Chapter 5: Methodology

5.1. Introduction

This chapter discusses the methodological issues that play a role in the present study. We start with a description of how the feature- and speaker-related factors that were discussed in the previous chapter were implemented (section 5.2). Next, we discuss the selection of the informants, the questionnaire and different aspects of the recordings (section 5.3). Finally, we deal with the processing of the data (section 5.4).

5.2. Implementation of the feature- and speaker-related factors

In the previous chapter, we discussed several feature- and speaker-related factors of which we hypothesize that they affect the degree of success in second dialect acquisition. With respect to these factors, we proposed different hypotheses and supported these hypotheses with findings from the literature. We did not yet discuss, however, how these different factors were implemented in the present study. In this section, we turn to this issue. Section 5.2.1 is devoted to the implementation of the feature-related factors. The implementation of the speaker-related factors is discussed in section 5.2.2.

5.2.1. Implementation of the feature-related factors

In the previous chapter we hypothesized that the degree of predictability of a dialect feature affects its degree of learnability, in the sense that features that are relatively more predictable are relatively better acquired by second-dialect learners. We have argued that the degree of predictability of a feature (i.e. the degree to which the L2 form can be predicted if one knows the L1 form) depends on the following factors: (1) the number of competing (dialect/Standard Dutch) variants, (2) the incidence or type frequency of the dialect feature, (3) whether the feature is restricted to a conditioning environment, (4) the (un)productivity of the feature, and (5) its average token frequency. We assume that the degree of predictability of dialect features is determined by a combination of these factors, rather than by the effect of one single factor. It can be expected that a child who just starts learning the Maldegem dialect fails to notice the interdependence among these different factors. It is only later that the child learns, for example, that the number of possible dialect variants of a Standard Dutch segment is limited by environmental restrictions (i.e. interaction between 'conditioning environment' and 'competing variants').

At the same time, we want to explore whether one of these factors outweighs the others in terms of the impact on the learnability of dialect features. This is why we have not implemented predictability by developing a measure that discounts the joint effect of the five individual sub-factors. Instead, we have implemented each of these sub-factors separately. The statistical analyses used in the present research project allow us to compute the effects of the individual sub-factors, as well as their relative weights and the effect of the interaction of these factors.

In what follows, we describe how we have implemented the five factors mentioned above (i.e. those which together determine the degree of predictability of dialect features): number of competing variants (section 5.2.1.1), incidence (section 5.2.1.2), conditioning environment (section 5.2.1.3), frequency of usage (section 5.2.1.4), and productivity (section 5.2.1.5). Finally, we also discuss the implementation of the factor ‘geographical distribution’, which is not directly involved in the degree of predictability of dialect features (section 5.2.1.6).

5.2.1.1. Competing variants

In section 4.2.2, we argued that the degree of predictability of a dialect feature partly depends on the number of competing dialect variants that correspond to the relevant Standard Dutch segment. For each dialect feature involved, we verified how many different dialect variants may correspond to one and the same Standard Dutch segment (see chapter 6, section 6.4). We did not discount the factor ‘conditioning environment’ (see section 5.2.1.3) in the implementation of this factor, since we wanted to find out which of the two sub-factors contributed most to the degree of learnability of features. Besides, the effect of the interaction of both factors can be computed later on.

Let us illustrate the implementation of the factor ‘competing variants’ with the example of the /ɛi/-paradigm, which is now familiar. The Standard Dutch segment /ɛi/ may correspond to any of six different variants in the Maldegem dialect:

(1) SD /ɛi/ ~ DIA /ø/, restricted to positions before an anterior consonant (e.g. *wijn* ‘wine’ DIA [wøn])[1]

(2) SD /ɛi/ ~ DIA /e/, restricted to positions before a laryngeal or velar consonant (e.g. *zwijgen* ‘to be silent’ DIA [zwehə̩̃])

(3) SD /ɛi/ ~ DIA /iə/ (e.g. *klein* ‘small’ DIA [kliənə])

(4) SD /ɛi/ ~ DIA /æ̞i/ (e.g. *kei* ‘boulder’ DIA [kæ̞i])

(5) SD /ɛi/ ~ DIA /ɛ̝i/, in the coda or before an underlying /d/ (e.g. *blij* ‘happy’ DIA [blɛ̝i(j)ə])

[1] This conditioning environment does not exclude the possibility that another dialect variant, corresponding to SD /ɛi/, occurs before an anterior consonant. This is illustrated in (3) and (5).

(6) SD /ɛi/ ~ DIA /i/, only in the lexical exceptions *bij* 'bee' DIA [bi] and *tijger* 'tiger' DIA[tihər]

One could say that SD /ɛi/ has a one-to-six relation with each of these dialect variants. Whereas a one-to-one relation will contribute to a high degree of predictability, a one-to-six relation will entail a low degree of predictability. In the present study, there are no features involving more than six competing variants. For a child acquiring the Maldegem dialect as a second language, it is relatively difficult to predict what dialect variant will match SD /ɛi/ in a given word, because of this large number of competing dialect variants.

If we discounted the factor 'conditioning environment' in our calculation of the number of competing variants, the results would be different. We would, for example, have to conclude that SD /ɛi/ 'in positions before an anterior consonant' might correspond to one of four (instead of six) different dialect variants: the dialect variant in (2) (i.e. DIA /e/) and the one in (6) (i.e. DIA /i/) would then be dismissed, because they do not involve a position before an anterior consonant.

One of the reasons to consider the six dialect variants corresponding to Standard Dutch /ɛi/ as six *competing* variants, independent of the relevant conditioning environment, is that overgeneralizations within the /ɛi/-paradigm are also independent of conditioning environments, i.e. they are not restricted to words that occur in the same phonological environments. For instance, overgeneralization of SD /ɛi/ ~ DIA /ø/ may occur at the expense of the feature SD /ɛi/ ~ DIA /e/, despite the fact that the former can only occur before anterior consonants and the latter can only occur before velar/laryngeal consonants (see also chapter 7, table 7.30).

Furthermore, in spite of our assumption about the interaction of the factors 'competing variants' and 'conditioning environment', we want to be able to distinguish between the relative impact of each of these factors, for we believe that a child who has just started learning the target dialect as a second language has very little or no understanding of the relationship between a certain dialect variant and its conditioning environment. As a result, the child may assume that SD /ɛi/ can be associated with all six dialect variants that are sometimes related to it, whatever the context. As dialect acquisition proceeds, further fine-tuning will probably take place. This fine-tuning occurs, for example, when the child learns that SD /ɛi/ in positions before [k], [ʔ] or [h] (i.e. before a velar or laryngeal consonant) cannot correspond to every dialect variant; that is, it cannot correspond to the variants in (1) and (5).

Next to the number of competing dialect variants that correspond to one Standard Dutch (L1) segment, we have also examined how many Standard Dutch variants a particular dialect segment corresponds to (resulting in the independent variable 'number of competing Standard Dutch variants). Put differently, we inverted the correspondences of the form 'SD x ~ DIA y' into correspondences of the form 'DIA y ~ SD x'. Examples are given in chapter 6 (section 6.4).

In section 4.2.2, we already argued that even if a dialect variant belongs to a set of several competing variants (i.e. if there is no one-to-one relationship between the L1 element and its L2 equivalent), the relevant dialect variant may not be completely unpredictable. The acquisition of the Maldegem dialect feature SD /ɛi/ ~ DIA /ø/, for example, might be impeded by the fact that there are six different dialect variants which may all correspond to SD /ɛi/. There is, however, another factor (among others) that may improve the learnability of this dialect feature, namely its incidence or type frequency. The incidence of the correspondence SD /ɛi/ ~ DIA /ø/ (= 51) is much higher than the incidence of each of the competing correspondences (see also section 6.4.5). Hence, when confronted with SD /ɛi/, the odds are that the dialect learning child produces the correct dialect form when 'choosing' the dialect variant /ø/. How we implemented the factor 'incidence' is discussed in the next section.

5.2.1.2. Incidence or type frequency

The incidence or type frequency of a dialect feature can also be called its 'lexical distribution' or 'functional load' (see section 4.2.3). In other words, type frequency refers to the lexical frequency of a particular pattern (e.g. the type frequency of the correspondence SD /ɛi/ ~ DIA /e/). Thus, the type frequency or incidence of a dialect feature can be determined by counting all the words used in the relevant dialect to which the feature applies. Thus, in order to implement the factor 'incidence', we have to 'count' all the morphemes in the lexicon of the target dialect (i.e. the Maldegem dialect) to which a particular SD~DIA-correspondence can apply. There is, however, no dictionary of the Maldegem dialect. Therefore, we cannot rely on an existing dialect lexicon to determine the incidence of the dialect features involved in our study.

An alternative is to start from existing word lists which contain Standard Dutch words, such as the frequency lists of Uit den Boogaart (1975) or the *Streeflijst woordenschat voor 6-jarigen* 'Target Vocabulary List for Six-year-olds' (Schaerlaekens et al. 1999). The frequency list of Uit den Boogaart (1975), however, is problematic in a number of respects: it is rather dated (i.e. it does not contain 'new' words) and it is mainly based on written language use. The Target Vocabulary List is not unproblematic either, since it only contains words which 90% of a jury of teachers considered necessary to be known to six-year-old children. This implies that a number of words which older children (our informants are nine years and older) are familiar with, are not included in this list. Besides, the Target Vocabulary List draws on spoken interaction of children within a school context, which means that the language variety used in this interaction is most likely Standard Dutch instead of a dialectal variety. As a result, words that are more frequently used in a dialect context may be missing in the Target Vocabulary List.

Despite these drawbacks, we decided to use the *Unaniemenlijst voor België* 'Unanimity List for Belgium', which is part of the Target Vocabulary List, in order to find out the incidence of the dialect features involved in the present study. This is a separate list for Belgium (Flanders), which differs in some respects from that for the Netherlands. The target vocabulary list for Belgium is composed on the basis of, among other things, samples of spontaneous spoken interaction among children between 4;1 and 5;10 years of age. The Unanimity List for Belgium contains 1903 words which are expected to be known to six-year-old Dutch-speaking children in Belgium. As we pointed out above, this list is based on non-dialectal spoken interaction. In order to solve this problem, we selected only the words which could be used in a Maldegem dialect context. This procedure resulted in a list of 1810 words. The incidence of each Maldegem dialect feature was then measured by counting all the words (from this selection of 1810 words) to which the relevant feature applies. The Unanimity List contains only lemmas, such as *kijken* 'to look', but no lexemes, such as *kijk* 'look' or *kijkt* 'looks'. We did not just count the free morphemes (e.g. *rijk* 'rich'), to which a particular dialect feature applied, but also complex words, such as compounds (e.g. *verre-kijker* 'binoculars') and derivations (e.g. *be-kijken* 'to look at'), in spite of the fact that we did not include compounds or derivations in our word list. The reason is that incidence concerns the frequency of a particular pattern in the lexicon, for example, the frequency of the correspondence SD /ɛi/ ~ DIA /e/, and this correspondence is not restricted to free morphemes only. If more compounds and derivations of a word are included in the list, the incidence of the feature that applies to this word will be higher. The results of our calculation of incidence on the basis of the Unanimity List can be found in appendix 1.

As appendix 1 shows, there are no data on the incidence of the three postlexical features involved in our study (i.e. *l*-deletion, *n*-deletion and laryngealization of *k*; see chapter 6, sections 6.4.1-6.4.3). There are two main reasons for this. First, these features are still productive in the Maldegem dialect (see section 4.2.6). Put differently, they apply to words that are newly introduced in the Maldegem dialect, such as loanwords (see section 5.2.1.5). The odds are that future loanwords that meet the structural specifications of one of these postlexical features will be subject to these features as well. Thus, the postlexical features under consideration do not only relate to the existing Maldegem dialect lexicon, but also to the dialect lexicon of the future, as opposed to the lexical, unproductive features in our project. As a consequence, it is impossible to make an exhaustive inventory of 'all' the words to which these postlexical features apply.

A second aspect that makes it impracticable to count all the words to which the relevant postlexical features can apply is their property of applicability across word boundaries. This property bears on the decision whether a specific word should be included in the calculation of the incidence of a particular feature. Consider the example of the laryngealization of /k/ to a glottal stop (see section 6.4.3 for a description of this feature). If we encountered a word like *bak* 'bin' (in the Unanimity List), we would decide that this word does not belong to the set of words to which laryngealization applies, for the word is pronounced as [bɑk] (not *[bɑʔə]) in the Maldegem dialect (vs. *dik* 'thick': DIA [dɛ̞ʔə]).[2] In the phrase *een bak appels* 'a bin of apples', however, laryngealization does apply, since /k/ becomes intervocalic: [ˈnəmˈbɑʔˈɑpəls]. This implies that the word *bak* shows the feature of laryngealization when it occurs in a specific environment. Therefore, it would be untruthful to exclude the word *bak* from the set of words that exhibit laryngealization. Because of this applicability across word boundaries, we would be forced to consider, for each individual word ending in *–k*, whether there is a context in which it can undergo laryngealization. Since this is rather unfeasible, we decided not to calculate the incidence of the postlexical features involved.[3]

Another method of calculating the incidence of dialect features is to count 'all' the words of a dialect that display the same dialect feature (without consulting an existing dialect lexicon). This is a difficult task, but it becomes somewhat more feasible if one does not take into account derivations and compounds. In this way, word lists were created by a native speaker of the Maldegem dialect (viz. Johan Taeldeman). Taeldeman made a systematic effort to provide representative lists of the (free) words that show a particular dialect feature in the Maldegem dialect (see appendix 2). In order to secure this procedure from subjective elements, Taeldeman proceeded in a very systematic manner: he combined all possible onsets (i.e. empty onset, onset consisting of one (C), two (CC) or three (CCC) consonants) with all possible codas (i.e. empty coda, coda consisting of one (C), two (CC), three (CCC) or four (CCCC) consonants) of the Maldegem dialect. Next, Taeldeman filled in these skeletal structures with all possible vowels, and decided whether the form that was created was an existing word in the Maldegem dialect. The total number of words per dialect feature is an indicator of its incidence or type frequency. In this method, words that do not occur in Standard Dutch (i.e. typical dialect words) are taken into account as well. Proceeding in this way, Taeldeman created a list of words for each phonological feature of the Maldegem dialect entered in the present study, except for the postlexical features.

[2] Laryngealization also applies to the word *dik* 'thick' when used predicatively, as in *een dikke vrouw* [ənˈdɛ̞ʔəvrɑuwə] 'a fat woman' or *een dikke vent* [nənˈdɛ̞ʔə̩̃vɛ̞nt] 'a fat guy'.

[3] The absence of a measure of incidence in the case of the postlexical features was masked by entering 'missing values' in our database.

Let us illustrate the implementation of the factor incidence based on the lists created by Taeldeman with an example:

> The correspondence 'SD /ɛi/ ~ DIA /e/', which is restricted to positions before a velar or laryngeal consonant, applies to the following words, according to Taeldeman's list:

dijk 'dike'	Maldegem DIA [dek]
gelijk 'right'	Maldegem DIA [həlek]
kijken 'to watch'	Maldegem DIA [keʔə̩̃]
lijk 'corpse'	Maldegem DIA [lek]
pijken(s) 'clubs', in card game	Maldegem DIA [peʔə̃s]
rijk 'rich'	Maldegem DIA [reʔə]
wijk 'district'	Maldegem DIA [wek]
strijken 'to iron'	Maldegem DIA [streʔə̩̃]
slijk 'mud'	Maldegem DIA [slek]
zwijgen 'to be silent'	Maldegem DIA [zwehə̩̃]
vijg 'fig'	Maldegem DIA [fehə]
krijgen 'to receive'	Maldegem DIA [krehə̩̃]

The number of the words above (= 12) is an indicator of the incidence or type frequency of the correspondence SD /ɛi/ ~ DIA /e/ in the lexicon of the Maldegem dialect. A comparison with the results in the Unanimity List (incidence = 9) (see appendix 1) reveals that whereas Taeldeman finds more free words (e.g. *slijk* 'mud', *wijk* 'district, *vijg* 'fig', etc.) exhibiting the correspondence SD /ɛi/ ~ DIA /e/, the Unanimity List compensates for this hiatus by including compounds and derivations (e.g. *rond-kijken*, *be-kijken*, *strijk-ijzer*, *strijk-plank*). Therefore, the results of the two methods do not deviate very much. Actually, a correlation analysis reveals that there is a significant, very strong correlation between the incidence of the (lexical) dialect features according to the Unanimity List and the incidence of the features according to Taeldeman's List ($r = .987$; $p < .01$).[4]

Because it is our aim to find out which operationalization of incidence most strongly predicts the degree of success in second dialect acquisition, we decided to use the results of both methods (i.e. Taeldeman's list and the Unanimity List) in our analyses. Put differently, we will introduce 'incidence Taeldeman's List (short: TL)' and 'incidence Unanimity List (short: UL)' as two separate independent variables in our statistical analyses. On the basis of the results, we will decide which of both methods provides the strongest predictor of the degree of learnability of features or the degree of success in second dialect acquisition.

[4] A Pearson correlation coefficient of 1 indicates complete overlap of two variables. So, as r approaches 1, the correlation between two variables is stronger.

5.2.1.3. Conditioning environment

In section 4.2.4, we argued that some dialect variants within a (large) paradigm (i.e. a set of competing dialect variants) are more predictable than other variants from the same paradigm. One of the things which can make (the use of) dialect variants more predictable is a high incidence (cf. above); another factor which may help in predicting the L2 form is if the relevant dialect variant/feature is restricted to a conditioning environment.[5] The conditioning environment of a dialect feature is the only possible environment in which the feature can occur. For example, within the /ɛi/-paradigm described in section 5.2.1.1, the features in (1), (2) and (5) are restricted to a conditioning environment: 'before anterior consonants', 'before velar/laryngeal consonants', and 'in the coda or before an underlying /d/', respectively. On the other hand, the features in (3), (4) and (6) are not conditioned by environmental factors; instead, they are purely lexically determined.

Another example of a feature of the Maldegem dialect which is environmentally conditioned is the postlexical rule of *n*-deletion accompanied by compensatory lengthening and nasalization of the preceding vowel (e.g. *spons* 'sponge' [spõːsə]). This rule applies to each word in which a vowel precedes an /n/ followed by an alveolar fricative (/s/ or /z/). Thus, the environment conditioning this rule can be represented as follows:

$$\Big/\ \mathrm{V\ n}\ \begin{Bmatrix} \mathrm{s} \\ \mathrm{z} \end{Bmatrix}\ \Big/$$

All the target dialect features involved in the present study were checked for being restricted to a conditioning environment. The results are given in chapter 6 (section 6.4). It is important to note that if an environment is a *conditioning* environment for a particular dialect feature (e.g. 'before velar' for the feature SD /ɛi/ ~ DIA /e/), this does not exclude the possibility that it is also a *possible* (but not a conditioning) environment for another feature (e.g. for the feature SD /ɛi/ ~ DIA /iə/ in the word *eikel* 'acorn').

5.2.1.4. Frequency of usage or token frequency

In section 4.2.5, we proposed a twofold hypothesis: (1) we argued that frequently used words stand a better chance of being realized with the correct dialect variant than infrequently used words, and (2) we proposed that dialect features which, on average, mainly occur in frequently used words are acquired better than features which chiefly occur in infrequently

[5] As mentioned before, productivity and average token frequency are the other factors which can contribute to the predictability of a dialect feature.

used words. With respect to the first part of the hypothesis, we expect a positive effect of the token frequency of individual words on the degree to which these words are realized correctly. For the second part of the hypothesis, we expect a positive effect of the average token frequency per feature on the degree to which the relevant feature is acquired. Below, we first deal with the implementation of the token frequency on the level of the word, and then we discuss how we implemented the average token frequency per dialect feature.

Token frequency refers to the total number of times that a particular word occurs in language use. A good indicator of the token frequency of a word in actual language use is the number of times that this word occurs in a corpus of language use. Since several frequency lists for Dutch (e.g. CGN; De Jong 1979) are available, the factor 'token frequency' can easily be implemented in the present study.[6] Because spoken language is very dynamic and almost constantly changing, it seems plausible that word frequencies are variable as well. Therefore, it is important to use a frequency list that is as recent as possible. A very recent frequency list is the Corpus of Spoken Dutch (CGN) (2004), which consists of about seven million words of spoken interaction among adults from Flanders and the Netherlands. Therefore, we have chosen this source of frequency data to measure the frequency of usage of the 167 words which were elicited from our informants (see section 5.3.3.2 for a discussion of our word list). There are, however, two drawbacks to using the Spoken Dutch Corpus. First, the corpus is not based on interaction among children. Ideally, we would want to know the frequencies of words in children's and adolescents' language use. There are, however, no frequency lists for Dutch which contain data on spoken interaction among children or adolescents, while the Target Vocabulary List (Schaerlaekens et al. 1999), which is based on spoken interaction among children, does not provide frequency data either. Second, the CGN is not primarily based on interaction among dialect speaking individuals.[7] This implies that the frequency data chiefly refer to the frequency of words in spoken Standard Dutch. There are, however, no sources of frequency data which are based on spoken dialect interaction. Such sources would be useful, because it is plausible that certain words are more frequently used in a dialect context than in a Standard Dutch (or substandard) context or vice versa.

In spite of these drawbacks, the CGN appeared to be the best corpus for determining the frequency of usage of the words from our word list. Since in our fieldwork recordings, we did not ask for any dialect words (i.e. words which lexically contrast with Standard Dutch), the small number of dialect words in the Spoken Dutch Corpus was not relevant.[8] In order to

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[6] CGN = Corpus Gesproken Nederlands 'Corpus of Spoken Dutch': http://lands.let.kun.nl/cgn/home.htm and http://www.tst.inl.nl/

[7] The limited number of dialect words occurring in the Spoken Dutch Corpus are annotated with (*d).

[8] 'Dialect words' here refer to words which are lexically (and not only phonologically) different from Standard Dutch. There were two reasons why we did not ask for dialect words in our word list. First of all, it appeared from a pilot study, in which we did ask for typical dialect words, that the informants did not know (or did not come up with) the majority of these dialect words (e.g. DIA *krabbekeuning* = SD *dadel* 'date (fruit)'; DIA *redekiel* = SD *boodschappentas* 'shopping bag', etc.). Second, all the words in our word list involve a phonological contrast between Standard Dutch and the Maldegem dialect. If we had included dialect words,

obtain frequency data which most closely approach the frequencies of words in Maldegem dialect use, we used the function for selecting parts of the Spoken Dutch Corpus. More specifically, we selected the material of the West- and East-Flemish informants, since the Maldegem dialect is a transitional dialect between West- and East-Flemish dialects (see chapter 6). In the selected corpus material, we searched on *lemma*. Proceeding in this way, we obtained the token frequency of each of the 167 words from our word list. The results are given in appendix 3. These data can be used to test the first part of our hypothesis.

For the implementation of the average token frequency per feature (cf. the second part of the hypothesis), we proceeded as follows. We calculated the token frequency of each word that was involved in the implementation of the factor incidence (on the basis of the Unanimity List).[9] For this purpose, we also relied on the Spoken Dutch Corpus. Subsequently, we counted up the individual token frequencies of all the words that contributed to the incidence of a particular feature, and calculated the average. By calculating the average, we prevented a strong (positive) correlation between the factors incidence and token frequency per feature. There is a significant, positive correlation between these variables, though ($r = .280$; $p < .01$). However, this correlation is not as strong so as to cause any difficulties in our analyses.[10]

Let us illustrate our implementation of the factor average token frequency with the following example. On the basis of the Unanimity List, we can conclude that the feature SD /ɔu/ ~ DIA /ɑi/ has an incidence of 5, i.e. the feature can be applied to 5 words in the list (see (1)). The sum of the individual token frequencies of each of these 5 words equals 101. So, the average token frequency is 20.

		Token frequency (CGN)
(1)	hout ‘wood’	37
	kous ‘sock’	13
	saus ‘sauce’	24
	stout ‘naughty’	17
	zout ‘salt’	10

The data on the average token frequency per feature can be found in appendix 1. Note that there are no data for the postlexical features, since these features do not have any data on incidence. As we have argued before (see section 4.2.1), average token frequency is one of the factors which can contribute to the degree of predictability of dialect features, in the sense that features with a high average token frequency are more predictable than features with a low(er)

however, we would also introduce lexical contrasts between Standard Dutch and the Maldegem dialect. This would have complicated our data unnecessarily.

[9] Because the frequency data obtained on the basis of the Unanimity List and the ones obtained from Taeldeman’s List are strongly correlated (cf. above), we confined ourselves to calculating the average token frequency per feature on the basis of the Unanimity List.

[10] As we will argue in chapter 7, strong correlations (i.e. when *r* approximates 1) between independent variables can lead to a bias in the results.

average frequency. In the next section, the fifth factor which can contribute to the predictability of features, viz. productivity, is discussed.

5.2.1.5. Productivity (cf. lexical vs. postlexical status)

In section 4.2.6, we have pointed out that all postlexical dialect features involved in the present study are fully productive features. We therefore decided to implement the factor ‘lexical vs. postlexical’ on the basis of the characteristic of productivity. Our hypothesis was that productive dialect features (in our case: postlexical features) are acquired better than unproductive ones (in our case: all lexical features). As pointed out before, a dialect feature is productive when it can be applied to new forms, such as recently introduced loanwords or brand names. Therefore, for each dialect feature we checked whether there are any loanwords or other new forms which display the relevant feature. As mentioned before, it appears that the only productive dialect features in this study are all postlexical rules, in that they are automatic, exceptionless rules, which can apply across word boundaries, are not structure-preserving, and cannot be applied cyclically. On the basis of the intuitions of two native speakers of the Maldegem dialect (viz. K. Rys and J. Taeldeman), we can conclude that the following dialect features are productive (see also chapter 6, sections 6.4.1-6.4.3):

(a) Deletion of /l/ and compensatory vowel lengthening (resulting in extra-long vowels) before a consonant or a pause, i.e. ‘SD V + /l/ + C or pause ~ DIA Vː + C or pause’:

* in loanwords: e.g. E. *Rock & Roll* [roʔæ̃roː], E. *grill* [hriː], E. *small* (i.e. size of clothes) [smɑː], E. *body-building* [bodibiːdɪŋ], E. *bulldozer* [byːdʜozər], E. *full-time* [fuːtɛ̞m]

* in brand names: e.g. *Opel* ‘Opel’ [opɛ̞ː], *Aldi* ‘Aldi’ [ɑːdi], *Golf* ‘Volkswagen Golf’ [hoːf], *Shell* [ʃæ̝ː], Red Bull [ræ̝dbuː]

* in proper names: e.g. *Michel* [miʃɛ̞ː], *Rachel* [rɑʃɛ̞ː], *Chantal* [ʃɑntɑː], *Ilse* [iːsə], *Elvis Presley* [æ̝ːvisˈpræ̝zli], *de Old Vick* ‘the Old Vick’ (i.e. a local pub) [dənˈoːtfik]

(b) Deletion of /n/ and compensatory lengthening and nasalization of the preceding vowel in positions before an alveolar fricative:

*in loanwords: e.g. E. *dancing* ‘disco’ [dɑ̃ːsɪŋ], E. *jeans* [dʒĩːs] *in brand names: e.g. *La<u>n</u>cia* 'Lancia' [lɑ̃:sijɑ]

*in proper names: e.g. *Li<u>n</u>dsey* [lĩ:si], *Na<u>n</u>cy* [nɑ̃:si]

(c) Laryngealization of intervocalic /k/ (i.e. 'SD /k/ ~ DIA [ʔ]')

* in loanwords: e.g. E. *Roc<u>k</u> & Roll* [roʔæ̃ro:], E. *aerobi<u>c</u>en* 'to do aerobics' [æirobiʔə̩], E. *mountainbi<u>k</u>en* 'to mountainbike'[montəmbæiʔə̩], E. *blac<u>k</u>-out* [blɑʔɑut], E. *stic<u>k</u>er* [stiʔər], E. *picknicken* 'to picknick' [piʔniʔə̩]

* in brand names: e.g. *Sni<u>ck</u>ers* [sniʔərs], *Pi<u>ck</u>les* [piʔəls]

In contrast to these postlexical dialect features, none of the lexical dialect features involved in the present study is productive (in the sense of being applicable to new words) (see section 6.4). We assume that productivity is one of the factors which determines the predictability of dialect features and which should therefore be considered in interaction with the factors discussed so far. However, there can be no significant interactions between productivity on the one hand, and incidence or average frequency on the other, since the productive dialect features involved have no values for indicence or average frequency.

In the next section, we discuss the implementation of a feature-related factor which is not directly involved in the predictability of features, viz. geographical distribution.

5.2.1.6. Geographical distribution

The factor 'geographical distribution' has been described as one of the distinguishing factors in the dichotomy between primary and secondary dialect features (see section 4.2.7). We have suggested that it might be the case that dialect features with a small(er) geographical distribution (so-called primary features) are acquired better than features which are widely distributed (so-called secondary features), because the former may be more salient. In the present study, we have chosen to implement the factor geographical distribution – and not salience – as an independent variable. For the implementation of the factor geographical distribution, we had to define a measure of the geographical spread of each dialect feature involved in the present study. This measure was calculated by looking at maps in the Phonological Atlas of Dutch Dialects (short: FAND).[11] On the basis of those maps, a hypothetical circle with a radius of about 30 kilometres was drawn around Maldegem.

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[11] The Phonological Atlas of Dutch Dialects (FAND) illustrates the geographical distribution of the possible dialect variants of different West Germanic segments (Wgm. short vowels in closed syllable, FAND I; Wgm. short vowels in open syllable, long vowels and diphthongs, FAND II and III; Wgm. consonants, FAND IV) in the Flemish dialects.

Proceeding in this way, we obtained 24 points of measurement within a radius of 30 km around Maldegem.[12] The number of points of measurement in the FAND does not equal the actual number of villages lying within our circle. The boundary of our circle was rather arbitrarily set at 30 kilometres. If we would widen this circle, the number of points of measurement included would increase. This would, however, hardly affect our figures, since there are only two phonological features of the Maldegem dialect which were found in more than 20 points of measurement including Maldegem, viz. the deletion of /r/ before an alveolar fricative in monomorphemic words (e.g. *dorst* 'thirst', *vers* 'fresh'), which occurs in 24 points of measurement, and the dialect feature SD /œy/ ~ DIA /i/ (e.g. *kuiken* 'chick', *ruiken* 'to smell'), which occurs in 21 points of measurement. Only in these cases would widening the circle probably cause an increase in the measure of geographical distribution. The majority of the dialect features (i.e. 21 cases), however, exhibit a geographical distribution which ranges between 1 and 10. Another five dialect features have a distribution ranging between 11 and 20 (see appendix 4).

On the basis of the selected points of measurement, we verified in how many villages a variant identical to the one in Maldegem occurs. The measure of geographical distribution, then, is the total number of observations of a particular dialect feature. In addition, the points of measurement in which this feature occurs must form a more or less continuous area (i.e. not be interrupted by places where the relevant feature does not occur).

In some cases, the FAND provides only one usable map for the calculation of a feature's geographical distribution (see appendix 4), whereas other dialect features are represented by several maps in the FAND. In the latter case, we used the maps that show an unequivocal picture. The maps had to be unequivocal both in the number of points of measurement displaying the Maldegem dialect feature, and in the identity of those points of measurement. For example, maps 68 (*buiten* 'outside'), 69 (*buik* 'belly'), 72 (*bruin* 'brown') and 79 (*uil* 'owl') of the FAND (Part II-III) were employed to calculate the geographical distribution of the Maldegem dialect feature SD /œy/ ~ DIA /ø/, since all of these maps show three identical points of measurement, viz. Maldegem (I154), Kleit (I154a) and Middelburg (I126) (i.e. geographical distribution = 3). When none of the maps used to calculate the distribution of a particular feature displayed an unequivocal picture, we used the average of the different distributions as a measure of geographical spread. For example, the distribution of the dialect feature SD /eː/ ~ DIA /ɛ̞/ was calculated on the basis of map 13 (*geweer* 'rifle') and map 24 (*peer* 'pear') of the FAND (Part II-III). Map 13, however, exhibits the Maldegem dialect

[12] The following points of measurement – which are accompanied by their Kloeke codes (i.e. a geographical code which represents a city, town or village) – fell within the circle: Knokke-Heist (H2), Blankenberge (H3), Brugge (H36), Oostkamp (H69), Torhout (H116), Wingene (H119), Nazareth (O18), Zuidezande (I106), Breskens (I108), Aardenburg (I125), Middelburg (I126), IJzendijke (I128), Watervliet (I133), Moerkerke (I152), **Maldegem (I154)**, Kleit (I154a), Eeklo (I158), Assenede (I161), Sint-Joris-Ten-Distel (I184), Zomergem (I192), Nevele (I233), Evergem (I200), Gent (I241), Lochristi (I203).

variant in 5 points of measurement, whereas map 24 does so in 6 points of measurement. Therefore, we used the average (i.e. 5.5) as the measure of geographical distribution of this feature. The figures for geographical distribution (which range between 1 and 24) per dialect feature involved can be found in appendix 4.

5.2.2. Implementation of the speaker-related factors

Next to a number of hypotheses about the effects of feature-related factors on the degree to which dialect features are acquired (i.e. learnability), we also formulated some hypotheses about the effects of speaker-related factors on the degree of success in second dialect acquisition (see section 4.3). The speaker-related factors that are relevant to our study are the factors ‘attitude/motivation’, ‘age’, ‘gender’, ‘origin of the mother/father’ and ‘home language’. In what follows, we first discuss how the factor ‘attitude/motivation’ was implemented (section 5.2.2.1). Next, we show how the informants were classified according to the factors ‘age’, ‘gender’, ‘origin of the parents’ and ‘home language’ (section 5.2.2.2).

5.2.2.1. Attitude

In the previous chapter, we hypothesized that a child with a positive attitude towards the local dialect (and dialect speakers) and a strong motivation to learn the local dialect will acquire this dialect better than a child with a negative attitude and a weak motivation. For the implementation of these attitudinal factors, we made use of a strongly reduced version of the Attitude and Motivation Test Battery (short: AMTB) of Gardner (1985), as adjusted by Vousten (1995). The AMTB was devised to measure attitudes and motivations of language users. The original version consisted of Likert scales on which the subject had to indicate whether he strongly agreed or strongly disagreed (or something in between) with a particular claim. Vousten (1995) slightly adapted the AMTB of Gardner to his own requirements (see Vousten 1995:38). This resulted in a test battery consisting of the following categories:

A. Integrative orientation
B. Instrumental orientation
C. Interest in the dialect and in the dialect speaking community
D. Motivational intensity
E. Fear to speak the dialect
F. Subjective perception of motivational support by the parents
G. Subjective perception of motivational support by the dialect speaking peer group
H. Attitudes towards the dialect
I. Attitudes towards the standard language

(From Vousten 1995:38; my translation, K.R.)

For each of these categories, Vousten devised a number of questions, asking his subjects to indicate their degree of agreement with 60 statements on a seven point scale. We used a simplified version of Vousten's test battery, in that we strongly reduced the number of statements and did not make use of Likert scales. We selected 15 statements from several categories and asked our subjects to answer to these statements with 'yes' (which was coded as 1) or 'no' (which was coded as 0):[13,14]

1. I think it is important to be able to speak (the local) dialect, because my friends speak it as well. (A) (+)
2. I try to speak as much dialect as possible. (D) (+)
3. My parents encourage me to speak/learn dialect. (F) (+)
4. I think Standard Dutch is ugly. (I) (+)
5. I think it is important to be able to speak (the local) dialect, because then I will be part of the group (at school, at the youth movement). (A) (+)
6. My parents do not want me to speak dialect. (F) (-)[15]
7. I think it is important to be able to speak (the local) dialect, because then people in my environment will better understand me. (B) (+)
8. I am afraid that people will laugh at me if I speak (the local) dialect. (E) (-)
9. I take no trouble to learn (the local) dialect, because everyone understands Standard Dutch. (D) (-)
10. I don't like to speak dialect because I am afraid that it sounds weird. (E) (-)
11. My parents find it unpleasant when I speak (the local) dialect. (F) (-)
12. I think that I am a tough guy/girl if I speak (the local) dialect with my friends. (G) (+)
13. I believe that dialect speakers want me to speak (the local) dialect as well. (G) (+)
14. I think the Maldegem dialect is ugly. (H) (-)
15. I think it is stupid to speak Standard Dutch with friends (…). (+)

Some of the above statements are followed by a (+), indicating that if the subject thinks that the statement is true (=1), this is beneficial to the subject's attitude towards dialect and his/her motivation to acquire it. Other statements are followed by a (-), indicating that if the statement is true (=1), this is disadvantageous to the subject's attitude towards dialect and his/her motivation to acquire it.[16] Therefore, for each positive answer (i.e. 'yes/true') to a statement

[13] At the end of each statement, the category – as indicated by Vousten (1995) – is given between brackets. Some categories are better represented than others. This is because we selected the statements mainly on the basis of what we thought would best fit in with the children's interests, so that cooperation would be stimulated. The division into separate categories is of no further importance to our analyses.
[14] We will explain the meaning of the '+' and '-' signs below.
[15] Although this statement is considered to reflect a negative attitude towards dialect (see Vousten 1995:138), we should be aware of the possibility that children might react against their parents.
[16] Vousten (1995) also indicates the statements which reflect a negative attitude towards dialect with a '-' sign.

indicated with (+), one point is assigned for attitude, but if the answer to such a statement is negative (i.e. 'no/not true'), no points are assigned. On the other hand, one point is given when a subject gives a negative answer to a (-) statement, but no points are given if he/she answers affirmatively to it. Thus, the maximum individual score for attitude/motivation is 15.

5.2.2.2. Classification of the informants according to age, gender, origin of the parents and home language

Apart from the factor 'attitude', three other speaker-related factors were discussed in chapter 4, viz. age, gender and origin of the parents. These three factors were implemented in the present study as follows:

(i) Age: 164 children of three age groups (in the school year 2003-2004) were selected:
- -63 nine-year-olds[17]
- -68 twelve-year-olds
- -33 fifteen-year-olds[18]

(ii) Gender: children of both genders were selected:
- -91 were boys
- -73 were girls

(iii) Origin of the parents: this factor was subdivided in
- -origin of the mother:
  - *94 children with a mother born in Maldegem
  - *70 children with a mother born elsewhere
- -origin of the father:
  - *96 children with a father born in Maldegem
  - *68 children with a father born elsewhere

The 164 informants were classified according to parameters related to the above factors (i.e. age, gender and origin of the mother/father). Next to these factors, however, there is another important parameter for the classification of the informants, viz. the factor '*home language*'. Next to the children who were raised in Standard Dutch (21) or *tussentaal* 'substandard' (107), we also selected a number of children with the same profiles except that they had been

[17] Since the interviews took place in March and April (2003) and children who had their 9th birthday during the calendar year 2003 are in the third year of primary school, the nine-year-olds are actually between 9;3/9;4 and 10;3/10;4. Similarly, the twelve-year-olds are between 12;3/12;4 and 13;3/13;4, and the fifteen-year-olds are between 15;3/15;4 and 16;3/16;4. In the rest of this study we refer to these groups as nine-, twelve-, and fifteen-year-olds.

[18] Although we aimed at more or less equally large age groups, there were far fewer fifteen-year-olds who were willing to participate in the interviews.

raised in the Maldegem dialect (36).[19] These children represent a control group. The 128 + 36 = 164 informants were classified by the different parameters as shown in table 5.1:

Home language	**Age**	**Gender**	**Origin parents**		**Number of informants**
Standard Dutch or substandard	9	Male	Mother Maldegem	Father Maldegem	6
			Mother Maldegem	Father elsewhere	8
			Mother elsewhere	Father Maldegem	7
			Mother elsewhere	Father elsewhere	7
		Female	Mother Maldegem	Father Maldegem	9
			Mother Maldegem	Father elsewhere	9
			Mother elsewhere	Father Maldegem	5
			Mother elsewhere	Father elsewhere	4
	12	Male	Mother Maldegem	Father Maldegem	7
			Mother Maldegem	Father elsewhere	3
			Mother elsewhere	Father Maldegem	11
			Mother elsewhere	Father elsewhere	9
		Female	Mother Maldegem	Father Maldegem	4
			Mother Maldegem	Father elsewhere	6
			Mother elsewhere	Father Maldegem	2
			Mother elsewhere	Father elsewhere	9
	15	Male	Mother Maldegem	Father Maldegem	1
			Mother Maldegem	Father elsewhere	1
			Mother elsewhere	Father Maldegem	3
			Mother elsewhere	Father elsewhere	4
		Female	Mother Maldegem	Father Maldegem	2
			Mother Maldegem	Father elsewhere	2
			Mother elsewhere	Father Maldegem	3
			Mother elsewhere	Father elsewhere	6
Dialect	9	Male	Mother Maldegem	Father Maldegem	5
		Female	Mother Maldegem	Father Maldegem	3
	12	Male	Mother Maldegem	Father Maldegem	13
		Female	Mother Maldegem	Father Maldegem	4
	15	Male	Mother Maldegem	Father Maldegem	6
		Female	Mother Maldegem	Father Maldegem	5

Table 5.1: Categorization of the informants by the parameters 'home language', 'age', 'gender' and 'origin of the mother and father'

[19] There were far more children whose parents indicated speaking a substandard variety (so-called *tussentaal*) than children whose parents claimed to speak 'real' Standard Dutch at home. We discuss this issue in section 5.3.2.

5.3. Informants, questionnaire and recordings

In the previous section, we already discussed four parameters that played a role in the selection of the informants, viz. age, gender, origin of the parents and home language. In this section, we describe which other criteria were taken into account for the selection of the informants (section 5.3.1). Furthermore, we discuss some aspects of the questionnaire (section 5.3.2) and the recordings (section 5.3.3).

5.3.1. Additional criteria for the selection of the informants

Apart from the variables 'age', 'gender', 'origin of the mother', 'origin of the father' and 'home language', which were systematically manipulated (see section 5.2.2.2), the selection of the informants was also based on the following criteria (i.e. fixed variables):

(i) The informants lived in Maldegem, and had lived there for their entire lives.
(ii) The informants were going to school in Maldegem, and had done so for their entire lives.

In order to be able to demonstrate the effect of age on the success of second dialect acquisition, it was required that all children of the same age group had been exposed to the Maldegem dialect for more or less the same period of time. This means that the above criteria must be fulfilled. Whether this was the case, was verified by means of a written questionnaire, which had to be filled in by the parents of the children. This questionnaire is discussed in the next section.

5.3.2. Questionnaire

In the first phase of the research project, a written questionnaire (see appendix 5) was distributed in two different Maldegem schools. This questionnaire was filled in by the parents of the children of the requested age groups (i.e. 9, 12, 15). On the basis of these questionnaires, we selected all the children who met the criteria. The questionnaire asked for personal particulars such as the child's date and place of birth, the origin of the mother and the father, and the time the parents and the child had spent living in Maldegem. Furthermore, both parents had to indicate how they evaluated their own knowledge of the Maldegem dialect. We also asked the parents which language variety they would speak when talking to each other, and which variety they would speak with their children. They could choose from the following possibilities: (a) the Maldegem dialect, (b) Standard Dutch, (c) substandard or *tussentaal*, or (d) another dialect than the Maldegem dialect. The children whose parents marked possibility (d) were not selected for participation in the interviews.

On the basis of the written questionnaire, we selected informants with the following profiles (apart from the criteria that were discussed above):

(i) the **control group** of native dialect speakers:

(a) The informants belonging to the control group were – according to their parents – raised in the Maldegem dialect. We had to resort to the parents' evaluation of the linguistic situation at home. It is plausible, however, that some parents misjudged the language variety which they speak in interaction with their children. It might be possible that the dialect which they spoke had already been affected by influences from more standardized varieties. The only way to control for this would be to do recordings of spontaneous interaction between parents and child, for each single child involved in the study. This could not be achieved, however, within the time frame of the present study.

We opted for a 'positive' control group of native dialect speakers. This choice was motivated by the fact that we wanted to check whether native dialect speakers between 9 and 15 years old used the 'authentic' Maldegem dialect features (as described by Taeldeman (1976) and Versieck (1989)) and in this way provided the necessary input for the second dialect learners. It might be expected that these native dialect speakers had already been subject to processes of dialect levelling to some extent.

(b) The informants belonging to the control group had parents who were both born in Maldegem, so as to avoid interference from another dialect than the Maldegem one.

(ii) the group of **second dialect learners**:

(a) According to their parents, these informants were raised in Standard Dutch or *tussentaal*. As pointed out above, the only way to be 100 percent confident about the home language, would be to make recordings of interactions between parents and child. It might, for example, be the case that parents indicated speaking Standard Dutch or *tussentaal* at home, but that, in reality, they sometimes switched to the Maldegem dialect (e.g. when angry or emotional in another way). Most parents (107 couples) indicated speaking a substandard variety (viz. *tussentaal*) at home, whereas only 21 couples of parents claimed that they spoke Standard Dutch at home. We should, however, notice that in our questionnaire we described Standard Dutch as "the language variety that is used by newsreaders on national radio and television". On the other hand, the notion of *tussentaal* was described as an "intermediate variety between Standard Dutch and dialect, which is an attempt to speak the standard language, but which contains some regional elements, such as the use of *gij/ge* 'you' instead of *jij/je* 'you'". In Flanders there is a considerable distance between the variety of Dutch that is spoken by, for example, newsreaders and the variety of Dutch that is spoken in everyday life (cf. Geeraerts 1999, 2001; see also chapter 6). In other words, even people who intend to speak Standard Dutch do not always reach the standard. It is therefore not surprising that most people who filled in our questionnaire opted for *tussentaal* instead of Standard Dutch. Ideally, we should have divided the second dialect learners into two separate groups, viz. those who were raised in *tussentaal* and those who were raised in Standard Dutch. Such a strict division, however, was difficult to put into practice in the present study, because we did not check the linguistic situation at home, but instead, relied on reporting by the parents. That is why we decided to consider the children whose parents indicated speaking Standard Dutch and those whose parents claimed to speak *tussentaal* as one and the same group (see table 5.1).[20]

(b) The second dialect learners might have one, two or no parents who were born in Maldegem.

Taking into account all of the above criteria, we selected 164 informants. Next, we interviewed these informants one by one and recorded their speech. In the next section, we discuss how these recordings proceeded.

5.3.3. Recordings

In this section, we describe the recording conditions (section 5.3.3.1), the word list and the recording procedure (section 5.3.3.2) of the main interview, and the collection of spontaneous speech (section 5.3.3.3).

5.3.3.1. Recording conditions

All recordings took place at school during the school year 2003-2004. Not all background noise could be eliminated, but generally, this noise did not disturb the quality of the recordings. All recordings were made on minidisc with a SONY MZ-N707 portable minidisc recorder, and with a SONY ECM-ZS90 Electret condenser microphone. Subsequently, the

[20] This should not be too much of a problem, since both groups of children could be considered as (generally) unacquainted with the Maldegem dialect in home situations (see also section 6.3.2).

recordings were digitized through a Creative Sound Blaster Extigy external audio card, and sampled at 44 kHz, 16-bit stereo.

5.3.3.2. Word list and recording procedure

The main interview took about 20 to 30 minutes per child. It consisted of a formal part and an informal part. During the formal part of the interview, a word list of 167 words (see appendix 6) was administered by asking the informants to name objects and picture cards, and to complete a sentence completion task. The subjects' answers were recorded and transcribed. Later, however, we decided to omit a number of the originally intended phonological features. This resulted in the removal of 29 words from the analyses. In appendix 6, the words that were omitted appear between brackets.

Before the interview, the subjects were told that we were interested in their knowledge of the Maldegem dialect. During the recordings, the interviewer (K.R., i.e. the present author) spoke the Maldegem dialect herself – being a native speaker of it – in order to create a more or less 'informal' situation in which the subjects would speak as 'naturally' as possible. The word list was devised so as to inquire into the knowledge of the Maldegem dialect pronunciation of frequent as well as infrequent words, which were representative of 38 phonological features of the Maldegem dialect (see chapter 6). As pointed out above, a few phonological features, and the words that represented them, were omitted, so that 38 features were left. Each phonological feature was represented by at least 2 words and by 10 words at most (see appendix 6).

Apart from the word list (i.e. the formal part), a short spontaneous conversation was elicited by inquiring after the informants' hobbies and favourite television programs, which constituted the informal part. Both interview techniques have their own advantages and disadvantages. One of the major advantages of a word list is that it results in speech that is maximally comparable among informants, since each respondent answers the same questions. A second advantage is that the interviewer can elicit precisely those features which he is interested in. A disadvantage of using a word list, however, is that it is a relatively formal method of eliciting speech, which may interfere with the spontaneity of the speech. But even the informal part of our interviews, in which we asked the subjects to talk a little about themselves, does not escape from the Observer's Paradox (cf. Labov 1972): the fact that the informants realize that they are being observed makes them self-conscious, which can result in unnatural behaviour. Informants might, for example, produce hyperdialectisms in their efforts to speak the Maldegem dialect. Therefore, we also administered spontaneous speech of 5 different pairs of nine-year-olds, recorded in the absence of the interviewer. We discuss these recordings in the next section.

5.3.3.3. Collecting spontaneous speech

The ‘unnatural’ situation that arises when an interviewer tries to elicit ‘spontaneous’ speech from his informants can be avoided when the interviewer leaves the room. We asked pairs of nine-year-old children, who were on friendly terms, to talk with each other for about 30 minutes. These nine-year-olds were selected from the group of children who had not been raised in the local dialect at home (i.e. the second dialect learners). Preceding the recording session, the interviewer spoke the Maldegem dialect when explaining to the children what they were intended to do. In this way, an attempt was made to create an informal atmosphere and to make clear to the children that they were ‘allowed’ to speak dialect, despite the fact that the recordings were made at school. A list with suggestions of possible topics was left in the room. The children generally started talking about these topics, but they soon diverted away from these topics, resulting in a truly spontaneous conversation, despite the presence of a microphone. After about half an hour, the interviewer entered the room again. Proceeding in this way, five recordings of spoken interaction between pairs of children were obtained, yielding 2.5 hours of spontaneous speech.

The main purpose of these recordings was to find out whether overgeneralizations (in the shape of hyperdialectisms) also occurred in spontaneous speech. This indeed appeared to be the case, although to a lesser extent than in the recordings based on the word list. This difference may indicate that dialect learners are more inclined to produce hyperdialectisms when they are in a situation in which they realize that their dialect knowledge is tested. On the other hand, in spontaneous interaction dialect learners are less inclined to reflect on their language use, which results in fewer hyperdialectisms.

5.4. Data processing

This section is devoted to the data processing. First, we discuss the transcription of the recorded speech (section 5.4.1). Then, we turn to the acoustic measurements of doubtful cases (section 5.4.2). Next, we describe how the transcriptions were coded in order to prepare the data for analysis (section 5.4.3). The design of the database(s) is discussed in section 5.4.4. This results in a discussion of the statistical analyses used in the present study (section 5.4.5).

5.4.1. Transcriptions

The digitized recordings were read into PRAAT (version 4.2.05; Paul Boersma and David Weenink). Subsequently, the recordings were listened to through SONY stereo headphones MDR-CD480 and the entire recordings were phonetically transcribed in PRAAT. Some fine phonetic detail, however, was not registered in the transcriptions. There are, for example, only raw indications of the degree of closure or openness of vowels. The Maldegem dialect variant [ɛ̝i] in *blij* ‘glad’, for instance, is produced less open than its Standard Dutch equivalent [ɛi], but this distinction was not registered (i.e. the diacritic ̝ was not used), because it is not relevant to the phonological features investigated in the present study. Furthermore, most differences in vowel length are not really relevant either. Besides, when fine phonetic detail is necessary for the analyses, one should not rely on the transcription of only one transcriber and one must perform a series of acoustic measurements.

If informants gave more than one answer, only the last attempt was registered. When there was disturbing background noise that made reliable transcription impossible, the subject’s answer was discarded.

5.4.2. Formant measurements

Because fine phonetic detail (e.g. degree of closure) is not very important in our study, transcription by ear sufficed in most cases. Doubtful cases were also listened to and transcribed by Johan Taeldeman, who is also a native speaker of the Maldegem dialect. Next, the two independent transcriptions were compared. If both transcribers agreed on the transcription, the transcription was maintained. If there was disagreement, however, we carried out acoustic measurements in PRAAT. We performed measurements on the first (F_1), second (F_2) and third (F_3) formant of the realizations which were doubted. Formant measurements were performed by estimating the point which was acoustically half-way between the surrounding segments of the relevant vowel. In this way, a possible effect of surrounding consonants on the vowel quality was compensated for as much as possible.

If there was doubt whether a specific realization by a particular informant should be transcribed with variant x or variant y, the F_1, F_2 and F_3 of this realization were measured. In such a case, we also measured the F_1, F_2 and F_3 of all the unambiguous (i.e. of which there was no doubt) x and y variants of the same informant. Consider the following example from our data. There was disagreement between the two transcribers on the ‘correct’ transcription of the vowel in the word *zoon* ‘son’ as realized by informant 25. Transcriber A labelled it as [o] (i.e. [zonə]), whereas transcriber B labelled it as [ø] (i.e. [zønə]). The latter realization represents the ‘correct’ Maldegem dialect variant. Because of this disagreement, formant measurements were carried out according to the following procedure. First, the vowel of the doubtful realization was measured. We obtained the following results:

z<u>oo</u>n ‘son’
F_1 = 516 Hz
F_2 = 1578 Hz
F_3 = 2910 Hz

On the basis of the transcription of this informant's speech, we then searched for all the words in which the informant clearly realized an [o] and those where he clearly realized an [ø]. Next, we measured the formants of the vowels in those words. In this way, we obtained the results that are represented in table 5.2.

	oven 'oven'	***lopen*** 'to run'	***boot*** 'boat'	***oor*** 'ear'	***hoofd*** 'head'	***blozen*** 'to blush'
F1	465	457	455	420	464	444
F2	1191	1209	1187	903	977	1122
F3	1410	2358	3057	2075	2087	2992

Table 5.2: Formant values (in Hertz) of the words which were pronounced with [o]

On the basis of the F-values of the words in table 5.2, the average F-values (i.e. F_1, F_2 and F_3) of the [o]-variants of this informant were calculated. We also computed the standard deviation of each mean. Finally, we computed the difference between the mean F_x-value and the F_x-value of the vowel in the word *zoon* and we verified whether this difference exceeded one standard deviation. Consider the following calculations:

Mean F_1 = (465 + 457 + 455 + 420 + 464 + 444) : 6 = 451 Hz
Std. = 15.42
Difference between F_1 *zoon* and mean F_1: 516 - 451 = 65 > 1 std.

Mean F_2 = (1191 + 1209 + 1187 + 903 + 977 + 1122) : 6 = 1098 Hz
Std. = 116.9
Difference between F_2 *zoon* and mean F_2: 1578 - 1098 = 480 > 1 std.

Mean F_3 = (1410 + 2358 + 3057 + 2075 + 2087 + 2992) : 6 = 2330 Hz
Std. = 568
Difference between F_3 *zoon* and mean F_3: 2910 - 2330 = 580 > 1 std.

As can be seen from these figures, all F-values of this informant's realization of the vowel in the word *zoon* exceeded one standard deviation above the average F-values. The vowel in *zoon* can be transcribed as [o] if its formant values lie within the range of +1/-1 standard deviation from the average formant values of all realizations (of a particular informant) that can be clearly distinguished as [o]. We therefore concluded that the informant did not realize the word *zoon* as [zonə].

Proceeding in the same way, we then checked whether the realization of the vowel in *zoon* could be transcribed as [ø]. The formant values of all words which were certainly pronounced with [ø], are given in table 5.3.

	pijp 'pipe'	***vogel*** 'bird'	***boter*** 'butter'	***struik*** 'shrub'	***kruipen*** 'to creep'	***duiken*** 'to dive'	***krijt*** 'chalk'	***noot*** 'nut'	***fluit*** 'flute'	***buik*** 'belly'	***slijk*** 'mud'
F1	476	452	469	611	453	445	497	481	490	495	509
F2	1633	1600	1543	2137	1761	1005	1558	1989	1112	1582	976
F3	2577	1675	2435	3000	3023	2310	2306	2290	2329	3184	2594

Table 5.3: Formant values (in Hertz) of the words which were pronounced with [ø]

Again, we calculated the average of the formant values:

Mean F_1 = (476 + 452 + 469 + 611 + 453 + 445 + 497 + 481 + 490 + 495 + 509) : 11 = 489 Hz
Std. = 43.3
Difference between F_1 *zoon* and mean F_1: 516 - 489 = 27 < 1 std.

Mean F_2 = (1633 + 1600 + 1543 + 2137 + 1761 + 1005 + 1558 + 1989 + 1112 + 1582 + 976) : 11 = 1536 Hz
Std. = 357.8
Difference between F_2 *zoon* and mean F_2: 1578 - 1536 = 42 < 1 std.

Mean F_3 = (2577 + 1675 + 2435 + 3000 + 3023 + 2310 + 2306 + 2290 + 2329 + 3184 + 2594) : 11 = 2520 Hz
Std. = 408.3
Difference between F_3 *zoon* and mean F_3: 2910 – 2520 = 390 < 1 std.

Since all F-values of the vowel in the word *zoon* deviate less than one standard deviation from the average F-values of the realizations that could be clearly distinguished as [ø], we concluded that the vowel in the word *zoon* could be transcribed as [ø]. For most of the measurements we performed in this way, the formant values of the ambiguous realization (i.e. the realization of *zoon* in the above case) fell within the range of -1/+1 standard deviation (short: s) from the mean values of one of both vowels considered (i.e. [o] and [ø] in the above case). In a few cases, one or more of the formants (i.e. F_1, F_2, F_3) of the ambiguous realization did not fall within the range of -1/+1 s. In such cases, we assumed that the ambiguous realization corresponded to the vowel with formant values that were closest to the formant values of the ambiguous realization.

This procedure was followed in each case disagreement arose on the correct transcription of a particular realization. We should notice, however, that the conditions for formant measurements were not ideal because of two reasons. First of all, the vowels that were measured were generally not in an ideal environment for formant measurements. The ideal environment for measurements is created when the vowel is surrounded by alveolar fricatives (i.e. /s/ and /z/), because these have the least influence on the quality of the vowel. This problem was solved as much as possible by measuring formants at the centre of the vowels (cf. above). Second, measurements performed on children's voices (as is the case in the present study) are less reliable than those performed on adults' voices.

After we had transcribed all recordings and measured the doubtful cases, we coded the transcriptions to prepare the data for analysis. In the next section we explain how we proceeded.

5.4.3. Coding the transcriptions into a computerized database

For each informant, all realizations were scored binomially for the relevant phonological variable, where each dialect realization was assigned a score of 1 and each realization deviating from the Maldegem dialect (as it was described by Taeldeman 1976 and Versieck 1989) was assigned a score of 0.[21] If, for example, informant x pronounced the word *muis* 'mouse' as [møs], we coded his realization as 1 (i.e. success in realizing the correct dialect variant) because [møs] is the 'correct' Maldegem dialect variant. If, on the other hand, informant y pronounced the word as [mœys], we coded his realization as 0 (for failure to realize the correct dialect variant), since it deviated from the 'correct' Maldegem dialect variant. We did not distinguish, however, between the realization of the word as [mœys] or as [myzə], since both forms deviate from the 'correct' Maldegem dialect variant. Therefore, both realizations were coded as 0. This implies that we only distinguished between [+Maldegem dialect] and [-Maldegem dialect] and that we did not provide a separate coding of, for example, influences from other dialects or intermediate forms. We did, however, indicate which realizations were hyperdialectisms. These hyperdialectisms were later entered into a separate database, but were entered in the main database as well coded as 0. The design of both databases is discussed in the next section.

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[21] We compared the realizations of our informants systematically to the Maldegem dialect norm, as described by Taeldeman (1976) and Versieck (1989), and of which the present author has a very good knowledge, being a native speaker of the Maldegem dialect herself. We do not compare the realizations of the dialect learners to a standard laid down by the control group, because processes of dialect loss and dialect levelling may already have interfered with the dialect knowledge of the control group. The control group served other purposes in this study; we discussed these purposes in section 5.3.2 above.

5.4.4. Design of the databases

As pointed out in the previous section, the transcriptions were coded binomially (i.e. 0/1). Since we wanted to find out the influence of different factors on the degree of success in second dialect acquisition, the extent to which the informants realize the 'correct' Maldegem dialect variant, is the *dependent variable* in our analyses. This means that we are dealing with a *binary* dependent variable: an informant is either successful (=1) or not (=0) in his attempts to speak the Maldegem dialect. In chapter 4, we hypothesized that several factors affect this degree of success in second dialect acquisition. These factors represent the *independent variables* in our analyses. In what follows, we show how the different factors were coded and entered in the database.

-Age: in principle, a *continuous variable*, but implemented as an *ordinal variable* that takes on the values 9, 12 and 15.
-Gender: a *discrete/ categorical variable*, with value 0 for boys and 1 for girls.
-Home language: a discrete variable, with value 0 representing the Maldegem dialect, and value 1 representing *tussentaal* or Standard Dutch.
-Attitude: a continuous variable, which takes on any value between 0 and 15, depending on the individual's score for attitude.
-Origin mother: a discrete variable, with value 0 if the mother comes from elsewhere and value 1 if she comes from Maldegem.
-Origin father: a discrete variable, with value 0 if the father originates elsewhere and value 1 if he comes from Maldegem.
-Incidence Unanimity List (short: UL): a continuous variable that takes on values ranging from 0 to 153.
-Incidence Taeldeman's List (short: TL): a continuous variable that takes on values ranging from 0 to 154.
-Token Frequency (on the level of the word): a continuous variable that takes on values ranging from 0 to 2943.
-Average token frequency per feature: a continuous variable that takes on values ranging from 1 to 1945.
-Number of competing dialect variants: a continuous variable that takes on values ranging from 2 to 6 in the present study.
-Number of competing Standard Dutch variants: a continuous variable that takes on values ranging from 1 to 5 in the present study.
-Geographical distribution: a continuous variable that takes on values ranging from 1 to 24.
-Conditioning environment of the dialect variant: a discrete variable which takes on value 1 if there is a conditioning environment, and 0 if there is not.

-Productivity: a discrete variable with value 0 for an unproductive dialect feature (i.e. a lexical feature in the present study) and 1 for a productive feature (i.e. a postlexical feature).

To summarize, all variables were entered into an SPSS-database according to the following example:

Inf.	**Phon. feature**	**Word**	**Success or failure**	**Age**	**Gen-der**	**Home language**	**…**	**Inci-dence UL**	**Token Fre-quency**	**Average Token freq. per feature**	**…**
1	εi → e	strijken	1	9	0	0	…	9	16	517	…
1	εi → e	kijken	1	9	0	0	…	9	2192	517	…
1	εi → e	slijk	1	9	0	0	…	9	7	517	…
1	εi → e	zwijgen	1	9	0	0	…	9	56	517	…
1	εi → e	rijk	1	9	0	0	…	9	98	517	…
1	εi → ø	pijp	0	9	0	0	…	40	18	263	…
1	εi → ø	zwijn	1	9	0	0	…	40	1	263	…
1	εi → ø	wijn	1	9	0	0	…	40	115	263	…
1	εi → ø	schrijven	1	9	0	0	…	40	730	263	…
1	εi → ø	rijst	1	9	0	0	…	40	28	263	…
1	εi → ø	krijt	0	9	0	0	…	40	2	263	…
1	εi → ø	lijm	1	9	0	0	…	40	2	263	…
1	εi → ø	vijf	1	9	0	0	…	40	1011	263	…
1	εi → ø	prijs	0	9	0	0	…	40	189	263	…
1	εi → ø	grijs	1	9	0	0	…	40	60	263	…
1	…	…	…	…	…	…	…	…	…		…
…	…	…	…	…	…	…	…	…	…		…
164	εi → e	strijken	1	15	1	1	…	9	16	517	…
164	εi → e	kijken	1	15	1	1	…	9	2192	517	…
164	εi → e	slijk	0	15	1	1	…	9	7	517	…
164	εi → e	zwijgen	1	15	1	1	…	9	56	517	…
164	εi → e	rijk	1	15	1	1	…	9	98	517	…
164	εi → ø	pijp	0	15	1	1	…	40	18	263	…
164	εi → ø	zwijn	1	15	1	1	…	40	1	263	…
164	…	…	…	…	…	…	…	…	…		…

Table 5.4: Design of the main database

As can be seen in table 5.4, each phonological dialect feature (2nd column) was retrieved from the informants (1-164, 1st column) by asking for several words (3rd column). Data for the dialect feature SD /ɛi/ ~ DIA /e/, for instance, were obtained by means of five words: *strijken* 'to iron', *kijken* 'to look', *slijk* 'mud', *zwijgen* 'be silent' and *rijk* 'rich'. In each word a particular informant may either use the dialect variant [e] (i.e. 'success', coded as 1) or not (i.e. 'failure', coded as 0). Hence, here and in all other cases, we are dealing with a *binary* dependent variable, i.e. only two values are possible: success = 1 OR failure = 0. This bears on the type of statistical analysis that should be used (see section 5.4.5). The value of this binary *dependent variable* (4th column) depends on the *independent* or *explanatory variables* (i.e. the *predictors*), which are represented in the columns to the right. Thus, whether an informant succeeds or fails to realize the Maldegem dialect variant in a particular word depends on factors which relate to the informant (e.g. his age, gender, home language, etc.), as well as factors which relate to the dialect feature in question (e.g. whether this feature has a high or low incidence, whether it is productive or not, etc.), and factors which relate to the word which was elicited (e.g. the token frequency of the word). The way in which we have entered these factors in the database allows us to analyse their influence on dialect proficiency and acquisition.

As mentioned in the previous section, the main database does not allow us to distinguish between 'ordinary' deviations from the 'correct' Maldegem dialect variant and hyperdialectisms, since all deviations were coded as 0. Therefore, we entered all hyperdialectisms into a separate database in order to test our hypotheses about overgeneralizations (see section 4.4). In table 5.5 a representation of this database is given.

Inf.	Type of hyper-dialectism	Word in which hyper-dialectism occurs	Does hyper-dialec-tism occur or not?	Age	…	Incidence (UL) of feature that is overgene-ralized	Frequency of word in which hyperdialectism occurs	…
1	aː → ɔ̞ᶜ in aː → ɑ	schaatsen	1	9	…	153	0	…
1	aː → ɔ̞ᶜ in aː → ɑ	laatste	1	9	…	153	802	…
1	ɛi → ø in ɛi → e	strijken	0	9	…	40	16	…
1	ɛi → ø in ɛi → e	kijken	0	9	…	40	2192	…
1	ɛi → ø in ɛi → e	slijk	0	9	…	40	7	…
1	ɛi → ø in ɛi → e	zwijgen	0	9	…	40	56	…
1	ɛi → ø in ɛi → e	rijk	0	9	…	40	98	…
1	ɛi → ø in ɛi → iə	eikel	0	9	…	40	0	…
1	ɛi → ø in ɛi → iə	geit	0	9	…	40	7	…
…	…	…	…	…	…	…		…
164	aː → ɔ̞ᶜ in aː → ɑ	schaatsen	0	15	…	153	0	…
164	…	…	…	…	…	…		…

Table 5.5: Design of the database on overgeneralizations

The type of hyperdialectism (2nd column) indicates which dialect feature is overgeneralized at the expense of another dialect feature. In the word *schaatsen* 'to skate', for example, informant 1 overgeneralizes the dialect feature SD /aː/ ~ DIA /ɔ̞ᶜ/. The overgeneralized feature represses the correct Maldegem dialect feature that normally applies to *schaatsen*, viz. SD /aː/ ~ DIA /ɑ/. It is the characteristics of the dialect feature that is overgeneralized (i.e. SD /aː/ ~ DIA /ɔ̞ᶜ/ in the above example), that are represented in table 5.5 (e.g. incidence, number of competing variants, etc.).

Just like the dependent variable in the main database (i.e. success in realizing the correct Maldegem dialect variant or not), the dependent variable in this database is binary as well: the informant either produces an overgeneralization (= 1) or not (= 0). 25 different types of overgeneralizations occurred in our data (see also chapter 7, table 7.30). Each of these types can occur in a given number of words. For example, the overgeneralization of the feature SD /ɛi/ ~ DIA /ø/ at the expense of the feature SD /ɛi/ ~ DIA /e/ can occur in all the words from our word list that normally have the feature SD /ɛi/ ~ DIA /e/, i.e. *strijken* 'to iron', *kijken* 'to look', *rijk* 'rich', *slijk* 'mud', and *zwijgen* 'to be silent'. In this way, there are a considerable number of possible overgeneralizations. All of these possibilities were included in our database, rendering 122 possible overgeneralizations per informant.

The fact that the dependent variables in both databases are binary variables, bears on the kind of statistical analyses which we have to perform. This issue is dealt with in the next section.

5.4.5. Statistical analyses

Both in our main database and in the database on hyperdialectisms, the dependent variables can have only two values, viz. '1' if a particular event takes place (e.g. realizing the Maldegem dialect variant; producing an overgeneralization) and '0' if this event does not take place. This kind of data allows for *logistic regression analysis*. Logistic regression is a statistical method for describing the relationships between a dependent variable that has only two possible values and one or more independent/explanatory variables which can either be discrete/categorical or continuous/quantitative.

The statistical model for (binary) logistic regression is given in (1).

(1) $\log (p/(1-p)) = \beta_0 + \beta_1 x$

The equation in (1) shows that the *dependent* or *response variable* in a logistic regression model is the natural logarithm of the *odds ratio* (p/(1-p)). The odds ratio is the ratio of the chance of 'success' (i.e. 'p') to the chance of 'failure' (i.e. '1-p') for a given value of x (x = the independent/explanatory variable). The dependent variable in a logistic regression model is called the *logit*. In the equation in (1), β_0 and β_1 are the *parameters* of the logistic model or the *regression coefficients*. β_0 is the parameter of the *constant* or *intercept*. The intercept represents the value of the dependent variable (Y) when the value of the independent variable (X) is zero. So, the intercept (and its significance) is only relevant in cases where the independent variable can actually take on the value of zero. β_1 is the parameter of the independent variable and indicates the *slope* of the regression. The sign indicates whether the independent variable has a positive or negative effect on the dependent variable: if β_1 has a positive sign, the effect is positive and vice versa.

In the case of the present study, we express the odds ratio as the probability divided by the not-probability (i.e. p/(1-p)), in which p represents the probability of 'success' (= 1; i.e. realizing the correct dialect variant; producing a hyperdialectism) and (1-p) represents the probability of 'failure' (= 0; i.e. not realizing the correct dialect variant; not producing a hyperdialectism). A logistic regression analysis makes it possible, for example, to estimate the *odds* that a child of a particular age group realizes the correct Maldegem dialect variant in a given word.[22] Another possibility is to use the model $\log(p_i/(1-p_i) = \beta_0 + \beta_1 x_i$ to estimate the odds that a phonological dialect feature with incidence x_i is overgeneralized.

When performing a simple logistic regression analysis with the help of software, the *null hypothesis* that $\beta_1 = 0$ is tested by means of a *chi-square* test (*Wald statistic*). Thus, the null hypothesis claims that the independent variable (of which β_1 is the parameter) is not useful for predicting the dependent variable. If the *p-value* < 0.05, however, the null hypothesis can be rejected and we can conclude that the independent variable (e.g. incidence) has a significant effect on the dependent variable (e.g. the realization of the correct Maldegem dialect variant).

A basic assumption of all regression analyses is that the observations are *independent* of each other. Table 5.4 (see section 5.4.4.), however, reveals that this assumption is not met in our database, since there are several responses per informant, resulting in a correlation among the different responses elicited from one and the same informant. Because each informant has his own level of dialect proficiency, the responses from one informant are interdependent. Normal regression analysis does not take this into account, but interprets each observation as if it was obtained from a different informant. This can, for example, result in an inaccurate estimation of the variance explained by the regression model. We solved this problem, however, by entering a *dummy variable* for each informant, indicating whether we are dealing with, for example, informant 20 (= 1) or not (= 0). This implies that we had to add 163 variables (cf. the columns in table 5.4) to our database. The first of these variables has the value '1' for all responses from informant 1, and '0' for all other responses. The second variable has the value '1' for all responses coming from informant 2, and '0' for all other responses, etc.

Since the dependent variable in a logistic regression model has only two possible values (0 and 1), the regression cannot be expressed by a straight line (regression line), but has to be expressed by a curve which turns off at 0 and 1.[23] This is achieved by backtransformation of the estimated mean effects. This transformation is performed by applying the following formula:

[22] The *odds* that an event occurs are not completely the same as the *probability* of an event. The probability of success (= 1) is calculated by the following formula: $p(\text{success}) = \exp(\beta_0 + \beta_1 x)/[1+ \exp(\beta_0 + \beta_1 x)]$.
[23] See chapter 7 for figures representing logistic regressions.

$(Exp(B_i)/(1+Exp(B_i)))$
in which $B_i = B_{intercept} + B_x x + B_y y$
in which B is the regression coefficient, and x, y are the independent variables

In this section, we have discussed why we have applied logistic regression analyses to our data. Other aspects of this kind of analysis will be dealt with in our discussion of the results (see chapter 7).

5.5. Summary

In this chapter we have discussed different methodological aspects of the present study. We have dealt with the implementation of the different factors that were discussed in chapter 4 (section 5.2), the selection of the informants, the questionnaire and the recordings (section 5.3), and the data processing (section 5.4). In our discussions, we have already given some examples of phonological features of the Maldegem dialect. In the next chapter, we give a complete survey of all the dialect features involved in the present study. For each feature, we also give more details on the implementation of the feature-related factors.