WORD FREQUENCY AND LEXICAL DIFFUSION IN DIALECT
BORROWING AND PHONOLOGICAL CHANGE

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1. Introduction*

For many years dialectologists have availed themselves of the concept of
dialect borrowing in order to explain linguistic phenomena which cannot
easily be brought into line with the other facts found in that dialect. In
the past few years, however, the use of dialect borrowing as an explana-
tory device has met with (increasingly) vehement criticism. Chen (1972)
has pointed out that dialect borrowing served traditionally as a label by
means of which all kinds of exceptions to general laws could be shoven
under the rug. He argues, and convincingly so, that dialect borrowing -in
its definition until then- is useless as a scientific explanatory device since
it can never be refuted: there is no theory which predicts when, where,
and why one dialect will borrow from another, and when, where, and
why the borrowing process will not take place. At the same time, Chen
(1972) emphasizes the necessity of a theory of dialect borrowing for a
theory of language change because of the existence of certain well-attested
changes that apparently can only be explained by assuming a process of
dialect borrowing.

The first step towards a definition of the concept of dialect borrowing
has been described in Trudgill (1974). For this purpose Trudgill adopted
a formula originating from social geographers who used it in order to in-
vestigate the interaction between two centres. This simple formula, which
employs easily obtainable main factors such as distance and population
number (see legend map f), was tested and refined by Trudgill in his
survey of a Norwegian peninsula. With this formula, he succeeded in de-
termining more accurately when it is plausible or implausible to regard

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certain phonological changes as the result of dialect borrowing.

Gerritsen and Jansen (in press) checked to what extent the predictions resulting from Trudgill’s formula of dialect borrowing hold for the dialects spoken in the area of Amsterdam. On the basis of a diachronic, quantitative investigation in this area of the changes of standard [ɛt], it was examined where and when the Amsterdam variants [a.1] and [ɛ.1] had arisen. The main result of this investigation was that Trudgill’s formula seemed to make the right predictions for the majority of towns and villages in North Holland, the province where Amsterdam is situated. In most cases where a great Amsterdam influence had been predicted, Amsterdam variants were indeed found; on the other hand, where the formula had predicted little or no Amsterdam influence, few to no Amsterdam variants were found.

Some of the exceptions to this pattern were dealt with in Gerritsen and Jansen (in press). This paper proposes a refinement of Trudgill’s formula, partly in order to explain why Amsterdam variants had been found in spite of a low index for Amsterdam influence according to Trudgill’s formula. It appeared that a sharp distinction would have to be made between the rise of Amsterdam variants due to natural phonological change, and the rise of Amsterdam variants due to unnatural change.

The distinction between natural and unnatural change was adopted from Labov, Yaeger, and Steiner (1972), who reported on certain tendencies which they label ‘principles of sound changes’. These principles are based on ongoing sound changes recently observed in sociolinguistic surveys by comparison of spectrograms made of vowels in the casual speech of different generations within one speech community, and by comparison of the vowel spectrograms of the casual speech of dialect informants speaking closely related dialects. The tendencies found time and again were confirmed by the philological evidence of sound changes in previous stages in various languages.

We will call a sound change which develops according to the Labovian principles of sound change a ‘natural change’, and those which do not, ‘unnatural changes’. Naturally, the former take place with far greater ease than unnatural changes, since one has to assume in the latter case that the dialect variant is replaced by a variant from another dialect. As a follow-up to Gerritsen and Jansen (in press), this paper will deal with the relation between word frequency on the one hand, and natural and unnatural changes towards Amsterdam variants on the other. This investigation was carried out in the same dialect area, and with the same data of standard [ɛt] from West-Germanic i.
2. Some problems in the relation between lexical diffusion, word frequency, and sound change

This section will deal with some reflections on the relation between lexical diffusion on the one hand, and natural and unnatural change (dialect borrowing) on the other. First we will determine whether word frequency can be regarded at all as an explanation of certain facts of lexical diffusion. After that, we will go into the theoretically possible relation between word frequency and natural and unnatural change.

The basic tenet of the theory of lexical diffusion as discussed in, for example, Chen (1972), Chen and Wang (1975), and Wang and Cheng (1970) is the gradual spread of a new sound variant through the lexicon. A sound change does not affect all words with a particular sound in the lexicon of a dialect at the same time. Some words adopt the new variant at a relatively early point in time; subsequently the bulk of the lexicon adopts the new variant, and very often a rest group of lexical items with the original sound variant survives for quite a long time.

The pattern of this process observed by Wang and Cheng (1970) in the Shuang-feng dialects is illustrated in Fig. 1.

![Graph showing percentage of words with the new variant over time]

As far as we know, none of the papers mentioned above states a connection between lexical diffusion and word frequency. However, it does not seem implausible that a relation does indeed exist between the frequency of a lexical item with a particular phonological variant, and the rate at which this variant changes into another variant.

This suggestion, however, is more complicated than one might think. For, supposing that this relation does indeed exist, it is not at all certain whether this relation will be the same for both kinds of change, natural and unnatural (cf. section 2.1.), and for all kinds of lexical items with the same frequency (cf. section 2.2.).
2.1. The relation between word frequency and unnatural and natural changes.

One of the findings of Gerritsen and Jansen (in press) was that two kinds of changes of standard [st] towards the Amsterdam variants will have to be distinguished.

(i) Dialects in which the Amsterdam variants could only have arisen as a result of unnatural change. In this case the only possible explanation of the rise of the Amsterdam variants is dialect borrowing.

(ii) Dialects in which the Amsterdam variants could only have arisen as a result of spontaneous (i.e. natural) change. In this case dialect borrowing need not be the only explanation of the rise of Amsterdam variants.

Assuming that this distinction between natural and unnatural changes is correct, several hypotheses can be made with regard to the relation between word frequency and these two kinds of changes.

2.1.1. The relation between word frequency and attested dialect borrowing.

In the case of unnatural change, i.e. dialect borrowing, the following is to be expected. High frequency means that a word is often uttered, and consequently often heard. When people from Amsterdam consistently use the Amsterdam phonological variants in all words when speaking to dialect speakers, the latter are quite likely to hear the same frequent words with the Amsterdam variants, but far more rarely the less frequent words with the Amsterdam variants. In all probability, dialect speakers will hear and recognize the Amsterdam variants first in highly frequent words. It is acceptable, therefore, to assume that in the subsequent process of unconscious imitation of the new variant, the dialect speaker will use Amsterdam variants first and foremost in the words he frequently heard pronounced with the Amsterdam variants, thus in highly frequent words. This seems to be a sound reason for positing the following hypothesis:

Hypothesis I: In dialects with an attested Amsterdam influence, i.e. an Amsterdam influence brought about by unnatural change, highly frequent words will develop towards the Amsterdam variant at a higher rate than less frequent words.
From another point of view, i.e. to explain the extremely conservative character of words in the domestic lexical field, dialectologically oriented germanists have presented specific hypotheses on the types of words that will never or only very reluctantly borrow a certain phonological variant, cf. Kloeke (1927), Janssen (1941), Schirmunski (1962), and, more recently, Weijnen (1969). They all endorse the hypothesis that frequent words are the first to borrow a certain phonological variant. However, they disagree as to the most relevant speech event for the borrowing of a certain phonological variant, for instance the frequency of words spoken at the market or the frequency of words spoken in the family. Weijnen (1969) reviews the relevant literature on this topic, and demonstrates how the various hypotheses can be tested.

Since the contributors to this discussion concentrate on the explanation of the conservative character of words, they are particularly interested in the state of the lexicon as represented in the rightmost phase of Fig. 1: the words that resisted a certain sound change and retained a conservative sound. The investigation laid down in this paper, however, is directed towards the leftmost phase of Fig. 1: the words that are the first to change into the new variants. That is why this paper will not delve into the delicate distinctions between words frequencies in various kinds of speech events, which the above mentioned germanists have made, although these distinctions seem to be correct and insightful as such.

2.1.2. The relation between word frequency and natural change.

In the case of natural, spontaneous change, it is necessary to make a distinction between reductions and other, non-reduction, changes. First we shall dwell on reductive processes; after that, we shall go into the other kinds of changes.

The process of reduction can be defined as an intermediary stage in the complete disappearance of a phonological element; for example *konijn* 'rabbit' can be pronounced *[konain]*, *[konain]*, *[kɔnein]*, and *[knein]*. A necessary condition for the reduction of an element is the absence of any stress on that element. It is reasonable to regard the process of reduction as motivated by the 'ease of articulation' factor. Furthermore, it is quite reasonable to hypothesize that reduction proceeds faster in frequent words. Notes on this phenomenon are found quite early in the relevant literature, for instance Schuchardt (1885); the hypothesis is tested and justified in Fidelholtz (1975), and in Hooper's extremely interesting
1976 paper. Since we have not explored reductions in the area of Amsterdam, we shall not go into greater detail here.

Processes other than reduction, however, are not so easily explained by the ‘ease of articulation’ factor, and occur preferably in stressed elements. One of these processes is strengthening. The term strengthening is used to define the tensing and raising of vowels. Labov (1974: 253) observed a strengthening process in the City of New York, and expressed it in spectrograms that showed that this vowel change cannot be put on a par with reductions: speakers use no less energy for the production of a tensed and raised vowel than for a lax, low vowel. Furthermore, Labov found that the strengthening process is most advanced in stressed or emphatically uttered lexical items.

As far as we know, little has been said in the relevant literature until now about strengthening processes. We would like to point out that the natural change from [ɛt] to [ɛr] and especially [ɑt] to [ɑː] in the North-Hollands dialects is part of a strengthening process, in spite of the fact that the glide element of the diphthong has disappeared, which could be regarded as resulting from reduction. There appear to be four arguments in favor of the claim that we are dealing here with a strengthening process:

(i) In both cases the vowel-like element is lengthened: we never came across *[ʃɛn] or *[ʃɒn] (standard fiën ‘fine’), but always [ʃɛɾːn] and [ʃaːn]. As for the [ɑː] variant, we must also assume tensing besides lengthening: there is no dialect where [ʃaɪn] has changed into [ʃaːn].

(ii) The common reduction which monophthongizes diphthongs is the absorption of the glide element by a following consonant (Stampe 1972: 549). One would expect, therefore, that the [ɛɾː] and [ɑː] variants occur only in the phonetic environment of a following consonant. However, these long monophthongs show up in word-final position as well, for instance in [bla.] (standard blij ‘glad’), and (ik) [ɾeɾː] (standard rijd ‘I drive’).

(iii) [ɛɾː] and [ɑː] are not conditioned by absence of stress. On the contrary, these variants occur preferably in stressed syllables in the recordings of our informants.

(iv) In a few dialects a second variant is found, i.e. [aeʔ]. Here, the glide has weakened to the neutral shwa. This may be a phase in a reduction process, but, as we would like to point out again: this reduction is limited to the glide element of the diphthong. In this case, too, the
vowel element of the diphthong is lengthened and tensed at the same time.¹

Having presented arguments for considering the North-Hollandic vowel change a process of strengthening, we now confront the question as to whether it is possible to make a hypothesis -also on a priori grounds- on the relation between frequency and strengthening processes. In our opinion, one can reason from two angles, one depending largely on phonetics, the other depending largely on sociolinguistics. These two ways of reasoning each lead to another hypothesis. The resulting two hypotheses are each other's exact antipodes!

2.1.2.1. First we will pursue the phonetic line of thought. There appears to be a relation between stress and reduction which can be described as follows: the rapid reduction of a speech element is conditioned by the absence of stress on that element. Another condition is the high frequency of the lexical item in which the element occurs. These two relationships can be explained by the fact that reduction, like other processes that are caused by the 'ease of articulation' factor, has a greater opportunity to operate in frequent items, since they are more often pronounced.

Secondly, reductions cause indistinctness of lexical items, for example, the group als je hem 'if you ... him' is mostly reduced in speech to [ajnom]. Reductions like this one are more acceptable in frequent items than in infrequent ones, as it is easier for a listener to understand indistinct words which he hears every minute, than indistinct ones which he never or only very seldom hears.

The relation between on the one hand the monophthongizations that are the subject of this paper, and stress and frequency on the other, is quite another matter. Firstly, it has been pointed out above that strengthening is more advanced in stressed syllables. Secondly, the result of the process is not an indistinct lexical item; for example, [bla.] and [blec.] 'glad' differ in pronunciation, but the former variant is by no means less intelligible than the latter.

These two differences between strengthening on the one hand, and reduction on the other, lead one to the hypothesis that this process of monophthongization will take place sooner in infrequent words. The rationale behind this hypothesis is that a speaker emphasizes a lexical item in order to direct the listener's attention to that item, arguing (correctly or incorrectly) that the information contained in the item is not expected by the listener. We assume that infrequent words have a greater
chance of being selected in circumstances of unexpected information than normal, frequent words, for the same reason that frequent lexical items are more expected, as has been observed above.

Furthermore, our process of strengthening is not hampered by a lack of distinctness, which would be strongest in infrequent words. Therefore we can set up Hypothesis II as follows:

Hypothesis II: The most radical strengthening changes take place in lexical items with a low frequency.

2.1.2.2. Regarding the spread of strengthening from a sociolinguistic point of view, the hypothesis on the relation between word frequency and strengthening works quite the opposite way.

The implementation of a natural, spontaneous change in a speech community is a complex interaction of changes in the articulation of the phonological variant in the speech of members of a speech community, and the interpretation of these changes by other subgroups of that speech community. Since interpretation of the new variants is involved, one may assume that first the most frequent words will lend themselves to interpretation and imitation, for the same reasons mentioned above in the case of unnatural change, i.e. dialect borrowing. This leads one to Hypothesis III, which is in several ways similar to Hypothesis I:

Hypothesis IIIa: The most radical strengthening processes take place in lexical items with a high frequency.

Or, more generally:

Hypothesis III: Natural sound changes take place first in lexical items with a high frequency.

If Hypotheses I and III should be proved right, this would imply that there is no need for a strict distinction between natural and unnatural change with regard to the relation between word frequency and sound change.

Surprisingly, no literature seems to exist with specific claims regarding the relation between non-reductive phonological changes (especially strengthening), phonological changes and word frequency. Apparently the reason why is that most linguists give a few examples of reductive changes, and in their conclusions subsequently generalize for all types
of changes (cf. Schuchardt (1885), Weijnen (1969)), thereby implicitly adhering to Hypothesis III. The only positive exception is Joan Hooper (1976), who explicitly limits her conclusions to reduction processes.

2.2. Distinctions within groups of lexical items with the same frequency.

With regard to the relation between word frequency and language change, a distinction is often made between highly frequent words and infrequent words. The idea behind this is that all frequent words, such as nous, pronouns, verbs, etc., behave in one and the same way. In that case the following hypothesis can be set up, which will have to be borne out by the facts:

Hypothesis IV: The phonological variant changes in the same way in words with the same frequency.

However, it seems more reasonable - certainly for Dutch - to make a further subdivision of the class of frequent words, i.e. a division into pronominal and non-pronominal words.

The reason behind this subdivision is the fact that the personal pronouns which were the subject of this investigation share one important characteristic which other forms do not have. Since the preferred position of pronouns in Dutch sentences is immediately behind the first constituent that receives stress, and the referential function is rather dependent compared to words with a lexical content, the attention paid by the speaker to his pronunciation of pronouns is less than the attention directed to the pronunciation of non-pronominal forms.

Until now, non-reductive changes of pronominal forms have been relatively under-explored. The only exception is Schirmunski (1956), who observes the spread of new phonological variants in the class of function words (all pronominal forms, prepositions, and modal verbs), and concludes that this class is conservative in character.

In Jansen (1975) it has been demonstrated that the phonological variants in pronouns are to a far lesser degree subject to style shift than non-pronouns. This appears to be another argument in favor of the assumption that pronouns show a more conservative pattern in changes towards the Amsterdam variant.
Hypothesis V: The class of pronouns will either change not at all, or in a very small degree, regardless of whether the change is natural or unnatural.

All hypotheses mentioned in this section and to be investigated in this paper have been summarized in Table 1.

**Table 1.**

<table>
<thead>
<tr>
<th></th>
<th>fast</th>
<th>slow</th>
</tr>
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<tbody>
<tr>
<td>unnatural change or</td>
<td>all frequent words (Hyp. I, IV)</td>
<td>all infrequent words (Hyp. I, II)</td>
</tr>
<tr>
<td>dialect borrowing</td>
<td>all frequent words</td>
<td>pronouns</td>
</tr>
<tr>
<td></td>
<td>except pronouns (Hyp. V)</td>
<td>(Hyp. V)</td>
</tr>
<tr>
<td>natural change,</td>
<td>all frequent words (Hyp. III, IV)</td>
<td>all infrequent words (Hyp. III, IV)</td>
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<tr>
<td>strengthening</td>
<td>all infrequent words</td>
<td>(Hyp. II)</td>
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<tr>
<td></td>
<td>(Hyp. II)</td>
<td>all frequent words</td>
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<td></td>
<td>all frequent words</td>
<td>pronouns</td>
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<tr>
<td></td>
<td>except pronouns (Hyp. V)</td>
<td>(Hyp. V)</td>
</tr>
</tbody>
</table>

3. The collection of data

The data which are the basis of this investigation were collected in the same way as in Gerritsen and Jansen (in press). The area under investigation, Amsterdam and its surroundings, was covered with a hexagonal grid (cf. Map 1). The cross section of each hexagon was approximately 5 kilometres (3 miles). The next step was to find a town or village in each grid for which data from two different points in time were available, i.e. from the following sources:

(i) Appr. 1950; the recorded sentences of the Reeks Nederlandse Dialect Atlassen (RNDA, Dutch Dialect Atlas Series) of North Holland (Daan 1969), and part of the volume of South Holland (Van Ooyen 1968);

(ii) Appr. 1970; recordings of casual speech (along the lines of Labov, Yaeger and Steiner (1972)) of dialect speakers, made by the authors and other staff members of the Institute of Dialectology in Amsterdam.
This paper will only be occupied with the reflexes of West-Germanic \( i \), which is realized as [ɛt] in current Standard Dutch. As explained above, one of the purposes of this paper is to examine whether there is a relation between the frequency of words and the change of a sound towards the Amsterdam variant. In order to investigate this, we made a distinction between

(i) highly frequent, non-pronominal words with West-Germanic \( i \);
(ii) pronouns with West-Germanic \( i \);
(iii) non-frequent words with West-Germanic \( i \).

These three categories will be briefly discussed below.

*ad (i):*

Highly frequent, non-pronominal words, i.e. words that score 40 or higher in the frequency list of words in Spoken Dutch (Uit den Boogaart 1975) which is based on 55,725 tokens, taken from the speech of dialect speakers. The score of 40 was taken as the breaking-point for the following reason: besides the frequency list of Dutch words spoken by dialect speakers, there is another frequency list of spoken Dutch. This list, however, is based on the speech of speakers of Standard Dutch (Uit den Boogaart 1975). A comparison of these two lists showed that the \( ij \)-words with scores exceeding 40 in the corpus of dialect speakers were identical with the most frequent \( ij \)-words in the corpus of speakers of Standard Dutch. Differences between the two frequency lists regarding the \( ij \)-words did not show until frequencies below 40. This appeared to be a sound reason for taking 40 as the breaking-point.

*ad (ii):*

All pronouns with [ɛt] belong to the class of highly frequent words. In this investigation, this class was limited to the pronouns \( hij \) ‘he’, \( zij \) ‘she’ and ‘they’, and \( wij \) ‘we’. The latter two have reduced counterparts, \( zo \) and \( wo \), respectively, which were left out of consideration. The same holds for all forms of \( jij \) ‘you’, the non-formal second person singular, more or less comparable with \( du \) in German, and \( tu \) in French. The reason for doing so was that the data at hand revealed that \( jij \) could not be bracketed together with the other pronouns with respect to [ɛt], as \( jij \) occurred almost exclusively, and considerably more often with standard [ɛt] than \( hij \), \( wij \) and \( zij \).
ad (iii):

Those words were regarded as non-frequent words which had a frequency of 8 or less in Uit den Boogaart’s (1975) list. The choice of 8 as the breaking-point was made on purely arbitrary grounds. Gut-feeling told us that words with a frequency of 8 in the corpus on which the list was based, could be interpreted as having a low frequency in Dutch.

After checking which words in the RNDA and the recordings belonged to the class of pronouns, which to the class of frequent, and infrequent words, we determined the amount of Amsterdam variants per grid, per class (pronouns, frequent, and infrequent words) at each point in time. Table 2 shows how many words of each class occurred in the RNDA. It is a matter of course that we cannot state the exact number of occurrences of the three classes of words with West-Germanic ɨ in the recordings, as this number varies for each grid.

Table 2.

<table>
<thead>
<tr>
<th></th>
<th>frequent words (40+)</th>
<th>pronouns</th>
<th>infrequent words (8-)</th>
</tr>
</thead>
<tbody>
<tr>
<td>RNDA</td>
<td>4</td>
<td>31</td>
<td>11</td>
</tr>
</tbody>
</table>

The occurrence of Amsterdam variants per grid, per class at each point in time was counted, and with the help of the ‘formula’ as expressed in Fig. 2, the percentage of Amsterdam variants per grid was computed.

Fig. 2.

\[
\% \text{ of Amsterdam variants in G, P, W} = \frac{\text{number of Amsterdam variants in G, P, and W}}{\text{total number of ɨ}-\text{words in G, P, and W}}
\]

Where G = grid, P = point in time, and W = class of words

Our next step was to examine by comparison of the two points in time per grid per class of words whether or not Amsterdam variants had arisen. In those grids where Amsterdam variants were found, we examined whether this change towards an Amsterdam variant had been the result of a natural or an unnatural change.

The definition of a natural change towards an Amsterdam variant was relatively easy, i.e. [ɛɨt] in the first stage becomes [ɛɪt] in the second stage, or [aɛ] in the first stage becomes [aɨ] in the second.
The unnatural changes, however, were measured by different standards, i.e.

(i) the occurrence of an Amsterdam variant [ɛₜ-] or [ə] at a point in time, while there are no Amsterdam variants at a previous point in time, nor diphthongs [ɛₜ-ə] and [œɛ] which might develop into Amsterdam variants through natural change.

(ii) The existence of Amsterdam variants, while there was at a previous point in time a minimal percentage of diphthongs apt to change naturally into Amsterdam variants, as compared to the percentage of Amsterdam variants at the next point in time.

Since we were well aware of the fact that errors and mistakes can easily crop up when applying the method used for the collection of the data and the calculation of the percentage of Amsterdam variants, we initially only investigated the increase in the percentages of Amsterdam variants between the two points in time, which seemed high enough to warrant the assumption that this increase could not be coincidental. In concreto this means that we only considered increases of 25% or more. With a view to the number of words per class in the RNDA phase, and the often even much higher number of words in the recording phase, this implied that we only considered those changes towards Amsterdam variants that had adopted at least six more words of a particular class in the Amsterdam variant than in the first phase, as such a difference could no longer be regarded as a coincidence.

4. Results

A comparison of maps 2, 3, and 4 will show that all three display a different pattern. It is possible to set up a kind of implicational scale: all dialects with pronominal variants changing to Amsterdam [ə] or [ɛₜ] have changed throughout their lexicons; all frequent and infrequent words have an Amsterdam variant, too. All dialects with infrequent words changing to the Amsterdam variants have Amsterdam variants in their frequent words, too (see pp. 45-7).

The only exception to this pattern is grid 3. This grid was all the more interesting to us as a counterexample to a number of general claims. However, it can be proved with the help of the questionnaire of the Dutch Geographic Society (cf. note 2), that the non-pronominal words had changed towards the Amsterdam variants at an earlier point in time.
Increase of Amsterdam variants for 25 persons or more.

● = natural change.
■ = unnatural change.
Therefore this grid was a precocious one, and in the period under regard in this paper, it appears to have taken the final step towards the Amsterdam [a.] and [ɛ ɛɛ] throughout the lexicon by changing its pronouns towards the Amsterdam variants.

5. Discussion

In this section we will discuss the data presented on the maps. The first section, 5.1, will deal with the possible alternative explanations of the patterns shown by the maps.

5.1. The possible alternative explanations of the patterns shown on the maps.

There may be several alternative explanations of the differences in the geographical diffusion of Amsterdam variants in pronouns, frequent, and infrequent words. The only two differences we were more or less able to check were (i) phonetic environment, and (ii) accentuation.

ad (i):

From a theoretical point of view, the role of phonetic conditioning by a preceding or a following segment is rather opaque, at least for the process of monophthongization. The following hierarchy has been proposed of phonetic environments with a positive influence on the development of Modern Dutch rising diphthongs originating from high tensed vowels:

\[ \text{before a word boundary} > \text{before an alveolar consonant} > \text{before a velar or labial consonant (Leenen 1930, Hoppenbrouwers 1971):} \]

It may be possible to assume the same hierarchy of conditioning factors for monophthongization, albeit the other way around. The only possible way to test this hypothesis was through \( \text{iij} \)-words in the RNDA because of the homogeneous character of the lexical items in all grids. The RNDA material was divided into three groups:

(i) words with \( \text{iij} \) immediately followed by a word boundary;
(ii) words with \( \text{iij} \) before alveolar consonants;
(iii) words with \( \text{iij} \) before all non-alveolar consonants.

We subsequently counted the identical phonetic variants of each of these
classes in all grids. The differences between the numbers of identical variants did not reach a significant level when tested with a $X^2$ test.

In the phase of the dialect recordings, the problems were more serious because among the most frequent non-pronominal words in the recordings those with an unfavorable position for diphthongization, i.e. *krijgen* ‘to get’, *blijven* ‘to stay’, *kijken* ‘to look’, and *vijf* ‘five’, outnumbered the words with a favorable position for diphthongization, i.e. *tijd* ‘time’, and *altijd* ‘always’. In other words, the lexical items with a possibly favorable condition on monophthongization are the majority in the class of frequent words in this phase.

An attempt was made to trace the dialects where the evidence for the existence of Amsterdam variants in the class of frequent words was based on the words with *ij* before a labial or velar consonant, i.e. a favorable position for monophthongization. In these dialects extra attention was paid to the class of infrequent words in order to find infrequent words with *ij* in the same favorable position. The intention behind this was to get a well-balanced idea of what was going on in those dialects. However, no cases were found that would oblige one to assume phonetic conditioning as the exclusive explanation. The one exception might be grid nr. 7 which shows a rule deleting the glide element for all consonants. It appears, then, that Schuchardt (1885: 57) was right in warning against the over-estimation of phonetic conditioning.

*Ad (ii):*

The fact that rising diphthongs originate from tensed vowels is closely related to the process of accentuation. Schmitt (1931) gives a fairly accurate account of the stimulating effect of, predominantly, pitch on diphthongization. Note, however, that the subject of this paper is not diphthongization, but a special kind of monophthongization. As far as we know, the relation of this process to accentuation is not as firmly established as in the case of diphthongization. We were not able to incorporate pitch as a possible conditioning factor in our investigation because of the scant information about this factor contained in the source of the first phase of our investigation, the RNDA. The obvious conclusion is that this conditioning factor, which positively plays a role of some kind in related processes, should be explored in a separate investigation.

The conclusion to be drawn from this section is that the existence of conditioning factors of lexical diffusion is dubious at best, or remains to be demonstrated.
5.2. Discussion of the hypotheses.

Some of the hypotheses set up in section 2 can be refuted by a single glance at the maps. Hypothesis IV is false: pronouns are reluctant to shift to the Amsterdam variant, thereby confirming Hypothesis V. Perhaps the fact that most personal pronouns are rarely stressed has influenced the cases of strengthening by monophthongization discussed in this paper. In order to find out whether or not pronominal forms are conservative in general (particularly in non-reductive processes), it is necessary to investigate the situation in other dialects, for example dialects where the process of diphthongization has just started.

Hypothesis II is false: grids 5 and 10 show a low value for influence (cf. map I), and change naturally towards the Amsterdam variants, so one may assume a real natural change. However, only the diphthongs in frequent words have changed. There are no grids with a low value for influence in which only non-frequent words have changed. In other words, Hypothesis III appears to be correct. So Hooper’s (1976: 98) guess that ‘all sound changes, even those that we do not consider to be reductive, take place first in frequent words’ is confirmed.

A consequence of the superiority of Hypothesis III over Hypothesis II is that the sociolinguistic way of reasoning (which led us to Hypothesis III) is superior to the purely phonetic argument that led is to Hypothesis II.

The most obvious hypothesis, I, is supported by the most dubious facts, which is regrettable, but cannot be helped. The reason for this is that there were very few (only three) grids with unnatural changes, and one of these, nr. 3, has Amsterdam variants throughout the lexicon.

Grid 7 is a clear case of a dialect with attested Amsterdam influence in frequent words only. In grid 2 the situation is rather more complex: non-frequent words show the rise of Amsterdam variants through natural change, but the diphthong in frequent words is replaced by the Amsterdam variant by means of an unnatural change! Therefore these changes do not seem to contradict Hypothesis I because the changes in this dialect prove that the Amsterdam influence is more powerful in frequent words. A dialect showing the opposite situation (i.e. natural changes in frequent words and unnatural changes in infrequent words) would have been a true refutation of Hypothesis I, but no such dialect was found. Another case that might have been regarded as evidence against Hypothesis I, i.e. dialect variants in frequent words, and Amsterdam variants brought about by unnatural change in infrequent words, was not found either. Thus, Hypothesis I has stood its ground.

Finally, Map 5 is worth looking at, as it depicts all changes towards the Amsterdam variants which failed to reach the level of 25% or more.
Increase of Amsterdam variants for 25 persons or less.

- ○ = high frequency.
- * = only in some forms of 'krijgen' 'to get'.
- ▲ = pronouns.
- ▲ = low frequency.
- ★★ = in all forms of 'krijgen' 'to get'.

Legend:

- ○ = high frequency.
- * = only in some forms of 'krijgen' 'to get'.
- ▲ = pronouns.
- ▲ = low frequency.
- ★★ = in all forms of 'krijgen' 'to get'.
One comes across a great number of these ‘sporadic’ changes in frequent words. A comparison of the results for the other two categories, pronominal forms and the non-frequent words with the same pattern as in Map 2 will reveal that in many grids a change of less than 25% in pronominal forms and infrequent words is complemented by a change of more than 25% in the category of frequent words, that is, in grids 2, 5, 7, and 8. Therefore it is reasonable to claim that Map 5 provides further evidence for the vanguard character of frequent words in all kinds of changes (see p. 51).

The most interesting grids on Map 5 are the ones marked *. These grids only show an Amsterdam variant in one or more forms of the paradigm of the frequent verb krijgen ‘to get’. Apparently the situation is as follows. Whenever a grid showed Amsterdam variants and a form of the krijgen paradigm was used in the speech of the dialect speakers, the krijgen form assumed the Amsterdam variant (with the exception of grid 12). This fact seems to be linked with another feature of the verb krijgen: according to the frequency list of words in spoken Dutch (Uit den Boogaart 1975), krijgen is the most frequent non-pronominal form in spoken Dutch. It has a frequency of 148, whereas other non-pronominal words with frequencies of more than 40 have a far lower frequency, cf. tijd ‘time’ (56), vijf ‘five’ (99).

The example of krijgen seems to be a clear indication of the role of word frequency in lexical diffusion. The following general statement seems to be proved by our data:

The more frequent a non-pronominal form, the higher the rate of change, regardless of the kind of linguistic change.

Amsterdam, April 1978.

Notes

1 In pronouns and other words that often bear no stress, we heard variants of [o] and [e] which can only be explained as reductions, for example [%] hiji ‘he’ [ei] bij ‘with’. These monophthongs are short and lax, and never occur if the lexical items are stressed. Evidence for the relation between the two kinds monophthongization on the one hand, and stress on the other in a North-Hollandic dialect, can be found in Jansen (1975).

2 The investigation discussed in Gerritsen and Jansen (in press) was based on three particular points in time, since the data from the questionnaire of the Dutch Geographic Society (1879, 1895) were taken into consideration, too. However,
it was not possible to incorporate these data in this investigation because of the scarcity of frequent words and pronouns.

3 In Gerritsen and Jansen (forthcoming), the pronoun *jij* will be dealt with in more detail.

4 The following positions were left out of consideration:

(i) the position before a vowel, where a homorganic glide element is inserted between the two vowels anyway;

(ii) the position before [r], where no diphthong occurs in any North-Holland dialect at all.

5 The preposition *bij* ‘with’ was excluded from this investigation because of the high number of reduction monophthongs. (cf. note 1).

References


and F. Jansen (in prep.) Pragmatic Conditioning of Phonological Change: The Case of North-Hollandsk Address Form *jij*.


