

## Word accents over time: comparing present-day data with Meyer's accent contours

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### Abstract

A comparative analysis of new dialect data on word accents in Dalarna and accent contours published by Meyer (1937, 1954) revealed differences indicating a change, primarily in the realization of the grave accent. The change, a delayed grave accent peak, is tentatively seen as a result of a spread towards north-west of word accent patterns formerly characterizing dialects of south-eastern Dalarna.

### Background

Much of the inspiration for research on Swedish word accents can be traced back to the work by Ernst A. Meyer, published in two volumes 1937 and 1954<sup>1</sup>, respectively. Meyer collected his material from one or several speakers for each selected dialect, and in these volumes, original contours from each speaker can be found beside time-normalized and averaged stylized contours for each speaker and dialect. Meyer's data underlie work on accent-based dialect typologies by Gårding and Lindblad (1973), Gårding (1977) and Bruce and Gårding (1978).

The typologies differentiate a number of dialect areas by the number and timing of tonal peaks. The typical Dalarna dialects, the focus of the present study, are characterized as one-peak accents, both the acute and grave accent having one peak, but with a later timing of the grave accent peak. The typical pattern is illustrated for a two syllable-word in Figure 1, where the accent peak occurs before the VC (syllable) boundary in the acute and at, or very close to, the boundary in the grave accent, the VC boundary indicated by the vertical line in the curve.

Engstrand and Nyström (2002) set out to study variations within the Dalarna dialects basing themselves on the stylized contours in Meyer (1954). Their specific purpose was to look for "continuous variation within the broad categories", as this "would provide a possibility to observe small but systematic accentual

variations between neighboring dialects and, complemented with recent data from the SWEDIA 2000 project (<http://www.swedia.nu>) to shed light on more recent phonetic developments of the word accents".



Figure 1. Accent contours for acute (left) and grave (right) representing typical Dalarna dialects.

To that end they performed measurements on digitized versions of the stylized Meyer curves and reported data on "the location in time of acute and grave tonal peaks relative to the VC boundary as indicated in Meyer's contours." (Engstrand and Nyström used arbitrary time units, as Meyer's contours had no time scale.) Their analysis suggested a specific pattern in the grave accent; the timing of the tonal peaks tended to vary systematically from south-east (relatively late peaks) to north-west (relatively early peaks), see Table 1 and map in Figure 2.

Table 1. Timing of tonal peaks in Dalarna dialects. Negative values represent peaks before and positive values peaks after VC boundary. (From Engstrand and Nyström, 2002).

Dialect	Peak time (arbitrary units)	
	Grave	Acute
Mora	-21	-49
Orsa	-19	-71
Floda	-13	-56
Boda	-11	-52
Malung	-6	-32
Rättvik	-2	-44
Leksand	-1	-38
Siljansnäs	-1	-28
Grangärde	3	-68
Ål	15	-49
Djura	22	-35
Grytnäs	22	-18
Norrbärke	26	-36



Figure 2. Map of the province of Dalarna.

They further hypothesized that this pattern reflected a historical spread from south-east to north-west.

### A pilot study

Data collected in the SWEDIA 2000 project were used to study possible age and gender differences in accent patterns in the Dalarna dialect of Leksand (see Fransson, 2004). The material were two two-syllable words, one acute, *dollar* /'dol:ar/ 'dollar', and one grave, *kronor* /'krò:nor/ 'Swedish crowns', produced in final position in a sentence context. The analysis revealed minor age and gender differences; the younger generation tended to have a greater contrast (a greater separation in time) between the two accent peaks. What was surprising, however, was that the majority of the speakers (15 out of 16) had a different timing of the grave accent peak as compared with Meyer's (1937) contours for the Leksand dialect. While in the Meyer curves the acute and grave accent peaks – though separated in time – were both located before the VC boundary, the acute accent peak occurred before, and the grave accent after, the VC boundary in the SWEDIA material. That is, the grave accent peak appeared to be delayed compared to what had previously been reported.

This result raised several questions. Were the results (based on a rather restricted material) reliable, and if so, was the change isolated to the Leksand dialect, or part of a more general shift of accent patterns in Dalarna? What we saw in the data of the more northern dialect of Leksand was a pattern

similar to those found in more southern dialects like Ål and Djura by Meyer, see Table 1. This, and previous dialect influences progressing from south-east to north-west in Dalarna (see discussion in Engstrand and Nyström, 2002) gave the inspiration to test the idea of an ongoing change in accent patterns. Thus, to shed light on the possibility of such a change and also to confirm the previous (pilot study) results, an extended study (see also Fransson, 2004) was undertaken including Leksand speakers and in addition speakers from Rättvik some 20 kilometers north of Leksand, see the map in Figure 2. In addition a more controlled material was chosen with target words differing only as to their word accent pattern.

### Extending the material – Accent patterns in Leksand and Rättvik

#### Method

New recordings were made of speakers between 20 and 50 years of age, all having lived in Leksand and Rättvik for most of their lives. Data were collected from both female and male speakers, in total 11 from Leksand and 13 from Rättvik.

The speakers were recorded in their homes (or at work or school). The material consisted of two words produced in isolation, *Polen* /'po:len/ 'Poland' (acute), and *pålen* /'pò:len/ 'the pole' (grave). They were elicited in random order (together with other words, not reported on here) through cards with the respective words written on them. Each speaker produced at least five repetitions of each word, but some produced as many as eight and even more.

Digitized versions of the material were analyzed and the location of the f0-peak was measured (in msec) relative to the VC boundary. A position of the peak before and after the boundary resulted in negative and positive values, respectively. In addition to absolute durations, percentages were calculated (the distance (in msec) of the peak from the VC boundary relative to the duration of the segment before or after the boundary) to neutralize speaking rate variation. Peak positions were sometimes difficult to identify; many contours had plateaus rather than peaks, and laryngealizations and other voice quality features added to the problems. Dubious cases were therefore eliminated and the reported data

were reduced to include five speakers from Leksand, two of them female, and six speakers from Rättvik, one of them female.

## Results

Table 2 shows the individual results (absolute mean durations and standard deviations) for the two target words produced by the Leksand and Rättvik speakers. (The number of each word analyzed for each speaker varied between 5 and 14.) Apart from individual durational differences, the *pattern* is the same for all but one of the speakers; the acute word has its peak located before and the grave word after the VC boundary. (Although measurements were made of peak positions both in terms of absolute durations and percentages relative to the VC boundary, only absolute durations are reported here, as very similar patterns resulted from the two types of measurement.)

Table 2. Timing of grave and acute accent peaks (means and standard deviations) by 5 Leksand (L1-L5) and 6 Rättvik (R1-R6) speakers. Negative values represent peaks before and positive values peaks after VC boundary.

Speakers	Peak time in msec from VC boundary			
	Grave		Acute	
	mean	sd	mean	sd
L1	30	29	-60	16
L2	56	27	-52	19
L3	64	19	-66	25
L4	68	13	-54	13
L5	76	36	-80	30
R1	-4	31	-93	31
R2	43	37	-56	31
R3	65	23	-84	34
R4	79	21	-66	17
R5	94	11	-42	22
R6	120	19	-21	6

Although the Rättvik speakers have a greater spread of means, the grand means for the grave accent word are very similar for the Leksand and Rättvik speakers, 59 msec and 67 msec, respectively. The corresponding grand means for the acute word are -63 msec and -60 msec.

## Discussion

Thus, the new material confirms the results of the Leksand pilot study. In addition, the

Leksand and Rättvik speakers behave very much in the same way; the acute tone peak occurs well before the VC boundary and the grave after.

Thus, the data reported here indicate that a change in the realization of the grave accent has taken place since Meyer (1937, 1954) collected his material, a shift towards the pattern of more southern dialects e.g. Djura and Grangärde. In Figure 3 containing the contours presented by Meyer (1954), the arrows indicate the average grave-accent peak locations by our speakers. These locations were calculated as percentages relative to the entire durations of the second syllable and were 17% and 20% respectively for Leksand and Rättvik.

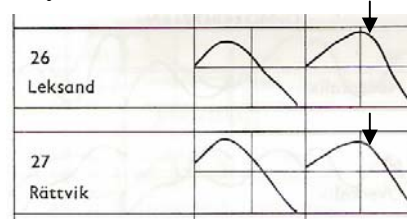


Figure 3. Accent contours (from Meyer, 1954). Arrows indicate the positions of the grave-accent peak in the present data.

Such a change among the more northern dialects is supported by an analysis of SWEDIA material (dollar and kronor) from speakers of Malung, a location west of Leksand and Rättvik. Similarly as for Leksand and Rättvik, the grave-accent peak had “moved” to a position after the VC boundary, while in Meyer’s collected data it was located before it.

## General discussion – Are accent realizations changing?

Although there are no time scales in the contours supplied by Meyer (1937 and 1954), it is possible to conclude from our data that the grave tonal peaks today take another position within the word. The vertical line in Meyer’s contours gives the position of the VC boundary, and we can clearly see that the acute accent remains within the syllable before the boundary, while the grave has crossed it.

Moreover, the change does not appear to be restricted to one single dialect, but occurs in all the three studied here. This speaks for a more general trend among the dialects of Dalarna, or at least those in the region between the northern and the southern part. We might conjecture a spread of the more southern type of realization

of the grave accent to the north and north-west. Thus, in the light of the varying grave accent peak locations as demonstrated by Engstrand in Nyström (2002), the southern type of accent realization (represented by Djura, Ål and Grangärde) would have progressed further to the north and north-west.

That a change has taken place seems obvious when comparing the present-day data with the stylized contours in the second volume of Meyer's work (1954). However, the contours appearing in the 1937 volume are not exactly the same as the later ones. Though stylized, too, they are somewhat more detailed and show alternative peak locations for acute as well as grave accents. The grave-accent peaks tend to either co-occur with the VC boundary or are located to the right of the boundary. That is, some of the peaks have a similar position as in the present-day data. This occurs both for the Leksand and Rättvik dialect.

The variation in the 1937 stylized contour drawings corresponds to variation in the original tone curves as registered and measured by Meyer. Figure 4 shows examples of this variation of grave accent curves by one speaker from Leksand. The stylized drawings in the 1954 volume thus hide some of the variation appearing in the raw data (and in the less simplified stylizations in the 1937 volume).

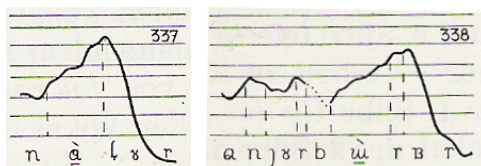


Figure 4. Grave accent contours (Leksand speaker 12, Per Jonsson; Meyer, 1937).

Peaks located after the VC boundary thus occur also in Meyer's data. However, while Meyer's speakers varied in their location of the peak (just before the VC boundary or following it at a short distance), the speakers in the present study are very consistent in locating the peak *after* the boundary, about 60 msec on average. (The single exception, Speaker R1, has a mean grave accent peak 4 msec before the boundary.) A change in accent realizations therefore seems to have taken place among the dialects studied here. A reasonable assumption then is that accent patterns that in the past characterized more southern dialects have spread to the north and north-west. Such a spread would not be unreasonable in the light of other examples of

innovations having spread from south-east to north-west in Dalarna, see discussion in Engstrand and Nyström (2002).

## Conclusions

A comparative analysis of present-day dialect data on word accents in Dalarna and accent contours published by Meyer (1937, 1954) has revealed differences indicating a change in the realization of the grave accent. This change, a delayed grave-accent peak, is tentatively seen as a result of a spread towards north-west of accent patterns formerly characterizing dialects of the south-east of Dalarna. Clearly, however, this assumption has to be confirmed by extending the material for analysis.

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## Notes

1. This volume was published posthumously.

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