LEXICAL TONE IN THE DUTCH DIALECT OF WEERT?

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ABSTRACT
The town of Weert, in the Dutch province of Limburg, has usually been included in the Limburg-Rhenish lexical tone area. However, measurements of the intonation contours of supposed tonal pairs did not reveal a lexical tone contrast in the dialect of Weert; rather, what emerged from the data was a vowel length opposition. Moreover, Accent II words in the nearby tonal dialect of Baexem were shown to correspond to words having long vowels or diphthongs in Weert, while their short counterparts, a short vowel or a short vowel plus glide combination, were generally used instead of Accent I. These correspondences were not always straightforward, since interfering lengthening processes that took place in Old Dutch, obscured the general picture.

1. INTRODUCTION
The dialect of Weert has commonly been described as having a binary lexical tone contrast [8, 9]. More recently however, the existence of such a tonal opposition has been questioned [6, 7]. Here, we will demonstrate that this particular dialect is indeed non-tonal, and that instead a durational difference is used to maintain a contrast where tonal dialects employ lexical tone. This paper is organized as follows. Section 2 will provide a brief introduction on lexical tones, as well as evidence that a tonal opposition does not in fact exist in the dialect of Weert. In section 3, we will compare vowel length in the non-tonal dialect of Weert with the lexical tones in the nearest tonal dialect to its east (the dialect of Baexem, some eight kilometers from Weert), and reveal the very close correspondences between the two.

2. LEXICAL TONE IN WEERT?
2.1. The lexical tone contrast
In the intonational systems of dialects that have lexical tone, there is an opposition between two tonal word accents, in addition to the intonational tones of the sentence. Words in these dialects come in either of two shapes: they have Accent I or Accent II. While vowels with Accent I are usually pronounced somewhat shorter, a longer vowel duration has often been claimed to cooccur with Accent II. This greater vowel length may be related to the fact that the pitch movements that are associated with Accent II are usually more complex than those of Accent I, thereby requiring more time to be pronounced.

The traditional area in which we find such a binary lexical tone contrast covers most of the Dutch and Belgian provinces of Limburg, Luxemburg, and the western part of the Rhenish region in Germany, stretching roughly from Duisburg in the north to Trier in the south. The town of Weert is situated at the northwestern periphery of the geographical area with lexical tone, in the Dutch province of Limburg, close to the provincial border with Noord-Brabant and some eight km from the Belgian frontier. We will now turn to the experimental data that show that the dialect of Weert should in fact not be included in the lexical tone area, contrary to what most authors have claimed to this day.

2.2. Experimental data
Figure 1 illustrates the pitch contours for lexical tone minimal pairs in the dialect of Baexem (bottom panel) and their Weert cognate words (top panel). The words were realized as part of the declarative carrier sentence ‘I now say …’. The Weert speaker was a 62-year-old male, the Baexem speaker a 70-year-old female; both were born in their home towns and had lived there all their lives. The utterances were acoustically analyzed using the software package PRAAT.

Figure 1. Pitch contours of the words for ‘rabbit’ and ‘rabbits’ in Weert (top) and Baexem (bottom).

The top panel illustrates the pitch contours for the words ‘rabbit’ and ‘rabbits’ in the dialect of Weert. In the bottom panel, the same words are represented for the dialect of Baexem. Here, both words are segmentally identical, but the pitch contour of the singular is clearly different from that of the plural form. ‘Rabbit’ is realized with Accent II (/kniːn/\textsuperscript{II}) [SOUND 0085_01.WAV].
while the plural has Accent I (/kniːn/ [SOUND 0085_02.WAV]). The Weert pitch contours, however, run parallel, i.e. there is no tonal opposition. Moreover, the singular and plural forms are not segmentally identical: ‘rabbit’ has a long vowel in Weert (/kniːn/) [SOUND 0085_03.WAV], but a short vowel appears in the plural (/kniːn/) [SOUND 0085_04.WAV].

The durations of long and short vowels in Weert are substantially shorter than that of the diphthong of the singular. Table 1, the duration of the short vowel plus glide of the plural is /G12/G56/G57/G8D/G4C/G51/G12 of the singular (\>/G12/G89/G57/G8D/G4C/G51/G12). Again, both words are segmentally identical in Baexem (\>/G12/G4E/G51/G4C/G1D/G51/G12) but a short vowel appears in the Weert vowel system, the dialect can easily accommodate a quantity difference. Interestingly, Weert not only contrasts long and short vowels, but also diphthongs have short counterparts in the form of short vowel plus glide combinations: /eɪ/ vs. /æi/, /eɪʃ/ vs. /æʃ/ and /aʊ/ vs. /ɒʃ/ [3]. In order to see if these correspondences in fact exist on a wider scale, a large number of words from the tonal dialect of Baexem will be compared with their non-tonal Weert cognates in the next section.

### 3. CORRESPONDENCES BETWEEN LEXICAL TONE IN BAEXEM AND VOWEL LENGTH IN WEERT

#### 3.1. Regular cases of correspondence

To investigate our hypothesis that Accent II words in Baexem have cognates with a long vowel or a diphthong in Weert, and conversely, that Accent I corresponds to words with a short vowel (plus glide), a corpus of 145 words was collected in both dialects. This list was compiled on the basis of a large number of segmentally defined classes, each of which allows some generalization to be made concerning the occurrence of either Accent I or Accent II [1]. The lexical tones were independently assigned to the Baexem words by two trained listeners. The Weert words were transcribed by a native speaker of the dialect.

In 109 out of 145 cases, Weert can be shown to use short vowels or short vowel plus glide combinations when their Baexem cognate words have Accent I, and long vowels or diphthongs instead of Accent II. Some examples are listed in Table 2.

<table>
<thead>
<tr>
<th>similar vowel length</th>
<th>different vowel length</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baexem</td>
<td>Weert</td>
</tr>
<tr>
<td>/kaːj/</td>
<td>/kaːx/ day</td>
</tr>
<tr>
<td>/æकoʃ/</td>
<td>/bunʃ/ bank</td>
</tr>
<tr>
<td>/sɜʊʃ/</td>
<td>/dunʃ/ donkey</td>
</tr>
<tr>
<td>/hæŋ/</td>
<td>/mʊʃ/ hands</td>
</tr>
<tr>
<td>/ɔrʊm/</td>
<td>/ɑːrm/ arms</td>
</tr>
</tbody>
</table>

Table 2. Lexical tone-vowel length correspondences.

The vowels are usually of the same phonological length in both dialects (left column), but vowel length differences can also occur (right column), so that the correspondences between Baexem Accent II and long vowels in Weert on the one hand, and Accent I and short vowels on the other, still hold. From a historical point of view, the long vowels that appear in the words for ‘bank’ and ‘debt, fault’ in the dialect of Weert are the reflexes...
of original short vowels, that belong to a segmentally defined class of words that receive Accent II in tonal dialects. Conversely, the words for ‘mouth’ and ‘owl’, that show short reflexes in the dialect of Weert, stem from Westgermanic high long vowels, whose modern descendants have Accent I in Baexem. Apparently, the original short vowels are lengthened in Weert so as to correspond to Accent II, while the original high long vowels tend to be shortened in the dialect of Weert, if their Baexem cognates have Accent I.

3.2. Cases of apparent non-correspondence

As for the remaining pairs where the above-mentioned correspondences between lexical tone type in Baexem and vowel length in Weert could not be observed, a diachronic inspection of the data might shed some light on the problem. An observation to be made is that all of them are instances of words which in the dialect of Weert have long vowels or diphthongs, while their counterparts in the dialect of Baexem have long vowels or diphthongs that are realized with Accent I. Theoretically, the reverse situation could also occur, where Baexem Accent II words have a short vowel (or a short vowel plus glide) in their Weert cognates. However, our data hardly contain such non-corresponding pairs.

Within the group of words with long vowels in the dialect of Weert that have cognates with Accent I in Baexem, three categories can be distinguished.

3.2.1. Non-correspondence due to open syllable lengthening.

The first group of words with long vowels in the dialect of Weert that have counterparts with Accent I in Baexem is illustrated by the examples in Table 3.

<table>
<thead>
<tr>
<th>Baexem</th>
<th>Weert</th>
<th>gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>/za:/</td>
<td>/za:/</td>
<td>saddle</td>
</tr>
<tr>
<td>/ze:k/</td>
<td>/ze:k/</td>
<td>saw</td>
</tr>
<tr>
<td>/de:k/</td>
<td>/de:k/</td>
<td>days</td>
</tr>
<tr>
<td>/flaj:/</td>
<td>/flaj:/</td>
<td>flan</td>
</tr>
</tbody>
</table>

Table 3. Open syllable lengthening and Accent I.

In order to explain these seemingly non-corresponding cases, we need to view the words in a diachronic perspective. Long vowels do not only appear in the Weert words, but also in their Baexem cognates that have Accent I. The original vowels from which these long, modern vowels stem were short, though. They appeared in the first, open syllable of bisyllabic words before a heterosyllabic sonorant or (underlyingly) voiced obstruent appeared in the first, open syllable of bisyllabic words before a heterosyllabic sonorant or (underlyingly) voiced obstruent. This consonant became the coda of the syllable once the schwa had been apocopated. This is followed by a schwa, i.e. (C)VC heterosyllabic sonorant or (underlyingly) voiced obstruent.

Further, the examples in Table 3 show that the high long vowels in Weert could be lengthened in the dialect of Baexem if the corresponding cognate words have short vowels in their Baexem counterparts.

3.2.2. Non-correspondence in /u/-contexts.

However, not all diachronic lengthening of stressed vowels is due to OSL. Another development that was completed by the time we reach Middle Dutch, was a process of ‘rekking’ (stretching, transl. LH), mostly of /a/ and /e/, but also of /o/, when they were followed by /r/ and a dental consonant. In words where this process has applied, the regular correspondences between lexical tone (Baexem) and vowel length (Weert) are obscured whenever the Baexem forms have Accent I. This is illustrated in Table 5 below.

<table>
<thead>
<tr>
<th>Baexem</th>
<th>Weert</th>
<th>gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>/e:trip/</td>
<td>/er/p/</td>
<td>earth</td>
</tr>
<tr>
<td>/ke:kip/</td>
<td>/ko:ip/</td>
<td>card + DIM</td>
</tr>
</tbody>
</table>

Table 5. Vowel lengthening before /r/ plus dental.

3.2.3. Non-correspondence due to a failure to shorten low long vowels.

The modern reflexes of a number of Westgermanic low long vowels that have counterparts in Baexem, regardless of the segmental context in which they appear, have usually remained long in the dialects of Baexem and Weert, as shown by the examples in Table 6.

<table>
<thead>
<tr>
<th>Baexem</th>
<th>Weert</th>
<th>gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>/je:p/</td>
<td>/wo:p/</td>
<td>sheep</td>
</tr>
<tr>
<td>/je:kip/</td>
<td>/so:ip/</td>
<td>sleep (n)</td>
</tr>
<tr>
<td>/vo:t/</td>
<td>/vo:t/</td>
<td>feet</td>
</tr>
<tr>
<td>/zat/</td>
<td>/sril/</td>
<td>chair</td>
</tr>
</tbody>
</table>

Table 6. Descendants of Westgermanic low long vowels.

Other Westgermanic long vowels though, namely the high ones (see the examples of ‘mouth’ and ‘owl’ in Table 2), do have short descendants in Weert, if their Baexem cognate words have Accent I. One might ask what caused this different behavior of high and low long vowels.

High vowels tend to be shorter than low vowels. The generally accepted explanation for this is that low vowels require a greater degree of tongue and jaw lowering than high vowels, so they need more time to be pronounced. In the vocalic system of standard Dutch for instance, only high tense short vowels are included, but the low tense vowels are all long. Because of this natural tendency for high vowels to be short, we find that descendants of original high long vowels are short in the dialect of Weert when corresponding to Accent I words, but the shortening of the low long vowels failed to take place in Weert, even if their cognates in the tonal dialect of Baexem have Accent I.
4. CONCLUSION

Although Weert has usually been included in the geographical area with lexical tone, our experimental data suggest that the dialect of Weert has to be characterized as non-tonal. Instead, a durational difference is used to maintain a contrast where the tonal dialects to its east employ lexical tone. Words with Accent II in the tonal dialect of Baexem were shown to have either long vowels or diphthongs in their Weert cognate words, while short vowels or short vowel plus glide combinations are used instead of Accent I in the vast majority of cases.

Our corpus also contained words with long vowels in the dialect of Weert, that have Accent I in their Baexem cognates; the latter then usually have long vowels too. Two historical lengthening processes, open syllable lengthening and the stretching of short vowels before /r/ followed by a dental consonant, offered independent explanations for most of these Accent I-long vowel pairs. However, the long vowels that descended from Westgermanic non-high long vowels in the class of words with Accent I in tonal dialects, failed to be shortened in the dialect of Weert under the influence of Accent I, thereby further obscuring the general correspondences between lexical tone in Baexem and vowel length in Weert.

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NOTES

1. In this paper, I will not elaborate on the exact nature of these segmentally defined classes; the interested reader is referred to [1].

REFERENCES