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## Microsyntactic variation

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### 1. Introduction: The role of variation in generative grammar

Until the late 1980's dialects played a rather marginal role in generative syntactic research. A first sign that this was changing was the publication of a collection of articles in Benincà (1989), soon to be followed by more generative work on dialects, e.g. Haegeman (1992), Zwart (1993), Henry (1995), Holmberg and Platzack (1995), Poletto (2000). The past ten years have seen an enormous increase in work and publications on dialect syntax within the generative framework, in particular in Europe, some of which even combine the generative and the dialectological traditions, such as the Syntactic Atlas of the Dutch Dialects (Barbiers et al. 2005, 2008).<sup>1</sup>

If we want to understand and appreciate this changing role of dialects in Generative Grammar (henceforth: GG) we have to consider the role of syntactic variation within GG more generally. Despite claims to the contrary (e.g., Evans and Levinson 2009), the inherent variability of language at all levels of linguistic analysis has been recognized from the outset of the generative enterprise, and developing an explicit theory of syntactic variation has always been one of the major goals of GG.

The central hypothesis of GG is that underlying the wealth of cross-linguistic syntactic variation there is a core of syntactic principles that are universal and innate, so called Universal Grammar (UG). Language-specific grammars are the result of the interaction between these UG-principles and the linguistic environment, i.e., the linguistic input during the process of language acquisition (cf. Newmeyer, this volume, chapter 3 and Crain and Thornton, this volume, chapter 25). The task of GG is then to discover the set of universal principles that correctly describe the possible grammars and rule out impossible ones, and to explain the process of language acquisition on the basis of this. Thus, according to this hypothesis UG-principles determine the variation space, and the child has to establish which language-specific grammar allowed by UG is his.

In this way, the UG-hypothesis defines a clear program for research into syntactic variation. The goal is not so much to describe surface language variation, but to find the shared building principles underlying this variation. GG therefore abstracts away from more peripheral language variation that is the result from borrowings, historical residues, inventions (Chomsky 1981: 8). Being a theory of competence (knowledge of language), GG also abstracts away from actual language use (performance) (Chomsky 1965: 10ff). Finally, GG abstracts away from language-external factors that may determine language variation, such as social class, geographical origin, age, gender, style, register, language contact. There is no such thing as English, or a Scottish dialect of English, since each individual language variety is variable within time, space, community and even speaker. It is therefore not the goal of GG to provide a grammar of English or to describe and explain the geographic distribution of different dialectal properties. Rather, GG investigates

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<sup>1</sup> In Europe, in the past 15 years a number of large scale dialect syntax projects have been carried out or started that intend to systematically describe and analyze syntactic variation in a large number of closely related dialects, using both generative, dialectological and sociolinguistic methods and perspectives. Some examples include North-Italian dialects, Portuguese dialects, Dutch dialects and Scandinavian dialects. See [www.dialectsyntax.org](http://www.dialectsyntax.org), Barbiers, Cornips and Kunst (2007), Barbiers and Bennis (2007) and Barbiers (2009).

idealized idiolects in the search for universal building principles, while fully acknowledging that these idealized idiolects do not surface in actual language use.<sup>2</sup>

Obviously, the precise demarcation of core grammar, periphery, competence, performance and language-external factors is not pre-given. It involves complex systems that interact with each other and potentially determine (part of) each other's properties. Whenever a certain language phenomenon is put aside as irrelevant for the study of competence, we should be aware that this is a hypothesis and we should try to find arguments in support of or against this hypothesis.

Given the main goal of GG and the abstractions used to reach it, any idiolect can serve as its research object. There is no privileged position for any language variety. Consequently, generative linguists started by studying their own idiolects and those of the people surrounding them. As the GG enterprise originates in the US, in the beginning this mainly involved American English idiolects. Soon other language varieties were added to the research domain, both Indo-European and non-Indo-European. As the in-depth description and analysis of each idiolect is a tremendous task, there was no reason to include dialects in the task, but also no reason to exclude them.<sup>3</sup> To understand why they nevertheless have become so relevant and prominent in recent years, we have to look at the locus of variation within the GG-model.

## **2. The locus of variation in GG-models**

The abstract principles of UG define the variation space for possible languages. The locus of syntactic variation in GG-models has changed over the years. We limit ourselves to three GG-versions: (i) Transformational Generative Grammar (TGG; Chomsky 1957, 1965), (ii) Principles and Parameters (P&P; Chomsky 1981) and (iii) The Minimalist Program (MP; Chomsky 1995).

### **2.1 Transformational Generative Grammar (TGG)**

TGG had a lexicon, a set of universal categories (Noun, Verb etc.), a set of rewrite rules to generate structural descriptions (modelling the constituent structure of a sentence) and a set of transformations operating on these structural descriptions. This is exemplified by the simplified grammar fragment in (1c) for the English sentences in (1a,b). The sentence *John has eaten the apple* is generated by applying the three rewrite rules in (1c) and associating each category with a matching element from the lexicon, giving rise to the structural description in (1d). The sentence in (1b) is then derived from this structural description by a transformational rule that preposes the object (1e).

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<sup>2</sup> To be able to talk about different language varieties, however, one cannot avoid to use terms such as English, Dutch, a Scottish dialect in a loose sense, which is what I do in this chapter. Similarly, the term 'language' cannot be avoided. In general, I will use this term as a shorthand for 'grammar used consistently by one or more speakers, so the term 'language' covers both languages, dialects and idiolects (except in parts where these terms are used in direct opposition).

<sup>3</sup> A reason why comparative GG research into dialects used to be relatively rare is that it is methodologically more complex than investigating one's own idiolect. Complications such as code switching between dialect, regiolect and standard language and accommodation towards the language variety of the interviewer need to be dealt with. For discussion of methodological problems and solutions, see Barbiers, Cornips and Kunst (2007), Barbiers and Bennis (2007).

- (1) a. John has eaten the apple.  
 b. The apple John has eaten.  
 c. Grammar fragment
- Rewrite rules**
- S => NP Aux VP  
 VP => V NP  
 NP => (Det) N
- Lexicon**
- N = John  
 N = apple  
 V = eaten  
 Aux = has  
 Det = the
- d. Structure: [S [NP John] [Aux has] [VP [V eaten [NP [Det the] [N apple]]]]]]
- e. **Transformation**
- NP1 Aux V NP2 ==> NP2 NP1 Aux V

Let us now compare the two English sentences in (1) with their Dutch equivalents in (2) to see where syntactic variation enters the formalism.

- (2) a. Jan heeft de appel gegeten.  
 John has the apple eaten  
 b. De appel heeft Jan gegeten.  
 the apple has John eaten

The fact that Dutch has OV (Object-Verb) order while English has VO (Verb Object) can be captured if the rewrite rule for VP in Dutch is VP => NP V rather than VP => V NP. The fact that in Dutch subject-verb inversion has to take place when a constituent different from the subject is preposed can be captured by writing a different transformation rule: NP1 Aux V NP2 => NP2 Aux NP1 V. The Lexicon (including morphology) is also a source of variation with potentially syntactic consequences, e.g. the morphological difference between *eaten* and *ge-geten*.

## 2.2 Principles and Parameters (P&P)

In TGG, syntactic variation arises at every level and is rather unconstrained and, consequently, the model may be too powerful (cf. Chomsky 1981, chapter 1, for some discussion). Perhaps more importantly, the TGG-model did not capture two important generalizations: (i) The fact that phrase structure as generated by rewrite rules is highly similar across categories, as shown in work by Chomsky (1970), Jackendoff (1977) and Stowell (1981) (cf. Corver, this volume, chapter 11); (ii) The fact that reordering transformations are highly similar across constructions and languages. This led to a more general phrase structure theory called X-bar theory, and a general reordering operation, Move  $\alpha$ , and a model known as Principles and Parameters theory (Chomsky 1981).

X-bar theory involves three general rewrite rules:

- (3) (i) XP => (Specifier) X' or XP => X' (Specifier)  
(ii) X' => (Adjunct) X' or X' => X' (Adjunct)  
(iii) X' => X (Complement) or X' => (Complement) X

Specifiers, adjuncts and complements are XPs themselves. In each rule in (3), zero or one specifier, adjunct or complement can be introduced and since (3-ii) is recursive, the number of adjuncts is unrestricted. The rewrite rules in (3) would be able, e.g., to generate a phrase like *John's beautiful book about bats*, with *John* a specifier, *beautiful* an adjunct and *about bats* a complement of the head *book*, and the XP as a whole a projection of the head *book*.

In this model, a certain amount of cross-linguistic variation can still be captured by the rewrite component. Linguistic categories and languages do not differ in the phrase structures they can project. Every projection has a head and a number of specifiers, adjuncts and complements, in this hierarchical order. But the rules in (3) in fact say that identical hierarchical structures can be linearized in two ways. Thus (3-iii) captures the VO – OV difference. We can say that X-bar theory is a principle that contains a linearization parameter, the value of which has to be set on the basis of language input. Notice that the P&P theory of phrase structure is still powerful, as the number of adjuncts is variable, the presence of specifiers and complements is optional and the linearization can be different for each level. E.g. the model predicts for VPs all logically possible orders for S, V and O (where S = subject = specifier; O = object = complement; V = verb): SVO, SOV, VSO, VOS, OSV and OVS, which may be incorrect because OSV and OVS are typologically very rare.

Since the individual reordering transformations were replaced by one general reordering operation Move  $\alpha$ , the model no longer allowed construction- or language-specific movement operations. Move  $\alpha$  was in principle allowed everywhere. In cases where it was not, this was due to universal and language-specific constraints, many of which were still to be discovered. Questions of the type “Why do some languages (e.g. English) have Wh-movement, while others do not (e.g. Chinese)?” now become more urgent. There had to be some property in the grammar of Chinese such that the general rule Move  $\alpha$  could not apply to Wh-constituents. One answer proposed was that all languages have Wh-movement, but languages differ with respect to the level at which this movement applies: in overt or in covert syntax, where covert syntax means LF, Logical Form, the level at which the semantic interpretation of a syntactic structure is determined (Huang 1982). Thus, in addition to the linearization parameter in the phrase structure rules, we have a second parameter taking care of word order variation: Parametrization of the level at which Move  $\alpha$  applies.

The parameters in the P&P model have two important properties: (i) They are part of the syntactic module of the mental grammar. The syntactic module can thus be a source of syntactic variation, in addition to the Lexicon and PF (the level of phonological form). (ii) Parameters in the P&P model can be global, applying to entire languages, not to individual construction types. Parameters were thought to capture clusters of syntactic differences. The best-known example of this is the null-subject parameter (Rizzi 1982), which was supposed to capture the clustering of null-subjects, free inversion, the lack of *that*-trace effects and the distribution of expletives.

### 2.3 The Minimalist Program (MP)

As has been shown many times (cf. Newmeyer 2004, 2005, Biberauer 2008 for recent discussion), the null-subject parameter cannot be maintained in view of the many

counterexamples showing that these properties do not cluster cross-linguistically. Also, it is clear that the null-subject parameter cannot be a global parameter applying to an entire language, as there are language varieties in which null subjects are only possible with one member of the verbal paradigm. For example, in Frisian and Groningen dialects (north-eastern Dutch) only the second person singular subject can be silent (cf. SAND Volume I, map 41a). Thus, parametrization must apply at the level of the lexical specification of individual functional items. Other parameters underwent the same fate (cf. Haspelmath 2008) with the possible exception of the Polysynthesis parameter proposed by Baker (1996).<sup>4</sup>

In the next stage of GG, the Minimalist Program (Chomsky 1995, 2005), the idea of global parameters is therefore abandoned. Also, it is hypothesized that there is no parametrization in the syntactic module of the mental grammar. This module consists of a set of universal building principles and is not a source of cross-linguistic variation or intra-linguistic optionality. X-bar theory is further reduced to the operation of Merge (essentially: combine two phrase markers). Derivations are from bottom to top, and binary branching, following Kayne (1984). Move  $\alpha$  is an instance of Merge, namely a case in which a subpart of a phrase marker is remerged with that phrase marker. In the Antisymmetric variant of MP (Kayne 1994), all movement, and, more generally, all instances of Merge, are leftward and upward and the Universal Base Hypothesis is adopted, according to which all languages have the same underlying structure (cf. Moro, this volume, chapter 18).

The consequence of this set of very restrictive building principles is that all word order variation must be the result of movement, because there is no freedom in the phrase structure building component. Also, cross-linguistic differences in word order cannot be explained in terms of movement parameters (e.g. [ $\pm$  move]), because this would involve a parameter in the syntactic component, and, by hypothesis, such parameters do not exist. Similarly, intra-linguistic optionality in word order can not be attributed to such movement parameters. The task of MP is therefore to reduce apparent differences in movement to either the Lexicon or to the level of phonological spell-out (PF).

In this way, MP considerably reduces the learning task, as all syntactic principles are universal and nothing about syntax has to be learnt. The Lexicon has to be learnt anyway and is therefore a source of variation. Variation at PF has to be admitted as well. For example, it is well-known that certain parts of a syntactic structure can remain silent under syntactic and semantic equivalence (cf. Merchant, this volume, chapter 19).

An example of this is the Dutch pair in (4a,b):

- (4) Context: Do you want that book?
- |    |                  |      |    |             |         |             |
|----|------------------|------|----|-------------|---------|-------------|
| a. | Nee, dat         | heb  | ik | gisteren    | al      | uitgelezen. |
|    | no that          | have | I  | yesterday   | already | read        |
| b. | Nee, $\emptyset$ | heb  | ik | gisteren    | al      | uitgelezen. |
| c. | Nee, gisteren    | heb  | ik | dat         | al      | uitgelezen. |
|    | no yesterday     | have | I  | that        | already | read        |
| d. | * Nee, gisteren  | heb  | ik | $\emptyset$ | al      | uitgelezen. |

The sentences in (4a,b) mean the same, and it can be shown that their syntactic properties are the same. In particular, although there is no audible constituent in the

<sup>4</sup> But see Newmeyer (2004) for extensive criticism.

position preceding the finite verb in (4b), it is impossible to prepose another constituent (e.g. *gisteren* ‘yesterday’) in this sentence, just like in (4a), while preposing is normally possible in Dutch when the position before the finite verb is empty, as (4c) illustrates. Thus, in (4b) *dat* ‘that’ is syntactically present but phonetically empty. The task defined by MP is then to find out under which conditions a constituent can remain silent. In the example in (4) one condition seems to be that the silent constituent has to be in the position preceding the finite verb. In other positions, *dat* ‘that’ cannot be silent (4d).

In sum, word order variation in MP is thought to be reducible to the Lexicon and PF. To support this hypothesis, we have to look for lexical properties that play a role in word order variation, reveal the mechanisms by which they do this, and show how this explains cross-linguistic and intra-linguistic variation.<sup>5</sup> For the level of PF, we need to develop a theory of silence that captures the distribution of silent constituents and also explains linguistic variation. Alternatively, we can try to falsify the Minimalist hypothesis by showing that there are cases of variation in the syntactic module that cannot be reduced to the Lexicon or PF.

Under a slightly looser interpretation, the Minimalist hypothesis leaves some space for variation in the syntactic module even given the hypothesis that there is one and the same set of invariant syntactic principles for all language varieties. If these principles are not parametrized indeed, then variation in the syntactic component can arise if we assume that a particular language variety need not exploit all the building principles given by UG. This is very close to the approach advocated in Bouchard (2003). Bouchard observes that cross-linguistically there are four ways to express a relation between two constituents: (i) head marking: a property of the dependent is marked on the head, e.g. subject agreement on a verb; (ii) dependent marking: a property of the head is marked on the dependent argument, e.g. case marking of an argument by a verb; (iii) juxtaposition: two constituents are placed next to each other to express their relation (in which case the order has to be kept constant to keep the relation constant), e.g. V-O order in English; (iv) superimposition, e.g. intonation on a word to express grammatical function in a tone language. A particular language can pick one or more of these solutions but it does not have to choose all of them.

Crucially, in Bouchard’s view the four available building principles are not part of UG, they are the only four logically possible ways to meet the interface requirements of expressing linearly the hierarchical relations between constituents. It is an open question, also in MP (see in particular Chomsky 2005), whether the invariant syntactic principles should be identified with the set of innate UG principles specific to the language faculty, as hypothesized in the TGG and P&P models, or whether they are not specific to language but follow from interface conditions.

Either way, these approaches are still very close to the P&P model and MP is usually taken to be a natural continuation of P&P. There is an important consequence, however. In P&P, dialectal variation was often implicitly considered to be superficial and hence non-parametric (cf. Newmeyer 2004 for discussion). The dialects of one family would have largely the same grammar but differ in the details of some language specific rules and constraints, their lexicons and surface realizations. The differences between two genetically more remote language varieties would be the result of different settings of global parameters, i.e. the two languages would have the

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<sup>5</sup>The term ‘cross-linguistic variation’ in this chapter refers to variation among different language varieties, where language varieties include all idiolects, dialects, sociolects, standard languages. The term ‘intralinguistic variation’ refers to variation within one idiolect, i.e. optionality.

same UG but different grammars due to these different parameter settings. For the most elaborated version of this view, see Baker (1996, 2001, 2008).

In MP, on the other hand, both variation between closely related dialects and between genetically more remote languages is the result of differences in the Lexicon and PF. In this view, there is no principled difference between microvariation (the differences within one dialect family, say the dialects of English), mesovariation (the systematic differences between, say, the English dialect family and the Dutch dialect family), and macrovariation (the differences between genetically remote languages, say English and Japanese). Meso- and macrovariation are taken to be a cumulation of microdifferences at the lexical level and PF (cf. Kayne 2005). Huge and global effects, such as the differences between uniformly head-first languages (English) and head-final languages (Japanese) should then be the result of the (abstract) features of elements that can affect the entire grammar.<sup>6</sup> The features of functional elements, such as Tense, Determiner, Complementizer are good candidates for this. Commonly, in MP the morphosyntactic feature specifications of functional elements (as opposed to lexical elements) is taken to be the main source of syntactic variation and they are therefore the central research topic in MP.

#### 2.4 The relation between morphosyntactic features and word order

The idea that there is a relation between the morphosyntactic feature specification of functional elements in the Lexicon and word order differences goes back to at least Pollock (1989). Pollock starts out with Emonds' (1976) observation that English and French differ with respect to verb movement. Both languages have three positions for verbs in the clause, but in English only auxiliaries can move from their base position (position 3 in (5)) to the two higher positions. This is illustrated in (5).

(5)	V:	1	2	3		
a.		Il	<mange>	souvent	<*mange>	une pomme.
b.		He	<*eats>	often	<eats>	an apple.
c.		He	do-es	not	eat	an apple.
d.		Il	a	souvent	mangé	une pomme.
e.		He	has	often	eaten	an apple.
f.			to	often	have eaten	an apple
g.		Mange-t-il		souvent		une pomme?
h.		A-t-il		souvent	mangé	une pomme?
i.	*	Eats	he	often		an apple?
j.		Has	he	often	eaten	an apple.

As we can see, the position of the main verb in French depends on its morphology (5a,d). A finite main verb precedes OFTEN (position 2), while a participial main verb follows it (position 3). In English, position 2 is also only accessible for finite verbs (5c,e,f), but there is an additional restriction: only auxiliaries can go there (5b,c,e). Only verb forms that can occur in position 2 can also occur in position 1 (assuming that the subject stays put): French (5g,h) are both possible, but in English again only finite auxiliaries can occur in position 1 (5i,j).

<sup>6</sup> As opposed to elements where varying feature specification only has a very local effect on the grammar. E.g., the feature specification for concord on attributive adjectives presumably will only have an effect on the structure of DPs, not on clausal grammar.



Position 2 has been identified as the position where finiteness features, i.e. Tense and Agreement, are generated. Let us say that there is a functional element I (=T+Agr) in that position. Some evidence for this is (5c) if we analyze it as follows: the finiteness features in position 2 cannot be associated with the main verb in position 3 when negation intervenes. To get a grammatical sentence, a dummy element DO is inserted that can host the morphosyntactic features of I.

The difference between French and English is then, according to Pollock, that finite I is strong in French and weak in English, where [strong] correlates with a rich agreement paradigm (French *-e(s)*, *-ons*, *-ez*) and [weak] with a poor agreement paradigm (English *-s*). If finite agreement is strong, both lexical and auxiliary verbs move to I. If finite agreement is weak, only auxiliaries move to I. This difference between lexical and auxiliary verbs follows from a difference in the theta role assigning properties of these verbs.<sup>7</sup>

## 2.5 The Minimalist Program for dialect research

The above comparison of verb positions in English and French keeps the number and hierarchy of positions for the verb constant and attributes intra- and cross-linguistic variation in the positioning of the verb to the application of movement: from V(erb) (position 3), to I(nflection) (position 2) to C(omplementizer) (position 1). The hypothesis is that V-movement can apply if a language has rich inflection. This raises a number of general and specific questions:

- (i) Why would there be a relation between rich inflection and verb displacement?
- (ii) What is the relevant definition of rich inflection (what kind of and how many distinctions in the verbal paradigm)?
- (iii) What is the role of paradigms?
- (iv) Does the implication only work in one direction (if V-movement, then rich agreement) or also in the other (if rich agreement, then V-movement)?
- (v) Which morphosyntactic features play a role in agreement phenomena?
- (vi) If function words are feature bundles, how are these feature bundles organized and specified (binary or unary features, linear array of features or hierarchy)?
- (vii) What is the relation between a feature specification and phonological spell-out?
- (viii) Is it possible that languages vary with respect to which positions are available, e.g., is it possible that C and/or I is missing in a particular language? If so, this would be another case of variation under a looser interpretation of the Minimalist Hypothesis: All languages draw from the same set of categories and syntactic building principles, but not all languages use the full set. Conceivably, a language could dispense with I while all other syntactic properties would be universal.
- (ix) A variant of (viii): Are there languages that fuse two positions into one, e.g. C and I are one position or I and V are one position?

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<sup>7</sup> See Pollock (1989: 386-389). Pollock's account of the data in (5) is much more complex than is indicated in the text. Among other things, he assumes that IP in fact splits into TP and AgrP. These properties of his account are not relevant for the discussion here, as the goal is to show that there is a relation between position and verbal morphology. For other versions of the split IP hypothesis, see below.

Dialects provide an interesting testing ground for all of these questions. As dialects show minimal differences in morphosyntactic feature specification and spell-out, while most other grammatical properties are identical, the effect of such minimal differences on e.g., word order, doubling and unpronounced constituents can be more directly investigated. As before, there is no principled difference between comparing French and English and comparing a number of closely related dialects. The only difference is that in the latter case the number of differences between the dialects is smaller than the number of differences between English and French, such that it becomes easier to detect which properties of a language variety depend on each other.

Verb placement is a domain that is understood well enough to make more precise and detailed investigation of microdifferences possible and necessary.

Variation in verb placement will be taken up in the cases studies discussed in section 3. The relevance of morphosyntactic agreement for displacement is, however, not restricted to the domain of verb placement. The general hypothesis is that movement is only possible if there is agreement between the moving element and the functional element triggering the movement. This agreement relation can be abstract, such that richness of the phonological exponent of an Agree relationship is not required for movement to be possible. Some examples outside the domain of verb movement include subjects that move under the condition that there is agreement between the subject DP and I, Wh-elements that move if there is agreement between C and Wh, etc.<sup>8</sup> For such domains as well dialects provide an ideal testing ground, as we would like to know which morphosyntactic features play a role in agreement phenomena, whether agreement must be full agreement or can also be partial, and what the consequences are of minimal differences in feature specification/agreement for movement possibilities.

### **3. (Micro-)syntactic variation. Some case studies.**

A general theory of syntactic variation should at least account for the phenomena in (6); the list is by no means exhaustive. These types of variation occur both at the micro-, the meso- and the macrolevel. In view of the goal of this chapter we will discuss a number of microvariational cases.

#### **(6) Types of syntactic variation**

##### **A. Variation in word order**

Examples: (i) In Icelandic, the finite verb in embedded clauses precedes negation, while in Mainland Scandinavian it follows it (Holmberg and Platzack 1995). (ii) In German and Dutch dialects, the finite verb is in verb second position in root clauses (i.e. C or I, see below for discussion), but in clause final position (i.e., V) in embedded clauses (Paardekooper 1961, Den Besten 1989). (iii) In German and Dutch dialects, verbs clustering at the end of the clause show various positional options, from two for two verbs to four for three verbs (Wurmbrand 2006, Barbiers 2005).

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<sup>8</sup> In more recent versions of MP (e.g. Chomsky 2000), agreement is still a precondition for movement, but agreement itself is no longer the trigger of movement. It is the (optional) presence of EPP that triggers (optional) movement. I will not consider the consequences of this change in this chapter.

### **Analyses**

(a) [ $\pm$  movement]; (b) movement in overt syntax vs. (invisible) movement at LF; (c) copying in Syntax and spell-out options at PF, i.e. in base position or landing site (Bobaljik 2002a).

#### **B. Variation in agreement**

Examples: (i) The agreement on finite verbs in embedded clauses in some eastern varieties of Dutch is identical to the agreement on the finite verb in subject-initial V2 clauses but distinct from finite agreement in non-subject-initial V2 clauses, which in turn is identical to agreement on the finite complementizer (Zwart 1993). (ii) The agreement paradigm of a dialect shows syncretisms different from the ones in the standard language.

### **Analyses**

(a) Cross-linguistic differences in morphosyntactic feature specification (Adger 2006). (b) Cross-linguistic differences in the spell-out of morphosyntactic features (strong version of Distributed Morphology, Halle and Marantz 1993).

#### **C. Variation in spell-out I: Morphosyntactic doubling**

Some examples include Wh-word doubling, subject pronoun doubling, comparative doubling, focus particle doubling (cf. Barbiers et al 2008 for an overview).

### **Analyses**

(a) Multiple spell-out of chain positions (Nunes 2004; Barbiers, Koenenman and Lekakou 2009); (b) Partial movement from big XPs (Kayne 1994, Poletto and Pollock (2004); (c) Doubling as agreement (cf. Barbiers 2008a).

#### **D. Variation in spell-out II: Silent constituents**

Example: In many languages (e.g., Italian) subject pronouns can be silent. It has been suggested that, at least for the Italian-like subset of pro-drop languages, there is a relation with rich agreement (cf. the papers in Biberauer 2008).

### **Analyses**

(a) pro (in subject position) locally identified by rich agreement (Rizzi 1982); (b) Agreement morpheme fulfills the subject role and makes a subject pronoun superfluous (Barbosa 1997) (c) Morphosyntactic features of the silent category are underlyingly present but can be left unpronounced under local recoverability, e.g. head-spec agreement, head-head government or chain government (Rizzi 1986).

#### **E. Variation in pied piping**

Example: When a constituent needs to undergo movement it may or may not pied pipe the constituent that it is part of. An example is the WHAT FOR split construction found in German and Dutch in which either WHAT alone or the entire constituent containing WHAT (e.g., WHAT FOR BOOK) is fronted (cf. Leu 2008, chapter 5 and references cited there).

### **Analyses**

(a) Pied piping: the movement is triggered by the features of the subconstituent, and this subconstituent drags along the containing constituent (e.g., Koopman and Szabolcsi 2000); (b) Partial copying vs. full copying. In partial copying only the subconstituent is copied

and spelled out in a higher position, not giving rise to pied piping. In full copying, the entire constituent is copied, giving rise to pied piping.

In the remainder of this chapter we will discuss two case studies to demonstrate the kind of questions that the various types of syntactic variation raise, the kind of analyses that have been proposed to capture these types of variation, and the analysis we arrive at if we try to reduce the variation to the Lexicon and PF.

### 3.1 Finite Verb placement and complementizer agreement in dialects of Dutch

The Minimalist analysis of the verb placement contrasts in French and English discussed above contained the following ingredients:<sup>9</sup>

- (7) (i) All languages are right-branching, i.e. uniformly head-first.
- (ii) All movement is upward (and leftward).
- (iii) All languages have the same base structure (set and hierarchy of functional projections).
- (iv) This structure contains (at least) three verbal positions; V(erb) is the base position; I(nflection) is a position in the middle field containing inflectional features; C(omplementizer) is a position in the left periphery. The hierarchy is [<sub>CP</sub> C [<sub>IP</sub> I [<sub>VP</sub> V]]]
- (v) Whether a verb occurs in V, I or C depends on its morphology: only finite verbs can go to I and C (and English has the further restriction that these finite verbs must be auxiliaries).
- (vi) English main verbs cannot go to I and C because of a link between weak agreement and thematic opacity.
- (vii) Arguments (subject, object, indirect object) originate in VP. The subject moves to SpecIP to check its case and phi-features.
- (viii) A fronted constituent can move to SpecCP.

The Tense/Agreement suffix in I seems to attract V to I. How exactly this works is a central issue in MP. Very interesting microcomparative work on this has been done in the Scandinavian area.<sup>10</sup> On the basis of contrasts such as between Icelandic (rich agreement and V to I) and Danish (poor agreement and no V to I), it was hypothesized that rich agreement was the cause of V to I movement (Rohrbacher 1999). Fine-grained comparison of closely related varieties of Scandinavian showed that this hypothesis was incorrect. In the absence of consensus on what counts as rich agreement, the most convincing arguments against the rich agreement hypothesis come from language varieties that have V to I but no agreement at all, as is the case in the Kronoby dialect of Swedish.<sup>11</sup>

Bobaljik (2002b) proposes that the following one-way implication holds. If a language has rich inflection then it has verb movement to Infl.<sup>12</sup> This implication allows for languages that have V to I but no rich inflection. Verbal inflection is rich

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<sup>9</sup> The discussion here is restricted to three verbal positions C, I and V for ease of explanation. This is a considerable simplification, given proposals in the literature that all three domains have to be split up in a number of projections. Cf., e.g. Poletto (2000) and references cited there for the fine structure of the CP-domain, Cinque (1999) for the fine structure of the middle-field and Ramchand (2008) for the fine structure of VP.

<sup>10</sup> Cf. Garbacz (2010) for a recent overview.

<sup>11</sup> Cf. Bobaljik (2002b) for more counterexamples.

<sup>12</sup> Cf. Garbacz (2010) for potential counter examples, such as the Swedish dialect Övdalian that has rich agreement in the sense of Bobaljik (2002) but optional V to I.

only if finite verbs may bear multiple distinct inflectional morphemes, e.g. tense and person/number agreement, and this morphological richness is a sign that the language has a split IP (AgrP dominating TP). Morphologically poor languages either have IP or split IP.<sup>13</sup> The property of having a split IP correlates, according to Bobaljik and Thráinsson (1998), with various other syntactic properties, such as multiple subject positions and transitive expletive constructions. Clearly, parametrization is taken here to apply to the syntactic module, as language varieties can differ with respect to the functional projections they have in the clause.

Let us now see if this analysis can be applied to Dutch. Since finite verbs in Standard Dutch show multiple distinct inflection (e.g. *wandel-de-n* walk.PAST.PL), we expect them to have V to I as well. As is well-known, Standard Dutch is an asymmetric V2 language. Suppose this would mean that the finite verb is in C in main clauses, in complementary distribution with the complementizer (Den Besten 1989) and that the finite verb is in final position (V) in embedded clauses, just like all non-finite verbs.

(8)		C		V	
a.	Jan	heeft	een appel	gegeten.	
	John	has	an apple	eaten	
b.	Jan	eet	een appel.		
	John	eats	an apple		
c.		dat	Jan	een appel	eet
		that	John	an apple	eats
d.		dat	Jan	een appel	heeft gegeten
		that	John	an apple	has eaten

These sentences do not provide any evidence for the availability of an I-position in the middle field of Standard Dutch. It is also impossible to deduce the existence of I by using the diagnostic of adverbs with a designated and rigid position, like *SOUVENT* and negation in English and French, as these adverbs all occur between C and V and do not tell us anything about I.

This state of affairs has led some researchers to conclude either that Standard Dutch does not have an I position or that I and V are fused, or that I is to the right of VP in Dutch, selecting VP as its lefthand sister, as in [<sub>CP</sub> C [<sub>IP</sub> [<sub>VP</sub> V] I ] ] (Weerman 1989, Koster 2008). Both proposals give up the Universal Base Hypothesis (UBH) in its strongest form, as the first claims that there is no I position in Standard Dutch, while the second claims that there is no uniform branching direction. The first is still compatible with the looser interpretation of the UBH and Minimalism, because it draws from the same set of invariable syntactic building blocks but does not exploit the full set. The second proposal retains the idea of a universal hierarchy, but has to allow parametrization in the syntactic module of the grammar by allowing mixed right- and left-branching structures.

It is possible to find evidence for I in the middle field if we use different diagnostics and also take Dutch dialects into account. As Travis (1984) and Zwart (1993) have shown, there is a remarkable contrast between the distribution of weak subject pronouns and other weak pronouns in all varieties of Dutch. Whereas weak

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<sup>13</sup> Thus, this approach does not accept the hypothesis that all languages have the same number and order of functional projections (7-iii).

subject pronouns can occur in clause initial position, weak object, indirect object pronouns etc. cannot.

(9)	C	I	V			
a.		Je/jij you.W/you.S	hebt have	een appel an apple	gegeten. eaten	
b.	Jou/*Je you.S/you.W	hebben have	ze/zij they.W/they.S	een appel an apple	gegeven. given	
c.		*t/Dat it.W/that.S	bevalt pleases	ons us	goed. well	
d.	Dat/*'t that.S/it.W	heb have	ik I		niet not	gezien. seen

This contrast can be captured if we assume that fronted constituents go to SpecCP, that this position in declarative clauses is associated with stress and that weak pronouns cannot bear stress. Weak subject pronouns cannot be in SpecCP, so they must be in SpecIP. It then follows that the finite verb in clauses like (9a) and (9c) must be in I, and that subject initial clauses are IPs, not CPs. Only in sentences in which some constituent other than the subject has been fronted, as in (9b,d), is the finite verb in C, contrary to the analysis in (8).

The Dutch dialects provide us with a second argument in favor of an I position in the middle field (Zwart 1993). Some eastern Dutch dialects have a double agreement paradigm. In subject initial clauses, first person plural agreement on the verb is *-t* and cannot be *-e* (10a,b). In the inverted order, it is the other way around: first person plural agreement on the verb is *-e* and cannot be *-t* (10c,d). Strikingly, the same *-e* ending is found on the complementizer (10e). The relevant eastern Dutch dialects are complementizer agreement dialects, in which the complementizer agrees with the subject for first person plural. These facts follow immediately if we associate the *-e* ending with the C-position, such that complementizers and inverted verbs have it but verbs in subject initial clauses do not. In positions other than C, the 1PL finite verb has a *-t* ending (10a,e).<sup>14</sup>

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<sup>14</sup> As, e.g., (9a) shows, (10a,b) cannot be taken to provide evidence for the alternative idea that the head I follows VP in Dutch. In (9a), the participle is in VP and the internal argument intervenes between the auxiliary and V, so I must be to the left of VP. In general, DP arguments and predicative complements of verbs cannot follow the clause final verb position, so whenever they seem to do, the finite verb has moved to the I or C position. Thus, in (11b,c) the fact that the predicative complements *naar huis* 'to house' and *Sinterklaas* follow the finite verbs shows that the finite verbs are not in a position I that follows VP.

(10)	C	SpecIP	I	V
a.		wij	speul-t	
		we	play.1PL	
b.		*wij	speul-e	
		we	play.1PL	
c.	*speul-t	wij		
	play.1PL	we		
d.	speul-e	wij		
	play.1PL	we		
e.	dat-e	wij	speul-t	
	that.1PL	we	play.1PL	

The assumption that there is a relation between a particular suffix and a particular position is crucial here. It implies that the feature specifications underlying these two suffixes must be distinct. PF has to know that 1PL in I is spelled out as *-t* whereas it is spelled out as *-e* in C. Strictly speaking then, the glossing in (10) is not correct. A possibly better feature specification is PL for *-t* and 1PL for C. An important conclusion is that variation in Agreement depending on position (i.e., variation of type B) is reduced here to variation in underlying feature specification.

The third argument in favor of an I position in the middle field also comes from the dialects and from child language (Barbiers and Van Koppen 2006). In a number of western dialects of Dutch we find the phenomenon of subject pronoun metathesis. The subject pronoun occurs between the stem of the verb and past tense inflection (11a; SAND Volume II, map 45b). This also happens with number agreement (11b; De Schutter 1994). The same phenomenon has been observed in Standard Dutch child language (11c; cf. also Flikweert 1994).<sup>15</sup>

(11) a.	Gisteren	wandel- <b>die</b> -de	door	het	park.
	yesterday	walked-he-PAST	through	the	park
	‘Yesterday he walked through the park.’				
b.	Nu	ga- <b>me</b> -n	naar	huis.	
	now	go-we.PL	to	house	
	‘Now we go home.’				
c.	Dan	noem- <b>ik</b> -te	jou	Sinterklaas.	
	then	call-I-PAST	you	St-Nicholas	
	‘Then I would call you Sinterklaas.’				

If we want to apply the analysis for verb positions sketched above, we only need one additional assumption, namely that in certain language varieties a suffix can be stranded under movement of its host.<sup>16</sup> In (12), all other constituents are in their usual, cross-linguistically well-motivated positions, such that the Universal Base Hypothesis in its strongest form can be maintained. The past tense and plural suffix remain in their base positions. The word order difference between Standard Dutch and Child

<sup>15</sup> For reasons that I do not understand, not all members of the subject pronoun paradigm seem to occur in this construction, e.g. second person singular cannot occur in between the verb and the suffix.

<sup>16</sup> If it is possible to strand a suffix under movement and if head movement involves more than one step, the result looks like a violation of the Head Movement Constraint (Travis 1984). For example, in (11), it looks as if the verb has skipped the tense or agreement head on its way from V up to C. It is not entirely clear how to rule out violations of the Head Movement Constraint if excorporation as proposed here is generally allowed.

and Western Dutch is not the result of differences in the number of movement steps or movement targets, but of the amount of material that is carried along in a movement operation, i.e. pied piping.

(12)	<b>SpecCP</b>	<b>C</b>	<b>SpecIP</b>	<b>I</b>	<b>V</b>
a.	gisteren	wandel	die	-de	door het park
	yesterday	walk	he	PAST	through the park
b.	nu	ga	me	-n	naar huis
	now	go	we	PL	to house
c.	dan	noem	ik	-te	jou Sinterklaas
	then	call	I	PAST	you St-Nicholas

We know independently that languages differ with respect to how much structure they keep together under movement. For example, degree Wh-constituents in Standard Dutch cannot be split under movement, although this is possible in Dutch child language and in languages like Italian (13a-c; Van Kampen 1997). We also find other cases of suffix stranding in Dutch child language (13d; Barbiers and Van Koppen 2006).

(13) a.	Hoe lang denk je dat ik ben?	Stand. Dutch
b.	Hoe denk je dat ik lang ben?	Child/*Stand. Dutch
	how think you that I tall am	
	‘How tall do you think I am?’	
c.	Quanto è alto?	Italian
	how is (he) tall	
	‘How tall is he?’	
d.	Hoeveel is het -ste?	Child /*Stand.Dutch
	how-many is it SUPERL	
	‘What day is it?’	

The question now arises if pied piping differences are an instance of parametrization at the level of syntax. As was noted above, the strongest version of the Minimalist hypothesis does not allow any parametrization in that module and we need to establish if subject pronoun metathesis is a counterexample to this hypothesis. It is only a counterexample if pied piping differences are technically modelled as cases of subextraction (or partial copying, in which case the trace is a copy), as was common in the Principles and Parameters approach. This is illustrated in (14a) for Wh-subextraction. Under a Copy and Delete approach, pied piping differences can be handled at PF if the Delete operation takes place at PF (Bobaljik 2002a). This is shown in (14b,c). The deletion operation would be obligatory to make sure that two copies are not identical at PF, as this would prevent them from linearization (Nunes 2004).



- (14) a. wat<sub>i</sub> heb je [DP t<sub>i</sub> [voor boek]]  
 what have you for book  
 ‘What kind of book do you have?’
- b. [wat [voor boek]] heb je [wat [voor boek]] Copying in Syntax  
 what for book have you what for book
- c. [wat [~~voor boek~~] heb je [wat [voor boek]] Deletion at PF  
 what for book have you what for book

This analysis does not directly carry over to subject pronoun metathesis in varieties of Dutch. If the fully inflected verb is generated in V, following the Lexicalist Hypothesis of Chomsky (1970), and subsequently copied to I and C, the representation in (15) is the input for PF.

- (15) [CP nu [C wandel-de [IP die [I wandel-de [VP door het park [V wandel-de]]]]]]  
 now walk-ed he walk-ed through the park walk-ed

PF-deletion derives various orders, among others (16a-c), only one of which is attested (16c).

- (16) a. \*[CP nu [C wandel-~~de~~ [IP die [I wandel-~~de~~ [VP door het park [V wandel-~~de~~]]]]]]  
 b. \*[CP nu [C ~~wandel-~~de~~~~ [IP die [I wandel-~~de~~ [VP door het park [V wandel-~~de~~]]]]]]  
 c. [CP nu [C wandel-~~de~~ [IP die [I wandel-~~de~~ [VP door het park [V wandel-~~de~~]]]]]]

Clearly, it is possible to make additional stipulations to rule out the ungrammatical (16a,b). The point is, however, that no such stipulations are necessary for the derivation in (12), which is presented in more detail in (17). The situation where the past tense suffix is stranded in V simply does not arise because this suffix is generated in I, not in V.

- (17) (i) **Base order (all Dutch varieties)**  
 [IP die [I -de [VP ... [V wandel]]]]  
 he PAST walk
- (ii) **V to I (all Dutch varieties)**  
 [IP die [I wandel-de [VP ... [V wandel]]]]
- (iii) **I to C (Standard Dutch)**  
 [CP nu [C wandel-de [IP die [I wandel-~~de~~ [VP ... [V wandel-~~de~~]]]]]]
- (iv) **I to C (western Dutch dialects and Child Dutch)**  
 [CP nu [C wandel [IP die [I wandel-~~de~~ [VP ... [V wandel-~~de~~]]]]]]

We thus see that the dialectal phenomenon of subject pronoun metathesis provides an interesting argument against the Lexicalist Hypothesis according to which inflected words are inserted in the structure as a whole and in favor of the hypothesis that inflected words are derived by movement in the syntactic module where the lexical host moves and attaches to the left of the suffix that is generated higher up in the structure (cf. Baker 1985).

As was noted in section 3 under (6), Distributive Morphology (DM; Halle and Marantz 1993) offers an alternative way of handling variation such as subject pronoun

metathesis at PF. In DM, it is not fully inflected words or even separate functional and lexical morphemes that are merged in syntax, but rather morphosyntactic feature bundles. These morphosyntactic feature bundles are combined into hierarchical structures in syntax and then delivered to the morphological module. That module, applying before PF-spell out, allows several operations, including Local Dislocation (a.o. Lowering) and Reduplication and Deletion. Harris and Halle (2005) show that certain metathesis phenomena in Spanish can be captured in such a model. Let me briefly illustrate this analysis and then ask if this also works for subject pronoun metathesis in Dutch dialects.

Harris and Halle discuss the data in (18), where ‘normative’ means normative European Spanish and ‘alternative’ means colloquial Latin-American Spanish varieties.

- |      |                             |                                    |
|------|-----------------------------|------------------------------------|
| (18) | <b>Normative</b>            | <b>Alternative</b>                 |
|      | a. vénda-n lo<br>sell.PL it | b. vénda-n lo-n<br>c. vénda-∅ lo-n |

In Harris and Halle’s account, (18b,c) are the result of partial reduplication, i.e. reduplication + deletion, as illustrated in (19).

- |      |            |    |                             |    |  |
|------|------------|----|-----------------------------|----|--|
| (19) | Syntax     | => | Reduplication in Morphology | => | Deletion in Morphology                       |
|      | vénda n lo |    | vénda n lo n lo             |    | (i) vénda n lo n l̥<br>(ii) vénda n̥ lo n l̥ |

This analysis elegantly derives the two alternatives and would be able to derive Dutch subject pronoun metathesis. After reduplication, *wandel-de-die* ‘walk-ed-he’ would be *wandel-de-die-de-die* ‘walk-ed-he-ed-he’. After deletion of the first *-de* and the second *-die* we would have *wandel-die-de* ‘walk-he-ed’, which is fully parallel to the derivation of (19-ii). However, this Distributed Morphology analysis predicts the order *wandel-de-die-de* ‘walk-ed-he-ed’ to be possible in the relevant Dutch varieties (parallel to (19-i) and if deletion is optional, the order *wandel-de-die-de-die* ‘walk-ed-he-ed-he’ as well. Neither of these two orders are attested in the Dutch language area. It seems that the operations allowed in the Morphological module in Distributed Morphology need to be restricted in a principled way to prevent them from overgenerating.

In conclusion, the analysis of subject pronoun metathesis in Dutch proposed above in terms of variation in pied piping is, for the time being, empirically the most adequate and theoretically the most economical. At first sight, this account has two disadvantages. First, we seem to have to allow parametrization for pied piping in the syntactic module, i.e., certain varieties allow for suffixes that can optionally be stranded when their host moves. This is a complex, not very elegant type of parametrization. Since it involves excorporation from a morphological word it violates lexical integrity (Lapointe 1980) and it is hard to distinguish from a violation the Head Movement Constraint (cf. footnote 9). Reduction of this variation to the

Lexicon is possible if we assume that in the relevant varieties of Dutch the past tense morpheme is lexically specified as a word, not as a suffix.<sup>17</sup>

Secondly, the proposed analysis crucially assumes that the past tense morpheme and agreement morphemes are generated in I and thus abandons strict lexicalism.<sup>18</sup> This must then be the case in embedded clauses as well, which is consistent with the fact that in the double agreement varieties of eastern Dutch the plural inflection on the finite verb in embedded clauses is identical to the plural inflection on the verb in subject initial main clauses but distinct from the plural inflection on the finite verb in inversion contexts and on the finite complementizer. This forces the conclusion that after V has moved from V to I, the remnant complement of I moves to the left of I, as was proposed first in Hallmann (2000).<sup>19</sup>

We have seen in this section that all types of syntactic variation listed in (6) are relevant for the analysis of finite verb placement in varieties of Dutch. Variation in agreement plays a role in eastern varieties of Dutch that have a double agreement paradigm. One paradigm was shown to be associated with the C-position, while the other was associated with the I-position. If we assume that the relevant morphemes are specified in the Lexicon for C and I relatedness this difference can be reduced to the Lexicon. The variation in word order found in subject pronoun metathesis constructions was shown to not be the result of parametrization of movement operations, but rather to variation in pied piping options. This variation was in turn reduced to the Lexicon by the assumption that in some varieties of Dutch the past tense suffix is specified as a word, not as a suffix. Subject pronoun metathesis was shown to involve word order variation that is not the result of parametrization of movement operations. Variation in morphosyntactic doubling was shown to arise by copying in the syntactic module or by reduplication in the morphological module. Such configurations also give rise to variation in silent categories, as copies can or must be (partially) deleted. How doubling and deletion are restricted could not be addressed here, but it seems to be clear that local recoverability of morphosyntactic features plays an important role, where local means under head-spec agreement or in a chain.

The case study in this section also clearly shows why it is important to take dialectal variation into account. While the contrast in the distribution of weak subject pronouns in Standard Dutch provides us with only one piece of evidence supporting the hypothesis that Dutch has an I position in the middle field just like English and French, the study of double agreement paradigms and subject pronoun metathesis in certain Dutch dialects provides us with two more converging arguments.

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<sup>17</sup> It would then be similar to the infinitival marker *te* ‘to’ that has word status too. Cf. the minimal pairs in (i-ii), which show that infinitival marker *te* ‘to’ is a word and the applicative morpheme *be* is a prefix.

- (i) Jan probeert de hond te vinden en (te) redden.  
 John tries the dog to find and to save  
 John tries to find the dog and to save it.
- (ii) Jan wil het artikel be- studeren en \*(be-) werken  
 John wants the paper APPL study and APPL work  
 ‘John wants to study the paper and adapt it.’

<sup>18</sup> This does not necessarily mean that it is impossible to have an agreement relation between I and V. E.g. the lexical representation of the past tense morpheme can be such that it needs (the features of) a verb stem to be fully interpretable and the lexical representation of the verb can be such that it needs (the features of) an affix to be fully interpretable.

<sup>19</sup> Cf. also Barbiers and van Koppen (2006).

### 3.2 Word order variation in three-verb clusters in dialects of Dutch

The second case study involves constructions of the type given in (20), where three verbs line up at the end of the clause.

- (20) Ik vind dat iedereen goed moet kunnen zwemmen.  
 I find that everyone well must can.INF swim.INF  
 ‘In my opinion everyone should be able to swim well.’

The 267 dialects of Dutch investigated between 2000 and 2005 (cf. Barbiers and Bennis 2007) show word order variation in these three-verb clusters, which depends on the type of auxiliaries in the cluster and the geographic area. The goals of this case study are: (i) To show that the theoretical questions listed in 2.5, including the source of word order variation, the trigger and grammar level of movement and the relation with universal syntactic principles, arise in this domain as well, but in a different way. (ii) To discuss the interaction between language-internal and language-external factors determining syntactic variation and the division of labor between GG on the one hand and sociolinguistics and dialect geography on the other. (iii) To demonstrate the added value of large scale microcomparative research involving large numbers of closely related dialects.<sup>20</sup>

The descriptive generalizations on Dutch three verb clusters are given in (21), where the left-hand column gives the hierarchy of three different types of verb clusters and the other six columns give the possible linear orders.

(21)

	1-2-3	1-3-2	3-1-2	2-1-3	2-3-1	3-2-1
Type A: 1.MUST 2.CAN 3.SWIM	yes	yes	yes	no	no	yes
Type B: 1.MUST-2.HAVE-3.MADE	yes	yes	yes	no	no	yes
Type C: 1.IS-2.GONE-3.SWIM <sup>21</sup>	yes	yes	no	no	yes	yes

The geographic distribution of these linear orders is given in SAND Volume II (maps 17a,b, 18a). Some rough generalizations are that the 3-2-1 order for all three cluster types is typical for northern Dutch dialects (including Frisian dialects), the 2-3-1 order, only possible for cluster type C, is typical for southern Dutch, in particular the Dutch dialects in Belgium. The 1-3-2 order with cluster type A is typical for a narrow zone along the eastern border of the language area, while the same order for clusters of type B is typical for the Dutch dialects spoken in Belgium. The maps in SAND Volume II also show that many speakers across the entire language area allow two, three or even four linear orders for each cluster type, raising the question whether their mental grammar allows optionality, in violation of the Minimalist hypothesis.

Assuming again uniform right-branching (head-initial) structure, the base order of all of these clusters is as in (22), which is also the order we find in many SVO languages such as English.

- (22) [VP<sub>1</sub> V1 [VP<sub>2</sub> V2 [VP<sub>3</sub> V3 ]]]

<sup>20</sup> Data and analysis in this section are from Barbiers (2005) and Barbiers (2008b). The latter is based on the theory proposed in Barbiers (1995).

<sup>21</sup> The hierarchically second verb in this cluster can be an infinitive or a participle, depending on the dialect. I will not discuss this variation here. See Wurmbrand (2006), who also gives the state of the art in the research into V-clusters.

The alternative linear orders can be derived by assuming roll-up movement, where VP3 first moves to a position preceding V2 and then VP2 (including VP3) moves to a position preceding V1.<sup>22</sup> If these movement operations are optional, we can derive the 1-2-3 order (no movement), the 1-3-2 order (movement of VP3), the 3-2-1 order (movement of VP3 and VP2) and the 2-3-1 order (movement of VP2).

- (23) a. **1-2-3 order: no movement**  
 $[_{VP1} \quad V1 \quad [_{VP2} \quad \quad \quad V2 \quad [_{VP3} \quad V3 \quad ]]]$
- b. **1-3-2 order: movement of VP3**  
 $[_{VP1} \quad V1 \quad [_{VP2} \quad [_{VP3} \quad V3] \quad V2 \quad [_{\cancel{VP2}} \text{---} \cancel{V3} \text{---}]]]$
- c. **3-2-1 order: movement of VP3 and VP2**  
 $[_{VP1} [_{VP2} [_{VP3} \quad V3] \quad V2 \quad [_{\cancel{VP2}} \text{---} \cancel{V3} \text{---}]]] \quad V1 \quad [_{\cancel{VP2}} [_{\cancel{VP3}} \text{---} \cancel{V3} \text{---}] \quad V2 \quad [_{\cancel{VP2}} \text{---} \cancel{V3} \text{---}]]]$
- d. **2-3-1 order: movement of VP2**  
 $[_{VP1} [_{VP2} \quad V2 \quad [_{VP3} \quad V3 \quad ]] \quad V1 \quad [_{\cancel{VP2}} \text{---} \cancel{V2} \text{---} [_{\cancel{VP3}} \text{---} \cancel{V3} \text{---} ]]]]$

The order 2-1-3 cannot be derived in this way. Since VP3 is contained in VP2 and V2 can only precede V1 if VP2 moves, VP3 will always precede V1 when V2 precedes V1. Thus, the categorical ungrammaticality of 2-1-3 follows automatically. The 3-1-2 order can only be derived if VP3 first moves across VP2 and then across VP1. There are reasons to believe that this word order, only possible with cluster types A and B, involves nominalizations (cf. Broekhuis 2008), so we will not discuss this order any further.

There are four interconnected problems with the analysis so far:

- (i) The movement operations seem to be optional, as many speakers allow more than one of the linear orders for each cluster. This is the problem of intra-speaker variation.
- (ii) The trigger of these movements is unclear.
- (iii) The analysis does not explain the differences between the three cluster types.
- (iv) The analysis does not explain the geographic distribution of the different word orders.

A possible solution to problem (i) is that speakers who allow more than one order for each cluster in fact have multiple competing grammars (cf. Kroch 2001). This would, however, lead to an explosion of the number of grammars that one speaker can have, as, e.g., the same optionality in word order can be observed in multiple PP-Extrapolation constructions and there does not seem to be a correlation between the orders that a speaker allows in verb clusters and the ones he allows in multiple PP Extrapolation.<sup>23</sup>

An alternative solution to the problem of intra-speaker variation would be to assume that all speakers in the Dutch language area have one and the same grammar (for the phenomena under discussion) and that speakers (hence dialects) differ with respect to the linear orders they actually use and accept, depending on the language

<sup>22</sup> Head movement is not an alternative, as this would lead to the expectation that particles such as *op* ‘up’, *in* ‘in’ etc. can be stranded to the right of the verbal clusters when the main verb moves across an auxiliary. Such stranding is strongly ungrammatical, while stranding of a particle under verb second of the main verb, a classical type of head movement, is possible.

<sup>23</sup> Cf. Barbiers (1995), (2008b). Cf. Bresnan and Deo (2000) for a similar point.

environment they grew up in.<sup>24</sup> Put differently, this one grammar of Dutch dialects generates all the grammatical options in the table in (22) as possible orders and thus determines the variation space, while sociolinguistic factors determine which of these options are actually realized.<sup>25</sup> We make a distinction, then, between impossible and possible structures, and within the class of possible structures between actual and unrealized structures. Impossible structures are ruled out by universal and language-specific building principles, unrealized structures are grammatically possible but happen to be absent in some varieties, as not all varieties exploit the full variation space determined by the grammar. In this respect, syntax is taken to be similar to phonotaxis and morphology, where the distinction within the class of possible forms between actual and unrealized forms is common.<sup>26</sup>

If this analysis of intra-speaker variation is on the right track, this has two important consequences. A methodological consequence is that when a particular structure is absent in a corpus and/or a speaker reports that he does not use or accept it, this can either mean that the structure is ungrammatical or unrealized. Sophisticated methodology will be needed to distinguish these two possibilities. A consequence for the grammar model is that we have to assume that syntactic structures can be conventionalized, hence stored, similar to lexical items.<sup>27</sup> This seems to be necessary anyway in view of idioms and collocations but also, e.g., the phrasal analysis of verbs (e.g., Hale and Keyser 1993) and pronouns (e.g., Déchaine and Wiltschko 2002).

Optionality in the grammar can be modelled in various ways. A common way in MP is to assume that the movement and non-movement variants differ with respect to the features involved. In the movement variant there would be a strong (as opposed to weak) feature or an EPP feature that is triggering the movement. However, these features are abstract, there is no independent empirical support for them (at least not for the phenomena under discussion) and if they are optionally present they massively overgenerate if not properly restricted.

A better alternative is to assume that optionality arises when two syntactic structures are syntactically and semantically completely equivalent, i.e. the number of movement operations is equal and the semantic interpretation is equal. This leads to an analysis of word order variation in verb clusters where all movement operations are obligatory and variation arises at PF, as a result of the choice to delete a copy in its base position or in its landing site. The structure that is the output of the syntactic module after all the movement (copying) operations have taken place is given in (24). The different variants arise from the various deletion options. Constituents in their base positions are marked with B (Base), constituents in their positions after copying are marked with A (After).

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<sup>24</sup> Cf. Barbiers (2005)

<sup>25</sup> Cf. Biberauer and Richards (2006) for similar ideas.

<sup>26</sup> Cf. Aronoff (1976).

<sup>27</sup> The idea that syntactic structures can be conventionalized is at the heart of Construction Grammar (CG; e.g. Goldberg 1995). A crucial difference between the generative approach and Construction Grammar (in fact, Cognitive Grammar more generally, cf. Langacker 1987) is that CG takes the grammar of a particular language to be entirely the result of conventionalization, i.e., CG does not accept the GG assumption that there is a set of building principles that all languages share and that cannot be explained from conventionalization but rather must be innate and possibly specific to the linguistic module of cognition. In the analysis in the main text, generative grammar and conventionalization go hand in hand. Generative principles determine the limits of syntactic variation, while conventionalization captures the fact that a language need not exploit the full variation space defined by these principles. Cf. also Ramchand, this volume, chapter 9.

(24) [VP1 [VP2-A [VP3-A V3 ] V2 [VP3-B V3 ]] V1 [VP2-B [VP3-A V3] V2 [VP3-B V3 ]]]

(25) **PF deletion options**

(i) Delete VP2-A. Delete VP3-A. Resulting order 1-2-3

[VP1 [~~VP2-A~~ [~~VP3-A V3~~] V2 [~~VP3-B V3~~]] V1 [VP2-B [VP3-A V3] V2 [VP3-B V3 ]]]

(ii) Delete VP2-A. Delete VP3-B. Resulting order 1-3-2

[VP1 [~~VP2-A~~ [~~VP3-A V3~~] V2 [~~VP3-B V3~~]] V1 [VP2-B [VP3-A V3] V2 [~~VP3-B V3~~ ]]]

(iii) Delete VP2-B. Delete VP3-A. Resulting order 2-3-1

[VP1 [VP2-A [~~VP3-A V3~~] V2 [VP3-B V3 ]] V1 [~~VP2-B~~ [~~VP3-A V3~~] V2 [~~VP3-B V3~~ ]]]

(iv) Delete VP2-B. Delete VP3-B. Resulting order 3-2-1

[VP1 [VP2-A [VP3-A V3 ] V2 [~~VP3-B V3~~ ]] V1 [~~VP2-B~~ [~~VP3-A V3~~] V2 [~~VP3-B V3~~ ]]]

This correctly derives the four possible orders and rules out the categorically ungrammatical order 2-1-3. The presence of 2 before 1 indicates that VP2-B has been deleted, together with all occurrences of VP3 inside VP2-B.

Question (ii), the trigger of these movements, is now slightly simplified because all Dutch dialect varieties and word order variants have the same set of movements. They only differ in the locus of deletion. It would be sufficient to assume that there is an abstract movement triggering feature that all auxiliaries have in common. Since there is no obvious morphosyntactic counterpart to this feature (the triggering auxiliaries can be finite, infinitival and participial), an alternative would be that these VP-movements are necessary to establish a predication relation between the auxiliary and the moving VP.<sup>28</sup>

Still, we have to model the relation between type of auxiliary and order in the cluster (question (iii)), in particular the fact that only clusters of the type Aux – Mod/Asp – V (e.g., 1.IS 2.GO3.SWIM) allow the 2-3-1 (GO-SWIM-IS) order, as opposed to clusters of the type Mod – Mod/Asp – V. There is some evidence that this correlates with the selectional relations between the highest auxiliary (BE/HAVE or Modal) and the other verbs inside the cluster, but we will not go into this here.<sup>29</sup>

This case study thus shows that microcomparison of large numbers of closely related dialects may provide insight into the limits of variation, the variation space determined by the grammar, the role of intra-speaker variation and the way this variation can be captured theoretically. The way geographic (and other sociolinguistic) factors determine the distribution of the different variants was not addressed here, as the primary goal of GG is to characterize the mental grammar, not the external distribution of language variants. On the more technical side, it was argued that the word order variation found in verb cluster is best analyzed as the result of cross-dialectally uniform VP copying followed by obligatory deletion of one copy, where there is a choice to delete the copy in its base position or in its landing site. The analysis adopts the Universal Base Hypothesis, uniform rightward branching and leftward movement, and derives all and only the possible verb cluster orders.

<sup>28</sup> As proposed and technically developed in Barbiers (1995), (2008b).

<sup>29</sup> Cf. Barbiers (2005, 2008) for a proposal.

#### 4. Concluding remarks

The model of language variation discussed in section 3 of this chapter is a strong version of the Minimalist Program, according to which all language varieties have the same syntactic building principles, including the same types, number and hierarchy of functional projections (Universal Base), uniform right branching, only upward (leftward) movement, and the same movement options. In principle, in this model the syntactic module of the grammar cannot be a source of variation or optionality, and all language varieties have the same movement options. Observable syntactic variation must then be due to other factors. In the domain of V to I and I to C, we have seen that some word order variation can be reduced to the Lexicon (variation in morphosyntactic feature specification). In the domain of verb clusters, word order variation can be reduced to deletion options at PF.

It may be necessary to loosen the Minimalist hypothesis slightly. First, it may be that language varieties do not have to project the full range of functional heads but can select a subset. This assumption seems necessary for the Split IP hypothesis to work. Secondly, it may be necessary to allow partial copying in the syntactic component to explain differences in pied piping that cannot be explained under a PF-deletion account. The Minimalist idea that optionality (intra-speaker variation) cannot arise in the syntactic module can be maintained. It was suggested that syntactic optionality arises when two or more syntactic structures are syntactically and semantically equivalent but differ in the positions in which copies are spelled-out.

All of these issues were illustrated with data from dialect syntactic research, as the main goal of this chapter was to describe the relation between dialect syntax and GG. It was argued that in the current version of MP there is no principled distinction between micro-, meso- and macrosyntactic variation. There are no global parameters. Parametrization involves different feature specifications of functional elements, i.e. all parametrization is microparametrization. According to this view, meso- and macrovariation is an accumulation of microparametric differences. The study of dialects gives direct access to these microparametric fundamentals of all syntactic variation, as it makes it possible to establish correlations between certain grammatical properties while keeping (almost) all other grammatical properties constant.

The study of the syntax of dialects in GG has the same goal as GG in general, to describe and analyze possible human grammars as a mental reality. At the same time, it raises a number of research issues that have not been sufficiently addressed in the GG literature so far. The first issue involves intra-speaker variation. We have handled this by arguing that the grammar determines the variation space and sociolinguistic factors determine how many and which of the variants a speaker uses and in which situation. The latter is traditionally not taken to be part of linguistic competence, but the literature has called into question whether this is the right decision. A speaker has clear intuitions about the sociolinguistic circumstances in which a particular variant is used, including the relative frequency of each variant. This view is already present in Labov (1969), who incorporates sociolinguistic factors and frequency in so-called variable rules. In fact we are dealing with a demarcation problem here, namely the question whether sociolinguistic factors and frequency belong to linguistic competence or to performance. Since in recent versions of MP linguistic competence is reduced to a minimum and the possibility is left open that some of the universal building principles are not specific to the domain of linguistics and/or determined by interface requirements, the demarcation between competence and performance seems to be less clear today than it was in older versions of GG.



A related point arising from the study of dialectal and intra-speaker variation is the criticism that GG treats grammar as categorical. According to Keller (2000), Bod et al. (2003:1), language is variable and gradient, involving probability distributions. Generative linguistics studies the endpoints of such distributions, where the probability is one or zero, i.e. categorical properties of language. Concentrating on the extremes of the continua leaves half the phenomena unexplored and unexplained. Manning (2003) states that categorical linguistic theories such as GG place a hard categorical boundary of grammaticality where really there is a fuzzy edge, determined by many conflicting constraints and issues of conventionality versus human creativity. Both Bod et al. and Manning argue that probabilistic models (e.g. Stochastic Optimality Theory) are required to capture gradience in language. It is true that GG is not able to handle gradience, but since probabilistic models mix in performance factors (incl. world knowledge), the most important open question seems to be whether it is a good idea methodologically and theoretically to give up the distinction between competence and performance.

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