DIPHTHONGS AND THE PROCESS OF MONOPHTHONGIZATION IN AUSTRIAN GERMAN: A FIRST APPROACH

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ABSTRACT

Both Standard Austrian German and the Austrian dialects are affected by an ongoing change which turns the diphthongs /aɛ/ and /ɑɔ/ into the monophthongs /ɛ:/ and /ɔ:/ respectively. However, this process shows different assimilation patterns according to the two main dialect regions in Austria: In the South Bavarian dialect region, the offset of the diphthong is assimilated towards the onset, whereas in the Middle Bavarian dialect region, the onset is assimilated towards the offset. The present study provides a detailed description of the diphthongs in both reading and spontaneous speech material. In order to give an answer to the question concerning the two different assimilation patterns, historical speech material of the late fifties has been analyzed additionally.

1. INTRODUCTION

Disregarding the extreme west, Austria can be divided in two large dialect regions: the South Bavarian and the Middle Bavarian dialect region [1]. In the City of Vienna (Middle Bavarian) the process of monophthongization is said to have started around 1900 in the lower social classes [2]. The process has changed the diphthongs /aɛ/ and /ɑɔ/, as e.g. in /vaɛs/ weiß 'white' and /hɑɔs/ Haus 'house', into the monophthongs /æ:/ or rather /ɛ:/ and /ɒ:/ or rather /ɔ:/ respectively, resulting in /vɛːs/ and /hɔːs/. The inherent durational aspects of the diphthongs are said to have been compensated by a lenghthening of the resultant monophthongs. This process applies as a prelexical process [3] in the Viennese dialect; consequently diphthongs are excluded from the phoneme inventory of this variety. Therefore, Viennese dialect speakers often fail to produce diphthongs in formal speech situations [4, 5].

In Vienna, the process gradually spread over all social classes. Consequently, today, the process is observed in the Viennese Standard variety as well, especially affecting weak prosodic positions and being restricted particularly to informal speech situations.

On the horizontal axis, the process affects large parts of the Middle Bavarian region too. Again, it can mainly be observed amongst speakers of the lower social classes, i.e. genuine dialect speakers [6]. However, the process is not exclusively restricted to the Middle Bavarian dialect region, it can also be observed in the South Bavarian dialect region, although to a lesser degree. Due to its proximity to the city of Vienna, monophthongization is more frequently applied in Graz; in Innsbruck, for example, a slight tendency towards monophthongization, primarily affecting weak prosodic positions, can be observed.

2. METHOD

Recordings of reading material and spontaneous speech (interviews) of male informants of the cities of Vienna, Graz and Innsbruck (five per city), as well as historical material of the late fifties of speeches of five male Standard speakers of the City of Vienna, have been analyzed. The recorded speech samples were digitized at 16 kHz, 16 Bit by means of the Acoustic Workstation S_Tools [7]. The first two formants of each diphthong were calculated by LPC, 22 coefficients and a pre-emphasis of 0.9, linear time-standardization was ensured by calculating 30 frames over each diphthong. In addition, formant measurements of the vowels relevant for the diphthongs /aɛ/ and /ɑɔ/ have been made. That is, the first two formants of five tokens of the vowels /a/, /ɛ/ and /ɔ/ have been calculated.

3. RESULTS

3.1. Reading Material

A closer look at the intended diphthongs in leider 'unfortunately' and Pause 'pause' reveals considerable differences between the varieties. Both diphthongs realized by South Bavarian speakers reveal a distinct [a]-quality at the onset, whereas the starting point of diphthongs of Viennese speakers is a higher vowel. Great variability of onset and target values of diphthongs have been reported for many languages [8, 9] and the tolerance for variability definitely correlates with the number of diphthongs in a given languages or variety [10].

However, the observed differences apply not only to onset and target values, but also to timing relations within the diphthong. Following the definition given by Lehiste

[11], a diphthong is characterized as a sequence consisting of an initial steady state which is followed by a transition and a final steady state. The timing relations between these three elements are language specific [12] and contribute to qualitative differences of one and the same diphthong. As far as the varieties under consideration are concerned, differences with respect to these timing relations can be observed. The typical South Bavarian diphthong is characterized by a relatively long onset steady state portion, taking up half of the diphthong, followed by a short transition and a short offset steady state portion. In the Graz variety, this pattern can be best observed in the movement of the second formant, whereas the first formant exhibits a rather gliding movement. In the Innsbruck variety, however, both the first and the second formant exhibit a long onset steady state portion. The characteristic pattern of the diphthong is more distinct in the Innsbruck variety, because this variety is still less susceptible for the process of monophthongization, especially with regard to stressed positions and to formal speech situations.

As far as the Viennese Standard variety is concerned, the most typical pattern is a gliding movement with almost no steady state portions. A greater span of gliding within the Viennese Standard variety as compared with East Middle German has also been described by Iivonen [13]. Provided a steady state portion can be observed in a Viennese Standard diphthong, it encompasses rather the offset of the diphthong. Again, this pattern can mainly be observed with regard to the movement of the second formant. Within the Viennese Standard variety, there seems to be a large variability as far as diphthong articulation is concerned, because of the strong tendency towards the process of monophthongization.

3.2. The process of monophthongization

The differences described in articulatory movement have consequences for the process of monophthongization. It has been stated that South Bavarian diphthongs are marked by a relatively long onset steady state portion, whereas Viennese diphthongs, if at all, are marked by a long offset steady state portion. Therefore, if the diphthong /ɑɔ/ is monophthongized in the Viennese variety, the frequency of the second formant is lowered at the onset, rendering in an [ɔ]-quality of the resultant monophthong. I.e., an assimilation to the offset portion takes place (see diagram 1).

In the South Bavarian variety, however, an assimilation towards the onset portion of the diphthong can be observed, i.e. in case of the diphthong /ɑɔ/, the second formant is raised at the offset, resulting in an [ɑ]-quality of the monophthong (see diagram 2).

The same assimilation patterns can be observed as regards the diphthong /aɛ/, although the qualitative differences of the resulting monophthongs are not as obvious. Tables 1 and 2 list the mean values of the first and second formant for the monophthongs resulting from the process of monophthongization of the diphthongs /aɛ/ and /ɑɔ/.

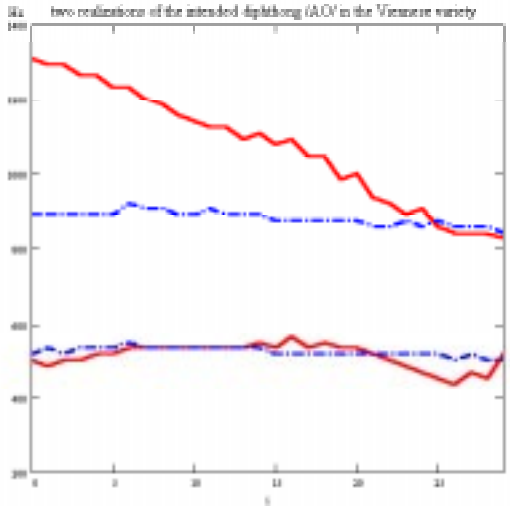

Diagram 1: process of monophthongization of the diphthong /ɑɔ/ in the variety of Vienna.

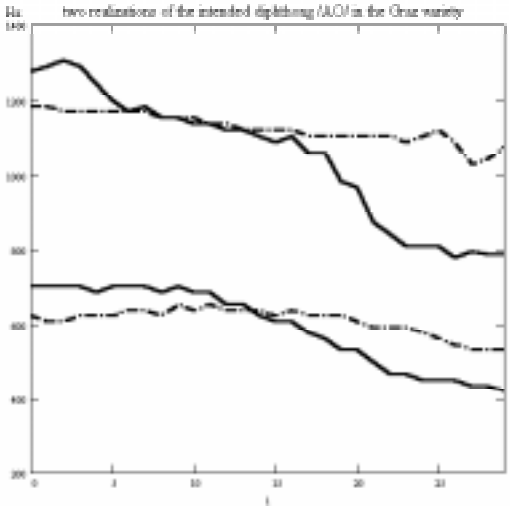

Diagram 2: process of monophthongization of the diphthong /ɑɔ/ in the variety of Graz.

As can easily be seen by a comparison, the difference as regards the two monophthongal qualities is evident.

Monophthongized /ɑɔ/:

	F1 (Hz)	F2 (Hz)
Viennese variety	473	1163
South Bavarian variety	547	1443

Table 1: mean values of monophthongized /ɑɔ/

Monophthongized /aɛ/:

	F1 (Hz)	F2 (Hz)
Viennese variety	440	1595
South Bavarian variety	498	1643

Table 2: mean values of monophthongized /aɛ/

3.3. Spontaneous speech material

As regards spontaneous speech material, the process of monophthongization is fairly generalized in all varieties under investigation. Again, prosodically weak positions are most prone for the process.

Considering the articulation of diphthongs, the steady state portions observed in the South Bavarian variety give way to a more gliding movement (as observed in the reading material of the Viennese variety, see diagram 3):

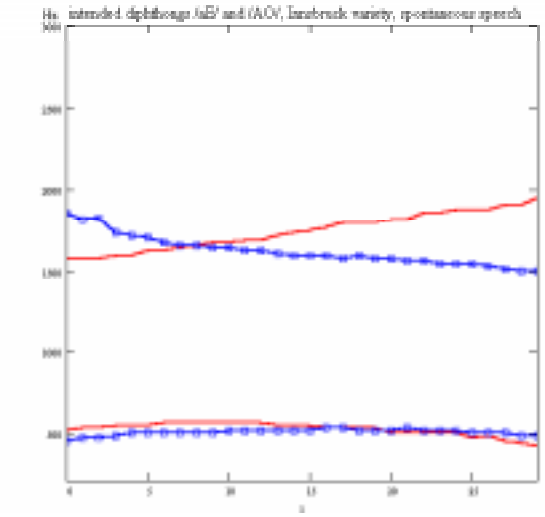

Diagram 3: gliding movement of the diphthongs /aɛ/ and /ɑɔ/ in the variety of Innsbruck.

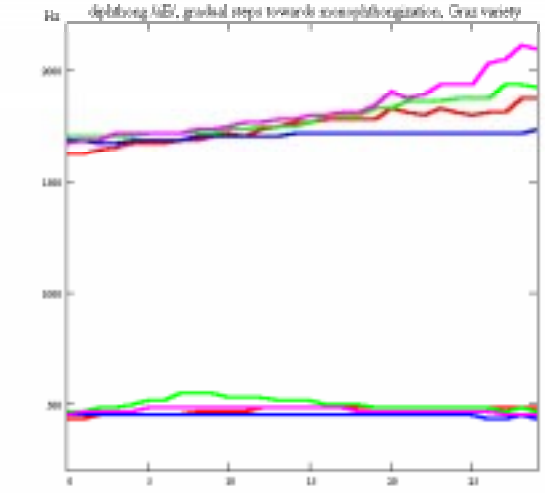

Diagram 4: gradual steps of the process of monophthongization within the one and same speaker of the Graz variety.

Nevertheless, the differences in assimilation patterns remain the same, i.e. in the South Bavarian variety the offset is assimilated towards the onset (see diagram 4), in the Viennese variety, the onset is assimilated towards the offset. A comparison of the process of monophthongization with respect to the diphthong /aɛ/ effectively shows, why nearly no qualitative difference can be observed with respect to the resultant monophthongal quality (see diagram 5): the diphthongal quality is more distinct in the South Bavarian variety; a lowering of the second formant at the offset can therefore result in the same monophthongal quality as a raising at the onset in the Viennese variety.

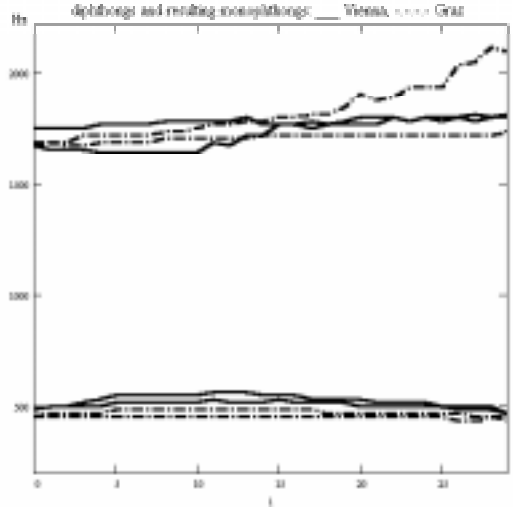

Diagram 5: different assimilation pattern of the process of monophthongization of the diphthong /aɛ/ within the Viennese and the Graz variety.

3.4. Historical speech material*

The question remains why assimilation patterns are different in the South and the Middle Bavarian variety. As has been stated, long offset steady state portions have been observed in diphthong realization in the Viennese Standard variety. In order to prove this observation true, historical speech material of the late fifities of the Viennese Standard variety has additionally been analyzed.

Unfortunately, the analyzed diphthongs of speakers of the late fifties do not exhibit long offset steady state portions; on the contrary: the diphthongs of the late fifties are characterized rather by a long onset steady state portion. Furthermore, whenever a tendency towards monophthongization can be observed, the offset is assimilated towards the onset of the diphthong, as in the South Bavarian variety.

Therefore, the analysis of historical speech material raises still further questions: Are the observed long offset steady state portions in the Viennese Standard variety due to the incertainty in diphthong articulation which results from the rapid spread of the process of monophthongization? Or has there been a change in diphthong quality located in time somewhere between the fifties and the ninetees? Is this change to be considered within a larger framework, affecting all vowels, especially /a/ and /ɑ/, which have merged in Austrian German [14]?

4. CONCLUSION

The process of monophthongization in Austrian German is evidently motivated by prosodic organization. Pro-

sodically determined monophthongization has also been observed in other languages [15]. First of all, the duration of Austrian diphthongs is relatively short as compared with other languages [5]. This observation accounts for the fact that Austrian diphthongs exhibit a rather gliding movement [16]. Secondly, the process starts in weak prosodic positions, i.e. both lexically and postlexically unstressed diphthongs are affected. Further generalization of the process to prosodically strong positions results in the realization of long monophthongized diphthongs; which can be observed in the young generation of Viennese Standard speakers. Taking these considerations into account, the notion of compensatory lenghthening should be reevaluated: Long monophthongized diphthongs do not result from a compensation of the inherent duration of the former diphthongs, but from postlexical stress assignment [17] which lenghthens syllables in strong prosodic positions.

The question, why different assimilation patterns with respect to the process of monophthongization can be observed, can not be answered. Additional historical material has to be analyzed in order to give a detailed picture of the development of Austrian diphthongs and vowels.

* *The historical speech material has kindly been provided by the Phonogrammarchiv of the Austrian Academy of Sciences.*

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