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SUMMARY

This book deals with a sociophonetic analysis of the Dutch vowel system. The book is divided into eight chapters: Chapter 1 is a general introduction to the work and its aims; Chapter 2 offers a wide review of the state of the art concerning both speech styles and the acoustic analysis of the Dutch vowel system; Chapter 3 presents the data set; Chapter 4 deals with four main methodological problems in the acoustic analysis of vowels; Chapters 5 and 6 present the analysis of the vowel space of Dutch in word list data and spontaneous speech data, respectively; Chapter 7 compares the results of the two previous chapters; and Chapter 8 sums up the main findings of the work.

In Chapter 1, van der Harst situates his study in the field of sociophonetics, defined as being "at the interface of phonetics and sociolinguistics" (p. 1). The author illustrates the seven main aims of his work, which are all classified as being either general, theoretical, methodological or descriptive. The general aim of the book is to demonstrate "the fruitfulness of integrating sociolinguistics and phonetics" (p. 4). The theoretical aim is to solve the so-called Vowel Space Paradox that concerns acoustical vowel space variation in different speech styles. This paradox emerges in the acoustical analysis of vowels in different speech styles because "whereas the variation between vowels decreases in spontaneous speech, the variation within vowels increases, which does not lead to large increases in vowel confusions" (p. 5). The four methodological aims are sociolinguistic (one) and phonetic (three) in nature: on the one hand, the author proposes a method to elicit standard language in three different speech styles; on the other hand, the author wants to find the best method for formant measurements, normalization and temporal representation of vowels. Finally, the descriptive aim of the book is to describe the sociogeographic variation of Standard Dutch, in particular, between Netherlandic and Flemish Dutch.

Chapter 2 is a wide review of the state of the art concerning both speech styles and the analysis of Dutch vowels. Three main definitions of "style" have been found in the literature: a continuum from formality to informality (e.g. Labov 2001); audience design (Bell 1984); an act of identity of the speaker (Meyerhoff 2006) relating to the context of the interaction and the speaker's communicative goals. Van der Harst decides to follow a classic Labovian approach to style, since it has been demonstrated that intraspeaker variation found with Labov's method corresponds with interspeaker variation. The review of literature concerning vowel space reduction leads to the formulation of three research hypotheses (pp. 48-52): (1) In spontaneous speech, the vowel space is reduced; (2) In spontaneous speech, the sociogeographic variation within a vowel increases; (3) Vowels which show large sociogeographic variation in F1 or F2 dimension in formal tasks are not supposed to reduce in that dimension in spontaneous speech. The three hypothesis are tested in Chapter 7 in order to solve the Vowel Space Paradox.

Chapter 3 presents the data set, collected in 1999-2000, for a wider sociolinguistic project on the pronunciation of Standard Dutch in the Netherlands and in Flanders. For his work, van der Harst analyzed the speech of 160 high school teachers of Dutch. The corpus was stratified for two communities

(the Netherlands and Flanders), eight regions (four for each community), two age groups (22-40 and 45-60 years old), and finally, for gender. In this chapter, the author also discusses the first methodological problem of the book, i.e., how to elicit different speech styles of standard language in a sociolinguistic interview. For this purpose, each speaker was asked to perform different tasks in order to elicit different speech styles; the more formal tasks were logatome (i.e. monosyllabic pseudoword) reading and word list reading, while the informal task was a short interview. Logatome reading and word list reading elicited 4,800 and 4,640 tokens, respectively. The data from the logatome reading task were previously analyzed by Adank (2003), whose findings are summed up and used in van der Harst's analysis in Chapter 5. The word list data consisted of 319 monosyllabic Dutch lexemes containing the 15 full vowels and the three diphthongs of Dutch in two opposite phonological contexts, i.e., with the target vowel followed by /s/ (the /s/-context) and by /t/ (the /t/-context). After the more formal tasks, spontaneous speech was collected through 15 minute interviews on various topics. These more informal data were analyzed only for a subset of 20 speakers, producing a total of 1,426 tokens.

Chapter 4 deals with the other three methodological aims of the book, since the author wants to define an acoustical analysis which "is to be considered the proper one for the seg(socio)phonetic study of vowel variation" (p. 65). Even if other approaches are available for the acoustic study of vowels (e.g. the whole spectrum approach), the author prefers a formant analysis approach. The first methodological problem is to define the best method to obtain valid formant values. Formant analysis is based on Fant's (1960) Source-filter Theory, according to which the speech signal is the product of independent components, i.e., the source and the filter; in the production of vowels, vocal fold vibration is the source and the vocal tract acts as a filter. Formants are usually estimated using Linear Predictive Coding (LPC) with a fixed number of LPC coefficients (i.e. the default method) or by varying the number of LPC coefficients according to both speaker and vowel (i.e. the adapted method). Although the adapted method yields better automatic measurements, in particular, for back vowels, van der Harst states that the default method equally gives good results (p. 89). The second methodological issue is to find the best formant normalization procedure for the sociophonetic analysis of vowels. Such a procedure should indeed minimize the anatomical variation related to gender and age of the speaker, while preserving phonemic and sociolinguistic variation. The author statistically compares 17 normalization procedures. He concludes that LOBANOV (Lobanov 1971) is the most effective at removing anatomical differences and preserving sociolinguistic variation (p. 121), and is therefore used in the remaining part of the book. The author also investigates the best temporal representation of vowels in sociophonetic analyses of vowel variation. The problem is defining the appropriate number of time points in which to analyze formant values in order to properly describe a vowel. Two main approaches are evaluated by the author, i.e., target approaches and dynamic approaches. The first is the traditional approach used in many phonetic and variationist studies; formant values are analyzed at single points in time (namely, the middle of a formant transition) for monophthongs and at two time points for diphthongs. The dynamic approach is mainly used in forensic linguistics and incorporates more information about vowel dynamics. The author analyzes two different dynamic approaches: the time points approach measures monophthongs and diphthongs at more than one or two time points, respectively, while the regression approach uses regression coefficients to describe the development of formants over time. The author demonstrates that the dynamic approach, and in particular, the time point approach, improves the sociophonetic analysis of formants of both monophthongs and diphthongs. However, in different phonological contexts, the effect of coarticulation on the dynamic vowel representation remains unclear. Due to this possible effect of phonological context on different vowel tokens, the author decides to follow the traditional (i.e. default) method by analyzing the midpoint of monophthongs and the onset and

offset of diphthongs.

In Chapter 5, the analysis of data begins with the tokens collected from the two formal tasks, which are supposed to focus the attention of the speaker on his/her production. Two different kinds of variables are taken into account in the statistical analysis of data: a phonological variable, considering the role of the coda of the syllable; and social variables such as gender, age and community of the speaker. The analysis of phonological context reveals that "in s-words the vowel was considerably longer than in t-words" (p. 149). A following statistical analysis was conducted on formants (F1 and F2), considering both phonological and social variables and the different interactions between them. For F2 dimension, the vowel space of Flemish speakers appears to be smaller than that of Netherlandic speakers; for the author, this means that "the Netherlandic speakers pay extra care to their speech" (p. 199), as has been previously noted in literature. Another community difference is the lower onset of Netherlandic diphthongs, which, according to Jacobi (2009), could be referred to as a Polder Dutch characteristic, because in this variety of Dutch, diphthongs are pronounced with a wider mouth opening. Even if it is commonly claimed that Polder Dutch features are used mainly by young, highly-educated women (Stroop 1998), no relation between the two variables of gender and community was found in the author's data set. At the regional level, vowel data showed a difference between Flemish and Netherlandic Dutch. The two regions seem, however, "to cross the border" (p. 201); Netherlands-South vowels are indeed similar to Flemish ones, while Flander-Brabant shows similarities with Netherlandic Dutch.

Chapter 6 analyzes data from spontaneous speech in two Netherlandic communities: the central community Netherlands-Randstad (N-R), and the peripheral region Netherlandic-South (N-S). Spontaneous speech is defined as "speech that is unscripted and unprepared to a large extent" (p. 203), which means that attention paid to speech is assumed to be lower than in reading tasks. The statistical analysis confirms that phonological context (i.e. the coda of syllables) influences vowel quantity but that these differences do not clearly correlate with social variables. For /ɛ/ and /ʏ/, an important community difference has been found; N-S vowels are longer and more open than N-R vowels, even if N-S vowel space tends to be more symmetrical than that of N-R. The author gives a sociolinguistic explanation of his findings, claiming that "N-S vowels may shift in the direction of the vowels of the standard variety cultural and economic centre of the Netherlands (i.e. N-R)" (p. 229). However, no age or gender differences were found for these vowels. Only the diphthong /œy/ showed a gender difference within the N-R region; women showed a more open onset than men, and the author interprets this fact as confirmation of the rise of Polder Dutch vowels being led by women.

Chapter 7 compares the values and findings of the different vowels in the three speech styles in order to solve the Vowel Space Paradox. The three hypotheses offered in Chapter 2 are discussed according to the statistical analysis of data in the two previous chapters. The first hypothesis (i.e. in spontaneous speech, the vowel space is smaller than in the reading tasks) fits more for monophthongs and for F1 dimension, but is not supported by diphthongs in the logatome reading task (p. 253). The second hypothesis (i.e. in spontaneous speech, vowels show larger sociogeographic variation than in the two reading tasks) is valid only for /u/ among monophthongs and for /œy/ among diphthongs, whereas /ɛ/ and /ʏ/ showed opposite behavior. A lack of interaction between speech style and region was also found. These results demonstrate that the second hypothesis does not clearly describe and explain sociogeographic vowel space variation. The third hypothesis (i.e. vowels with large sociogeographic variation in F1 or F2 dimension do not reduce their space in that dimension in spontaneous speech) is violated by /ɛ/, /ʏ/ and /a/ (p. 285). Since the three hypotheses have been rejected, the author proposes a new solution for the paradox. In his opinion, it is important to consider the local structure of the vowel space of the target

vowel, i.e., of the vowel which increases or shifts in variation among the different speech styles. Since speakers always try to avoid phonemic confusions, a vowel could move or increase its space in two cases: (1) If the local surrounding structure is empty; (2) If the two vowels maintain a contrastive difference in at least one dimension other than F1 and F2 (e.g. duration, onset position), when there is a neighboring vowel in the vowel space. For van der Harst, this should be considered a proper solution for the Vowel Space Paradox (pp. 304-5).

Finally, in Chapter 8 the author sums up the main findings of his work, according to the seven aims proposed in the first chapter. A final section illustrates a wide range of proposals for further research in sociophonetics.

EVALUATION

At a general level, the book is well structured and the arguments concerning both research hypotheses and results are very clearly illustrated. The author clearly made a great effort to guarantee cohesion throughout the different chapters, which is very helpful for the reader. The review of the state of the art in Chapters 1 and 2 is very valuable because it sums up the main approaches to a key term in sociolinguistic research, i.e., style. Chapter 3 offers a good example of how a corpus should be structured in this kind of research. Chapter 4 is a precise and rigorous analysis of three main methodological problems in sociophonetic research; the observations and suggestions given by the author in this chapter deserve to be carefully considered by scholars in both phonetic and variationist areas of research.

The only weakness of the book is found in the analysis of spontaneous speech data (Chapter 6). The author's aim "to obtain a set of vowel tokens that is maximally balanced" (p. 205) was problematized by a lack of tokens in every phonological context. In particular, /ʏ/ does not show any occurrences in some speakers' speech production. In these cases, the author used the mean values of /ʏ/'s F1 and F2 detected in the word list and logatome data "in order to avoid bias of the unbalanced data set" (p. 209). However, this mere quantitative problem might have important consequences in the analysis, since one of the main aims of the book is to compare different speech styles. It should be the case that this choice did not modify the statistical results, but the author should have considered and explained this problematic issue. Moreover, the sociolinguistic observations exposed at the end of the same chapter deserved a wider explanation, in particular regarding the observed shift of N-S vowels to an N-R language variety.

These few problematic points aside, van der Harst's book should be considered an important contribution to sociophonetic research. This book could also be particularly interesting and useful for both "classical" sociolinguists and more skilled sociophonetic readers: the former scholars would find important methodological and bibliographical suggestions, while the latter will find ideas on critical reflections concerning the sociophonetic study of variation. In conclusion, this book is a clear example of "the usefulness of the integration of sociolinguistics and phonetics" (p. 12).

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