TONE AND QUANTITY IN THE LIMBURGIAN DIALECT OF NEERPELT

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ABSTRACT

The Limburgian dialect of Neerpelt is located in the northwestern corner of an area whose dialects are known for having a lexical tone contrast. It is not clear whether Neerpelt still belongs to the tonal dialects of Limburg, and there are other dialects in northwestern Limburg using a quantity contrast in place of the tonal contrast. To examine whether the dialect of Neerpelt has a tone contrast, two reading tasks were carried out using tonal minimal pairs from other Limburgian dialects as target words in different prosodic contexts. The results suggest that the dialect of Neerpelt has both pitch differences which cannot be reduced to durational differences and durational differences which cannot be reduced to a quantity contrast. We conclude that the dialect of Neerpelt has a lexical tone contrast comparable to the contrast in other tonal dialects of Limburg.

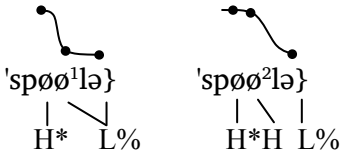
Keywords: tone accent, lexical tone, quantity, Limburgian dialects

1. INTRODUCTION

Neerpelt is a small town in the Belgian province of Limburg, about 30 kilometers south of Eindhoven. It lies in the northwestern corner of the Franconian tone accent area covering large parts of the Ripuarian and Moselle-Franconian area in Germany, the Dutch province of Limburg and the Belgian provinces of Liège and Limburg. The dialects in this area have a word accent contrast, which has traditionally been characterized as a contrast between *stoottoon* ('push tone') and *sleeptoon* ('dragging tone') and will hereafter be referred to as the contrast between accent 1 and accent 2.

In recent autosegmental studies, the Limburgian word accent contrast was analyzed as a lexical tone contrast, with accent 2 being specified for a lexical tone, while accent 1 is lexically toneless. (1) illustrates this analysis for ['spøø^{1}lə] ('to rinse') and ['spøø^{2}lə] ('to play') in the dialect of Venlo in northeastern Limburg (adapted from [4]). In both ['spøø^{1}lə] and ['spøø^{2}lə] the accented syllable provides two sonorant moras as docking sites for tones. In the accent 1 word, the first mora is filled by the focal H tone and the second by the left-spreading final boundary tone, which accounts for the steep fall on the accented syllable in the accent 1 word. In the accent 2 word, the second mora is occupied by a lexical H tone, which prevents the final low boundary tone from associating to the second mora. As a result, the nuclear fall on the accent 2 word starts later and is less steep.

(1)



In Venlo, as in many other Limburgian dialects, accent 2 differs from accent 1 not only by pitch. Since the early days of Limburgian dialectology, accent 2 words have been reported to be longer than accent 1 words (e.g. [2]). The accentual contrast in these dialects must nevertheless be analyzed as a tonal contrast, as not all pitch differences can be reduced to durational differences. This is most obvious in final position of declaratives in the East-Limburgian dialect of Roermond, where accent 1 words have falling pitch while accent 2 words have falling-rising pitch [3].

Neerpelt is surrounded by a number of places whose dialects are reported to distinguish between words such as [knin^{1}] 'rabbits' and [kni:n^{2}] 'rabbit' by duration but not by independent pitch properties, suggesting a quantity contrast rather than a tonal contrast. Schouten and Peeters [7] found the tonal contrast lacking in the dialects of Kleine Brogel, Eksel, Hechtel, and Peer, which are located 6-11 kilometers south of Neerpelt. In Grote Brogel, located some 10 kilometers southeast of Neerpelt, and in Molenbeersel and Stramproy, located some 20-22 kilometers east of Neerpelt, they found a pitch difference for [stɛɪn^{1}] 'stones' and [stɛɪn^{2}] 'stone' but not for [knin^{1}] and [kni:n^{2}]. Heijmans and Gussenhoven attest the absence of a tonal contrast also for Weert, which is located some 20

kilometers east of Neerpelt [5, 6]. Verhoeven [8], on the other hand, reports an independent pitch difference for the dialect of Hamont, located about halfway between Neerpelt and Weert. The question arises whether the dialect of Neerpelt has a tonal contrast, as the dialect of Hamont, or distinguishes potential accent 1 and accent 2 words by vowel quantity, as the dialects described in [5-7].

The aim of the present paper is to examine the hypothesis that the dialect of Neerpelt has a lexical tone contrast, which is independent of a vowel quantity contrast. From this hypothesis we may derive two predictions. First, potential accent 1 and accent 2 words differ by pitch properties which cannot be reduced to durational differences. Second, if these words differ in duration, the durational difference cannot be fully explained by assuming a vowel quantity contrast.

2. METHOD

To examine whether potential accent 1 and accent 2 words show pitch differences which are not reducible do durational differences, we carried out a reading task varying the pragmatic condition ('declarative', 'interrogative', 'continuative'), the focal condition of the target word (nuclear vs. post-nuclear), and the distance of the target word to the end of the intonational phrase (IP) (non-final vs. final). Suitable target words were identified in a pretest with our main informant (M1). The speaker was instructed to read 80 pairs of words known to form tonal minimal or near-minimal pairs in other Limburgian dialects. Only a small number of these word pairs were found to form tonal minimal pairs in Neerpelt. From these, we selected the seven tonal (near-)minimal pairs in Table 1, which have already been used in studies of other Limburgian dialects.

Table 1. Tonal (near-)minimal pairs.

knin^1	*rabbit*-PL	kni:n^2	*rabbit*-SG
arm^1	*arm*-PL	arm^2	*arm*-SG
biən^1	*leg*-PL	biən^2	*leg*-SG
bal^1	*ball*-PL	bɒl^2	*ball*-SG
həʏs^1	*house*-PL	hu:s^2	*house*-SG
'myn^{1}tjə	*mouth*-DIM-SG	'mən^{2}tjə	*mint*-DIM-SG
ɣas	*gas*	ɣast	*guest*

To examine whether there are durational differences between accent 1 words and accent 2 words which cannot be explained by a vowel quantity contrast, we carried out a second reading task. In this task we used the same test sentences as in the first reading task but limited the target words to [knin^1] and [kni:n^2] and the monomoraic words [ɣas] and [ɣast]. In the present study, we will report durations for [knin^1] and [kni:n^2] only.

The speakers were presented with one experimental sentence at a time and asked to read it in a natural fashion. The sentences were presented on cards in randomized order. Most sentences where preceded either by an introductory statement or by a question. In the first reading task, the speakers were instructed to read each sentence (or dialogue) at least twice and to repeat a sentence if they were not satisfied with their performance. In the second reading task, each sentence was presented 12 times. All sentences were given in standard Dutch orthography.

We recorded data from one female (F1) and one male speaker (M1) in a silent room in Neerpelt with a portable DAT-Recorder (Tascam-DA-P1). Both speakers were native of both the local dialect and of Standard Dutch, aged around 50 and 70 years, respectively. After exclusion of utterances that were judged not to fit the pragmatic condition we obtained 313 utterances from speaker F1 and 347 utterances from speaker M1 in the first reading task and 447 utterances from speaker M1 in the second reading task. As our speakers did not differ significantly in their realization of the accentual contrast and no complete data set was available from speaker F1, we report the data of speaker M1 only. All acoustical measurements were done with the help of *Praat* [1].

3. RESULTS

3.1. Fundamental frequency

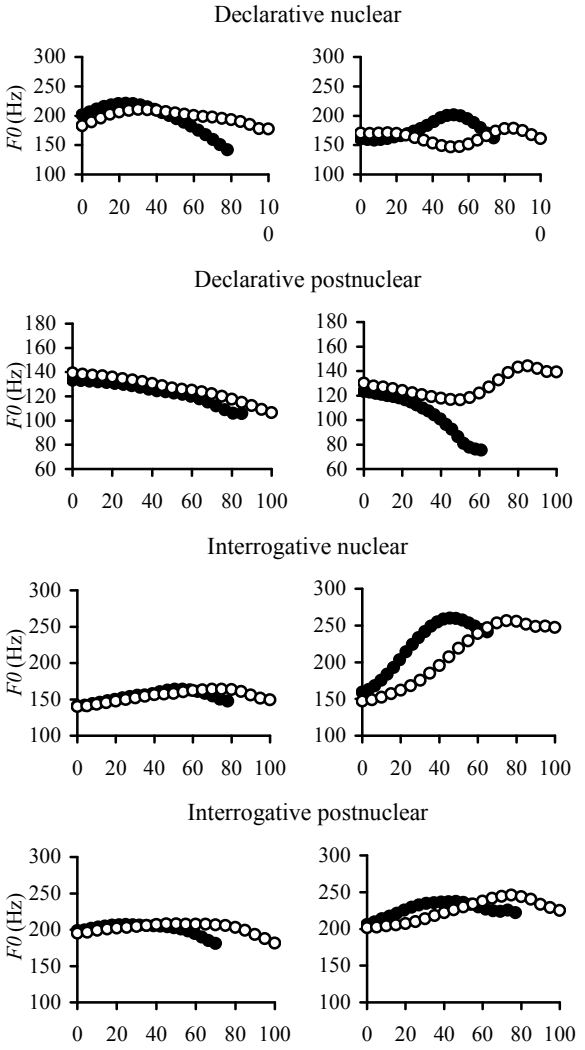
The declarative sentences were realized with falling pitch on the nuclear syllable and most interrogative sentences with rising pitch. In the continuative sentences, our speakers preferred the rising contour. In a few cases, they used a falling-rising contour. The present analysis is restricted to the falling contour and the rising contour. For the sake of simplicity, we use the terms "declarative" and "interrogative" to refer to utterances bearing the falling and rising contour, respectively.

The lower four panels in Figure 1 show averaged contours of [knin^1] and [knin^2] in interrogative sentences of speaker M1 (in order not to prejudge the issue, we give from now on both forms without the length mark). The F0 contours of the accent 1 word and the accent 2 word differ in all conditions, but this difference largely vanishes if we normalize the target words for duration, i.e. set the rime length of [knin^1] to 100% of the rime

length of [knin^2]. We conclude that in interrogatives [knin^1] and [knin^2] exhibit no pitch differences that are independent of durational differences.

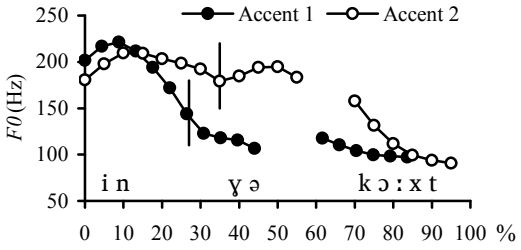
The upper four panels of Figure 1 show averaged contours in declarative sentences. The difference in postnuclear final position is not reducible to a durational difference. In nuclear non-final and final position, stretching the F0 contour of the accent 1 word to 100% of the accent 2 word does not completely remove the pitch differences either.

Figure 1: Averaged F_0 contours for [knin^1] (black circles) and [knin^2] (white circles) in non-final (left panels) and final position (right panels). Selected intervals correspond to sonorant rimes, with [in^2] set to 100%. N = 12 per data point, speaker M1.



The independence of the pitch difference and the durational difference in nuclear non-final position becomes even clearer when we look at a larger interval including postnuclear syllables. Figure 2 shows averaged F0 contours in an interval stretching from the beginning of the rime of the accented word to the end of the sonorant rime of the first postnuclear stressed syllable, which in this case is the second postnuclear syllable. The graph shows that in [knin^2] F0 stays high until the beginning of the next stress while in [knin^1] it reaches a low level on the first postnuclear syllable. The same F0 differences are attested for all pairs of target words in speaker M1 and F1. We conclude that in declaratives [knin^1] and [knin^2] differ by pitch differences which are independent of durational differences. The F0 contours of accent 2 in figures 1 and 2 suggest that the dialect of Neerpelt has a lexical tone contrast, with accent 2 being specified for a lexical H tone, which comes after the accented syllable, whereas accent 1 is lexically toneless (for a similar analysis see [3, 4]).

Figure 2: Averaged F0 contours for accent 1 and accent 2 in nuclear non-final position of declaratives (N = 12, speaker M1). The vertical lines indicate the end of the nuclear syllable.



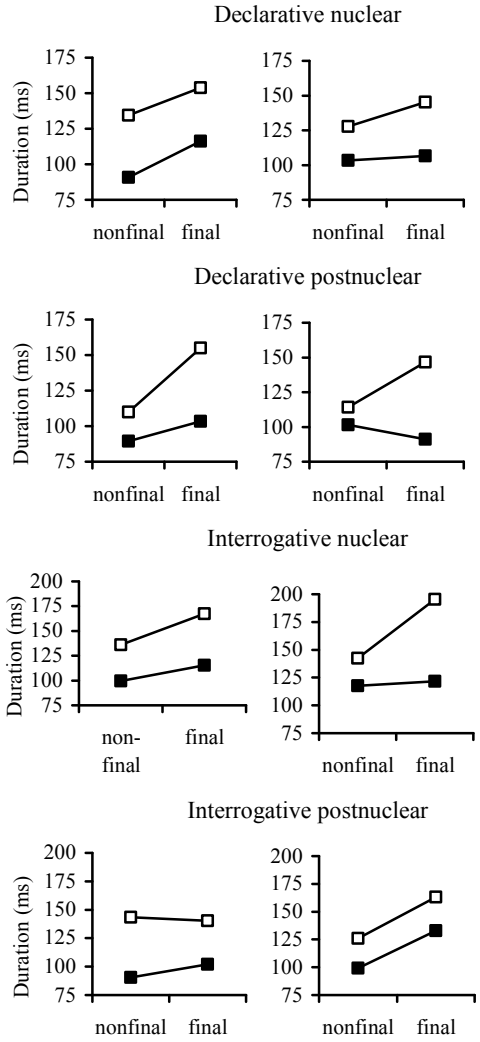
3.2. Duration

Figure 3 gives mean durations of the nucleus and the coda of [knin^1] and [knin^2] in declaratives and interrogatives, respectively.

We carried out separate ANOVAs for nucleus and coda durations using ACCENT (accent 1 vs. accent 2), POSITION (non-final vs. final), FOCUS (nuclear vs. postnuclear), and CONTOUR (falling vs. rising) as fixed factors. We report all effects which are significant at $p < .05$. For nucleus duration, there was a significant main effect of ACCENT, F (1, 171) = 562.28, $p < .001$, POSITION, F (1, 171) = 128.52, $p < .001$, FOCUS, F (1, 171) = 32.12, $p < .001$, and CONTOUR, F (1, 171) = 8.97, $p < .01$. There was also a significant interaction effect between POSITION, FOCUS, and CONTOUR F (1, 171) = 14.13, $p < .001$, and between ACCENT, POSITION, FOCUS, and CONTOUR F (1, 171) = 22.71, $p < .001$. For coda duration, there was a significant main effect of ACCENT, F (1, 171) = 131.01, $p < .001$, POSITION, F (1, 171) = 46.04, $p < .001$, FOCUS, F (1, 171) = 11.53, $p < .01$, and CONTOUR, F (1, 171) = 41.58, $p < .001$. There was also a significant interaction effect between AC-

CENT and POSITION, F (1, 171) = 19.07, p < .001, between POSITION and CONTOUR F (1, 171) = 11.35, p < .01, and between ACCENT, POSITION, FOCUS, and CONTOUR F (1, 171) = 8.71, p < .01.

Figure 3: Nucleus duration (left panels) and coda duration (right panels) of [knin[1]] (black squares) and [knin[2]] (white squares).



The main effects indicate that duration of both the nucleus and the coda is larger in accent 2 than in accent 1, larger in final position than in non-final position, larger in nuclear position than in post-nuclear position, and larger in interrogatives than in declaratives. From experiments on Standard Dutch reported in [9] we may expect /n/ to be shorter rather than longer after a short vowel. Therefore, the length difference found in the coda suggests that the durational difference originates from the presence of an additional tone in accent 2 rather than from a quantity contrast.

Additional evidence for a durational difference which cannot be reduced to different vowel quantity is the disproportional lengthening of the coda in final position of the accent 2 word, as indicated by the interaction effect between ACCENT and POSITION. On average, the final lengthening of the coda of the accent 2 word is more than three times that found in the accent 1 word (27.4% vs. 8.6%). This disproportional lengthening of the coda can hardly be attributed to a difference in vowel quantity.

4. CONCLUSION

Our data show, first, that potential accent 1 and accent 2 words of our speakers exhibit pitch differences on declaratives which cannot be reduced to a durational difference; and second, that the durational differences between [knin[1]] and [knin[2]] cannot fully be explained by a difference in vowel quantity.

These findings suggest that the dialect of Neerpelt has a lexical tones contrast, which is independent of any quantity contrast. We may even ask whether words like [knin[1]] and [knin[2]] differ by quantity at all. At the moment, we have no conclusive evidence for a quantity contrast in this particular case. The durational difference between the vowels of [knin[1]] and [knin[2]] can satisfactorily be explained as an effect of tonal lengthening in accent 2, as in other Limburgian dialects.

5. REFERENCES

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