35. Grammar & Geography or vice versa

1. Introduction

Dialects of any language can be studied from a variety of theoretical perspectives. First, we can study them as language systems with their own grammatical properties, just like we study the case system of Basque or vowel harmony in Finnish; a lot of the literature on Dutch dialects falls into this category. Closely related to this is work which concentrates on particular properties of dialects in relation to other language systems such as related dialects, in the same way that we compare passive constructions or the stress system of English with French passives or stress. In both of these lines of work, the language variety is taken as a language system in its own right. This is a legitimate way of studying dialects and other varieties, and it has been shown to provide interesting and important results for our understanding of the linguistic system of the language variety in question and for the comparison of language systems. We will refer to work along these lines as 'Grammar & Geography' approaches, since the basic interest is in the grammatical theory, and the fact that dialects are chosen as objects of study, rather than standard varieties or language systems which are for other reasons well documented, can be regarded as more or less accidental. A rather different, though also theoretical, line of approach is to consider dialects as members of a (dia)system of closely related varieties. The variation between related language varieties is often referred to as 'linguistic microvariation'. By comparing neighbouring dialects our aim is to find correlations between specific properties or to check whether logically possible variants in fact occur or not. The study of the similarities and differences will enhance the theoretical perspective on the organization of the grammatical system, especially with respect to the question of how parametrisation should be regarded. The study of such an approach to language variation will be referred to here as the 'Geography & Grammar'-approach: the geographical data are brought to bear on the grammatical theory.

In this chapter, we demonstrate some examples of both types of approaches as they can be found in the literature on Dutch language variation. We will show how Dutch dialects have played a prominent role in theoretical discussions for many years, and how Geography & Grammar approaches have gradually started to complement those with a Grammar & Geography outlook. This reflects both a better understanding of the data, due to database technology and other technological advances, and a more refined theoretical apparatus for understanding language and language variation. Our examples are taken from the literature on generative syntax and phonology, for the simple reason that these are the frameworks we work in and with which we are most familiar as a result.

It is not clear to us that other fields within language study have yielded similar developments, but we do not exclude the possibility that they have or that they will do so in the future.

2. Grammar & Geography

We start our overview with a number of examples of work in Grammar & Geography in which insights of generative grammar have contributed to the understanding of individual dialects and vice versa. Examples of analyses in which data on Dutch dialects have played a role in generative argumentation − also outside the Low Countries − can be found both in the phonological and in the syntactic literature.

As a matter of fact, examples of the application of generative insights into the phonological study of dialects is basically as old as the introduction of generative phonology in the Netherlands. For instance, Van den Berg (1973), one of the very first articles on generative phonology in the Netherlands, provides an analysis of the alternation between [i] and [jə] in clitic constructions and in the diminutive suffix in Rotterdam Dutch. Examples are given in (1).

(1)	a.	loop je 'walk you' [lopi]	kopje 'little cup' [kɔpi]
	b.	zie jə 'see you' [zijə]	-
	c.	haat je 'hate you' [hacə]	katje 'little cat' [kɑcə]

Both the clitic and the diminutive consist of the vowel [i] after most consonants, but appear as [jə] after vowels and coronal plosives (even though the relevant context after vowels does not occur for diminutives (1b), and t+j are merged into [c], as in (1c)). These data were already familiar from the Dutch dialectological literature before Van den Berg (Rogier 1938, De Wilde-Van Buul 1943), but Van den Berg showed that they could be explained in an elegant way using the rule format that was introduced by Chomsky and Halle (1968). As such, they provide evidence for the formalism of early generative phonology (see chapter 21 on the phonology of the Hollandic dialects in this volume for more discussion, also regarding the debate following Van den Berg's formalization).

Another set of influential examples can be found in the work of Johan Taeldeman (1980). His data are of theoretical interest because they provide interesting examples of the phenomenon of *opacity* in a variety of dialects. Taeldeman (1980) explicitly states that it is his aim to "give an illustration of the fruitful interaction that *can* and *must* exist between the general theory and (…) dialect study".

Opacity occurs when a phonological rule applies even though its context is not met at the phonetic surface level, or when it does not apply even though its context is met (Kiparsky 1973). The standard analysis of this phenomenon in classical generative theory is by extrinsic rule ordering: first the 'opaque' rule applies, and then some other rule applies which either creates the relevant context or erases it. Based on data from Colinet (1896), Taeldeman (1980) shows how the Aalst dialect of Dutch shows an interesting example of opacity:

(2) a. *gruu*[m] *boemeke* 'green tree' (diminutive)
b. *gruu*[n] *boeme* 'green trees'

(2a) shows that Aalst displays a process of place assimilation for coronal nasals followed by a consonant; the /n/ underlying the adjective *gruun* turns into an [m] before a labial. (2b) shows that this process is not surface-true in Aalst: there are contexts in which a coronal nasal is followed by a non-homorganic consonant. In the rule-based analysis which Taeldeman (1980) proposes, this is the result of a schwa-deletion rule which obscures assimilation. An inflectional schwa can be posited in the case of the plural (2b), but not in the case of the diminutive (2a). There is independent evidence for this schwa from other contexts; in (2b) it prevents assimilation from applying. Once the schwa has been deleted, it is 'too late' for assimilation to (re)apply:

(3)		*gruu*/n/ /b/*oemeke*	*gruu*/nə/ /b/*oeme*
a.	assimilation	*gruu* [m b] *oemeke*	–
b.	ə-deletion	–	*gruu*[n b]*oeme*

Taeldeman (1980; 1982) shows a number of similar opacity effects involving adjectives in Flemish dialects. The issue was revived 25 years later independently by Van Oostendorp (2007) and Zonneveld and Trommelen (2004), because the dominant phonological framework of the time, Optimality Theory (henceforth OT), could not handle opacity effects as simply as rule-based phonology. Zonneveld and Trommelen (2004) propose an analysis in terms of so-called Sympathy Theory, a quasi-derivational refinement of OT; Van Oostendorp (2007) proposes a representational analysis in which the inflectional schwa is not completely invisible in the phonology in spite of its apparent phonetic absence.

Another prominent figure of Dutch generative phonology who has analysed relevant data from dialects is Wim Zonneveld. In Zonneveld (1976), for instance, he showed how Brussels Dutch (Van Loey 1931, Mazereel 1933) provides evidence for an 'exchange' rule (also known as 'flip-flop rule') of the type $\alpha \rightarrow -\alpha$. In particular, [u] and [o] seem to switch positions in certain shortening contexts, as is shown in (4).

(4)						
a.	mu:kə	'to make'	–	gəmokt	'made'
b.	ro:pə	'called'	–	rupt	'calls'

In (4a), the long [u:] in the infinitive is related to a short [o] in the participle singular, while the [o:] in (4b) gives rise to a short [u] in the third person singular. Exchanges of this type are problematic for Optimality Theory, and therefore this issue has also been revived recently by Moreton (2004). The problem is that OT assumes that every phonological process is optimizing. Under such a view (4a) gives evidence that [o] is preferred to [u] in a shortening context, while (4b) shows that [u] is preferred to [o] in the same context. This is a paradox which cannot be resolved and therefore Brussels Dutch would deal a fatal blow to OT if these facts are indeed correct. In a discussion of this problem, however, Moreton (2004) argues that the data in (4) have not been properly transcribed in the sources on which Zonneveld based himself; in particular, the mid vowel in (4a) is not exactly the same as that in (4b). Therefore there is no real exchange of vowels (cf. also Goeman 1994).

In the 1990s, several doctoral dissertations appeared which combined generative theoretical discussion with dialect data. Nijen Twilhaar (1990) describes aspects of the phonology-morphology interface in his native Hellendoorn Dutch and some related dialects within the framework of Lexical Phonology. Bloemhoff (1991) tests some of the claims of Natural Generative Phonology (NGP, Hooper 1976) against Stellingwerven Dutch and claims that "none of the restrictions on rules proposed in NGP and examined here can be upheld". Hinskens (1992) combines sociolinguistic quantitative analysis with qualitative phonological study (on the basis of autosegmental, lexical phonological and prosodic theory) in work on aspects of dialect levelling in Limburg. Hermans (1994) gives an original theory of the tonal accent of Maasbracht Limburgian, using Lexical Phonology, autosegmental and metrical theory and a selection of other generative frameworks. Van Oostendorp (1995) provides detailed analyses of (among others) Tilburg Dutch and Rotterdam Dutch as support for a general theory of syllable structure within OT. Goeman (1999) discusses many aspects of *t*-deletion in Dutch dialects, also in connection to contemporary phonological theory. Swets (2004) gives an in-depth account of the (vowel) phonology of Tilburg Dutch using the framework of Government Phonology. Van der Torre (2005) applies the same framework to consonantal phonology, citing many different Dutch dialects as evidence for his claims. Rys (2007) compares so-called rule-based and exemplar-based approaches to (second) language acquisition on the basis of evidence from the East-Flemish dialect of Maldegem. This summary shows that many major theoretical issues have played a role in this selection of the literature. At the same time, these works had a clear empirical focus on Dutch dialects and as such have contributed to our factual knowledge of these language varieties.

Compared to phonology, dialects were exploited somewhat later in the generative syntactic literature (see Spa and Sassen 1971 for an early discussion). A prominent position should be assigned to the pioneering work of Liliane Haegeman. She has discussed the properties of West-Flemish in a large number of articles and books (see bibliography), starting with a paper in the volume *Linguistics in the Netherlands 1983* on relative pronouns in West-Flemish (see also Bennis and Haegeman 1984). In this paper, she discusses an interesting property of West-Flemish dialects: the choice of the relative pronoun shows a subject-object asymmetry. The data in (5) illustrate the phenomenon.

(5) a. den vent *da*/**die* Jan gezien heet
the man that/*who(m) John seen has
b. den vent *da*/*die* hier geweest heet
the man that/who here been has
c. den vent *da*/**die* Jan peinst *da*/**die* Marie gezien heet
the man that/*who John thinks that/*who(m) Mary seen has
d. den vent *da*/**die* Jan zegt *da*/*die* hier geweest heet
the man that/*who John says that/who here been has

The data in (5) show that the element *da* occurs in the first position of the embedded clause(s) in object relatives (5a, c). If the subject is relativized, as in (5b, d), the clause from which the subject is extracted can be introduced either by *da* or *die*. As Haegeman demonstrates, this state of affairs partly parallels the French system of relativization in which a subject-object asymmetry is found as well (to be more precise, West Flemish *die* matches French *qui* exactly, but West Flemish *da* can be used everywhere, whereas French *que* occurs in complementary distribution with *qui*). This is demonstrated in (6).

(6) a. l'homme *que*/**qui* j'aime *t*
b. l'homme **que*/*qui t* viendra
c. l'homme *que*/**qui* tu crois *que*/**qui* j'aime *t*
d. l'homme *que*/**qui* tu crois **que*/*qui t* viendra

Object relativization in West-Flemish is similar to object relativization in French (6a, c). However, subject relativization differs from French since French requires the relative clause from which the subject has been extracted to be introduced by *qui* (6b, d), following the so-called *que* → *qui* rule of French subject relatives. The optionality of the choice between *die* and *da* in West-Flemish subject relatives constitutes a problem for the theory. This relativization asymmetry problem has received and still receives a lot of attention in the theoretical literature (e.g. Rizzi and Shlonsky 2007). At the time of writing, Eefje Boef is involved in a project tackling this problem at the Meertens Institute in a 'Geography & Grammar'-approach by comparing West-Flemish data with other patterns in Dutch dialects that can be found in the Syntactic Atlas of the Dutch Dialects (SAND-I, maps 82a−87b). Cf. Boef (2013).

Other examples of Haegeman's detailed work on the syntax of West-Flemish concern negation and negative concord (e.g. … *da Valere ier niemand nie en-kent* − that Valery here nobody not not-knows, '… that Valery knows nobody') in Haegeman (1995; in particular chapter 3). Other studies in which negation in Dutch dialects is discussed from a theoretical perspective are Haegeman and Zanuttini 1996 and Zeijlstra (2004: chapter 4). Her 1992 monograph is subtitled 'A case study in West-Flemish' and discusses complementizer agreement (see also Zwart 1993, Van Koppen 2005), the doubling of subject pronouns, and verb projection raising in West-Flemish (see also Van Riemsdijk and Haegeman 1986) from a theoretical, generative perspective, as the main title indicates: 'Theory and description in generative syntax' (Haegeman 1992).

Other varieties besides West-Flemish had an impact on syntactic theory within the generative framework. Another example is the work of Leonie Cornips on dative and related constructions in the intermediate variety spoken in Heerlen (Dutch Limburg). She studied constructions such as those in (7), which do not occur in non-southern varieties of the standard language, and which are relevant for theories of middle formation and dative objects.

(7) a. *Dat vergeet zich gemakkelijk.*
that forgets himself easily
'That is easy to forget.'

b. *Ik verf hun het huis.*
I paint them the house
'I am painting the house for them.'

One of the properties of Cornips' work and that of her colleagues (see, for instance, Broekhuis and Cornips 1997 and Cornips and Hulk 1996, 1999) is that it focuses on a regional variety of the standard language and not primarily on traditional dialects, although the facts illustrated in (7) are also attested in the traditional dialects of the Heerlen area. Their analysis is not only relevant for the analysis of regional varieties of Dutch, but also applies to properties of the variation that is found within the standard language.

A third example of the study of particular varieties of Dutch from a theoretical syntactic perspective is the dissertation by Jeroen van Craenenbroeck (2004), which focuses on the phenomenon of ellipsis. Most of the data come from the dialect of Wambeek, a village in the province of Belgian Brabant, where elliptic sentences such those as in (8) are found.

(8) a. Jef eid iemand gezien, mo ik weet nie *wou da.*
Jeff has someone seen, but I know not who that

b. A: Marie zie Pierre nie geirn.
Mary sees Pierre not gladly
B: Jou *ze duut.*
Yes she does

On the basis of data such as that in (8), Van Craenenbroeck argues for a new theory of ellipsis in which the absent, omitted part of the phrase must sometimes be analysed as an empty phrase (8b) and sometimes as a deleted phrase (8a), depending on the properties of the construction, making a crucial distinction between different types of emptiness.

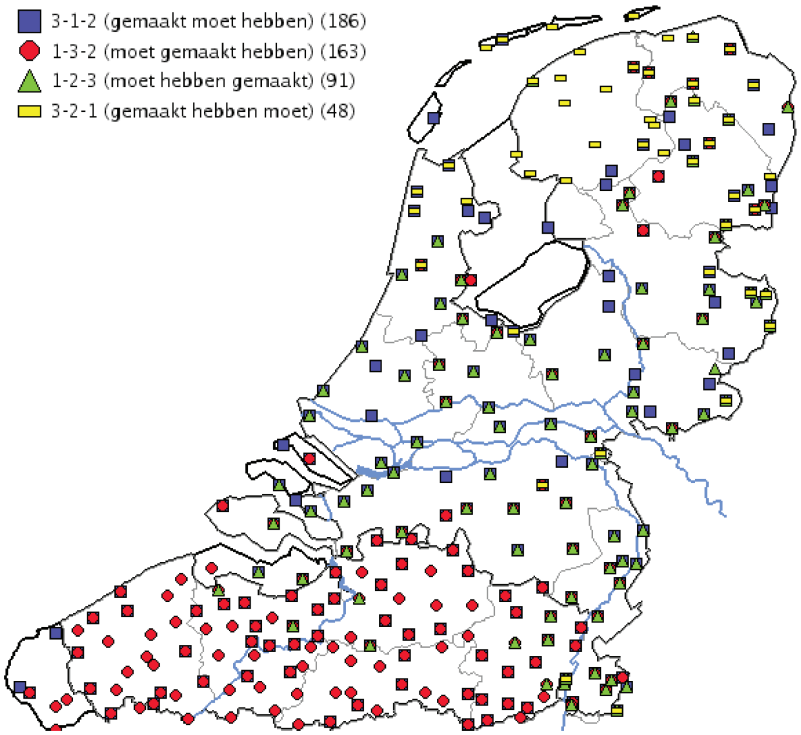
The examples above provide clear evidence that studying language varieties instead of standard languages may provide us with important clues that will further the ongoing study of the structure of the language system. It is interesting to see that a relatively large number of the dialects that have been studied are Flemish; we have no explanation for this fact. Researchers from the Netherlands have also studied Flemish dialects as well (e.g. Zonneveld), but the reverse has seldom been the case.

3. Geography & Grammar

A relatively new theoretical approach to the study of language varieties within the generative paradigm is to consider different related varieties as a coherent system in which the differences point to variable properties of the system from a microparametric perspective. The microvariation approach differs from the approach discussed above in its specifically comparative perspective. This line of approach takes a set of related varieties as its starting point and the variability within the set as the object of study. In the Grammar & Geography approach, the comparative aspect is either absent − the study relates phenomena from a particular language or dialect to the theory of grammar − or geographically accidental, in the sense that the set of languages studied is chosen with respect to grammatical relevance, rather than geographical coherence.

If we compare these approaches to biology, we can study the beak of an ordinary finch in great morphological detail, or we may can study the beaks of a related group of finches, say the finches of the Galapagos Islands, in order to try to understand the micro-properties of variation. Both approaches provide us with important information on the structure of beaks and the two approaches can and should complement each other.

In Dutch syntax, a lot of attention has been paid to the typical West-Germanic phenomenon of Verb Raising, i.e. the clustering of verbs at the end of the clause. The



Map 35.1: Distribution of the verbal clusters in (9)

variability in ordering possibilities within the verbal cluster has been a topic of discussion in the generative syntax of Dutch and German starting with the dissertation of Arnold Evers (1975). A recent article by Sjef Barbiers (2008) and subsequent discussion between Barbiers and Evers in *Nederlandse Taalkunde* and an article by Barbiers and Bennis (2010) are probably the latest contributions toward a solution of Verb Raising. Many other linguists have contributed to this debate in the period in between, mostly speakers of some continental West Germanic dialect, among them Bennis, den Besten, Broekhuis, den Dikken, Haegeman, Haider, Hinterholzl, Hoekstra, Koopman, Koster, Van Riemsdijk, Wurmbrand and Zwart. An example of the variability of a three-verb cluster is given in (9), which was one of the sentences that was part of the questionnaire for the second volume of the Syntactic Atlas of the Netherlands Dialects (Barbiers et al. 2008, SAND-II, Map 17b). The distribution of these clusters is presented on Map 35.1.

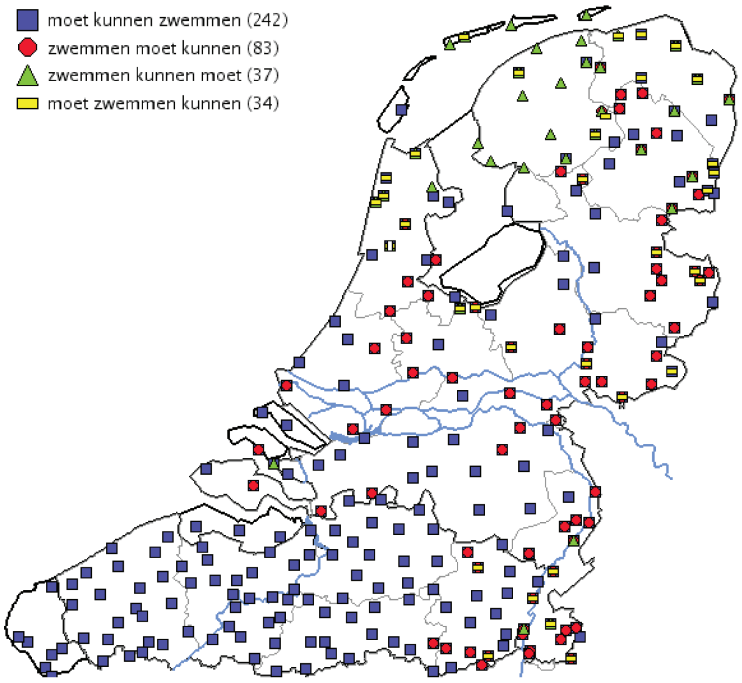
(9)	a.	Jan weet dat hij voor drie uur de wagen	*moet hebben gemaakt*	1−2−3
		John knows that he before three o'clock the car	must have repaired	
	b.		*moet gemaakt hebben*	1−3−2
	c.		*gemaakt moet hebben*	3−1−2
	d.		*gemaakt hebben moet*	3−2−1
	e.	*	*hebben gemaakt moet*	2−3−1
	f.	*	*hebben moet gemaakt*	2−1−3

We observe that in the Dutch speaking area (including the varieties spoken in Friesland, Belgium and France) four out of six logically available orders occur. The theoretical question then appears to be how to restrict the rules for cluster formation in such a way that the orders in (9e, f) are excluded (cf. Barbiers 2005). Even if we succeed in developing a system in which the first four orders are the only orders that can be derived, there are still important questions to be answered. In general, generative syntax does not accept optional rules (Chomsky 1995), like, in this case, a rule which optionally transforms an order such as 1−2−3 into 1−3−2, 3−1−2 and 3−2−1. This perspective raises the problem of explaining the apparent optionality of the remaining orders in Dutch (9a−d). One of the approaches to explain this is to see whether the relevant orders can be distinguished geographically. If we look at Map 35.1, we see that this indeed appears to the case. The order V3−V2−V1 in (9d) only shows up in the northern part of the language area, and represents the only available order in Friesland. The order V1−V2−V3 in (9a) is found in the middle part of the language area and Limburg, and not in Friesland and Flanders. The order in (9c) is the most common one (found in 186 out of 267 measuring points) and is found in the whole language area except Friesland, whereas the order in (9b) is the preferred order in the Belgian part of the language area. Although there are various locations in which more than one variant is allowed, their different geographical distributions indicates that the four variants of the verbal cluster in (9) cannot be due to a set of optional rules.

If we compare the data in (9) with a set of apparently similar data in which the three-verb cluster does not contain a participle, we find interesting similarities and differences. The cluster in (10), which is also part of SAND-II (Map 17a), contains two modal verbs. The distribution is given on Map 35.2.

(10)	a.	Ik vind dat iedereen I think that everybody must can swim	*moet kunnen zwemmen*	1−2−3
	b.		*moet zwemmen kunnen*	1−3−2
	c.		*zwemmen moet kunnen*	3−1−2
	d.		*zwemmen kunnen moet*	3−2−1
	e.	*	*kunnen zwemmen moet*	2−3−1
	f.	*	*kunnen moet zwemmen*	2−1−3

We again observe that three-verb clusters beginning with the 'middle verb', i.e. the infinitival modal verb *kunnen* in (10), are unacceptable in all varieties. This supports the idea that the linguistic system should provide a principled account of why the middle verb cannot show up as the first verb of a three-verb cluster. However, if we look at the distribution of the possible variants, we observe that the situation is dramatically different from the distribution of the variants in (9). A major difference is the situation found in Flanders (the provinces East and West Flanders) and Belgian Brabant (the provinces Antwerp and Brabant). Whereas the order V1−V2−V3 does not occur in this area in (9), it is the only order in which the verbs can be arranged in examples such as (10) in exactly the same area. On the other hand, we observe that the distribution of the order V3−V2−V1 in (9) and (10) is almost identical, i.e. the northern provinces with Friesland as the core area. It thus seems clear that in order to understand the observed variation, we should take the geographical distribution of individual phenomena as a starting point.



Map 35.2: Distribution of the verbal clusters in (10)

To understand the process of verb clustering in West Germanic, it is not only necessary to understand why the orders in (9e, f) and (10e, f) do not occur in the language area, but also how the remaining orders should be derived. To give an example, in the dialect of Bruges the map shows no optionality at all in three-verb clusters: if the cluster has a main verb participle, the order is 1−3−2 (9b), whereas a cluster with two modals has the order 1−2−3 (10a). Apparently these two orders together constitute the system of verb clustering in the language of Bruges. Similarly, in Hindeloopen in Friesland both orders are 3−2−1 and there is no optionality either. This implies that optionality is a property of the set of Dutch dialects, but not necessarily of individual dialects. A detailed study of the variation in verb clustering across the dialects of Dutch is necessary to understand the linguistic mechanisms that are responsible for ordering these verbs in a non-random way.

On the relevant maps, we also observe that a substantial number of the locations allow more than one variant. In some places it even appears to be the case that all possible orders are acceptable. For instance, a three-verb modal cluster as in (10) may optionally appear in four orders in Nieuw-Scheemda in the northern province of Groningen as well as in the South-Limburgian village of Nuth. For the participial cluster in (9), all four available orders are found in Vaals in Limburg, in Ootmarsum in the Saxon area in the eastern part of Overijssel, and in other locations. The question arises how we should interpret this type of optionality. Further study is required into this complicated question, but at first glance it appears to be the case that there are regional patterns in the clustering of verb-raising possibilities which show that optionality is primarily found

in intermediate dialects. Thus, the co-occurrence of 1−2−3 and 3−2−1 in one location − as for instance in the South Frisian village Wolvega in (10) and the village Paterswolde on the border of Drenthe, Groningen and Friesland in (9) − may be regarded as the operation of two different Verb Raising-systems in one location, as the result of a separation between the Frisian language area (3−2−1) and the rest of the language area (1−2−3). In order to establish whether such a view on optionality can be maintained, we need a very precise picture of the distribution of different variants of a construction across the language area. Fortunately, the Dutch language area now has a rather fine-grained syntactic atlas (SAND-I, SAND-II and the related dynamic, electronic atlas Dyna-SAND), which may provide us with the relevant insights. Notice that in this case we find at least two, possibly distinct types of variation: regional variation as displayed on the map, and also, within each region, some degree of optionality, which may be displayed by the same speaker. (Similar research on the geographical distribution of syntactic phenomena in the Dutch language area has focused on the distribution of reflexive pronouns and the explanation of this variation from a generative perspective; cf. Barbiers and Bennis 2003).

Work on microvariation is again slightly older in phonology than in syntax. An early example of a phonological treatment of microvariation is the textbook by Van Bakel (1976), who introduces formal phonology by applying it, among other things, to various problems in the Nuenen dialect of Dutch. Van Bakel's claim on the structure of variation concerns crucial rule reordering. This was probably inspired by the fact that Chomsky and Halle (1968), in their foundational work on generative phonology, show how the differences in so-called Dialect A and Dialect B of Canadian English (in which so-called Canadian Raising had different effects in words like *rider* and *writer*) could be understood in terms of rule ordering. This then became a central working hypothesis in generative dialectology: the difference between two dialects could be described in terms of rule ordering. Dialects were assumed to have the same sets of rules, but apply them in different orders (often making them opaque in one dialect).

An older stage of Nuenen Dutch showed a process of umlaut in the third person singular, as shown in (11).

(11)	*1st singular*	*3d singular*	
	ɪk val	hɛ:j vɛ:lt	'I fall/he falls'
	ɪk tɛl	hɛ:j tɛ:lt	'I count/he counts'

In addition to this, Nuenen had a more general process of vowel palatalisation (or fronting), which is shown in the Nuenen forms compared to neighbouring dialects, as in (12).

(12)	*Nuenen*	*neighbouring dialects*	
	hɛ.ʬə	ha.ʬə	'to hold'

The other relevant process is *l*-vocalisation after /a/, as demonstrated in (13).

(13) ald > awd 'old'

According to Van Bakel (1976), these three processes are crucially ordered in the following way in the traditional Nuenen dialect:

(14)

	1st person	*3d person*
	hald	hald
1. umlaut	−	hEld+t
2. ald > awd	hAwd	−
3. palatalisation	hEwd	hEld+t
output:	hEw	hE.lt

The vocalisation rule here is opaque: it is not clear why it has applied in the 1st person, but not in the 3d person, which is similar in all relevant phonological respects. However, the third person singular has turned into [hEwt] in more contemporary varieties of the dialect, thus making the paradigm more uniform. Van Bakel (1976) argues that the reason for this is that the rules of umlaut and *l*-vocalization have been reordered, as in (15).

(15)

	1st person	*3d person*
	hald-	hald
1. ald > awd	hAwd	hAwd+t
2. umlaut	−	−
3. palatalisation	hEwd	hEwd+t
output:	hEw	hEwt

Although the analysis works technically, no argument is given why rule reordering should take place. The umlaut rule is now always bled by l-vocalization: in other words, we might just as well assume that the umlaut rule has disappeared: the modern Nuenen dialect no longer has a productive phonological umlaut rule. Also within the theory itself there is no real reason to assume that all language change is always rule reordering; rules may simply disappear (Kiparsky 1995; Hale and Reiss 1998) or change. Notice that Van Bakel's study should be understood in any case as contrasting newer and older varieties of Nuenen.

In contrast to rule-based generative phonology, the central claim concerning dialect variation in Optimality Theory is that it *can* and *should* formally be described in terms of (re)ordering, in this case of constraints. As a matter of fact, in the most classical version of OT, Prince and Smolensky ([1993] 2004), it was claimed that *all* variation can and should be described in terms of ranking of a universal set of constraints. (There are a few versions of OT in which constraints are not universal, and hence variation could also be the result of constraints being absent in one dialect while present in another one, see e.g. Boersma 1999.) Sloos and Van Oostendorp (2012) point out that this claim entails a clear and simple definition of the notion of *linguistic distance*, as given in (16).

(16) a. A minimal reranking of a constraint hierarchy is a reranking of two adjacent constraints.
b. The linguistic distance between two grammars is the minimal number of minimal rerankings which is required to change one grammar into another.

(A non-minimal reranking can always be decomposed into a finite number of minimal rerankings.)

This definition of linguistic distance makes it possible, for instance, to compare linguistic distance with geographical distance. Under certain circumstances, if three data points A, B and C appear on a straight line on a geographical map, we may expect that, all things being equal, the dialect of B will also be 'in between' that of A and C from the point of view of linguistic distance.

Sloos and Van Oostendorp (2012) provide a set of illustrations of this claim, all of them involving umlaut. If we move westward from the outer east (the German border) in the Dutch language area, there is a gradual loss of umlauting in e.g. diminutive formation, in the sense that fewer and fewer words seem to undergo this rule. A priori, this gradualness could be due to many different factors, such as the frequency of the words involved, but Sloos and Van Oostendorp argue that this is not the case. Rather, there seem to be more and more phonotactic and other well-formedness requirements blocking the application of umlaut, and this can be described in terms of reranking: the constraint relevant for umlauting are dominated by more and more constraints. For instance, in Ootmarsum (in Overijssel, close to the border with Germany), umlaut applies virtually across the board, in all diminutive nouns. In Vriezenveen, slightly more to the west, umlaut no longer applies when stems end in a diphthong. In Hasselt, even more to the west, this context is excluded as well, and so are stems ending in a long vowel followed by /n/. In this way, travelling from east to west, we see each datapoint losing umlaut in certain phonologically defined contexts, until we reach Volendam, where umlaut is at best variable in certain (again phonologically defined) contexts.

The data in Sloos and Van Oostendorp (2012) are based on the Goeman-Taeldeman-Van Reenen Database, which will no doubt remain the most important empirical source for the next few years. Working with this database also makes it possible to perform certain types of statistical analyses which would otherwise not be available. For instance, Hinskens and Van Oostendorp (2006) test a number of hypotheses about contributing factors to palatalization and velarization of underlying or etymological /nt/ and /nd/ clusters. In many dialects, these clusters have become either palatalized or velarized, resulting in variants such as /ɲc/, /ɲt/ and /ŋk/.

These processes are related to the quality of a preceding vowel, but the exact definition has been a matter of debate. Relevant hypotheses are difficult to test on small data samples, and much easier on larger sets. At the same time, Hinskens and Van Oostendorp (2006) showed that working with larger databases presented its own kinds of problems. For instance, because the data had been transcribed by different transcribers, we find 'transcriber landscapes' − areas which seem to behave the same just because they have been analysed by the same person. This can obscure the data, especially in those cases where transcriptions differ systematically between transcribers.

4. Conclusion

Dutch and Flemish linguists have contributed significantly to syntactic and phonological theory in the past decades. Since the Low Countries also have a fairly strong tradition in dialectological research, it is no surprise that Dutch dialects have played an important role in international discussions on theoretical issues.

This has been true so far primarily for work of the type that we classified as Grammar & Geography. The reason for this is presumably that this type of work is relatively

easier: it just requires analysis of one consistent language system, which is the normal everyday job of the theoretical linguist. A lot of work remains to be done, since there are definitely many phenomena in many Dutch dialects which bear on current theoretical claims, and, vice versa, new theoretical tools are developed almost daily which may help us to understand data from all kinds of language systems, including dialects spoken in the Dutch language area.

Work of the Geography & Grammar type is more challenging from several points of view. It typically requires larger amounts of data, and it also involves more advanced theoretical insights in the sense that one needs to devote explicit attention not only to an explanation of an observed phenomenon in a particular variety of a language, but also with respect to the explanation of the variation found in a language area with respect to a particular phenomenon. What makes the Geography & Grammar approach rather complex is the fact that dialects are not stable language varieties. They change fast, due to rapid changes in their sociolinguistic context − factors involved include but are not limited to the lack of codification, the erosion of the dialect landscape due to social changes, and the low status of dialect varieties, factors that we have abstracted away from in the discussion of the phenomena above.

Basically Geography & Grammar work can only be done once we have done enough Grammar & Geography analyses. At present, the interest in theoretical issues in dialect description is stronger than ever. It is almost no exaggeration to claim that any Dutch linguist working on Dutch will also work on dialects every once in a while. There is still much to be learned and much to be explored.

5. Atlases

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Hans Bennis, Amsterdam (The Netherlands)
Marc van Oostendorp, Amsterdam (The Netherlands)