Teil auch des abfallenden unstenten ι auf den nächstvorgelagerten tragbaren Sonorlaut (Vokal oder Nasal oder Liquida), wenn dieser unmittelbar vorhergeht, oder wenn ein w, ein damals stimmhaftes s, ein spirantisches g (oder b, d, g) dazwischen steht.” (Bremer 1929:1). Prior to Bremer (1929), Grimme (1922:54) notes in passing compensatory lengthening as the source of overlength in the dialect of Dithmarschen and for the occurrence of circumflex in the dialect of Stavenhagen in the district of Mecklenburg-Vorpommern.
deletion, bear a single H on the nuclear vowel. Bremer provides examples for the dragging tone but does not distinguish between lexical tone and sentence intonation based tones. He also does not mention the sentence context of the given words.

Bremer essentially finds that not only overlong Vs and diphthongs are able to bear the dragging tone, but also short Vs plus nasals or the liquid /l/. In his approach, these Cs also get lengthened after apocope, creating in combination with the preceding short V an overlong syllable (Bremer 1929:2). The combination of long V or diphthong plus /l/ also results in a dragging tone if apocope occurs, while a sequence of long V or diphthong plus nasal does not. Bremer makes no explicit reference to the number of assumed length degrees in the vowels. The ones that are mentioned in passing are short, long and overlong.

Having postulated the general presence of the tonal phenomenon, he notes that the specific characteristics differ depending on the syntactic context. Unstressed syllables do not receive the tone. In stressed syllables, the tonal differences are very small to the extent of being barely audible. If anything, the difference of dragging tone vs. no dragging tone is best found in utterance-final position. Vowel length is by comparison much more stable. This leads him to the conclusion that it is rather quantity (i.e. overlength as compared to short vowels and long vowels) and not tone that is the crucial prosodic characteristic of North Low Saxon.

2.3.1.10 Otto Furcht (1934)
The dissertation of Furcht (1934) treats the dialect of the village of Estebrügge (No. 32 of Figure 5). The focus of his research lies on the diachronic development of the sounds. A synchronic description of the phonetic details is kept to a minimum and shows a rather low level of abstraction.

He assumes five length degrees: overshort, short, half-short, half-long, long, and overlong Vs (Furcht 1934:13). The half-long duration is the result of shortening of a long V in pre-fortis position. Vocalic overlength occurs if after a succeeding lenis C a schwa is deleted (without creating a syllabic C). A dragging tone as described by Bremer (1929) is not mentioned.

2.3.1.11 Peter Jørgensen (1934)
Jørgensen (1934:53f.) describes briefly the occurrence of overlong vowels in his glossary and grammar of the dialect of Dithmarschen (the area in the vicinity of No. 21 of Figure 5). They developed synchronically due to the reduction of the number of syllables in the course of apocope or syncope, if the coda of the stem was not fortis. The stem vowel was compensatorily lengthened only if it was already long. If the stem vowel was short, the succeeding lenis consonant received overlength (Jørgensen 1934:54).

2.3.2. The works from 1939 to 1967
While basically all of the studies presented in the section above contain a diachronic analysis of the sound changes in a Neogrammairian fashion, this trend is decreasing

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29 See chapter 0 [kan] ‘can-3.Sg.’ < MLG kan vs. [kan] ‘jug-Sg.’ < MLG kannen.
in the works of the period from 1939 to 1967. The focus shifts from the historical linguistic perspective to a synchronic-phonetic one.

2.3.2.1 Ursula Feyer (1939, 1941)

Feyer published two phonetic studies on North Low Saxon dialects; the first one appeared in 1939 on the varieties of the villages of Borgstede (No. 51 of Figure 5) and Aschhauserfelde (No. 57 of Figure 5) in the Frisian Wede and Ammerland, respectively; the second one is her dissertation on the dialect of the village of Baden, district Verden (No. 44 of Figure 5), which was published in 1941.

The author notes that the dialect of Borgstede has apocope and resulting overlength on the stressed syllable before originally voiced Cs. Overlong Vs are also found in the same context after syncope of the morphological endings. If a nasal preceded the lost schwa, the nasal became long, and a preceding V maintained its length.

The dialect of Aschhauserfelde closely resembles these developments. Overlength occurs accordingly in the same cases as in Borgstede (Feyer 1939:45). Specific tonal movements on overlong Vs are not detectable in both dialects.

The local variety of the village of Baden, located at the southern border of the schwa-deleting area of North Low Saxon, is discussed in Feyer (1941). The author assumes three degrees of V duration, i.e. short, long, and overlong, which are phonetically investigated. She compares the values observed for Baden to the ones given by Stammerjohann (1914) for lengthened long and overlong of the dialect of Burg in the Dithmarschen region, and given by Rabeler (1911) for the same length degrees in the dialect of Bleckede. It seems that the overlength of Baden with mean values of 150 – 310 ms cannot compete against the mean values obtained for Burg and Bleckede with 340 ms / 310 – 380 ms, respectively (Feyer 1941:129). This may relate to the fact that the speech material used for Baden is connected speech whereas the recordings for Burg and Bleckede are isolated words. Measurements of some isolated utterances in Baden indeed yielded higher values of 250 – 330 ms in monophthongs, and 320 – 550 ms for the diphthong [a:] (Feyer 1941:129). Feyer (1941:130) concludes that a tendency towards a threefold quantity contrast in the dialect of Baden is clearly evident (though she observes a neutralization trend). The local variety shows a ternary split short – long – overlong.

This comes somewhat as a surprise since the dialect of Baden does not necessarily connect overlength to the deletion of a schwa (Feyer 1941:79ff.), e.g. in forms like ‘house-Dat.Sg.’ [huuuza]. Despite the occurrence of a final schwa we obtain an overlong stem vowel. The overlength in Baden occurs in basically those cases where it occurs in dialects with complete apocope (Feyer 1941:81), disregarding the possible presence of a final schwa. The segmental context is

i) an originally long V, a (OSL) lengthened V, or a diphthong in pre-lenis position,

ii) cases where the schwa of the morphological ending immediately succeeded the vowel (e.g. [khar] ‘cow-PL.’),

iii) the schwa-preserving adjectives in pre-lenis position,
iv) syncope of post-lenis schwa, but not post-nasal and post-liquid schwa, and (this is exceptional)
v) originally short Vs preceding -gg, but no other old geminate (e.g. [bryy:ɡa] ‘bridge-Sg.’, [myy:ɡn] ‘mosquito-Pl.’).

Feyer notes that by means of her measurements “it has been objectively verified what the ear had determined: the quantity of the Baden dialect is lengthened, inspite of the lack of apocope” (Feyer 1941:13; my translation). A two-peaked contour is not realized in Baden. Rather, the pitch movement for the overlong Vs is level, with only a light decrease towards the end, and does therefore not differ from the contour of the long Vs. The neighboring villages of Beppen and Schwarme may, however, employ a dragging tone (Feyer 1941:99f.).

The author finds that the concrete diachronic development of the schwa-endings in Baden is impossible to analyze with a high level of confidence. It might be the case that the dialect had apocope with overlength as a result of it, but re-installed the schwa due to language contact with neighboring dialects and Standard German. Overlength remained (Feyer 1941:83). However, if the schwas were indeed relics, Feyer notes that some other property would need to account for the occurrence of overlong vowels. She deems syllable boundaries the most likely source. Her assumption is here that short Vs are ‘clipped’, i.e. abruptly or strongly cut-off by a succeeding C. Long Vs are by comparison not cut-off, i.e. they are weakly or smoothly cut. Overlength might then result from an extreme form of weakly cut accent, i.e. a very lose syllable contact (Feyer 1941:84f.). Feyer speculates that schwa-loss might have been implemented in pre-lenis position in LG generally by means of a weakening process due to the length of the weakly cut stem syllable.

We see that Baden is indeed an interesting case of LG overlength without schwa deletion. A phonological investigation of the lengthening process and the synchronic vowel system may be able to provide some insights with respect to the syllable cut theories that have gone through a renaissance after Vennemann (1991). A corresponding analysis is, however, a desideratum.

2.3.2.2 Walther Niekerken (1954)
Niekerken (1954:69) mentions in his study on bilingualism in the North Low Saxon area a ‘schleiftonige’ (dragging-tonal) overlength on vowels. It emerges whenever a schwa is deleted after a long vowel in hiatus, or after simple voiced C. The prosodic feature is neutralized in unstressed position. It is, however, particularly prominent in sentence-final position.

Besides the vocalic overlength / dragging tone, Niekerken assumes the same phenomenon to occur also in doubled nasals (i.e. in assimilated nd or md sequences, or original geminates). The result after apocope or syncope is here a long sonorant

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30 “[…] und objektiv ist bestätigt worden, was das Ohr ermittelt hatte: die Quantität der Badener Ma. ist dehnstufig, obwohl die Apokope keineswegs durchgeführt ist.” (Feyer 1941:13). The duration of the speech sounds of Baden was measured by means of a Synchron-Kymographion (Feyer 1941:101).

31 Trubetzkoy’s (1938) syllable-cut theory.
that is pronounced with a dragging tone in the majority of cases (Niekerken 1954:70).

2.3.2.3 Otto von Essen (1957-1964)
The phonetician von Essen published three works related to the phenomenon of overlength. The first one appeared in 1957 and contains an analysis of overlong Vs and lengthened Cs in Standard German. Apart from the discussion of the Standard German data, he finds ‘overlengthening’ of LG long vowels after apocope of a morphological ending. Especially noticeable here is a dragging-tonal movement that is reminiscent of bisyllabic tonal contours (von Essen 1957:243). Von Essen states that the overlength of the vocalic nucleus results from the tonal pattern because the production of this contour requires more effort and, hence, more time.

The total duration of the lengthened long vowels varies notably. Von Essen interprets this as a development of recent informal speech. He states that overlength is about to vanish from LG dialects (von Essen 1957:243f.).

The second and third studies occurred in 1958 and 1964, respectively. Both investigate the LG dialect of Kirchwerder (Kw.), the former focusing on the vowel system, the latter focusing on recordings of connected speech. Von Essen distinguishes three length degrees of short V, long V, and overlong V. New to the study of 1964 is that the author mentions a qualitative contrast between short Vs and long Vs that adds to the length contrast (von Essen 1964:10). Overlong Vs exhibit no differing quality with regard to the corresponding long vowels.

Von Essen (1958:111) posits vocalic overlength for all cases of final schwa-loss after lenis C, sonorant C or hiatus where the additional length is needed to retain a grammatical contrast. The ternary quantity contrast is only relevant in primary or secondary stressed syllables (von Essen 1964:21). The observation is that the overlong vowels are lexically and grammatically distinctive, which leads von Essen to the conclusion that a ternary quantity distinction exists in the dialect of Kirchwerder. The dragging tone (viz. circumflected tone contour) co-occurring on the overlong vowels arises due to a tonal merger of the tone of the deleted schwa with the tone of the preceding sonorant (von Essen 1958:112). Von Essen states that in LG dialects without complete apocope the very same pitch contour is spread over the whole length of the word, e.g. in [hyːلزم] ‘house-Pl.’ (instead of Kw. [hyːﮊ]) and [lyːðs] ‘people-Pl.tantum’ (instead of Kw. [lyːy] with loss of the final stop) where the final syllable exhibits a low pitch.32

The author applies the term overlength not only to overlong Vs and long diphthongs, but also to the combination of diphthong + long nasal as in [brain] ‘bean-Sg.‘ vs. [beum] ‘bean-Pl.’, and to the combination of short V + long nasal as in [bn] ‘inside’ or [pan] ‘pan-Sg.’ (von Essen 1958:111). After the deletion of a final syllable due to apocope or syncope, it is in these cases that the final nasal lengthens instead of the nuclear vowel or diphthong. Von Essen does not mention a

32 The dialect of Baden investigated by Feyer (1941) actually appears to be the exception to this pattern. This might relate to it being located at the southern border of the North Low Saxon core area that generally shows complete schwa deletion.
difference between items with apocope (e.g. [pan] ‘pan-Sg.’) and syncope (e.g. [bmn] ‘inside’), thereby implying a merger of the cases.

I find the assumption of overlength on sequences of short V + long nasal rather problematic. If such a sequence indeed counted as overlong, one would assume vice versa that a combination of long V + short nasal like [min] ‘my-fem.Poss.Pron.’ should also be overlong with a dragging tone (see Chapman 1993). However, no dragging tone is mentioned for these configurations. The matter is left untouched by von Essen.

2.3.2.4 Bruno Hildebrandt (1963)
With the improvement of the technical possibilities, also the analysis of phonetic details improved in the time from 1939 to 1967. This is clearly observable in the detailed phonetic study provided by Hildebrandt (1963) on the connected speech of the dialect of Wewelsfleth in the region of Holstein (No. 26 of Figure 5). On the other hand, no clear theoretical improvements were made in the analysis of the LG dialects. Hildebrandt crucially assumes a ternary length contrast in the vowels (Hildebrandt 1963:23), basing his assumptions mainly on phonetic data. His phonological analysis does not go beyond a purely structuralist approach to determine the phonological status of the speech sounds (i.e. minimal pairs).

Hildebrandt (1963:131) finds that the older informants exhibit a greater difference between long Vs and overlong Vs than the younger informants do. He argues that this must not be interpreted as alluding to the fact that the realization of overlength is increasingly neglected, resulting in a neutralization of the long vs. overlong contrast (Hildebrandt 1963:222). However, he finds that overlength is generally not as strictly differentiated from long Vs as long Vs are from short Vs (Hildebrandt 1963:179). The author defines the duration ratio for the three degrees of length as 1 : 1.92 : 2.6 (Hildebrandt 1963:194). There are, however, rather extreme differences in the ratios among the individual speakers.

The author notes that phonetic overlength is not phonemic in words that lost a voiced obstruent after the accented vowel. The primary function of the duration is here an auxiliary one, which means that it constitutes a quantitative variant of the simple length. These sounds should not be classified as belonging to a quantity degree ‘overlong’ (Hildebrandt 1963:109).

This is different for words in which the final schwa was deleted. The pitch contour was preserved and taken over by the root syllable, causing the additional lengthening of the root vowel and the development of dragging tone. Hildebrandt (1963:110f.) states that those overlong forms can have a grammatical function (e.g. Sg. forms as [dax] ‘day-Nom.Sg.’ and [hux] ‘house-Nom.Sg.’ vs. the respective Pl. forms [doox] ‘day-Pl.’ and [hyys] ‘house-Pl.’) or distinguish between two meanings (e.g. LG [freit] ‘to gorge-3.Sg.Pret.’ vs. LG [freit] ‘to court-3.Sg.Pres.’). Hildebrandt emphasizes that the isochronic tendency to maintain the absolute duration of a word despite the loss of a syllable could not have yielded vocalic overlength. The vivid variations in speech tempo and the resulting variations in the duration of words make it appear unlikely that speakers have certain intuitions for concrete word durations (Hildebrandt 1963:111f.).
Rogby (1967) treats the LG dialect of the village of Westerhever in Schleswig-Holstein (No. 11 of Figure 5) in his diachronically based study. The main part of the work is concerned with the historical developments of the vowels. The synchronic status is discussed rather briefly.

The author mentions three distinct degrees of vowel length, i.e. short, half-long / long, and overlong (Rogby 1967:21f.). They correspond to the three length categories short : long : overlong given in Table 1 of the introduction. Rogby does not mention the occurrence of a dragging tone or explicit pitch differences. The author provides minimally different sets of words for the length contrast, arguing for its phonological relevance. He assumes that the length difference between long vowels (e.g. /sne/ ‘snow’) and overlong vowels (e.g. /snee/ ‘to cut-3.Sg.Pret.’) has developed by means of compensatory lengthening. The stem vowel received more duration after deletion of a vowel in the final syllable (Rogby 1967:22). Another, probably interrelated, option that Rogby considers, is that vowels and diphthongs in pre-fortis position were shortened. This would also produce a length difference with respect to pre-lenis vowels.

In addition to the three length categories, Rogby (1967:23) observes contrastive quality differences of tense vs. lax, and rounded vs. unrounded in the vowels. He also finds that the quality of the succeeding consonant is interrelated with vowel length. Fortis Cs occur after short vowels, lenis Cs occur after long vowels, and lenis Cs reduced in intensity occur after overlong vowels (Rogby 1967:24). This approach offers the possibility to analyze LG vowel length as a consequence of the three types of final obstruents (i.e. fortis, lenis, and reduced lenis). Rogby, however, does not embark upon this phonological line of reasoning.

His method is taxonomic, distinguishing between phonologically relevant sound differences and purely phonetic differences. It is not so much based on the articulatory and acoustic description of the segments but rather on dialect-internal comparison of sounds. Although his discussion of the contrasts is particularly brief, it may be seen as the first step towards a phonological analysis of the LG length or pitch phenomena.

The common denominator of the works on LG presented above is the effect of schwa deletion on the length of a nuclear V or the length of a final sonorant C. The major commonality between the analyses is the assumption of the principle of isochrony, i.e. the perpetuation of the original (MLG) length of a word. This goal is reached by means of lengthening of a nuclear V from long to overlong in pre-lenis position, lengthening of a final nasal, or syllabification of an assimilated final sonorant C.
2.3.3. The works from 1968 to 1982

Wiesinger & Raffin (1982) list in their bibliography of linguistic literature on LG only two phonological works: Bellamy (1968) and Dixon (1968), the latter one not mentioning the phenomenon of overlength and/or dragging tone. The temporal classification had a bearing on my choice for setting the parameters for the third research period from 1968 to 1982. We could assume that with the increasingly detailed phonetic investigations of the LG dialects also phonological methods are now implemented in the analyses. This is, however, only rarely the case, as we will see in due course.

2.3.3.1 Sidney E. Bellamy (1968)

The overview starts with the dissertation of Bellamy (1968) on the LG city dialect of Hamburg; a dialect with complete schwa apocope except for inflected adjectives. Bellamy provides not only a historical overview on LG, beginning with Early Saxon (500-800 A.D.), but he also gives demographic numbers and cultural-social background information on the synchronic language. Of his 17 informants, the older ones used a more conservative variety of Hamburg LG than the younger ones did. Also, the influence of Standard High German in the former was less, in the lexicon as well as in the phoneme system (e.g. loan phonemes).

The investigation of Bellamy is based on a questionnaire of 226 isolated stimuli plus a (optional) sequence of free speech. He observes a ternary quantity-contrast short, long, overlong in Hamburg Low German vowels and provides according minimally different pairs of words. Bellamy also states that the distinction between short and long vowels is not solely one of quantity but also of quality, whereas long and overlong vowels merely contrast in quantity, i.e. in his notation /i/ vs. /i:/ vs. /i:/ (Bellamy 1968:97, 100f.). In addition to the overlong vowels, he finds long diphthongs. The so-called "overlongs" are therefore i:, y:, e:, ø:, u:, e: (Bellamy 1968:95). They are accompanied by a dragging tone that has a high-mid pitch movement. Such a "sing-song-like pitch contour" (Bellamy 1968:119f.) is observed in no other cases.

The phonological analysis relies on the presentation of minimal pairs to demonstrate the LG ternary length distinction, and on feature charts to mark the contrast. He classifies two monophthongal qualities of tense vs. lax. The assumed binary features are [obstruent], [consonantal], [vocalic], [voice], [continuant],

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33 Interestingly, a similar exception for schwa deletion is valid for Limburgian. Feminine forms of adjectives (after underlyingly voiceless consonants only) are here the only forms that retain schwa (Paul Boersma p.c.). This phenomenon occurs across a number of Limburgian dialects, e.g. in the city dialect of Roermond: [wɔt vrɔu:] ‘white woman’, [dik vrɔu:] ‘corpulent woman’. The acute accent denotes TA1 on the respective vowel.

34 Bellamy transcribes simple length in an amended IPA fashion with a single dot / /, and overlength with a colon /:/.

35 Note that terms such as ‘sing-song-like’ to describe certain pitch movements have been discredited in the past (Paul Boersma p.c.).

36 The assumption of features may be seen here as occurring in the spirit of the SPE (Sound Pattern of English) by Chomsky & Halle (1968).
[tense], [long], [grave], [diffuse], and [flat]. Interestingly, Bellamy notes in his distinctive feature charts that the short lax vowels are left unspecified with respect to the length feature, the long tense vowels are [-long], and only the overlong tense vowels are [+long] (Bellamy 1968:116). The result is a ternary quantity distribution. This analysis is basically the first approach out of three possible analyses Bellamy suggests. It results in a total of 27 vowel phonemes (including diphthongs), and is preferred over the other two approaches in order to avoid the leap

“into generative phonology as applied to dialectology and to avoid recourse to morphological criteria in an otherwise strictly phonological analysis” (Bellamy 1968:103).

The second approach relates to Bellamy’s observation that overlength may only occur in “monosyllabic morphemes” (Bellamy 1968:101) preceding a final lenis obstruent. It is inherently diachronic and defines overlength as allophonic, being determined by the succeeding, distinctive (voiceless) lenis consonant.

The third approach was introduced first by Keller (1961:343f.). He postulates that the apocopated sequences containing overlength keep synchronically the schwa in the phonology. It is the distinctive property distinguishing the long from the overlong cases. The phoneme inventory is hence reducible by the ‘Overlongs’. Bellamy (1968:103) assumes an according rule V → overlong | O(bstruent)+σ. This means that the presence of schwa and the development of overlength are necessarily intertwined. The schwa deletion is merely phonetic and occurs in all words but the adjectives. It remains unclear how one can have a morphological exception to schwa deletion in inflected adjectives if schwa deletion itself is just a phonetic process.

In spite of the explanatory appeal of the last approach, Bellamy (1968:103) therefore prefers to avoid generative phonology and “recourse to morphological criteria” and comes to the conclusion that

“a separate set of over-long vowels must be posited: / i: y: e: o: u: /I o: I e: I / (Bellamy 1968:103). The two “holes” in this pattern, /a:/ and /ã/ would indicate that these might also occur in a larger corpus than the present one.)”

2.3.3.2 Jan Eilhard Bender (1971)

The study of Dixon (1968) is left aside because the author does not treat the matter of overlength or dragging tone for the investigated variety of Kiel LG.

The following scholar is Bender (1971) with his analyses of the Eastphalian dialect of Hermannsburg and the East Frisian LG dialect of the Großefehn-Mooralger area (No. 50 of Figure 5).

He notes a ternary split in vowel length short : long : overlong for the Eastphalian and East Frisian subjects. The term ‘long’ seems to represent rather the qualitative notion tense than quantitatively long – except for /æ/ /œ/ /æ/ (Bender 1971:43f., 163). The vowel system of the LG variety is very similar to the Eastphalian vowel system. The main qualitative difference is the presence of short /ɛ/ and the lack of a short *a/ in East Frisian. Interestingly, not in all cases where overlength would be expected does it occur. Examples are [dɔːj] ‘day-Pl.’, [ʃrɔj]
'screw-Sg.', but [tuːt] ‘(plastic) bag-Sg.’, [ryːdn] ‘to harvest potatoes-Inf.’ (with overlength despite the syllabic status of the final nasal) (Bender 1971:163f.).

According to Bender, it is most likely that the length degrees noted for the investigated dialects are phonetic rather than phonological. They are not mentioned in the vowel systems.

2.3.3.3 Alice Wyland Grundt (1975)
The prosodic phenomenon that had been referred to as ‘overlength’ or ‘dragging tone’ in the scientific literature is analyzed as tonal accents in the study of Wyland Grundt. Just like the title of her article ‘Tonal accents in Low German’ suggests, Wyland Grundt analyses the North Low Saxon dialects not in terms of vowel quantity but in terms of tonal accents. This differs from the studies we have seen so far, where either length or the collective of length and tonal accent were interpreted as carrying functional load. She notes that “in Low German and Scandinavian languages the segmental circumstances involve only vowels and diphthongs and [...] it is the redundant tonal transition in centering diphthongs which becomes distinctive when such diphthongs monophthongize.” (Wyland Grundt 1971:160)

Wyland Grundt assumes that the Low German dialects present a variety of intermediate stages in the development towards a tone language. The process of tonogenesis is in progress. The tonal accents developed diachronically by means of a timing change in bisyllabic sequences and the resulting durational weakening of the final vowel. This reduction was compensated for by inserting a schwa-like vowel to the preceding nucleus to create a centering diphthong. The vowel intrinsic pitch changed accordingly, and succeeding monophthongization then phonologized the process (Wyland Grundt 1975:164f.). The author notes that “it is the structure of the diphthong itself, not the environment, which determines the appearance of the tonal accents” (Wyland Grundt 1975:165). With this tool in hand, no reference needs to be made to the deletion of schwa; a property that Wyland Grundt deems necessary in order to account for dialects without apocope but with tonal accents (Wyland Grundt 1975:160f.). She states that tone accent is a secondary development, being triggered by the diphthongization and later monophthongization of old short vowels of open syllables. However, the varieties she brings up do not belong to the North Low German area. Rather, she refers to one East Low German dialect of the Brandenburgian area (i.e. Prenden near Berlin) with optional tone accent, and to “a number of the Frisian dialects, spoken on the north coast and in the northern coastal islands of The Netherlands, which have the Stosston in open-syllable lengthened vowels in words without apocope” (Wyland Grundt 1975:161). It needs mentioning, though, that the presence of distinct tonal contours is not at all undisputed for these dialects.

What Wyland Grundt’s approach essentially misses is that the development of a dragging tone or overlong vowel occurred between MLG and recent LG and not in pre-MLG time as suggested. An example is OSax. wika > MLG weke > LG [vek] ‘week’. If the tonal explanation provided by the author was indeed applicable, this
item would need to have a dragging tone or overlength by virtue of the open syllable and reduction of schwa. This is, however, not the case.

All in all, Wyland Grundt provides a particularly different, namely suprasegmental view on the issue of overlength or pitch contours in Low German. In doing so, she argues for phonological structure beyond the syllable – basically a bisyllabic foot.

2.3.3.4 Maike Lohse (1977)
Lohse (1977) provides a purely synchronic description of the phoneme system of Eiderstedt LG (No. 12 of Figure 5). She differentiates two length degrees of long and overlong for lax and tense vowels alike. They are termed “Grundlänge” (basic length) and “Überlänge” (overlength), respectively (Lohse 1977:180). The author makes no references as to the origin of the overlong vowels. Crucial to her is that

“a vowel needs to be seen as belonging to the basic length if it is arbitrarily producable as indefinitely short without changing the meaning of the word, and without making it incomprehensible. Accordingly, a vowel is to be interpreted as overlong if it is arbitrarily producable as indefinitely long. (Lohse 1977:183; my translation).”

These assumptions are based on the observation that the short lax vowels and the long tense vowels show a rather small durational difference. The postulate of three distinct length degrees seems to Lohse therefore inappropriate and uneconomical. The durational ratio between overlong lax vowels and overlong tense vowels is not treated.

2.3.3.5 Elmar Ternes (1981)
In his article on overlength in German dialects, Ternes (1981) refers to two dialect areas with a ternary vowel length distinction. The first area is LG; the second area is Central Franconian, which stretches across Luxembourg, the eastern border region of Belgium, the province of Limburg in the Netherlands, and extends in Germany roughly from the northern Saarland in the south to just north of Krefeld in the north, and to the Westerwald in the east (see Figure 85 of section 7.3.3). The two dialect areas are not adjacent. They are separated from each other by the Westphalian dialect, which exhibits only two different quantities (Ternes 1981:381).

Not only monophthongs participate in the quantity contrast, but also the diphthongs and vowel-sonorant (VR) combinations. The overlength distinction is both morphologically and lexically productive. Ternes observes that the overlong vowels occur in Low German as a result of diachronic compensatory lengthening after schwa-apocope, while the Moselle Franconian dialect shows in exactly those cases a shortened vowel. This is assumed to relate to the intrinsically shorter

37 “Grundsätzlich läßt sich sagen, daß ein Vokal als der Grundlänge zugehörig anzusehen ist, wenn er sich beliebig und unendlich kurz aussprechen läßt, ohne den Sinn des Wortes zu verändern oder unverständlich zu machen. Entsprechend ist ein Vokal als überlang anzusehen, wenn er sich beliebig und unendlich lang aussprechen läßt.”

38 The notions short and long stem from the traditional Standard German interpretation of vowel length, analyzing the lax vowel qualities as short and the tense vowel qualities as long. The length degrees do not necessarily display the phonetic reality of LG dialects.
duration of vowels in polysyllables as compared to monosyllables. The absolute duration of the segments decreases with increased number of syllables. This relative shortness is then phonemized by schwa-apocope (Ternes 1981:384).

Considering the diametrically different development in LG and Franconian, Ternes comes to the conclusion that it is virtually impossible that these two areas have been immediately adjacent geographically (Ternes 1981:385). While this conclusion may be correct for LG and Franconian, it cannot be upheld for another part of the Rhenish dialect area, the so-called Rule B-area of the Westerwald region. We find here basically the same distribution of length as in LG – and this in direct adjacency to the other Franconian dialects with their different distribution.\textsuperscript{39}

### 2.3.4. The recent works from 1983 to 2008

We see that in the period from 1968 to 1982 a total of five phonological analyses of LG dialects were brought forward. The most abstract of these is Wyland Grundt (1975) with her prosodic approach to the tonal phenomena she assumes for LG. All other approaches are somewhat more closely geared towards phonetic findings.

Moving on to the most recent research period from 1983 to 2008, the phonological investigations of overlength and dragging tone in LG do not increase much in number. A notable development is that the approaches abstract away more from the phonetics to detect the underlying taxonomy of the language.

#### 2.3.4.1 Maria D.H. Ruscher (1983)

Ruscher (1983) analyzes phonetic data from the LG dialect of the village of Heikendorf near Plön in Schleswig-Holstein (No. 16 of Figure 5) in her M.A. thesis. The aim of her study is to provide a synchronic phonological analysis of the dragging tone phenomenon within the framework of metrical phonology. The research corpus consists of only one single informant, who was raised bilingually Low German and Standard High German. The investigated data consist mainly of isolated utterances and to a minor part of connected speech. This focus of attention is justified because “the Schleifton phenomenon is fully manifested only in stressed positions in the sentence, but tends to disappear in unstressed positions” (Ruscher 1983:6). The author notes that “the data we collected are consistent with the published reports on the North Low Saxon dialect area” (Ruscher 1983:6) – a postulate that is not entirely true, because the study of Tödter (1982) on the dialect of Fintel evinces no phonetic cues on a dragging tone (see section 2.3.4.2 below).

The author assumes that tenseness and laxness of the vowels is distinctive whereas duration is a by-product (Ruscher 1983:12). She nevertheless notes three degrees of vowel length: short, long, and overlong, the latter one being accompanied by a dragging tone. It is characterized by a level pitch contour with a fall occurring over the last third of the vowel (Ruscher 1983:14f.). This phenomenon is not

\textsuperscript{39} The LG and Franconian dialect areas are not only not geographically adjacent, but they are also not adjacent in time: the Limburgian schwa drop preceded the Saxon schwa drop by more than 400 years (Paul Boersma p.c.).

\textsuperscript{40} See Werth (2010) and Köhnlein (2011) for a detailed discussion of the phenomenon in Rule B dialects.
present in all LG dialects. In order to develop a phonological analysis, Ruscher (1983:47) employs a privative approach.

“Thus, the crucial opposition in North Low Saxon and HP [Heikendorfer Platt; the author] is considered to exist between words with and without Schleifton (paralleling the opposition in Danish between words with and without stød).” (Ruscher 1983:47).

The dragging tone is generally restricted to the final position in a morpheme, e.g. [ˈleɪl̩bouk] ‘reader’ (Ruscher 1983:48). It may occur in monosyllables as well as in polysyllables. Furthermore, the author notes that the association of a pitch feature does not occur if the item receives an additional syllable by inflection (Ruscher 1983:48). There are only very few cases in the Heikendorf dialect that exhibit schwa in the overt form. These are inflected adjective, determiners, and a limited set of non-native formatives with presumably Dutch diminutive endings (Ruscher 1983:67). This is seen as a valid reason to discard a schwa-dependent analysis of overlength and dragging tone.

The analytical path Ruscher (1983:77) takes relies on four phonological tiers of representation for a prosodic word (PrWd): the segmental tier, the syllabic tier, the foot structure, and the tonal tier. The author posits that the “neutral tone pattern in HP words may be described as high (H) plus low (L), where the high tone is associated with the accented syllable and the low tone with the unaccented one” (Ruscher 1983:77). This means that every tone corresponds to a syllable.

The very same HL tonal contour of the bisyllable is found for the dragging tone (Ruscher 1983:79). Ruscher argues, however, that it is not a complex vowel that carries the H and L in dragging tone words. The observation that dragging tone arises only in words ending in a lenis C leads her to the assumption that the coda determines the tonal pattern. Due to a constraint on the rhyme structure, a lenis coda may not associate to the first syllable but is independently syllabified into a second syllable. This means that apparently monosyllabic forms are phonologically bisyllabic. The second syllable in these words is defective because it lacks the rhyme. Its occurrence is interpreted as being language-specific. The bisyllabic tonal contour HL is now enabled to keep its bisyllabicity. The H associates to the vocalic nucleus whereas the L is realized on the final syllabified lenis C. This consonant is “structurally extra-rime material” (Ruscher 1983:86). If a plural marker -n# is attached to the second syllable, the /n/ becomes the syllable nucleus whereas the lenis obstruent constitutes the onset (Ruscher 1983:88).

The author notes that not only regular nasals occur in the dialect of Heikendorf, but also nasals containing dragging tone (Ruscher 1983:99). They develop when a morphological ending -N# or -Ns (where N is representative for any nasal) is added to a stem ending in a nasal, creating a long nasal. The ending becomes syllabic and is therefore able to bear the L. Ruscher assigns basically the same structure to dragging tone words with overlong vowel and dragging tone words with long final nasal.

“Both contain the marked syllable w:$, i.e. a syllable that lacks the prosodic nodes O[net] and R[hyme] and instead immediately dominates a mora constituent plus an optionally following voiceless fortis consonant.” (Ruscher 1983:103).
Ruscher concludes that the dragging tone is a configuration of two immediately adjacent heterosyllabic morae within the domain of a single foot (Ruscher 1983:104ff.). No onset is intervening.

The vocalic overlength in the initial syllable is dependent on isochrony and duration ratios.\footnote{Lehiste’s (1970a) analysis of Estonian provides the basis for Ruscher’s approach.} This means that the syllable foot stretches over a defined time frame, resulting in vowel lengthening as a compensation for the defective second syllable that contains only the lenis C (Ruscher 1983:91). Ruscher implicitly assumes here that plain long vowels are phonologically structured as bisegmental and monomoraic (Ruscher 1983:92). For her, the long vowels have the same moraic status as short vowels, which she in fact deems also monomoraic. The overlong vowel results from a rule of vowel copying that inserts a duplicate of the second part of a long vowel $VV_\alpha$ as the nucleus $V'_\alpha$ to the second syllable. The newly created $V'_\alpha$ receives one mora, establishing together with the monomoraic $VV_\alpha$ sequence of the initial syllable a bimoraic structure. The ensuing overlong vowel consists of three vowel segments $VV_\alpha V'_\alpha$ (Ruscher 1983:93).

All in all, Ruscher analyses items with dragging tone or overlength as being structurally different from items without these prosodic properties. Where the former ones are bisyllabic, the latter ones are monosyllabic. Her approach integrates all three sound characteristics of the LG dialect: the dragging tone, the overlength, and their dependence on the quality of the final C. Ruscher (1983:105) finally states that schwa-dependent analyses, though most widely accepted,

\begin{quote}
“are hardly justifiable from a synchronic point of view, on the grounds that these segments are nearly non-existent at surface level in present-day Heikendorf Low German.”
\end{quote}

\subsection*{2.3.4.2 The Kiel research cluster (1982-2001)}

The first article of a series of six phonetic publications on the LG dialects in Niedersachsen and Schleswig-Holstein is Tödter (1982). She discusses the local dialect of Fintel in Niedersachsen (No. 39 of Figure 5) on a phonetic basis in the published version of her M.A. thesis. Tödter investigates recordings of five participants that contain carrier sentences with one item of a minimal pair. She assumes – based on the measurements of the mean vowel durations – that in the variety of Fintel only two length degrees exist (Tödter 1982:68). Her explanation for the widespread assumption of a third degree of length is such that a short tense LG vowel was, due to its quality, allotted to the corresponding Standard German quantity degree of tense vowels; i.e. it was interpreted as being long. The presence of a perceptually even longer tense vowel then resulted in the classification as overlong (Tödter 1982:76ff.). Basing her analysis on the measured vowel durations, Tödter (1982:68ff.) assumes instead that the LG short tense vowels are indeed either short (e.g. /kip/ ‘pannier-Sg.’) or plain long (e.g. /lu(ː)s/ ‘louse-Sg.’). The longer tense vowels are also interpreted as plain long (e.g. /hys/ ‘house-Pl.’).\footnote{Although Tödter (1982) uses phonological transcriptions, she does not distinguish between underlyingly voiced or voiceless consonants.}
Tödter (1982) observes a notable influence of the quality of the following consonant on the duration of the vowel. Vowels before /k/ are shortest, then vowels before /l/, /m/ and /n/. They are longest before /f/ and /s/. Tödter does not mention, however, whether those voiceless /f/ and /s/ are originally voiceless consonants or just devoiced due to the final position. She implies that all the synchronic codas are the same from an articulatory point of view (Tödter 1982:78). The findings that the vowels are longest before voiceless fricatives are not consistent with earlier research carried out on English syllable nuclei by Peterson & Lehiste (1960). They found that vowels are longest before voiced sounds – a widely accepted and presumably universally valid result. Yet, Tödter’s findings are not exactly correct, because she does not take into consideration the diachronic and probably still underlying voiced status of the consonants. Except for her test items /kaːf/ ‘calf-Sg.’ and /lus/ ‘louse-Sg.’, all examples with final (phonetically) voiceless fricative are apocopated forms that could have overlength. Thus, the findings that the vowels are longest before /f/ and /s/ could easily be a result of this. The more since the non-apocopated form /lus/ appears to be less long than both of the apocopated forms /hus/ ‘house-Pl.’ and /inn hus/ ‘house-Dat.Sg.’ (which were said to be within the range of the long vowels) (Tödter 1982:73, Abb. 5).

All in all, the mean vowel durations Tödter (1982:80, Abb. 11) provides with regard to the succeeding consonant appear to be not meaningful. The reason is that the mean duration values of the vowels are pooled across the whole data sample. The categories of long vowels and short vowels are conflated in the analysis. The exact number of short and long items is not controlled for. Additionally, the categories of apocopated and non-apocopated words are not indicated; a rather important detail because all of the investigated items ending in a plosive belong to the category of non-apocopated words, while (almost) all of the items ending in a fricative belong to the category of apocopated (i.e. possibly overlong) words. These shortcomings considerably skew the results.

However, Tödter concludes from the measurements that, although the long vowels are overall heterogeneous and the durational differences are sometimes rather high, all belong to just one class: the long vowels. This means that e.g. /lus/ ‘louse-Sg.’ and /hus/ ‘house-Pl.’ fall into the same category of long vowels. No overlength is present (Tödter 1982:81). Her interpretation of the data is such that she assumes a twofold binary distinction lax vs. tense and short vs. long (Tödter 1982:82).

A remark I would like to add is that the durational difference between the vowels influenced by apocope and the vowels not influenced by apocope might not be a very pronounced one – yet even from Tödter’s data it still seems to be present.

The subsequent article on the dialect of the village of Haßmoor near Kiel (No. 14 of Figure 5) is a collaboration of Tödter and Kohler published in 1984. The variety is analyzed phonetically in basically the same way as the dialect of Fintel was. Five informants participated in the recordings. Neutral carrier sentences in declarative intonation were queried, bearing the item in question in ±final ±focused position.
They were recorded in Standard German and LG to enable a comparison between the two languages.

The result of the measurements is that only two degrees of vowel duration (i.e. short vs. long) combined with two degrees of quality (i.e. tense vs. lax) are identified (Kohler & Tödter 1984:78, 105f.). While ‘house-Nom.Sg.’ is found to have a short tense vowel, ‘house-Dat.Sg.’ is analyzed with long tense vowel.43 No dragging tone is detectable (Kohler & Tödter 1984:107). However, a slightly significant durational difference of 20 ms (+26.32%) is observable between lax /i/ and tense /i/ before plosive with 76 ms and 96 ms, respectively. A similar difference of 17 ms (+17.71%) occurs between lax /y/ and tense /y/ before fricative with 96 ms and 113 ms, respectively. At least the first difference value lies above the perceptual threshold of 20% (see section 3.2.1 for a brief discussion of this just noticeable difference) and could therefore carry functional load. The authors postulate, however, that these differences between what they term ‘short lax’ vowels and ‘short tense’ vowels are much too small to justify a split into two separate quantity degrees short vs. long (Kohler & Tödter 1984:79). Also, if one would indeed assume such a split and analyze ‘house-Nom.Sg.’ or ‘louse-Nom.Sg.’ as long tense, the attested additional length division in the tense vowels would result in a ternary system of vowel length – a status that the authors argue to be avoidable.44 Their informal perception tests conducted with manipulated speech material suggest that the lax vs. tense quality is more salient than the vowel quantity. Artificially shortened tense ‘short’ vowels are not identified as short lax vowels (Kohler & Tödter 1984:87f.). Note, however, that this does not necessarily suggest that there is no third degree of quantity in the LG dialect of Haßmoor. The distinction might be enhanced by laxness, adding additional perceptual cues to the speech signal.

Another observation made by the authors is that there are indications for durational triples in the mid vowels. These triples exhibit significant durational differences among each other (Kohler & Tödter 1984:84ff.). An example is [kloŋ] ‘clock-Pl.’ vs. [kɔŋ] ‘cooking’ vs. [kloŋ] ‘lament-Pl.’. Also, they find two length degrees in the diphthongs. The old diphthongs /ai/ and /au/ are continuously produced as long, whereas the rather newly created /æɪ/, /oʊ/ and /æj/ (descending from MLG ê ë ò, cf. Table 30 on page 163) are produced as either ‘normal’ or long depending on the succeeding C. If the consonant is lenis, the diphthong is long; if it is fortis, the diphthong receives normal duration (Kohler & Tödter 1984:84, 87).

Word stress appears to have no systematic influence on the vowel duration. The position within the utterance affects the vowel duration by comparison rather heavily (Kohler & Tödter 1984:107). Stressed vowels in sentence-final position are clearly lengthened as compared to their sentence-medial correspondents (Kohler & Tödter 1984:100, Abb. 12).

The authors interpret the data in such a way that the duration is a means to enhance the qualitative contrast in the mid vowels. An additional durational

43 Following this analysis, the item /luːs/ ‘louse-Nom.Sg.’ discussed by Tödter (1982) should also fall into the short vowel category instead of being considered long.

44 The durational differences found between /i/ and /i/ /y/ and /y/, and /u/ and /u/ are indeed statistically significant.
differentiation furthers the perception of the opposition. Kohler & Tödter (1984:88) assume that this differentiation is necessary because the qualitative differences tend to be particularly small for the mid vowels. The durational enhancement is irrelevant for the lax vs. tense contrast in the closed vowels because they are not conflicting qualitatively with any other vowel quality.

Kohler & Tödter (1984:88) conclude that only the interconnection of quantitative and qualitative differences allows for a consistent production and perception of the ternary duration opposition. The difference between short vowels and long vowels depends on the quality of the following consonant as lenis or fortis. The distinction is therefore defined as twofold binary with two levels of vowel quality (lax vs. tense) combined with two levels of length (short vs. long) (Kohler & Tödter 1984:106).

The series of phonetic publications on LG dialects continues with the article of Kohler & Tödter & Weinhold (1986a) on the supplementary research conducted on the dialect of Haßmoor. It discusses perception data and some additional production data of the variety, focusing on formant values (F1 / F2) and pitch variations.

The findings are that each of the vowel triples defined in the 1984 study by Kohler & Tödter show one more open (lax) member and two more closed (tense) members (Kohler et al. 1986a:35). The closed lax vowel qualities /u/, /u/', and /u/ are produced more open, resulting in a perceptual transfer into [e], [o] and [ø], respectively. Their actual formant values correspond to the values of the original short tense and long tense member of the mid opening degree (i.e. /e(ə)/, /o(ə)/ and /o(ə)/). This is also verified in the perception tests (Kohler et al. 1986a:83). Their duration is, however, shorter than the one of the short tense vowels. As a result, a ternary length distinction arises in the vowel system of Haßmoor (Kohler et al. 1986a:35). The authors state that because this distribution is not consistently produced within the data and additionally shows a rather weak functional load, the ternary quantity opposition can be reduced to a binary one (Kohler et al. 1986a:83).

While the duration analysis showed indeed (partly) a ternary length distribution in the vowels, the pitch analysis provides no cues on the presence of a dragging tone (Kohler et al. 1986a:36ff.). Only a very limited number of words was analyzed, namely the two minimal pairs /stiç/ ‘steep track-Sg.’ - /stiç/ ‘staircase-Sg.’, and /brut/ ‘bride-Sg.’ - /brut/ ‘to brew-Sg.Pres.’ as produced by two informants. These examples were chosen due to the fact that they are traditionally assumed to exhibit an overlength distinction resulting from earlier schwa-drop. The words are scrutinized in focused-medial position, in unfocused-medial position, in focused-final position, and in unfocused-final position. Besides the general intonational change in the pitch contour, only a difference in the duration of the vowels is detectable.

The authors therefore conclude that both the dragging tone and the ternary length distinction are not a phonetic reality in the dialect (Kohler et al. 1986a:83). Yet, against the background of the three durational steps found in the mid vowels of the

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45 Traditionally interpreted, the short tense vowels of Kohler et al. (1986) would be transcribed as long, while the long tense vowels would be transcribed as overlong.
Haßmoor dialect, the denial of a threefold length distinction must occur as questionable. The presence of a contrast, even if it does not occur frequently in a language, indicates the presence of a distinction in the speaker’s minds. It is likely to be of phonological relevance.

Similar results as for Haßmoor are obtained in the study of Kohler et al. (1986b) on the Schleswig-Holstein dialects of Brarupholz in Angeln (No. 7 of Figure 5) and Windbergen in Dithmarschen (No. 20 of Figure 5). The same methods as in the Haßmoor study were applied to conduct data and perform a phonetic analysis.

The authors find that the Brarupholz dialect also exhibits the qualitative merger between the lax closed vowels and the tense mid vowels (Kohler et al. 1986b:128). It is visible in the congruent formant values as well as the results of the perception test. This yields again a ternary length contrast in the mid vowels parallel to the one observed for Haßmoor. A further similarity is that no distinct tonal movements are detectable for the Brarupholz dialect. The dragging tone does not occur.

The results for Windbergen are slightly different when it comes to the vowel qualities. No merger between the lax closed vowels and the tense mid qualities arises. This is due to the fact that the non-closed tense vowels show diphthongization whereas the closed vowels do not. The diphthongs (except for /ai/ and /au/) show here a binary split of short vs. long (Kohler et al. 1986b:150). The analysis of the F0 determines no essential differences between the short and (over)long vowels.

As a result, the conclusion drawn for the dialects of Brarupholz and Windbergen is identical to the Haßmoor upshot. Kohler et al. (1986b) assume that neither of the two varieties shows a ternary quantity distinction that is independent of the vowel quality. Distinct pitch differences are not detected and can therefore carry no functional load.

These findings for the three dialects (i.e. Haßmoor, Brarupholz, and Windbergen) as well as for the dialect of Fintel are summarized in Kohler’s (1986) and (2001) overviews on the phenomena of overlength and dragging tone in LG. He states that no pitch-related cues for a dragging tone were observable in the investigated LG varieties. The crucial distinction is for him a combination of binary quality (lax vs. tense) and binary quantity (short vs. long). No minimal triples could be found for [e] [e'] [æ], [o] [ɔ] [ɔ], [ɔ] [ɔ] [ɔ] (the short element originating here in a short lax vowel of the closed opening degree) (Kohler 2001:395). Kohler (2001:398f.) notes that a ternary opposition is (if anything) only rudimentarily present nowadays, rendering it irrelevant in speech communication. He generally doubts the possibility to consistently produce and perceive a threefold length difference in human speech without the aid of syntagmatic structure (Kohler 2001:399f.).

I provide a more detailed discussion of Kohler’s analysis in section 5.3.2 of the vowel chapter.
2.3.4.3 Carol Chapman (1993)

Ten years after the M.A. thesis by Ruscher (1983) that investigated the dragging tone in the LG dialect of Heikendorf by means of metrical phonology, Chapman (2003) brings forward also a metrical analysis – this time for a ternary length distinction short vs. long vs. overlong in North Low Saxon dialects.

She relates the additional lengthening of MLG long vowels to overlong configurations to the deletion of schwa in the following syllable (Chapman 1993:134). The observation is again that if an original voiceless fortis C precedes the deleted schwa the stem vowel does not lengthen. The length behaves similar to other known prosodic phenomena such as tone or word stress, being determined also by syllable structure (Chapman 1993:139).

As Chapman (1993:135) points out, not all lengthened LG forms correspond to von Essen 1958’s assumption of compensatory lengthening as a means of establishing a grammatical distinction. They can therefore not be readily explained this way. Some words (e.g. [hus] ‘house-Nom.Sg.’ vs. [hyz] ‘house-PL.’) exhibit umlaut in addition to overlength and thus would not have needed to develop an overlength contrast.46

Another approach towards an explanation of the rise of overlength is the adoption of the tone of the deleted final syllable by the stem syllable. In the course of this process, the stem syllable would have had to lengthen. Chapman argues, however, rather for dragging tone to be a by-product of lengthening. She notes that

> “the long/overlong distinction is maintained in unaccented sentence-medial position in North Saxon whereas the Schleifton is not, [which] suggests the greater linguistic importance of the former” (Chapman 1993:136).

However, the traditional generative system of binary distinctive features is not suited to explain the ternary quantity distinction (Chapman 1993:138). It is therefore necessary to employ a different phonological framework. Accordingly, she provides two possible approaches towards a phonological interpretation of the threefold quantity contrast: autosegmental theory and metrical theory.

In an autosegmental approach, quantity is represented on the skeletal tier (x-slots), which can be multiply associated with vowels and vice versa (Chapman 1993:143). This enables an analysis of segmental quantity in a parallel fashion to tone by means of multiple associations of x-slots to segments. Segmentally, the three vowel quantities are identical. They differ only with respect to their associated x-slots (Chapman 1993:143), and their associated morae. It follows that the LG overlong syllables of monosyllabic words are trimoraic. Words maintain constantly their (underlying / suprasegmental) trimoraic status. This is discernible if a suffix is added to them stem, making the word bisyllabic. The initial syllable then loses its third mora to the ultima. As to Chapman (1993:146), this

> “suggests that there exists some higher-level unit, above the syllable, whose length (three morae) remains constant regardless of developments on the segmental level.”

46 The original notation employed by Chapman (1993) is such that V: indicates a phonetically long, bimoraic vowel, whereas V:. indicates a phonetically overlong, trimoraic vowel.
Auto-segmental theory does not enable the reference to such a prosodic unit beyond the syllable. The author therefore turns to metrical theory in order to clear the picture. She assumes that overlong syllables constitute the equivalent of two ordinary syllables, containing a strong (s) metrical part and a weak (w) metrical part (see also Prince 1980 on Estonian). In non-overlong words, this structure is spread over two syllables (σ), which together form the so-called syllable foot (φ) (Chapman 1993:146). Compensatory lengthening applies basically to maintain the number of morae in one metrical foot if the second syllable rhyme (i.e. nucleus and coda) of a foot is deleted; i.e. \([\text{breme}]^{\text{sw}}\cdot[\text{vo}]^{\text{w}}\sigma\) (three morae over two rhymes) becomes \([\text{breme}]^{\text{sw}}\sigma\) (three morae over one rhyme) (Chapman 1993:148). The underlying assumption is here that the North Low Saxon metrical foot has to consist of exactly three morae (Chapman 1993:149). The general strong-weak structure of feet determines then that overlong syllables are always stressed. The reason is that these syllables themselves exhaust the foot, i.e. always contain a metrically strong part. The occurrence of the specific tonal contour of dragging tone is now described as falling intonation which occurs since “the intonation pattern is realised over one foot, irrespective of whether it contains one or two syllables” (Chapman 1993:149).

Chapman postulates that lengthening applies only to a certain position in the rhyme, namely the second part of it – the nucleus-final position Nu₂ (Chapman 1993:150f.). A final obstruent is regarded as extrametrical. Chapman (1993:152) assumes that words with more than three morae in one syllable are possible only by means of a word-final long sonorant consonant, if these sounds have developed due to assimilation, e.g. /vom/ ‘to live-Inf.’ (Chapman 1993:152). The author analyses words like this with a bimoraic V and a bimoraic R. Although she does not specify it in the text, the underlying assumption appears to be here that a (moraic) remnant of the assimilated final syllable is still present synchronically. This remnant would need to be unfooted in order to adhere to the restriction against more than three morae in one foot.

Since the long vs. overlong opposition in vowels marks a particular grammatical alternation in LG, Chapman (1993:153) assumes that there has to be a morphological restriction at work. The result of this restriction is that not all monosyllabic words in North Low Saxon exhibit overlength. To formalize this finding, the author comes up with an iterative rule. It determines that a short nuclear vowel gets at first generally lengthened regardless of whether the nucleus is branching. In a second cycle, the newly created branching nucleus gets lengthened again if and only if a morpheme is latched to the right word edge. Accordingly, the synchronic rule is formulated as follows (Chapman 1993:154):
2.3.4.4 Tim Beeck (1994)

Beeck (1994) discusses the dialect of Windbergen (No. 20 of Figure 5) and gives an overview on the phonological approaches towards vocalic overlength, i.e. (a) apocope related compensatory lengthening, (b) no overlength, (c) overlength as a property of the foot rather than the syllable. The author states that the assumption of a third degree of vowel length is not necessary in Windbergen (Beeck 1994:72). The presence of a dragging tone is, however, possible. Its functional load would be rather restricted because it is closely related to the segmental and intonational context (Beeck 1994:112). The dragging tone constitutes a unit of the PrWd phonology and sentence phonology, as Beeck (1994:112) notes. Overlength as well as dragging tone is ultimately regarded as syllable-related means of contrast enhancement (Beeck 1994:113).

2.3.4.5 Steffen Höder (2003)

Höder (2003) assumes in his work on Altenwerder (Aw.) LG a binary quality distinction of lax vs. tense vowels. Vowel length is seen as merely allophonic. On top of the quality opposition, a tonal distinction of toneme 1 (unidirectional pitch contour, level or slightly falling) and toneme 2 (complex tone, level and then slightly falling) occurs (Höder 2003:26f.). It is only possible in final syllables exhibiting a (potentially) long vowel (i.e. /aː/ and /i y u e o o n/) or a diphthong (including -Vr- and -Vl- combinations). Also, vowel-nasal sequences may carry a tone. The TBU in Altenwerder LG is generally a phonetically long vowel in the final syllable of a PrWd (Höder 2003:27). Short vowels do not participate in the tonal contrast.
The origin of the tone accents in northern Low German dialects is assumed to be apocope (Höder 2003:24).

2.3.4.6 Antje Olthoff (2005)
In her M.A. thesis on the city dialect of Leer (No. 54 of Figure 5), Olthoff (2005) argues for the presence of two contrastive tones (pushing tone TA1 vs. dragging tone TA2) on phonetically long vs. overlong vowels, exhibiting pitch contours similar to the Scandinavian tonal accents. Additionally, a prosodic property of no-tone is found in the short vowels. Minimal triples demonstrate a distinction between no-tone : TA1 : TA2 that is accompanied by either a durational difference or a qualitative vowel difference between no-tone and TA1 (Olthoff 2005:48f.); e.g. /zit/ ‘to sit-1.Sg.Pres.’ vs. /zit/ ‘since-temp.’ vs. /zit/ ‘silk-Sg.’. 47

Not only vowels but also word-final nasals are TBU's in the Leer dialect (Olthoff 2003:49). Olthoff assumes that adjacent nasals merge after syncope of schwa in inter-nasal position. The contracted nasal consonant – and not the preceding vocalic nucleus – receives TA2, e.g. /fun/ ‘to catch-1.Sg.Past’ vs. /fur/ ‘to catch-Pl.Past’. Olthoff argues that such final nasals therefore cannot be regarded as long or interpreted as geminates. They differ from not contracted nasals in terms of tone. Examples of minimal pairs with TA2 on the vocalic nucleus vs. TA2 on the final nasal follow below:

Table 2. Leer minimal pairs with TA2

| /dɛm/ ‘to serve-1.Sg.Pres.’ vs. /dɛn/ ‘to serve-Inf.’ |
| /kom/ ‘to come-1.Sg.Pres.’ vs. /ko/ ‘to come-Inf.’ |

The items to the left underwent the process of apocope. The vocalic nucleus lengthened and received TA2. The resulting single final nasal did not receive a tone in these cases. This is different for the right-hand items of Table 2. The deletion of schwa between two nasals causes here the assignment of tone to the resulting final nasal, whereas the vowel remains unchanged. Olthoff (2003) does not make any assumption with respect to a possible phonological mechanism that is at work in such cases.

2.3.4.7 Elmar Ternes (2006)
Differently from his earlier proposal of 1981, Ternes (2006) assumes the presence of a binary tone accent contrast in North Low Saxon instead of a ternary vowel length opposition. It is a substitute for a third degree of length, arising generally in those languages that have developed a ternary length contrast. In North Low Saxon dialects, compensatory lengthening applied after the occurrence of schwa-apocope and created such a third degree of length. It then developed into the dragging tone (Ternes 2006:93).

47 Olthoff (2005) marks TA1 and TA2 on the following syllable with superscript 1 and 2, respectively.
The elongated tonal contour of the phonetically overlong LG vowels is termed TA2, whereas the long vowels carry TA1. Ternes (2006:92) observes that these tonal contours are diametrically differently distributed to the tone contours of the so-called Rule-A(2) area of Central Franconian. The tonal developments can be illustrated as follows (Ternes 2006:93).

Table 3. Tonal development in North Low Saxon and Central Franconian

<table>
<thead>
<tr>
<th></th>
<th>originally:</th>
<th>short</th>
<th>long</th>
<th>overlong</th>
</tr>
</thead>
<tbody>
<tr>
<td>North Low Saxon</td>
<td></td>
<td>√</td>
<td>√</td>
<td></td>
</tr>
<tr>
<td>new:</td>
<td></td>
<td>—</td>
<td>TA1</td>
<td>TA2</td>
</tr>
<tr>
<td>Central Franconian</td>
<td></td>
<td>√</td>
<td>√</td>
<td></td>
</tr>
<tr>
<td>Rule A(2)</td>
<td></td>
<td>—</td>
<td>TA1</td>
<td>TA2</td>
</tr>
<tr>
<td></td>
<td>originally:</td>
<td>short</td>
<td>medium</td>
<td>long</td>
</tr>
<tr>
<td></td>
<td></td>
<td>√</td>
<td>√</td>
<td></td>
</tr>
</tbody>
</table>

Here it is crucial that the forms that are termed long are in both dialects etymologically the same, indicated by the grey shadings in Table 3. While the originally long vowels of North Low Saxon developed TA1, the originally long vowels of Central Franconian developed TA2. The originally overlong cases of North Low Saxon and the originally medium cases of Central Franconian received TA2 and TA1, respectively. The result is such that we find a complementary distribution of the tones in the two areas. TA1 is assigned e.g. to the Nom.Sg. cases with long vowel in North Low Saxon but to the Dat.Sg. cases with long vowel in Central Franconian. The opposite distribution is true for TA2. It is assigned to the Dat.Sg. cases with overlong vowel in North Low Saxon and accordingly to the Nom.Sg. cases with medium vowel in Central Franconian. An example is provided in Table 4 (Ternes 2006:92). The originally short vowels of North Low Saxon and Central Franconian did not develop tone.

Table 4. Tonal distribution in North Low Saxon and Central Franconian

<table>
<thead>
<tr>
<th></th>
<th>TA1</th>
<th>TA2</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) North Low Saxon</td>
<td>[¹hus] ‘house-Nom.Sg.’</td>
<td>[²hus] ‘house-Dat.Sg.’</td>
</tr>
<tr>
<td>(b) Trier Franconian</td>
<td>[¹hus] ‘house-Dat.Sg.’</td>
<td>[²hus] ‘house-Nom.Sg.’</td>
</tr>
</tbody>
</table>

2.3.4.8 Maike Prehn (2007)
The article of Prehn (2007) discusses the (possibly) tonal phenomena in the LG dialects of Kirchwerder and Altenwerder. She argues on the basis of phonetic pilot measurements that two tone accents (TA1 vs. TA2) are the relevant properties in LG, and not vowel duration or moraic structure. The assumption of phonologically

48 The superscript denotes the respective tonal contour. In accordance with IPA conventions, it is inserted before the syllable that (supposedly) carries the tone.
'overlong' vowels and a resulting ternary quantity distinction is rejected. Instead, Prehn assumes similar to Höder (2003) a dual binary distinction of vowel quality lax vs. tense, and of TA1 vs. TA2. Vowel length was assumed to be phonetic.

Note that the findings presented in this article are preliminary ones. They will be set into the broader picture of the complete analysis of the focused declarative speech material of the dialects of Kirchwerder, Altenwerder and Alfstedt in section 5.3.

2.3.5. Conclusion
The overview on the research history of overlength and dragging tone in LG illustrates that only a comparatively small number of phonological investigations exists for the local varieties. The phonetically based analyses of the ‘Kiel research cluster’ are inconclusive with respect to the status of a ternary vowel duration opposition in LG dialects. Also, recent research has casted doubts on the correctness of such quantitative approaches. A thorough implementation of phonetic findings into a ‘state-of-the-art’ phonological framework is, yet, a desideratum not satisfyingly treated in the literature. This trail of thoughts serves as the theoretical starting point for my investigations. I will try to answer a number of research questions raised in the literature in the course this thesis:

- Is it tone, quantity, or something else that is the primary prosodic feature of LG dialects?
- Which of these suprasegmentals has phonemic status, i.e. may be termed prosodeme?
- How is the relevant prosodic feature, if there is any, represented phonologically?
- Does it occur in typologically different languages or other dialects? How do researchers deal with it descriptively and phonologically?

I start my analysis rather traditionally in the realm of phonetics. The following chapter is therefore devoted to the collection and phonetic analysis of concrete data of the three LG dialects of Kirchwerder, Altenwerder, and Alfstedt.