Life of Phi: Phi-features in West Germanic and the syntax-morphology interface

Alem, A.H.J. van

Life of Phi

Phi-features in West Germanic and the syntax-morphology interface

Published by

LOT
Binnengasthuisstraat 9
1012 ZA Amsterdam
The Netherlands

phone: +31 20 525 2461
e-mail: lot@uva.nl
http://www.lotschool.nl

Cover credit: Dean Marston via Pixabay

ISBN: 978-94-6093-418-6
DOI: https://dx.medra.org/10.48273/LOT0634
NUR: 616

Life of Phi

Phi-features in West Germanic and the syntax-morphology interface

Proefschrift

ter verkrijging van
de graad van doctor aan de Universiteit Leiden,
op gezag van rector magnificus prof. dr. ir. H. Bijl,
volgens besluit van het college voor promoties
te verdedigen op woensdag 25 januari 2023
klokke 15:00 uur

door

Astrid Helena Jacoba van Alem

geboren te Roosendaal en Nispen
in 1994

Promotores:	Prof. dr. L.C.J. Barbiers
	Prof. dr. L.L. Cheng
Promotiecommissie:	Prof. dr. D. Georgi (Universität Potsdam)
	Prof. dr. J.M. van Koppen (Universiteit Utrecht & Meertens Instituut)
	Prof. dr. C.J.W. Zwart (Rijksuniversiteit Groningen)
	Dr. A.K. Lipták
	Dr. G.J. van der Wal

Contents

Acknowledgements

First and foremost, I wish to thank my supervisors, Sjef Barbiers and Lisa Cheng. Sjef and Lisa gave me the freedom to explore my own topics and interests, but were always there for guidance, feedback, and encouragement. I am very grateful for their supervision, and for everything I have learned from them.

I am honoured that Doreen Georgi, Marjo van Koppen, Jan-Wouter Zwart, Anikó Lipták, and Jenneke van der Wal agreed to be on my dissertation committee. In 2019, I spent three months as a short-term fellow in Potsdam under Doreen's supervision, which turned out to be a very fruitful and enjoyable period. I always feel inspired after talking with Doreen about linguistics, and I am very grateful to now be part of her research group in Potsdam. Marjo was one of my first syntax teachers in Utrecht, and her work has been extremely influential in my research and for this thesis. The same goes for Jan-Wouter's work, and I am grateful for his generous support of my research. Anikó and Jenneke are among the driving forces that make doing syntax in Leiden a real pleasure, and always made me feel taken seriously as a researcher. I also want to acknowledge their support when I was applying for postdocs.

I was lucky enough to meet and interact with many linguists during my PhD years. This has been hugely beneficial for this thesis and for my development as an academic in general. I wouldn't know where to start or stop mentioning these people by name, so to everyone who was willing to discuss my work in person, online, or over email, sent me their papers, asked a question after a talk, or contributed in some other form: thank you. I truly appreciate it. I also want to sincerely thank my informants. They must have been wondering why I was asking them all these strange questions, but were nevertheless willing to help me as best as they could.

At LUCL, I want to say a big thank you to my PhD colleagues. I always enjoyed the lunches, dinners, and activities together, sharing our work, cultures, and just life in general. Many thanks to Ami, Andrew, Hang, Jiang, Laura, Lis, Menghui, Rasmus, Sarah, and everyone else, for making the days spent in the office such a pleasure. A special thanks goes to my fellow LUCL PhD Council members, who played an important part in making me feel at home in Leiden right from the start.

The highlights of my PhD years are the EGG summer schools and ConSOLE

conferences I attended between 2018 and 2020. Many of the people I met there I consider friends, and the memories of the time we spent together always bring me joy. I hope we will see each other again, be it as linguists or not.

My years in Leiden would not have been the same without Key Town Swing. A big thank you to all the nice dancers for the fun classes, parties, and festivals, and in particular to Ron, for allowing me to get so involved, and for the weekly training sessions that made 2020 so much more bearable. Speaking of 2020, I also enjoyed the cycle rides and beers with András, and the (still regular and fun) chats and long-distance friendship with Matt.

In 2021, I found myself in Berlin and Potsdam again. Moving countries during a pandemic is crazy and I don't think I would have managed without J—thank you for everything. Working in Germany got a lot nicer when I finally met my colleagues in Potsdam, and I always enjoy having lunch, dinner, or just a catch-up with them. They were also kind enough not to ask me about my thesis during the final months of writing, which I am grateful for.

Ik ben heel blij met mijn lieve vriendinnen van de 'schatjes', in het bijzonder Else, Milou, en Lenneke. Bij jullie kan ik altijd helemaal ontsnappen uit de academische bubbel, en dat is soms hard nodig. Ik hoop meer tijd met jullie door te brengen nu mijn proefschrift af is. Tot slot, dankjewel Mama, dat je altijd voor me klaar staat, en dat niets te gek is om mij in Duitsland op te komen zoeken.

CHAPTER 1

Introduction

1.1 Introduction

On a large and on a small scale, languages differ. It is evident that Dutch and Korean are entirely different languages, but many speakers of a language are equally aware that in the village 10 kilometres away, people speak very differently indeed. However, as the result of our innate ability to acquire any natural language, all languages must share some properties as well. An important question for linguistics is therefore: what kind of variation do we (not) find, and where in the grammar (e.g. syntax, lexicon) is it located?

In this thesis, I approach these questions by looking at φ-features. Φ-features (person, number, and gender features) provide us with a window onto our mental grammar, because they play an important role in several components of the grammar. Syntactically, φ-features trigger dependencies between elements. For instance, in example (1), both the subject *Anna* and the verb *sings* have third person singular features, as indicated. The verb acquires these features because it is in a dependency relation to the subject, that inherently has third person singular features. Syntactic dependencies of this kind are often morphologically realised as inflection. In the example, the verb inflects with the suffix *-s* to express the third person singular features. Because φ-features are central to both syntax and morphology, we can gain a further understanding of these components of the grammar, and their interactions, by studying φ-features.

(1) Anna$_{[3SG]}$ sings$_{[3SG]}$

This thesis focuses on variation in the domain of φ-features in non-standard and minority varieties of continental West Germanic. These language varieties show an

abundance of variation related to φ-features. At the same time, they are well documented and well studied. This combination allows us to ask very specific questions about the nature and locus of linguistic variation.

I investigate three empirical phenomena in this thesis. The first is position dependent agreement: verbal agreement that varies depending on the relative order of the subject and the verb. A sentence illustrating position dependent agreement is given in (2): the form of the verb is *leewt* when the subject precedes the verb, but *leew* when the subject follows the verb. Based on a novel analysis of variation in position dependent agreement in Dutch dialects, I show that position dependent agreement provides insight into the representation of grammatical features at the syntactic and morphological components of the grammar.

(2) As wie sober **leew-t**, **leew-Ø** wie gelukkig.
if we frugal live-AGR, life-Ø we happily
'If we live frugally, we will live happily.' Losser Dutch (DynaSAND)

The second phenomenon I investigate is complementiser agreement, illustrated in (3): in this sentence, the complementiser is followed by a morpheme that expresses the features of the subject of the embedded clause. By looking at what happens when adjacency between the complementiser and the subject is disrupted, I argue that complementiser agreement in Frisian and Limburgian is not agreement, but clitic doubling. Based on this analysis, I show that complementiser agreement informs us about structure building, and the requirements imposed on it by morphological spell out.

(3) Jan sei dat-st do fegetarysk ytst.
Jan said that-2SG you vegetarian eat.2SG
'Jan said that you eat vegetarian.' Frisian

The final phenomenon I look at is word order in imperative clauses, with a particular focus on verb-second imperatives. An example is given in (4). By connecting verb-second imperatives to the morphology of the imperative verb, I demonstrate that what we traditionally consider (post-syntactic) morphology, can in fact have consequences for syntactic structure.

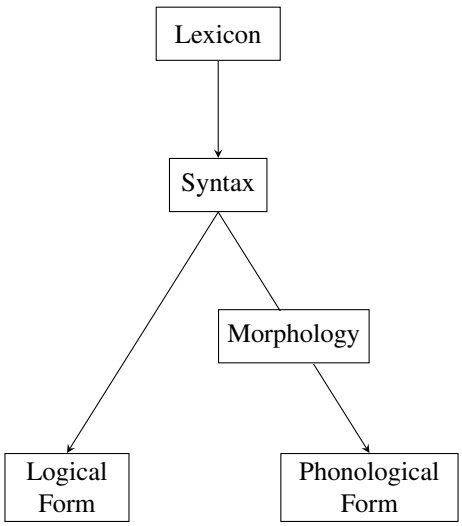
(4) Die pruuf mar is!
that taste.IMP PTCL PTCL
'Taste that one!' Veghel Dutch

1.2 Theoretical and empirical context

The theoretical framework I assume in this thesis is the Minimalist Program (Chomsky, 1993, et seq.). In this framework, syntactic structure is built from the bottom up through recursive application of the operations Merge and Move (or internal Merge). Merge combines two elements with each other to form a constituent. Move remerges an element or constituent that is already present in the syntactic structure. Syntactic dependencies between elements in the structure are created through the operation Agree:

an element with unvalued features (a Probe) looks downwards into the syntactic structure to find an element with matching, valued features (a Goal) that it can Agree with. When the syntactic structure is finished, it is sent off to the interface levels Logical Form and Phonological Form. At Logical Form (LF), the structure is semantically interpreted. At Phonological Form (PF), the structure is phonologically interpreted. Transfer of the syntactic structure to PF is mediated by Morphology, where syntactic feature bundles are replaced by morphemes (lexical items) (cf. Halle & Marantz, 1993). I assume that insertion of morphemes takes place according to the Superset Principle (Caha, 2009; Starke, 2010): a morpheme is inserted if its features match the features in the syntactic structure, or if its features are a superset of the features in the syntactic structure. I elaborate on the insertion mechanism of morphemes in Chapter 2. The architecture of the grammar is schematically represented in (5).

(5)



The Minimalist Program pursues the hypothesis that the syntactic component of the grammar is the optimal solution to requirements of the interfaces to LF and PF (*Strong Minimalist Thesis*, Chomsky, 2000, 2001, et seq.). A consequence of this approach is that there is no variation in the syntactic module of the grammar; instead, all surface variation that we see in different languages results from variation in the lexicon (the Borer-Chomsky conjecture, cf. Baker, 2008) or arises at the interfaces to LF and PF. As argued by Kayne (1996, 2005), comparing languages that are closely related to each other is the ideal method to discover the parameters that are responsible for cross-linguistic variation; the idea is that closely related languages are largely the same, and that variation is due to differences on one or a small number of points of variation in the grammar. Identifying these points of variation therefore gives us insight into the nature and locus of linguistic variation.

In this thesis, I apply the microcomparative methodology to continental West Germanic languages, with a focus on dialects of Dutch. In the last couple of decades, a wealth of data have been collected on syntactic and morphological variation in Dutch

and Frisian dialects, in the form of the *Dynamic Syntactic Atlas of Dutch Dialects* (DynaSAND, Barbiers et al., 2006) and the *Goeman, Taeldeman, van Reenen project* (GTRP, De Schutter et al., 2005). These databases form part of the empirical basis of this thesis. The DynaSAND contains data on syntactic and morphosyntactic variation in various empirical domains. In this thesis, I primarily use the data on verbal inflection, complementiser agreement, and topicalisation. The GTRP contains data on variation in the morphology of Dutch and Frisian dialects. I primarily use the data on verbal inflection in this thesis. Both the DynaSAND and the GTRP contain data that are systematically collected on a large scale. The majority of the data in the DynaSAND comes from interviews with two informants in 267 locations in the Dutch and Frisian language area. The GTRP is based on interviews with one informant in 613 locations. For both databases, the informants that were consulted were selected based on age, dialect proficiency, and socioeconomic status (education level or occupational prestige). For more information on the methodology of the DynaSAND and the GTRP, see Cornips and Poletto (2005), Barbiers and Bennis (2007) and Barbiers et al. (2007) (for DynaSAND) and Goeman and Taeldeman (1996) (for GTRP). The DynaSAND and the GTRP are publicly available on meertens.knaw.nl/sand and meertens.knaw.nl/mimore.

In addition to using data from databases, I have collected novel data whenever the available data were not sufficiently detailed to answer all questions about the phenomena I investigated. I will elaborate on the method of data collection in the chapters. Throughout the thesis, data points without a reference are the result of my data collection.

1.3 Overview of the thesis

In **Chapter 2**, I focus on position dependent agreement in Dutch dialects. An example was given in (2), and is repeated in (6). Looking at over 200 verbal paradigms, I show that the majority of the variation can be reduced to 6 different paradigms. To account for the variation between these 6 paradigms, I present a new analysis of position dependent agreement, that places the locus of variation on the features associated to the C head.

(6) As wie sober **leew-t**, **leew-Ø** wie gelukkig.
if we frugal live-AGR, life-Ø we happily
'If we live frugally, we will live happily.' Losser Dutch (DynaSAND)

Based on the analysis of position dependent agreement, I provide a novel argument that φ-features are uni-valent and organised in a φ-feature geometry. This is the first important result of the chapter, and shows that we can see the effect of linguistic universals in microvariation (cf. Harley & Ritter, 2002). I show that the φ-feature geometry is syntactic. However, patterns of syncretism suggest that the representation of φ-features is bi-valent in morphology. In order to resolve these conflicting results, I propose that the representation of φ-features differs across modules: φ-features are uni-valent and geometrically organised in syntax, but bi-valent in morphology. This

shows that syntax and morphology are distinct modules, operating on distinct structures.

In **Chapter 3**, I look at complementiser agreement, focusing on cases where an element intervenes between the complementiser and the subject it agrees with. In many languages, complementiser agreement is disrupted in this context. In Frisian, intervention of this kind leads to ungrammaticality (7). In Limburgian, intervention causes the agreement morpheme to be realised to the right of the intervener, instead of on the complementiser (8).

(7) * Jan sei dat-st ek do fegetarysk ytst.
Jan said that-2SG also you vegetarian eat.2SG
'Jan said that you, too, eat vegetarian.' Frisian

(8) Jan zei dat auch-s tich waal ens vegetarisch uts.
Jan said that also-2SG you sometimes vegetarian eat.2SG
'Jan said that you, too, sometimes eat vegetarian.' Limburgian

Based on a detailed investigation of the complementiser agreement morpheme, I argue that it is not an agreement morpheme, but a clitic. I propose a novel analysis of complementiser agreement, arguing that it is clitic doubling. This analysis accounts for the intervention effects in (7) and (8): In Frisian, the intervening element occupies the position that the clitic wants to move to. Because there cannot be two elements in one position, this leads to ungrammaticality. In Limburgian, I show that the clitic moves to a position below the intervening element, which leads to the observed shift of the complementiser agreement morpheme.

Based on the analysis, I argue that clitic doubling is a two-step operation. Both steps of the clitic doubling operation can fail independently depending on the syntactic context, leading to different outcomes. The analysis of complementiser agreement as clitic doubling also has empirical implications for the typology of partial *pro*-drop, because the examples of partial *pro*-drop with complementiser agreement, should in fact be treated as involving a clitic pronoun.

In **Chapter 4**, I investigate word order in imperatives in varieties of Dutch, and German. In Eastern Dutch dialects and German, imperatives can have a verb-second word order, illustrated in (9).

(9) Die pruuf mar is!
that taste.IMP PTCL PTCL
'Taste that one!' Veghel Dutch

I show that all varieties that allow verb-second imperatives also have verbal umlaut. Based on an investigation of the properties and distribution of verbal umlaut, I argue that verbal umlaut is suppletion conditioned by person features. Because the form of the imperative verb is always the same as a verbal form from the umlauting paradigm, I propose that the imperative verb in varieties with verbal umlaut is specified for person features. I argue that the imperative verb can therefore license the silent imperative subject. In varieties without umlaut, the imperative subject is licensed by a covert element from the preverbal position, which causes the imperative to

be verb-first. In varieties with umlaut, the preverbal position is free, and can be taken by another element, leading to a verb-second imperative. In short, the analysis shows that φ-features on lexical items can be used to license the imperative subject, and as a result, restrict syntactic movement.

Chapter 5 contains a summary of the thesis, focusing on the results and implications.

CHAPTER 2

Position dependent agreement and the representation of φ-features

2.1 Introduction

The first case study on φ-features in West Germanic focuses on position dependent agreement (PDA) in Dutch dialects. In many Dutch dialects, as well as Standard Dutch, the realisation of agreement with some person/number combinations is sensitive to word order: in sentences with subject-verb (SV) word order, the verb shows a different agreement ending than in sentences with a verb-subject (VS) word order. Example (1) illustrates this phenomenon for Standard Dutch, and example (2) for Losser Dutch, a Dutch Low Saxon dialect.

(1) Als je gezond **leef-t**, **leef-Ø** je langer.
if you healthy live-AGR, live-Ø you longer
'If you live healthy, you will live longer.' Standard Dutch

(2) As wie sober **leew-t**, **leew-Ø** wie gelukkig.
if we frugal live-AGR, life-Ø we happily
'If we live frugally, we will live happily.' Losser Dutch (DynaSAND)

In this chapter, I develop a novel analysis of PDA, that captures the main patterns of cross-dialectal variation that can be observed in the data. The main idea I will pursue is that the cause of PDA is a defective Probe, a Probe that misses some φ-features. The defective Probe can only partially Agree with the subject, and this leads to the insertion of an unexpected affix in certain contexts. Based on the empirical generalisations and the analysis, I argue that the defective Probe approach to PDA gives us unique insight

into the representation of φ-features in syntax and morphology. In particular, I will argue that in syntax, φ-features are organised in a φ-feature geometry that is built up of privative φ-features (in line with Harley and Ritter, 2002). In morphology, on the other hand, φ-features are binary features.

The goals of this chapter are as follows. First of all, the chapter will give an empirical overview of the main patterns of position dependent agreement, and present empirical generalisations. Second, it presents a novel account of PDA, using the notion of defective Probes. Based on this account, I provide a novel argument in favour of a geometric organisation of φ-features. Finally, the chapter argues that the representation of φ-features is not uniform across grammatical modules.

This chapter is organised as follows. In section 2.2, I present the main verbal agreement paradigms of Dutch dialects, based on data from over 200 dialects from the DynaSAND (Barbiers et al., 2006). In this section, I also present the generalisations over these paradigms. In section 2.3, I show that the typology of PDA paradigms motivates a feature-geometric organisation of φ-features. Section 2.4 turns to the analysis: I argue that PDA is the result of a defective Probe, and that defectiveness of the Probe is restricted by the φ-feature geometry. Based on a detailed consideration of the relation between PDA and the affix inventory, I show that a full account of PDA requires features to be privative in syntax, and binary in morphology. Section 2.5 demonstrates that this conclusion is in line with the cross-linguistic evidence on the valence of φ-features, and suggests that this is caused by the nature of the spell out algorithm. In section 2.6, I extend the analysis of PDA in Dutch dialects to PDA in Standard Arabic, and discuss the implications for the φ-feature geometry. Section 2.7 compares previous morphological and syntactic approaches to PDA, and argues that the analysis I develop in this chapter is superior. Section 2.8 concludes this chapter with a short summary and implications of the proposed distinction between the representation of φ-features in syntax and morphology.

2.2 Position dependent agreement

2.2.1 Data

The data that I present in this chapter come from the DynaSAND (Barbiers et al., 2006), which contains systematically collected data on the (morpho)syntax of 267 Dutch dialects. The data I present in this section are based on the data for the verb *leven* ('to live'), for which 202 paradigms are available with complete data for all person/number combinations in both subject-verb (SV) and verb-subject (VS) word order. Although these data have been the topic of previous research (Bennis & MacLean, 2006; Don et al., 2013), the novelty of my approach is that I look at both SV and VS word orders (in contrast to Bennis and MacLean, 2006, who only looked at SV word order), and that I take into account the frequency of the paradigms (in contrast to Don et al., 2013).

At first sight, the variation between the 202 complete paradigms is enormous, with 55 unique paradigms. However, the distribution of these paradigms is very unequal;

the majority of the dialects is accounted for by only a few paradigms. These frequent paradigms furthermore show a high degree of geographical clustering that corresponds to the traditional dialect areas (see below, and the Appendix). Because each dialect has only contributed one paradigm to the DynaSAND, I rely on frequency and geographical clustering of the paradigms to determine whether a certain paradigm is a true representation of the grammar of a group of Dutch dialects. There are 15 paradigms that are relatively frequent (occur 4 times or more), and that show a clear geographical clustering. These 15 paradigms represent 150 dialects (74 %). The remaining paradigms occur only once or twice, and many are very similar to a frequent paradigm within their geographical vicinity. The reasons for this type of variation can be manyfold. For instance, it may be the result of noise introduced in the elicitation process; a quirk of the specific verb that was used (*leven*, 'to live'); or the dialect maybe be unstable because of the influence of standard Dutch or other varieties (see e.g. Barbiers, 2020 on transitional forms). I will leave an investigation of this type of variation for future research, and focus instead on the frequent and geographically clustered paradigms.

Looking at these paradigms in more detail, the 5 most frequent paradigms are all PDA paradigms, and these will be the main focus of this chapter. There are also 6 full agreement (FA) paradigms; because they do not involve position dependent agreement, they are currently of less interest, although I will discuss some of them below. All FA paradigms can furthermore be found in the Appendix. The 4 paradigms that remain are PDA paradigms. These paradigms do not straightforwardly fit into the analysis I will argue for, but we can understand them with further assumptions, as I will also show in the Appendix.

Let us now turn to the main paradigms. The first two paradigms to consider are given in table 2.1 and table 2.2. The varieties with the paradigm in table 2.1 are spoken in the west of the Netherlands (Hollandic); Standard Dutch is also an example of this variety. The varieties from table 2.2 are the Brabantic dialects spoken in the Dutch province Noord Brabant and the Belgian provinces Antwerpen and Vlaams-Brabant. Apart from the 2PL verb, the paradigms of Hollandic Dutch and Brabantic are highly similar. In both paradigms, we find PDA for 2SG: in the SV word order, the 2SG suffix is *-t*, but in VS word order, it is Ø, just like with the 1SG verb. In addition, the paradigm in table 2.2 has PDA for 2PL: the *-t* suffix in SV word order alternates with a zero ending in the VS word order.

Table 2.1: Agreement paradigm Hollandic Dutch ($n = 23$)

	SV	VS
1SG	leef-Ø	leef-Ø
2SG	leef-t	leef-Ø
3SG	leef-t	leef-t
1PL	leev-ə	leev-ə
2PL	leev-ə	leev-ə
3PL	leev-ə	leev-ə

Table 2.2: Agreement paradigm Brabantic ($n = 44$)

	SV	VS
1SG	leef-Ø	leef-Ø
2SG	leef-t	leef-Ø
3SG	leef-t	leef-t
1PL	leev-ə	leev-ə
2PL	leef-t	leef-Ø
3PL	leev-ə	leev-ə

A typical characteristic of southern Dutch varieties like Brabantic is that they use a special form of the 2PL pronoun that is complex, consisting of a 2SG base and a plural ending derived from *lui* or *lieden* ('people'). To illustrate with a particularly transparent example: in Heist op den Berg Dutch, the 2SG pronoun is *gij*, and the 2PL pronoun *gijle* (DynaSAND); the 2PL pronoun is very clearly related to the 2SG form (cf. also English *you guys*, *ya'll*, etc.). Bennis and MacLean (2006) suggest that these complex pronouns are made up of a pronominal part that has second person features, and an apposition (*lui/lieden*) that expresses plurality. Because the apposition is not part of the pronoun, these complex pronouns behave morphosyntactically like a 2SG pronoun, and therefore trigger 2SG agreement on the verb. Assuming that this is correct, the Brabantic paradigm can be fully reduced to the Hollandic Dutch paradigm; the difference is that in the Brabantic paradigm, the 2PL verb inflects as a 2SG verb, because of the form of the 2PL pronoun. However, the affixes that make up these paradigms are the same.

Another note about the Brabantic dialects and their second person pronouns is that there is some disagreement on what is agreement and what is part of the subject pronoun in these varieties. In Brabantic varieties, the verb-subject complex in VS word order typically looks like the examples in (3). The morpheme of interest here is *de*, and the question is whether this morpheme is an affix or a pronominal clitic.

(3) a. leef de gij
live 2P you.SG

b. leef de gullie
live 2P you.PL

Tilburg Dutch (DynaSAND)

The agreement analysis is assumed by for instance Zwart (1997) and Postma (2011, 2013), whereas Barbiers et al. (2016) take *de* to be a clitic. I believe the clitic analysis is correct, for several reasons. First, subject clitic doubling is very common in southern Dutch varieties, as illustrated in (4) with an example from Wambeek Dutch. In this example, *se* is the clitic double of the pronoun *zaailn*. See also Haegeman (1992), van Craenenbroeck and van Koppen (2008) and Barbiers et al. (2016) for more data and analyses. In this light, it is not surprising that Brabantic has subject clitic doubling for second person.

(4) Ik paus da **se** **zaailn** kommen.
I think that they they come
'I think that they are coming.'
Wambeek Dutch (van Craenenbroeck & van Koppen, 2008, p. 208)

The second argument is based on the observation that *de* is found as 'complementiser agreement' in some varieties, as illustrated in (5). In the next chapter of this dissertation, I argue that the complementiser agreement morpheme in several other West Germanic varieties is a pronominal clitic. Given this analysis, the fact that *de* can also be used as a complementiser agreement morpheme is compatible with interpreting it as a clitic.

(5) da-de gij eerder thuis zij als ik.
that-2P you.SG earlier home be than I
'that you will be home earlier than me.' Geldermalsen Dutch (DynaSAND)

Finally, in contrast to agreement morphemes, *de* can appear on its own; the presence of a strong pronoun like *gij* or *gullie* (cf. (3)) is optional. This is sometimes interpreted as that *de* licenses *pro*-drop (e.g. Postma, 2011, 2013). The interpretation that *de* is a clitic is simpler, however, as this way we avoid positing that the Brabantic dialects are partial *pro*-drop languages that only allow *pro*-drop in a particular word order—something that is generally not attested for 'real' *pro*-drop languages like Italian (see Koeneman and Zeijlstra, 2019 for a recent overview of properties of *pro*-drop languages). Interpreting *de* as a clitic means that the verb is uninflected in VS in these varieties, as I have treated them in the paradigm in table 2.2. This concludes the discussion of Brabantic.

The next paradigm is given in table 2.3. The varieties that make up this agreement paradigm are the Low Saxon varieties spoken in the north of the Netherlands (Groningen) and in locations that were in heavy contact with the northern varieties (around the lake IJsselmeer). I refer to the varieties that have the agreement paradigm in table 2.3 informally as Northern Dutch. The Northern Dutch paradigm is similar to the paradigm of Hollandic Dutch and Brabantic, except for the suffix used with the 2SG verb in SV word order: instead of *-t*, *-ən* is used as the 2SG suffix. This morpheme is also the plural suffix. Northern Dutch has PDA for 2SG; in VS word order, the 2SG verb shows zero inflection, just like the 1SG verb.

Table 2.3: Agreement paradigm Northern Dutch ($n = 15$)

	SV	VS
1SG	leef-Ø	leef-Ø
2SG	leev-ən	leef-Ø
3SG	leef-t	leef-t
1PL	leev-ən	leev-ən
2PL	leev-ən	leev-ən
3PL	leev-ən	leev-ən

The next paradigm is given in table 2.4. This agreement paradigm is found in East Flemish varieties. It is similar to the paradigm of Brabantic, but in addition to PDA for 2SG, there is PDA for 3SG. The 3SG verb shows *-t* inflection in the SV word order, and zero inflection in the VS word order. Like the Brabantic varieties, the East Flemish varieties all have a 2PL pronoun that is composed of the 2SG pronoun plus a plural morpheme. Again, we see that the 2PL verb inflects as if it were a 2SG verb. I assume that this is because the 2PL pronoun triggers 2SG agreement on the verb.

Table 2.4: Agreement paradigm East Flemish ($n = 10$)

	SV	VS
1SG	leef-Ø	leef-Ø
2SG	leef-t	leef-Ø
3SG	leef-t	leef-Ø
1PL	leev-ən	leev-ən
2PL	leef-t	leef-Ø
3PL	leev-ən	leev-ən

The final PDA paradigm is given in table 2.5. This agreement paradigm is found in the east of the Netherlands, more specifically the Dutch Low Saxon area. The paradigm is highly impoverished, as it uses only two agreement suffixes, *-t* and Ø. There is PDA for 2SG, 1PL, and 2PL. In all cases, the verb is inflected with the *-t* suffix in the SV word order, but shows no overt inflection in the VS word order.[1]

Table 2.5: Agreement paradigm Dutch Low Saxon ($n = 9$)

	SV	VS
1SG	leef-Ø	leef-Ø
2SG	leef-t	leef-Ø
3SG	leef-t	leef-t
1PL	leef-t	leef-Ø
2PL	leef-t	leef-Ø
3PL	leef-t	leef-t

The geographical distribution of the paradigms is mapped out in figure 2.1, demonstrating that they show clear geographical clustering.

[1] In some of these dialects, the zero affix alternates with a schwa affix; in particular, the zero ending is generally used when the verb is followed by an element starting with a vowel, whereas the schwa ending is used in other contexts. This suggests that the variation is morphophonological, and not morphosyntactic, in nature. I will represent the morpheme as zero throughout the discussion.

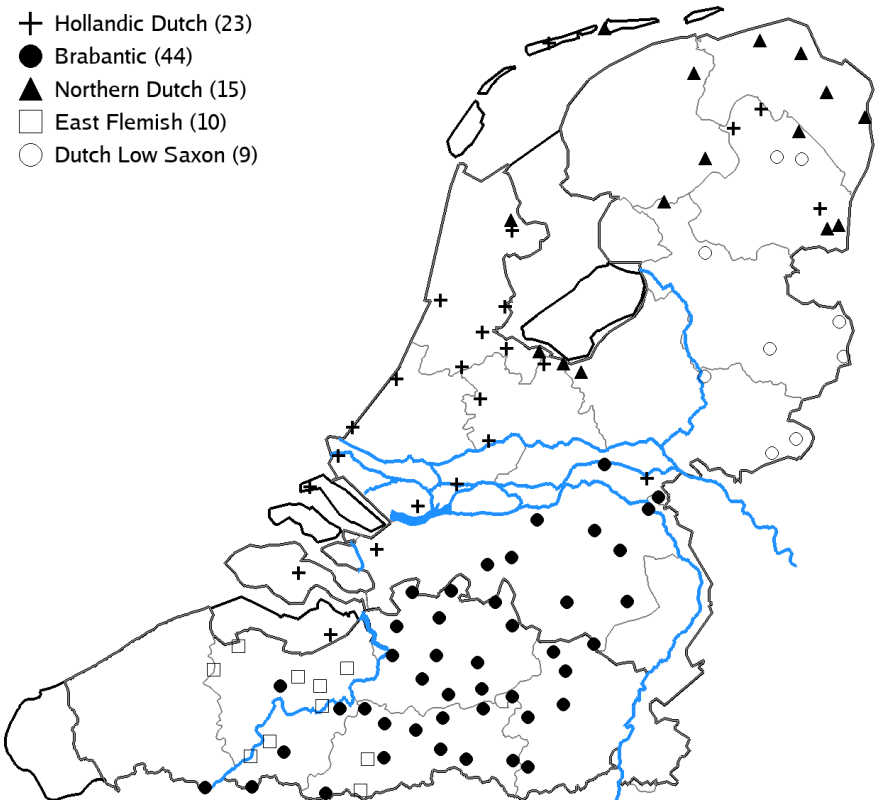


Figure 2.1: Geographical distribution of PDA paradigms

While PDA is very common and stable, it is important to point out that not every Dutch dialect has PDA. There are also dialects that have a 'full agreement' (FA) paradigm. There are three small clusters of dialects that are geographically close to the varieties with PDA, and that have similar verbal paradigms, but that do not have PDA. An example is given in table 2.6, which is found in some Hollandic dialects. In this paradigm, we expect to find PDA for 2SG, in parallel with the Hollandic PDA paradigm above. However, the 2SG verb does not show overt inflection in the SV and the VS word order at all. The absence of PDA in this paradigm is thus due to the lack of inflection on 2SG verbs. I will not discuss these types of paradigms further here, but a complete overview of FA paradigms and their geographical distribution is given in the Appendix.

Table 2.6: FA paradigm Hollandic ($n = 6$)

	SV	VS
1SG	leef-Ø	leef-Ø
2SG	leef-Ø	leef-Ø
3SG	leef-t	leef-t
1PL	leev-ə	leev-ə
2PL	leev-ə	leev-ə
3PL	leev-ə	leev-ə

More interesting are the paradigms that do not have PDA but show a richer affix inventory than the PDA paradigms. An example of such a FA paradigm is given in table 2.7. Varieties with this paradigm are found in Groningen, Friesland, and Dutch Limburg (GFDL).[2] Note that this paradigm contains a dedicated 2SG affix (*-s(t)*), that is not found in any other paradigm. This will become relevant later on.

Table 2.7: FA paradigm GFDL ($n = 4$)

	SV	VS
1SG	leef-Ø	leef-Ø
2SG	leef-s(t)	leef-s(t)
3SG	leef-t	leef-t
1PL	leev-ə(n)	leev-ə(n)
2PL	leev-ə(n)	leev-ə(n)
3PL	leev-ə(n)	leev-ə(n)

2.2.2 Generalisations

The different PDA paradigms and the FA paradigms do not make use of a random assembly of affixes. Instead, they show a large amount of overlap, which allows us to formulate generalisations on the affix inventory.

Descriptively, the paradigms have the following in common. First, in all paradigms, the 1SG affix is zero in both SV and VS word orders. All paradigms also share that the 3SG affix in SV word order is *-t*. Finally, with the exception of the Dutch Low Saxon dialects, all varieties have a dedicated plural affix *-ə(n)*. Considering only the PDA paradigms, we can formulate an additionial generalisation, namely that all PDA paradigms have PDA for 2SG, and that this can be extended to include 3SG (East Flemish), or 1PL and 2PL (Dutch Low Saxon).

[2]This paradigm has a low number of occurences, which is mainly due to the fact that Frisian varieties, which make up a substantial part of the FA varieties, have two verb classes for inflection of weak verbs (see e.g. Tiersma, 1985). Class I shows the inflection pattern in table 2.7, but the class II shows a different pattern. The verb 'to live' falls into the latter class, and 7 varieties show class II inflection in the data set that I use. I will nevertheless represent the inflectional pattern of the other class, as, when other verbs are considered, this makes up the most frequent FA paradigm.

Given the similarities between the agreement paradigms of these closely related varieties, it is a reasonable assumption that the affix inventories are also very similar. In fact, in the following I will demonstrate that we can construct one 'meta-affix inventory', from which each variety selects a different subset of affixes. The meta-affix inventory is mainly a theoretical construct, and resembles the notion of a diasystem (Weinreich, 1954), but potentially has roots in diachrony: it is well-known that Dutch is undergoing a process of deflection (Bennis & MacLean, 2006; Aalberse, 2009; Aalberse & Don, 2011), which could be modelled by removing an affix from the affix inventory. Possibly, variation between Dutch dialects reflects whether these varieties are more or less conservative in having undergone deflection, but further research is needed to see whether this is a viable hypothesis. Apart from this, the meta-affix inventory is a very simple way of representing the affix inventories of different varieties, and, as we will see later on in this chapter, it will serve as a useful tool in explaining PDA patterns in the different varieties and the relation to the affixes that are used in those varieties.

Before we turn to the actual affix inventory, let me be explicit about two assumptions. First, I adopt the representation of person and number in table 2.8 (Halle, 1997; Nevins, 2007; Harbour, 2016).[3] According to this representation, the feature person consists of two binary subfeatures, [Participant] and [Addressee]. First person and second person share the feature [+ Participant], while first person and third person share the feature [− Addressee]. Number is represented with the binary feature [Group].

Table 2.8: Representation of person and number

		− Group	+ Group
+ Participant	− Addressee	1SG	1PL
+ Participant	+ Addressee	2SG	2PL
− Participant	− Addressee	3SG	3PL

Furthermore, I assume that affixes are inserted according to the Superset Principle, given in (6) (cf. Caha, 2009; Starke, 2010).[4]

(6) **The Superset Principle** (Caha, 2018, p. 82)
The phonological exponent of a Vocabulary Item is inserted into a node if the item contains all (or a superset of) the grammatical features contained in the node. Insertion does not take place if the Vocabulary Item is not specified for all features contained in the node. Where several items meet the conditions for insertion, the item containing fewer features unspecified in the node must be chosen.

[3] [Participant] and [Group] are standard, but the feature [Addressee] is less so; I comment on this in section 2.4.1.

[4] The main alternative approach to insertion of vocabulary items is insertion according to the Subset Principle. I discuss this alternative, and why it does not work, in section 2.4.4.1.

According to this principle, a morpheme can only be inserted in the structure if it matches all or a superset of the features in the structure. In other words, a morpheme can be overspecified, but not underspecified. Importantly, this means that a morpheme can be specified for both the + and the − value of a binary feature. For example, an elsewhere affix that is used in a wide variety of contexts is specified for the + and − values of all features. A more specific affix is specified for a smaller number of features, and can block the use of the elsewhere affix, because the specific affix contains fewer features that are not part of the syntactic structure.

With this background in place, we can turn to identifying the items in the affix inventory of the PDA and FA paradigms discussed in the previous section. I use the subject-verb word order paradigm to motivate for which features the affixes are specified, because this corresponds to the richer agreement system. Let us start by looking at the *-t* affix, that is used with 3SG verbs in all varieties, but can be extended to all other person/number combinations except 1SG. Importantly, when a paradigm contains fewer unique affixes, the *-t* affix seems to spread to new slots in the paradigm (in line with the account of deflection I sketched above). For instance, the FA paradigm in table 2.7 has four distinct affixes, and uses *-t* for one person/number combination (3SG). Hollandic Dutch and Brabantic have three distinct affixes, and use *-t* with 3SG and 2SG. The highly impoverished paradigm of Dutch Low Saxon only has two affixes, and uses *-t* in all person/number combinations except 1SG. The expansion of the use of *-t* with each affix that is 'lost' strongly suggests that *-t* is the elsewhere morpheme, that is used when no other affix is available. I therefore assume that *-t* is specified for the full set of features and each of their possible values in table 2.8. This ensures that *-t* can be inserted everywhere, when there is no other, more specific, morpheme available. The lexical entry of *-t* is given in (7).

(7) [+ Participant] [− Participant]
[+ Addressee] [− Addressee] ⟺ -t
[+ Group] [− Group]

Based on the observation that the 1SG zero morpheme is never replaced by *-t*, I conclude that the 1SG affix is a specified morpheme (rather than the complete absence of an agreement exponent). That means that the 1SG morpheme is specified for the features that define 1SG: [+ Participant], [− Addressee], [− Group]. The lexical entry is given in (8).

(8) [+ Participant] [− Addressee] [− Group] ⟺ Ø

The affix *-ə(n)* is used as a general plural morpheme in all varieties except Dutch Low Saxon. This suggests that this affix is specified to occur in plural contexts, i.e. for the feature [+ Group]. Because *-ə(n)* can be used with all persons, it is overspecified for the person features. The lexical entry is given in (9).

(9) [+ Participant] [− Participant]
[+ Addressee] [− Addressee] ⟺ -ə(n)
[+ Group]

The Northern Dutch paradigm in table 2.3 differs slightly from the other paradigms. In this paradigm, the affix *-ən* is used with 2SG verbs in the SV word order, instead of *-t*. This can be modelled if we assume that *-ən* is the elsewhere morpheme that is maximally overspecified, and *-t* is specified to occur in third person singular contexts. The lexical entries of *-ən* and *-t* in Northern Dutch dialects are given in (10).

(10) a. [+ Participant] [− Participant]
[+ Addressee] [− Addressee] ⟺ -ə(n)
[+ Group] [− Group]

b. [− Participant] [− Addressee] [− Group] ⟺ -t

The FA paradigm of the dialects spoken in Groningen, Friesland, and Dutch Limburg has an additional affix, namely *-s(t)* for 2SG. This affix is fully specified for 2SG features, corresponding to the lexical entry in (11).

(11) [+ Participant] [+ Addressee] [− Group] ⟺ -st

To summarise, the complete meta-affix inventory that Dutch dialects make use of is given in (12). Every group of dialects selects a different subset of affix from the complete affix inventory to make up the agreement paradigm in the SV word order. Hollandic Dutch, Brabantic, and East Flemish use Ø, *-ə(n)*, and *-t* as the elsewhere morpheme. Northern Dutch also uses Ø, *-ə(n)*, and *-t*, but in this variety *-ə(n)* functions as the elsewhere morpheme. The Dutch Low Saxon dialects only use Ø and *-t* as the elsewhere morpheme. The full agreement dialects spoken in Groningen, Friesland, and Dutch Limburg use all entries in (12) with *-t* as the elsewhere morpheme.

(12) a. [+ Participant] [− Addressee] [− Group] ⟺ Ø

b. [+ Participant] [+ Addressee] [− Group] ⟺ -st

c. [+ Participant] [− Participant]
[+ Addressee] [− Addressee] ⟺ -ə(n)
[+ Group]
OR
[− Participant] [− Addressee] [− Group] ⟺ -t

d. [+ Participant] [− Participant]
[+ Addressee] [− Addressee] ⟺ -t OR -ə(n)
[+ Group] [− Group]

The agreement paradigms in the VS word order can be derived, using the same affix inventories, if one or more φ-features are not used for affix insertion. In Holllandic Dutch and Brabantic, we can derive the paradigm in the VS word order by not using [Addressee] for affix insertion. The affix inventory for these varieties is given in (13). Not using the feature [Addressee] causes the Ø affix to spread from being used in a 1SG context to the 2SG context: with [Addressee] ignored, two affixes are a match to the 2SG context: Ø and *-t*. Because *-t* has a higher number of features that are not in the target structure compared to Ø, Ø will be selected. This leads to PDA for 2SG.

(13) a. [+ Participant] [− Addressee] [− Group] ⟺ Ø

b. [+ Participant] [− Participant]
[+ Addressee] [− Addressee] ⟺ -ə(n)
[+ Group]

c. [+ Participant] [− Participant]
[+ Addressee] [− Addressee] ⟺ -t
[+ Group] [− Group]

The VS agreement paradigm of Northern Dutch can also be derived when we do not use [Addressee] for affix insertion. The affix inventory of Northern Dutch is given in (14). The mechanism is the same as in Hollandic Dutch and Brabantic: if we do not use the feature [Addressee], the Ø affix matches both the 1SG and the 2SG context. The affix -ə(n) also matches the 2SG context, but Ø leaves fewer features on the affix unmatched in the context, so Ø will be selected. This causes PDA for 2SG in this variety.

(14) a. [+ Participant] [− Addressee] [− Group] ⟺ Ø

b. [− Participant] [− Addressee] [− Group] ⟺ -t

c. [+ Participant] [− Participant]
[+ Addressee] [− Addressee] ⟺ -ə(n)
[+ Group] [− Group]

In order to derive the VS agreement paradigm of East Flemish, we do not use [Participant] and [Addressee] for affix insertion. The affix inventory of East Flemish is the same as that of Hollandic Dutch and Brabantic in (13). Not using [Participant] and [Addressee] for affix insertion causes the Ø affix to spread to 2SG and 3SG as follows: the only feature we still use is [Group]. In a singular context, there are two affixes that are a match to the structure: Ø and *-t*. Because Ø is specified for fewer features than the elsewhere affix *-t*, Ø is preferred over *-t* and will be inserted in all singular contexts. This causes PDA for 2SG and 3SG.

The final paradigm is that of Dutch Low Saxon dialects. These varieties only use the two affixes in (15). The VS agreement paradigm of Dutch Low Saxon dialects follow if only [Participant] is used for affix insertion, i.e. we do not use [Addressee] and [Group]. In a [+ Participant] context, both affixes are a match to the structure. However, Ø leaves fewer features unmatched to the structure, and therefore, Ø will be inserted in all [+ Participant] contexts. This causes Ø to spread to 2SG, 1PL, and 2PL, and leads to PDA in these contexts.

(15) a. [+ Participant] [− Addressee] [− Group] ⟺ Ø

b. [+ Participant] [− Participant]
[+ Addressee] [− Addressee] ⟺ -t
[+ Group] [− Group]

In summary, this section showed that there is a high amount of variation in agreement paradigms in Dutch dialects. However, all major paradigms draw from the same

meta-affix inventory. Furthermore, agreement alternations between the SV and VS word order (position dependent agreement) can be derived in a uniform fashion by the pre-theoretical assumption that one or more features are not used for affix insertion, without changing the affix inventory of any of the varieties.

2.3 Towards a geometric organisation of φ-features

In the previous section, I showed there are three sets of features that need to be 'ignored' to derive the different paradigms with PDA: only [Addressee]; both [Addressee] and [Participant]; and both [Addressee] and [Group]. There is no variety that has a PDA pattern derived by removing, for instance, only [Participant] in VS word order. Assuming the affix inventory of Hollandic Dutch, Brabantic, and East Flemish in (13) (because it is the most common), not using the feature [Participant] for affix insertion in the VS word order would lead to the hypothetical paradigm in table 2.9. In this paradigm, Ø has spread to 3SG. Such a paradigm is not attested.

Table 2.9: Hypothetical agreement paradigm (no [Participant] in VS)

	SV	VS
1SG	Ø	Ø
2SG	-t	-t
3SG	-t	Ø
1PL	-ə(n)	-ə(n)
2PL	-ə(n)	-ə(n)
3PL	-ə(n)	-ə(n)

Similarly, there are no PDA paradigms that would be derived by not using [Participant] and [Group], or just [Group]. Again using the affix inventory of Hollandic, Brabantic, and East Flemish, the former would lead to the hypothetical paradigm in table 2.10. Here, Ø spreads to 3SG, and furthermore, all the singular affixes spread to their plural counterparts. This paradigm is not attested.

Table 2.10: Hypothetical agreement paradigm (no [Participant] and [Group] in VS)

	SV	VS
1SG	Ø	Ø
2SG	-t	-t
3SG	-t	Ø
1PL	-ə(n)	Ø
2PL	-ə(n)	-t
3PL	-ə(n)	Ø

The hypothetical PDA paradigm derived by not using [Group] is given in table 2.11. Here, all the plurals show PDA, because the singular affixes spread to the plural counterparts. Again, no such paradigm is attested.

Table 2.11: Hypothetical agreement paradigm (no [Group] in VS)

	SV	VS
1SG	Ø	Ø
2SG	-t	-t
3SG	-t	-t
1PL	-ə(n)	Ø
2PL	-ə(n)	-t
3PL	-ə(n)	-t

To put it differently: the analysis sketched in the previous section predicts a typology of PDA paradigms, but in the empirical data, certain types are missing. This is summarised in (16) (crossing indicates ignoring that feature for affix insertion). The question is what this tells us about the organisation of φ-features.

(16) a. ~~[Participant]~~ ~~[Addressee]~~ [Group] — not attested

b. [Participant] ~~[Addressee]~~ [Group] — attested: Hollandic Dutch, Brabantic, Northern Dutch

c. [Participant] [Addressee] ~~[Group]~~ — not attested

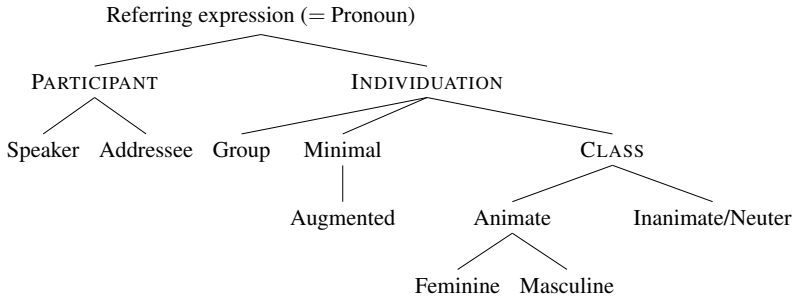
d. ~~[Participant]~~ ~~[Addressee]~~ [Group] — attested: East Flemish

e. ~~[Participant]~~ [Addressee] ~~[Group]~~ — not attested

f. [Participant] ~~[Addressee]~~ ~~[Group]~~ — attested: Dutch Low Saxon

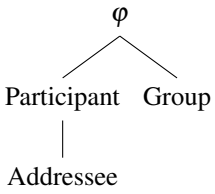
An influential proposal on φ-features is that they are organised in a feature geometry, that encodes dependency relations between features (Harley & Ritter, 2002). Based on a typological investigation of pronominal paradigms, Harley and Ritter argue that φ-features on pronouns are organised according to the geometry in (17). The geometry in (17) encodes the complete inventory of distinctions that can be made with pronouns, but specific languages only use a subset of it; which subset can be used is restricted by the way the geometry is structured. For instance, the feature [Augmented] can only be part of the feature inventory of a language if [Minimal] is also part of the feature inventory. Without going into the details, [Augmented] expresses paucal number, and [Minimal] expresses dual number. The dependency of [Augmented] on [Minimal] therefore predicts that a language can only have paucal number if it also has dual number, which appears to be the correct generalisation (Harley & Ritter, 2002; Harbour, 2014).

(17) φ-feature geometry (Harley & Ritter, 2002)



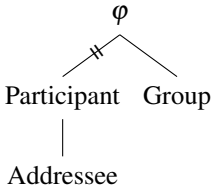
I propose that the typology of PDA patterns in (16) also follows from a geometric organisation of φ-features, in particular, the geometry in (18). I take this geometry to be a subset of the geometry in (17); the only point of divergence is that [Group] is a direct dependent of the root, instead of a dependent of the intermediate INDIVIDUATION node. In the absence of further number or gender distinctions, INDIVIDUATION is vacuous, so I assume it just does not project in that case. The geometry in (18) encodes that [Addressee] is a dependent of [Participant]. [Group] is on a separate branch, and therefore in a dependency relation to neither.

(18)



In addition, I formalise ignoring of features for affix insertion as *delinking*: the disconnecting of a feature from the geometry (cf. Harley, 1994). This results in φ-feature defectiveness of the geometry on the Probe in syntax. Because the delinked features are absent in the syntax, they will also be absent in the morphology at the points of affix insertion. Crucially, the process of delinking is restricted by the geometric organisation of φ-features; when a feature undergoes delinking, all its dependents also undergo delinking. For instance, when [Participant] undergoes delinking, [Addressee] is also delinked. This is illustrated in (19).

(19)



The feature-geometric organisation of φ-features combined with the process of delinking explains why two out of the six feature bundles in (16) are not attested, i.e. the bundles {[Addressee], [Group]} (16a), and {[Addressee]} (16e). In both of these feature bundles, [Addressee] is present, but [Participant] has undergone delinking. This is impossible given (18). The feature-geometric restriction on delinking is formalised in (20).

(20) **The feature-geometric restriction on φ-feature defectiveness:**
If a feature undergoes delinking, all its dependents undergo delinking.

In addition, the feature bundle {[Participant], [Addressee]} (16c) is not attested. This does not follow directly from the feature geometry combined with (20): [Group] is a feature without dependents, so should be able to undergo delinking on its own. However, an additional factor seems to be relevant here, namely feature complexity. Harley (1994) and Harley and Ritter (2002) assume that complexity (or markedness) of a feature is encoded by the number of nodes that are needed to represent that feature; the higher the number of nodes, the more complex the feature is. Assuming that delinking is a means to reduce complexity (see again Harley, 1994), the logical consequence is that a more complex feature delinks before a less complex feature. When we apply this metric to the features in the geometry in (18), we conclude that [Addressee] is more complex than [Participant] and [Group], because its representation requires two nodes, compared to one. This means that [Group] will only undergo delinking once [Addressee] has undergone delinking: the more complex feature delinks first. This excludes the feature bundle {[Participant], [Addressee]}, for which [Group] needs to undergo delinking when [Addressee] has not. The complexity restriction on delinking of φ-features is formulated in (21).

(21) **The complexity restriction on φ-feature defectiveness:**
Delinking targets complex features (where complexity corresponds to the number of nodes that is required for the representation of a feature). When two features are equally complex, either feature can undergo delinking.

To conclude the presentation of the data and the typology of PDA patterns, I have shown that PDA paradigms show a substantial amount of overlap, and that the attested and non-attested paradigms can be accounted for by assuming that certain features can be ignored (delinked) for the purpose of affix insertion. Furthermore, delinking is restricted by a φ-feature geometry. The φ-feature geometry that is underlying to the PDA paradigms is the same as the φ-feature geometry argued for by Harley and Ritter (2002), to the extent that they refer to the same features. This is a significant result: Harley and Ritter's geometry is based on typological variation in pronominal paradigms. The fact that the geometry based on agreement in Dutch dialects provides strong support for the existence of such a geometry in the grammar, with a rather wide-ranging impact on the organisation of the linguistic system, on a micro- and macro-variation level.

Several questions arise, too. First, what is the trigger of feature delinking? And does this happen in syntax or morphology? The answer to these questions will inform

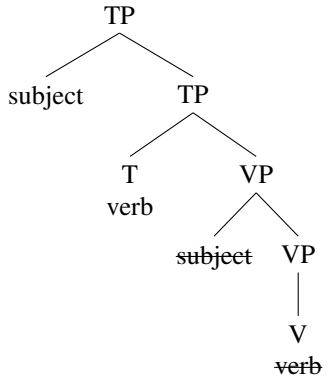
us about the place of the feature geometry in the grammar. Second, a feature geometry is generally thought to be made up of privative features, while so far, I have been using binary features. So the question is whether the same result can be achieved using privative features. This will provide insight into feature valence. These questions will be addressed in the next section.

2.4 Analysing position dependent agreement

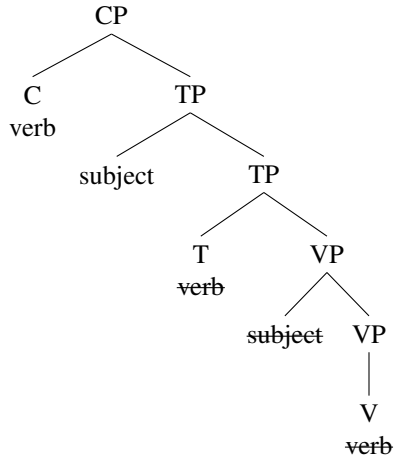
2.4.1 Prerequisites

Before discussing the questions raised in the previous section, I will lay out the prerequisites for the analysis. First, I assume that the structure of Dutch clauses with SV and VS word order is (minimally) as in (22) and (23), respectively.

(22)



(23)



An important property of these structures is that the verb is in T in the SV word order, and in C in the VS word order (Zwart, 1997). Both T and C are φ-Probes (cf. van Koppen, 2005). I assume that the verb realises the features of the head where it is spelled out. Furthermore, I propose that the Probe in C is a 'defective' Probe: a Probe that is underspecified for certain φ-features, and therefore cannot be valued for these features. Because the Probes in T and C have different sets of features, the realisation of agreement in SV and VS word order can differ, leading to PDA.

Because there are potentially two sources of φ-features in the structure, something needs to be said about the φ-features of the head where the verb is not spelled out. I assume that when the verb is in T in the SV word order, the structure only projects up to TP, so there are no φ-features in C that need to be spelled out (cf. van Koppen, 2005, p. 78). In the VS word order, matters are a bit more complex. To arrive the VS word order, the verb moves from T to C. One might therefore ask whether the φ-features on T are not also present on C because of T-to-C movement, and if so,

whether this affects agreement. There are several ways to approach these questions. First, we can assume that head movement takes place before Agree, so that the φ-features on T are unvalued when T moves to C. Because T cannot Probe out of C (it is too deeply embedded), these unvalued φ-features do not play a role in agreement. A second approach is that there is competition between the sets of φ-features of T and C at the point of affix insertion. This is the approach assumed by van Koppen (2005). According to her metric, a more specific affix will win from less specific or elsewhere affix. The previous two sections show that with all examples of PDA, an elsewhere or little specific morpheme in the SV word order is replaced by a more specific morpheme in the VS word order. This approach would therefore also lead to the observed outcome. Because we cannot distinguish between these two approaches based on the available data, I leave a further exploration of this issue for future work, and conclude that when T moves to C, the features of C are realised as agreement.

The second component of the proposal is that features are privative in syntax, and that they are translated to binary features in the course of transfer of the syntactic structure to morphology. The binary features in morphology are used for affix insertion. An immediate question that this proposal raises is how features are translated from their privative syntactic representation to a binary morphological representation. I assume that a valued privative feature [*i*F] in syntax translate to a [+ F] feature in morphology, while an unvalued privative syntactic feature [*u*F] translates to a [− F] morphological feature. Given the feature geometry argued for in the previous section, I assume a privative, syntactic representation of person as in (24). The SG/PL distinction is encoded by presence or absence of GROUP on a separate branch, as in (25).

(24) Syntactic representation of person

a. 1P

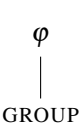
b. 2P

c. 3P

(25) Syntactic representation of number

a. SG

b. PL



To illustrate the translation process, assume a Probe has all three features [Participant], [Addressee], and [Group], i.e. a fully specified, non-defective Probe. If this Probe agrees with a 1SG pronoun, its [Participant] feature will be valued; the other features remain unvalued. When the features are transferred to morphology, a + value will be assigned to the valued [Participant] feature, giving as output [+ Participant], and a − value to the unvalued features, giving as output [− Addressee] and [− Group].

This is the binary, morphological feature representation for a 1SG. The full set of person/number combinations and their syntactic and morphological representations are given in table 2.12; note that 3SG is not specified for any feature in syntax (except the root node φ, cf. (24) and (25)). The valued/unvalued distinction in syntax maps perfectly onto the +/− distinction in morphology.

Table 2.12: Representation of φ-features in syntax and morphology

Category	Syntactic representation	Morphological representation
1SG	[PART]	[+ Participant] [− Addressee] [− Group]
2SG	[PART] [ADDR]	[+ Participant] [+ Addressee] [− Group]
3SG		[− Participant] [− Addressee] [− Group]
1PL	[PART] [GROUP]	[+ Participant] [− Addressee] [+ Group]
2PL	[PART] [ADDR] [GROUP]	[+ Participant] [+ Addressee] [+ Group]
3PL	[GROUP]	[− Participant] [− Addressee] [+ Group]

This approach is very simple, and it comes with an additional benefit: the binary feature representation that it results in allows us to capture a peculiar property of Germanic languages, i.e. the fact that they tend to show 1P/3P syncretisms (Frampton, 2002). For the Dutch modal *kunnen* ('can, to be able to'), for instance, a special form is available for 2SG but not for 1SG or 3SG (26). Another example is that in some Dutch dialects as well as German, the 1PL shows inflection identical to 3PL to the exclusion of 2PL, illustrated for Limburgian in (27). These data are compatible with the morphological feature representation in table 2.12, as they are easily captured by making reference to [± Addressee]. Approaches that do not assume the existence of [± Addressee] cannot straightforwardly account for 1P/3P syncretisms, on the other hand.[5]

(26) a. Ik kan / *kun
I can / can

b. Jij kan / kun-t
you can / can-AGR

c. Hij kan / *kun-t
he can / can-AGR
Standard Dutch

(27) a. Ver geluiv-ə
we believe-PL

b. Ger geluif-t
you.PL believe-2PL

c. Zie geluiv-ə
they believe-PL
Limburgian

Given the translation mechanism of valued and unvalued privative features to binary features in morphology, what does it mean to be a defective Probe? A defective Probe is a Probe that is underspecified for one or more φ-features. In other words, one or more features are completely absent from the Probe, and if the Goal has a valued version of one of those features, it cannot be copied to the Probe. For instance, when the Probe has an unvalued [Participant] feature, but the Goal has [Participant] and [Group] (= 1PL), the [Participant] feature on the Probe will be valued, but nothing

[5]Note furthermore that the syncretism of 1P and 3P cannot be accounted for using privative features, because there is no feature that is shared between 1P and 3P to the exclusion of 2P.

will happen to [Group]. When the features on the Probe are fed into morphology, morphology will assign a + value to [Participant]; but since it is not fed a [Group] feature, it will not create a representation of [Group] (neither + nor −). Because we now use a partial set of features to find a matching affix, this can affect which affix is selected to be used with the defective Probe. Since C is a defective Probe, but not T, and since verb is realised in T in SV word order but in C in VS word order, the outcome can be a PDA paradigm. In this implementation, the defective Probe approach formalises the pre-theoretical analysis of PDA paradigms sketched in section 2.2.2.

2.4.2 Deriving position dependent agreement

Having established how the analysis can be formalised, I will now go over each of the PDA patterns to illustrate how they are derived.

I start with the PDA paradigms of Hollandic Dutch, Brabantic, and Northern Dutch, repeated below in tables 2.13, 2.14, and 2.15. These paradigms have PDA for 2SG. The 2PL PDA pattern in Brabantic is due to the 2PL pronoun behaving like a 2SG pronoun for the purposes of agreement, so is already accounted for.

Table 2.13: Agreement paradigm Hollandic Dutch ($n = 23$)

	SV	VS
1SG	leef-Ø	leef-Ø
2SG	leef-t	leef-Ø
3SG	leef-t	leef-t
1PL	leev-ə	leev-ə
2PL	leev-ə	leev-ə
3PL	leev-ə	leev-ə

Table 2.14: Agreement paradigm Brabantic ($n = 44$)

	SV	VS
1SG	leef-Ø	leef-Ø
2SG	leef-t	leef-Ø
3SG	leef-t	leef-t
1PL	leev-ə	leev-ə
2PL	leef-t	leef-Ø
3PL	leev-ə	leev-ə

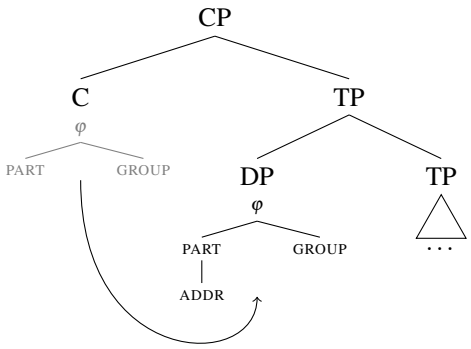
Table 2.15: Agreement paradigm Northern Dutch ($n = 15$)

	SV	VS
1SG	leef-Ø	leef-Ø
2SG	leev-en	leef-Ø
3SG	leef-t	leef-t
1PL	leev-ən	leev-ən
2PL	leev-ən	leev-ən
3PL	leev-ən	leev-ən

I propose that the C Probe in Hollandic Dutch, Brabantic, and Northern Dutch, is defective for [Addressee]. This means that the C Probe does not have an unvalued version of [Addressee], and that it therefore cannot copy valued [Addressee] from the Goal, even if the Goal has that feature. This is represented in (28), where the grey (partial) feature geometry represents the unvalued features on the Probe in C, and the

black feature geometry represents the features of the subject (in this case, 2PL, because this feature bundle uses the maximal feature geometry). The arrow indicates the Agree relation between the Probe and the Goal.

(28)



When the C Probe, that is defective for [Addressee], enters an Agree relation with a second person Goal, only a subset of the Goal's features will be copied to the Probe: [Participant], and if the Goal is plural, [Group]. When the structure undergoes transfer to morphology, only the features [Participant] and [Group] will be morphologically represented in binary features. For instance, if Agree takes place with a 2SG Goal, the morphological representation would be [+ Participant] and [− Group]. Based on the morphological representation, the affix inventory is scanned to find a matching affix. The affix inventories of Hollandic Dutch and Brabantic are repeated in (29). The best match to [+ Participant] and [− Group] is Ø; *-t* also matches, but contains more features not represented in the structure, so Ø will be selected and spelled out on the verb if the verb is in C. The T head is not a defective Probe. When T Agrees with a 2SG subject, all the features of the subject are copied to T, and the resulting representation at morphology is [+ Participant], [+Addressee] and [− Group]. The affix that matches this feature representation is *-t*, which will be inserted when the verb is in T. Because a different affix is used in C and T with a 2SG subject, this results in the PDA paradigm of Hollandic Dutch and Brabantic.

(29) a. [+ Participant] [− Addressee] [− Group] ⟺ Ø

b. [+ Participant] [− Participant] [+ Addressee] [− Addressee] [+ Group] ⟺ -ə(n)

c. [+ Participant] [− Participant] [+ Addressee] [− Addressee] [+ Group] [− Group] ⟺ -t

Northern Dutch has a slightly different affix inventory from Hollandic Dutch and Brabantic, repeated in (30), but the effect of the defective C Probe is very similar. Consider again what happens when the defective Probe C Agrees with a 2SG subject. Only

[Participant], but not [Addressee], are copied to the Probe; [Group] remains unvalued. The corresponding morphological representation is [+ Participant], [− Group]. The affix that is the best match to this set of features is Ø, which will be inserted when the verb is in C. T is not a defective Probe. When T Agrees with a 2SG subject, the affix that will be inserted is *-ə(n)*. In short, the defective Probe in C causes the insertion of a different affix than in T when there is Agree with a 2SG subject, leading to PDA.

(30) a. [+ Participant] [− Addressee] [− Group] ⟺ Ø
b. [− Participant] [− Addressee] [− Group] ⟺ -t
c. [+ Participant] [− Participant]
[+ Addressee] [− Addressee] ⟺ -ə(n)
[+ Group] [− Group]

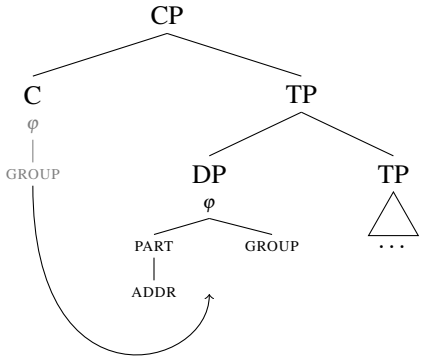
The next paradigm is from East Flemish, repeated in table 2.16. East Flemish has PDA for 2SG and 3SG (PDA for 2PL is the result of the 2PL pronoun behaving as a singular pronoun, see above).

Table 2.16: Agreement paradigm East Flemish ($n = 10$)

	SV	VS
1SG	leef-Ø	leef-Ø
2SG	leef-t	leef-Ø
3SG	leef-t	leef-Ø
1PL	leev-ən	leev-ən
2PL	leef-t	leef-Ø
3PL	leev-ən	leev-ən

To account for the paradigm of East Flemish, I propose that the C Probe is defective for [Addressee] and [Participant]. In other words: C does not have these features and therefore cannot copy the value of these features from a Goal. The C Probe of East Flemish is represented in (31).

(31)



The affix inventory of East Flemish is identical to the affix inventory of Hollandic and Brabantic in (29) above. When the complete φ-Probe T Agrees with a Goal, it can copy all the features of the Goal to the Probe; at morphology, all features are assigned a binary representation, and the matching affix is inserted. This leads to the SV paradigm. The C Probe, on the other hand, can only copy [Group] from the subject; [Participant] and [Addressee] on the subject are not copied. At morphology, only [Group] will be assigned a binary representation, and therefore, only this feature will be used for affix insertion: [− Group] for singular subjects, [+ Group] for plural subjects. This means that for all the singulars, Ø will be used, as it is a better match for [− Group] than the elsewhere affix *-t*. For the plurals, *-ə(n)* is used. Because for the 2SG and the 3SG, the affix inserted in C is different from the affix inserted in T, there is PDA for these two person/number combinations in East Flemish.

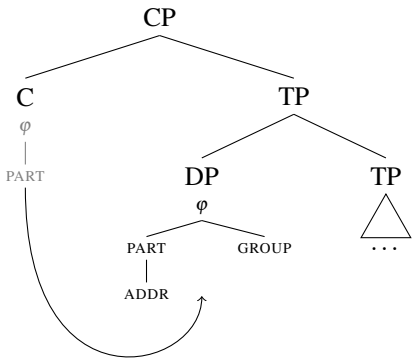
The final PDA paradigm is that of Dutch Low Saxon, repeated in table 2.17. This paradigm has PDA for 2SG, 1PL, and 2PL.

Table 2.17: Agreement paradigm Dutch Low Saxon ($n = 9$)

	SV	VS
1SG	leef-Ø	leef-Ø
2SG	leef-t	leef-Ø
3SG	leef-t	leef-t
1PL	leef-t	leef-Ø
2PL	leef-t	leef-Ø
3PL	leef-t	leef-t

To derive the Dutch Low Saxon paradigm, I propose that the C Probe is defective for [Addressee] and [Group], represented in (32). C can only copy [Participant] from the subject. The affix inventory of Dutch Low saxon is given in (33). When T Agrees with the subject, it can copy all the features of the subject, leading to a complete representation at morphology which is used for affix insertion. As a result, Ø is used with a 1SG subject, and *-t* with the other subjects. C can only be valued for [Participant], and therefore, morphology will only posit a representation for [Participant]. All first persons and second persons are [+ Participant]. The affix that is the best match to [+ Participant] is Ø, which will therefore the used with first and second person subjects in VS word order. [− Participant] only matches *-t*, and this affix will be used with third person subjects. Because C is a defective Probe, the affix used in the VS word order is different from the affix used in the SV word order for 2SG, 1PL, and 2PL subjects, resulting in the PDA paradigm of Dutch Low Saxon varieties.

(32)



(33) a. [+ Participant] [− Addressee] [− Group] ⟺ Ø

b. [+ Participant] [− Participant]
[+ Addressee] [− Addressee] ⟺ -t
[+ Group] [− Group]

In the next two section, I will return to the questions that were raised in section 2.3. I will first discuss the locus of Probe defectiveness; I will show that the evidence points to it being syntactic. Then, I will consider the question of feature valence: can the same result be achieved with a uniform representation of φ-features across grammatical modules? I argue that this is not the case, and that both the privative and the binary representation are necessary.

2.4.3 Locus of delinking

From previous discussions of PDA, roughly two views emerge on where its source is located in the grammar. The first, put forward by Ackema and Neeleman (2003) and Don et al. (2013), is that PDA is the result of a deletion operation (such as impoverishment) in morphology. The second approach is that PDA is the result of the verb being realised in different structural positions, which correlates with a different form, placing the source of PDA in the syntax; different variants of this approach are argued for by Zwart (1993, 1997), van Koppen (2005), Bennis and MacLean (2006) and Postma (2011, 2013). My proposal that PDA is the result of a defective Probe in C falls under the latter approach. In this section, I motivate that PDA is indeed syntactic.

The first argument comes from the distribution of verbs that show PDA. As we have seen, only verbs that precede the subject show PDA. Verbs following the subject, either as V2 in main clauses or verb final in embedded clauses, always show full inflection (cf. Don et al., 2013 for Dutch, and Bjorkman and Zeijlstra, 2019 for a cross-linguistic perspective on this matter). This restriction is not predicted by a morphological approach to PDA, as there is no obvious reason that only verbs that are followed by a subject undergo impoverishment (though see Ackema and Neeleman,

2003 for a proposal why this should be the case; I discuss their proposal in section 2.7.1).

The syntactic approach can explain this generalisation. There are several ways to implement this. First, we can look at the heads that contain the φ-Probes: T and C. It is generally acknowledged that there is a close connection between nominative case assignment and agreement with T, and this has led Chomsky (2001) to propose that a finite-clause T Probe cannot be defective; a defective T-probe would fail to assign nominative case, resulting in e.g. a raising construction. This explains why a verb preceded by a subject, or a clause-final embedded verb, cannot show partial agreement: these verbs spell-out T agreement. C agreement, in contrast, does not seem to have any syntactic function (at least in West Germanic languages), and it has even been referred to as 'ornamental' (Fuß, 2014), explaining why it can be partial.

Another approach is to look at the Agree relation itself. Bjorkman and Zeijlstra (2019) argue that Agree takes place primarily in an upward fashion; only if upward Agree fails, can the Probe Agree downwards. Agree between T and the subject can be upwards, because the subject is in Spec,TP. But Agree between C and the subject has to take place downwards, because the subject never moves to a position above C (recall that in SV word orders, the CP does not project). It is conceivable that C's consistent, secondary, downward Agree relation results in loss of the features that trigger the Agree relation in the first place. In summary, the syntactic approach to PDA provides several ways to account for the observation that only verbs preceding the subject show partial agreement.

The final argument to place the locus of PDA in syntax is that morphological approaches make incorrect empirical predictions on the behaviour of PDA. An important prediction for morphological approaches to morpheme alternations is that the alternation takes place based on linear adjacency: PF operates on linearised structure, and can therefore only use this structure for alternations (cf. Ackema and Neeleman, 2004, and Weisser, 2019; van Alem, 2020 for recent discussion). This means that according to morphological approaches to PDA, there is no partial agreement when the linear adjacency between the verb and the subject is disrupted; the syntactic approach predicts the opposite, as according to this approach, it is the structural position of the verb that matters, and that is not affected by disrupting the linear adjacency between the verb and the subject. It turns out that when an element intervenes between the verb and the subject, the verb still shows partial agreement, as illustrated in (34). These data form an argument against morphological approaches to PDA.

(34) a. Jij **gaa-t** dit een leuk spelletje vinden.
you go-AGR this a nice game find
'You are going to like this game.'

b. Volgens mij **ga-Ø** jij dit een leuk spelletje vinden.
according-to me go-Ø you this a nice game find
'I think that you will like this game.'

c. Volgens mij **ga-Ø** zelfs jij dit een leuk spelletje vinden.
according-to me go-Ø even you this a nice game find
'I think that even you will like this game.' Dutch

Ackema and Neeleman (2003), however, propose that impoverishment does not apply under adjacency, but within a prosodic domain; as long as two elements (here the verb and the subject) are in the same prosodic domain, intervening elements (such as focus particles) do not block the application of impoverishment. A prosodic domain is defined by referring to syntactic phrases; more specifically, in a predominantly head-initial languages like Dutch dialects, the right edge of a syntactic phrase aligns with the right edge of a prosodic phrase. So, in a structure where the verb is in C, and the subject in Spec,TP, the verb and the subject will be in the same prosodic domain, because there is no 'intervening' syntactic phrase boundary; rather, the right edge of the subject DP constitutes the right edge of a syntactic phrase, and therefore also of the prosodic phrase.[6] Focus particles that can intervene between the verb and the subject are generally assumed to modify the subject; because they do not project their own syntactic phrase, they do not introduce a prosodic phrase boundary either. The prediction is therefore that a focus particle can intervene between a verb and a subject without blocking the application of impoverishment resulting in PDA, which is borne out given (34c).

Ackema and Neeleman further support their approach to PDA with sentences where not just a focus particle, but a whole phrase intervenes between the verb and the subject. Because the right edge of a syntactic phrase corresponds to the right edge of a prosodic domain, a phrase that intervenes between the verb and the subject causes the verb and the subject to be in different prosodic domains. The prediction for these sentences is therefore that impoverishment cannot apply, and that the verb shows full agreement. According to Ackema and Neeleman's judgement, this prediction is borne out, as they find (35a) 'not perfect' but better than the variant with partial agreement on the verb (35b).

(35) a. ? Volgens mij **gaa-t** op de heetste dag van 't jaar zelfs jij naar
according-to me go-AGR on the hottest day of the year even you to
het park.
the park
'According to me, even you go on the hottest day of the year to the park.'

b. * Volgens mij **ga-Ø** op de heetste dag van 't jaar zelfs jij naar
according-to me go-Ø on the hottest day of the year even you to
het park.
the park
'According to me, even you go on the hottest day of the year to the park.' Dutch (Ackema & Neeleman, 2003, pp. 695–6)

This judgement is contested, however: according to Zonneveld (2007), similar sentences with intervention of both an adverb and a focus particle between the verb and

[6] According to Ackema and Neeleman, this is also the reason that there can only be partial agreement on the verb when the verb precedes the subject; verbs that follow a subject are in a different prosodic domain, because the subject always introduces a prosodic phrase boundary, the application of impoverishment is therefore blocked.

the subject (such as (36)) are grammatical only with partial agreement on the verb. Zonneveld suggests that the agreement on (35) is hard to judge, because the distance between the verb and the subject is unnaturally long, and because there is an interfering phonological factor: partial agreement on the verb in (35) leads to hiatus (/ɣa-ɔp/). These factors potentially contribute of ungrammaticality for (35). Since (36) does not have hiatus, and should be easier to parse because of the shorter distance between the verb and the subject, this example is a more accurate reflection of the grammar.

(36) Volgens mij **ga-Ø** vanavond zelfs jij naar het park.
according-to me go-Ø tonight even you to the park
'According to me, even you will go to the park tonight.
Dutch (Zonneveld, 2007, p. 744)

Taking Zonneveld's criticism and judgements to be valid, (36) shows that the morphological account to PDA makes the incorrect prediction that agreement should be full under intervention, even under Ackema and Neeleman (2003)'s adjustment, as the verb and the pronoun are not in the same prosodic domain. A syntactic approach to PDA can account for the agreement pattern under intervention, since syntactic agreement is unaffected by linear distance. Since the syntactic approach to PDA fares better than the morphological approach, I conclude that the former is correct.

2.4.4 Feature valence

What we have seen so far is that the typology of PDA paradigms in Dutch dialects is restricted by a φ-feature geometry made up of privative φ-features. Furthermore, the source of PDA is in the syntax, which implies that in syntax, φ-features are privative. However, I have been using binary features for affix insertion, which I assumed to take place in morphology. In this section, I consider whether the same results can be achieved under the simpler assumption that the representation of φ-features is uniform across modules. I first consider if φ-features can be privative in morphology too. Then, I evaluate a uniform binary representation of features in syntax and morphology. The outcome will be that neither of these approaches captures the full set of observations regarding PDA. Instead, I argue that we need both representations: φ-features are privative in syntax, and binary in morphology.

2.4.4.1 Privative features

Let us first consider the option of having privative φ-features in morphology. The first argument against privative features in morphology is that this would require a substantial amount of homonymy to capture regular syncretisms, which is conceptually undesirable. Furthermore, I will show that the analysis of PDA based on privative morphological φ-features makes a prediction that is not borne out empirically.

Before we get into the arguments, it is important to point out that I will evaluate privative features in morphology using the Subset Principle for affix insertion, rather than the Superset Principle that I have adopted in this thesis. According to the Subset Principle, affixes are inserted when their lexical specification matches a *subset* of the

syntactic context, rather than a superset (Harley & Noyer, 1999). In such an approach, overspecification of lexical entries is not allowed; instead, lexical entries are underspecified compared to the syntactic context. Let me illustrate insertion according to the Subset Principle with the paradigm of Hollandic Dutch (table 2.18).[7] Instead of the overspecified lexical entries that we have seen before, the Subset Principle allows lexical items to be underspecified, as in (37).

Table 2.18: Agreement paradigm Hollandic Dutch ($n = 23$)

	SV	VS
1SG	leef-Ø	leef-Ø
2SG	leef-t	leef-Ø
3SG	leef-t	leef-t
1PL	leev-ə	leev-ə
2PL	leev-ə	leev-ə
3PL	leev-ə	leev-ə

(37)
[+ Participant] [− Addressee] [− Group]	⟺ Ø
[+ Group]	⟺ -ə
Elsewhere	⟺ -t

In this affix inventory, Ø is fully specified for the 1SG context, so nothing changes here. However, the specifications for *-ə* and *-t* are different. These morphemes are now specified for fewer or no features. The insertion mechanism, based on the Subset Principle, works as follows: *-ə* will be inserted in all contexts that have the feature [+ Group] (in addition to other features), that is, all plurals. The suffix does not match all features in the context, but that is no problem, because underspecification of the suffix is allowed. The suffix *-ə* will therefore be inserted with all plurals. The elsewhere suffix *-t* will be inserted in the left-over contexts: 2SG and 3SG.

The reason I use the Subset Principle in this section is twofold. First, insertion according to the Superset Principle does not work for the PDA paradigms with privative φ-features. The paradigms I am considering have a clear elsewhere morpheme (usually *-t*, sometimes *-ə(n)*) that can spread to new contexts. The elsewhere morpheme is specified for the complete set of possible features, i.e. the plus and minus variants of each feature. A highly specific inflectional suffix, on the other hand, is specified for the plus *or* minus variant of each feature. In other words: a more general suffix is specified for more features. In a privative system, this does not work. The reason is as follows. The elsewhere suffix is specified for the complete set of possible features. In the privative system of φ-features, the maximal specification is [Participant], [Addressee] and [Group]. Now imagine a paradigm in which the elsewhere suffix is different from the suffix used with 2PL. Because the specification for 2PL is also [Participant], [Addressee] and [Group], the affix used in this context needs

[7] I am using binary features in this illustration because using privative features here is not very straightforward, as I will elaborate on below.

to be specified for these features too. As a result, there are two morphemes with an identical features specification: the elsewhere suffix and the more specific 2PL suffix. Because the suffixes are equally specified, the insertion algorithm cannot determine which morpheme to insert. Since there are many examples of PDA paradigms where the 2PL suffix is not the elsewhere suffix (such as Hollandic Dutch above), overspecification of morphemes and insertion according to the Superset Principle is not a feasible approach to affix insertion using privative features.

The second reason that I adopt the Subset Principle to evaluate privative morphological φ-features is that a morphological approach to PDA using privative features and the Subset Principle has been proposed by Ackema and Neeleman (2003). This is useful, because it allows me to evaluate their actual assumptions and proposals, rather than this just being a theoretical exercise. I will also discuss Ackema and Neeleman's proposal in section 2.7.1.

We can now turn to the evaluation of privative features in morphology. Again, let us take the PDA paradigm of Hollandic Dutch as the starting point. The affix inventory of Hollandic Dutch, using privative features, is given in (38). In this affix inventory, every affix is represented only once, with instructions on where it should be inserted ([Participant] is the privative representation of first person, [Group] is the privative representation of plural).

(38)
	[Participant]	⟺ Ø
	[Group]	⟺ -ə
	Elsewhere	⟺ -t

However, because we use the Subset Principle for insertion, this affix inventory makes some incorrect predictions. For instance, while [Participant] matches the syntactic representation of 1SG, it is also a subset of the representation of 2SG. For this reason, Ø should be used with 2SG as well as with 1SG, but this is not correct: in the SV word order, the elsewhere morpheme *-t* is used in the 2SG context.[8]

In order to resolve this problem, an additional morpheme is required, that is specified for 2SG and that is homonymous with the elsewhere morpheme (cf. Ackema and Neeleman, 2003). The updated affix inventory is given in (39). This affix inventory ensures that *-t* is inserted with 2SG.

(39)
	[Participant]	⟺ Ø
	[Participant] [Addressee]	⟺ -t
	[Group]	⟺ -ə
	Elsewhere	⟺ -t

According to the analysis of PDA in terms of defective Probes, the C Probe is defective, which can lead to the insertion of a different morpheme. The proposal for Hollandic Dutch is that C cannot copy the feature [Addressee]. We can maintain this

[8]The other problem is that the feature specifications of both Ø and -ə are subsets of the representations of 1PL ([Participant] [Group]) and 2PL ([Participant] [Addressee] [Group]). In order to resolve this, an additional assumption about competition between affixes is needed. I will not go into this issue in more detail.

proposal here: if C does not copy the feature [Addressee] of a 2SG subject, the features in C are compatible with the specification of Ø. This leads to PDA. However, deriving the PDA paradigm using privative features comes at a cost: instead of an affix inventory consisting of three morphemes as in (38), we have to assume an affix inventory that contains four morphemes, two of which are homonymous.

While one instance of homonymy might not be hugely problematic, homonymy of this kind is needed in all PDA paradigms. This raises suspicion, in particular from the perspective of deflection: instead of losing affixes, which is descriptively the simplest way to capture the overlap between the different paradigms we find in varieties of Dutch, we would need to assume that an affix changes into the form identical to the elsewhere morpheme on a structural basis. This seems an unlikely development. In addition, in other paradigms, homonymy gets quite extreme. For instance, in the paradigm of Dutch Low Saxon (repeated in table 2.19), the affix inventory using binary features requires only the two entries given in (40).

Table 2.19: Agreement paradigm Dutch Low Saxon ($n = 9$)

	SV	VS
1SG	leef-Ø	leef-Ø
2SG	leef-t	leef-Ø
3SG	leef-t	leef-t
1PL	leef-t	leef-Ø
2PL	leef-t	leef-Ø
3PL	leef-t	leef-t

(40) a. [+ Participant] [− Addressee] [− Group] $\Longleftrightarrow$ Ø

b. [+ Participant] [− Participant]
[+ Addressee] [− Addressee] $\Longleftrightarrow$ -t
[+ Group] [− Group]

To derive the Dutch Low Saxon paradigm using privative features, we would need two extra entries in the affix inventory, that are both homonymous with the elsewhere morpheme *-t*, as in (41). The reason is similar to the problem we ran into with Hollandic Dutch. If we assume only two affixes (Ø, specified as [Participant], and *-t* as the elsewhere morpheme), the SV paradigm cannot be derived: because of the Subset Principle, Ø will match all syntactic contexts that have a [Participant] feature, i.e. the first persons and the second persons. To prevent that Ø is inserted with 2SG, we need a specific 2SG morpheme; and to prevent that Ø is inserted with first and second person plural, we need a specific plural morpheme. This leads to the affix inventory in (41), which has double the amount of morphemes as the affix inventory based on binary features, where three out of four are homonymous.

(41) [Participant] $\Longleftrightarrow$ Ø
[Participant][Addressee] $\Longleftrightarrow$ -t
[Group] $\Longleftrightarrow$ -t
Elsewhere $\Longleftrightarrow$ -t

In order to derive the PDA paradigms using privative features, a systematic and substantial amount of homonymy is required in the affix inventory. Although homonymy is likely to exist incidentally, the scale on which it is needed is not compatible with the frequency and robustness of PDA in the Dutch language area. Furthermore, it is not clear that an affix inventory with a lot of homonymy is learnable.

Apart from the conceptual issues, there is an empirical issue with homonymy too. That is, we never find PDA in the cells of a paradigm for which there is a unique affix in the affix inventory. To see this, consider again the FA paradigm in table 2.7, repeated on the next page as table 2.20. This paradigm distinguishes itself from all other paradigms in that it has a unique 2SG suffix. This is typical for FA paradigms. Not a single variety with PDA, on the other hand, has a unique 2SG affix. This is illustrated geographically in figure 2.2: while PDA is very common in the Dutch language area, none of the varieties with a unique 2SG suffix has PDA.[9]

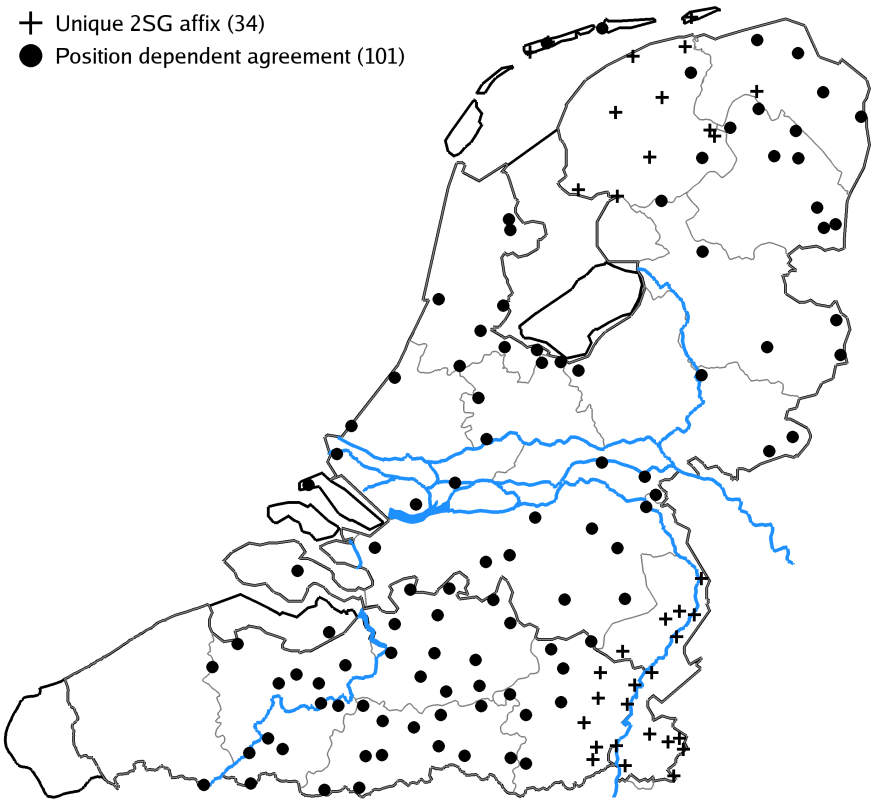


Figure 2.2: Geographical distribution unique 2SG affix and PDA

[9] See Postma (2011, 2013) for a closely related anti-correlation on PDA and the form of the 2SG pronoun.

Table 2.20: Agreement paradigm GFDL ($n = 4$)

	SV	VS
1SG	leef-Ø	leef-Ø
2SG	leef-s(t)	leef-s(t)
3SG	leef-t	leef-t
1PL	leev-ə(n)	leev-ə(n)
2PL	leev-ə(n)	leev-ə(n)
3PL	leev-ə(n)	leev-ə(n)

The problem for the analysis of PDA based on privative φ-features is that it predicts the exact opposite: in the discussion on homonymy, I showed that we are forced to assume that cells with PDA correspond to a unique affix, in order to derive the paradigm. If this is correct, then PDA should abound when a paradigm cell corresponds to a unique morpheme. The data in figure 2.2 show the opposite. This is a strong indication that features are not privative in morphology. The binary approach to φ-features does not run into issues with homonymy and the corresponding empirical problem.

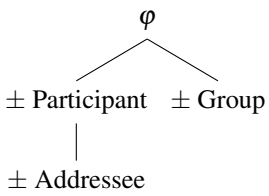
In conclusion, privative features in morphology lead to conceptual issues with homonymy and deflection, and make demonstrably incorrect predictions on where we find PDA in the paradigm. I conclude that features cannot be privative in morphology, but have to be binary.

2.4.4.2 Binary features

Having considered the option that features are privative in both syntax and morphology, let us now consider whether features can be binary in syntax and morphology.

If we adopt the (non-standard) assumption that binary features can be organised in a feature-geometry, most of the data on PDA can be accounted for. The binary feature geometry is given in (42). This geometry encodes the same dependency relations between features as the privative feature geometry that we have seen before. We can therefore maintain the analysis of PDA based on defective Probes, where defectiveness is restricted by the geometry.

(42)



However, in the PDA data, there is an additional generalisation that shows that the two values of a feature are not equal. This can be best accounted for with a privative approach to features, that inherently encodes that the two values of a feature are unequal, by making the distinction based on presence and absence.

In section 2.2.2, I showed that the different FA and PDA paradigms show a large amount of overlap. Based on this observation, I argued that these paradigms all make use of different subsets of the same meta-affix inventory. What I will show here, is that there is also a connection between the affix inventory of each variety, and the PDA paradigm of that variety. More specifically, I will show that in a given variety, a Probe is defective for a feature if the + value of that feature is not contrastive in the affix inventory.

Let me illustrate the connection based on the comparison between the FA paradigm found in Groningen, Friesland, and Dutch Limburg, repeated in table 2.21, and the PDA paradigm of Hollandic Dutch, repeated in table 2.22.

Table 2.21: Agreement paradigm GFDL ($n = 4$)

	SV	VS
1SG	leef-Ø	leef-Ø
2SG	leef-s(t)	leef-s(t)
3SG	leef-t	leef-t
1PL	leev-ə(n)	leev-ə(n)
2PL	leev-ə(n)	leev-ə(n)
3PL	leev-ə(n)	leev-ə(n)

Table 2.22: Agreement paradigm Hollandic Dutch ($n = 23$)

	SV	VS
1SG	leef-Ø	leef-Ø
2SG	leef-t	leef-Ø
3SG	leef-t	leef-t
1PL	leev-ə	leev-ə
2PL	leev-ə	leev-ə
3PL	leev-ə	leev-ə

The affix inventory of the FA paradigm is given in (43). What is of interest are the features that are contrastive, by which I mean that only one of the two values of that feature are referred to in the lexical representation of the affix. For example: in the representation of the elsewhere morpheme *-t*, none of the features are contrastive, because both values of every feature are part of the lexical representation of the affix. In contrast, in the representation of Ø and *-st*, all features are contrastive, because the lexical representation of the affix contains only one value of every feature. Finally, for the affix *-e(n)*, only the feature [Group] is contrastive.

(43) a. [+ Participant] [− Addressee] [− Group] ⟺ Ø
b. [+ Participant] [+ Addressee] [− Group] ⟺ -st
c. [+ Participant] [− Participant] [+ Addressee] [− Addressee] [+ Group] ⟺ -ə(n)
d. [+ Participant] [− Participant] [+ Addressee] [− Addressee] [+ Group] [− Group] ⟺ -t

Let us now compare this to the affix inventory of Hollandic Dutch, repeated in (44). This affix inventory is the same as the affix inventory in (43), except for the absence of *-st*. The morpheme *-st* is the only morpheme where the lexical representation contains [+ Addressee] as a contrastive feature. The crucial observation is that with this contrastive feature missing in the affix inventory of Hollandic Dutch, the C Probe of

Hollandic Dutch also does not contain [Addressee], i.e. it is defective for [Addressee]. In contrast, the C Probe of Groningen, Friesland, and Dutch Limburg Dutch is not defective, i.e. can Probe for all features.

(44) a. [+ Participant] [− Addressee] [− Group] ⟺ Ø

b. [+ Participant] [− Participant] [+ Addressee] [− Addressee] [+ Group] ⟺ -ə(n)

c. [+ Participant] [− Participant] [+ Addressee] [− Addressee] [+ Group] [− Group] ⟺ -t

The connection also holds when we compare Hollandic Dutch to the Dutch Low Saxon varieties. The PDA paradigm of Dutch Low Saxon is repeated in table 2.23, and the affix inventory in (45).

Table 2.23: Agreement paradigm Dutch Low Saxon ($n = 9$)

	SV	VS
1SG	leef-Ø	leef-Ø
2SG	leef-t	leef-Ø
3SG	leef-t	leef-t
1PL	leef-t	leef-Ø
2PL	leef-t	leef-Ø
3PL	leef-t	leef-t

(45) a. [+ Participant] [− Addressee] [− Group] ⟺ Ø

b. [+ Participant] [− Participant] [+ Addressee] [− Addressee] [+ Group] [− Group] ⟺ -t

Comparing the affix inventory of Dutch Low Saxon to Hollandic Dutch, we see that the *-e(n)* suffix is now absent. What is also absent, is contrastive reference to the + value of [Group]. So in the affix inventory of Dutch Low Saxon, the + values of both [Addressee] and [Group] are not contrastive. And in fact, the C Probe of Dutch Low Saxon is defective for both [Addressee] and [Group].

What this comparison between affix inventories shows is that there is a correspondence between having a contrastive + value of a feature in the affix inventory, and that feature being present on the C Probe. Crucially, it is the + value of a feature that needs to be contrastive in the affix inventory; a contrastive − value is not enough. For instance, in both Hollandic Dutch and Dutch Low Saxon, the Ø morpheme has contrastive − values of [Addressee] and [Group], but this is not enough for those features to be present on the C Probe. This shows that there is an inherent inequality between the + and − values of a feature.

An inequality of this type is not compatible with a binary feature representation, according to which the two values of a feature are equal. However, it is exactly what is encoded with a privative representation of features, because such a representation makes use of presence and absence. What is more, I assumed that presence of a feature in the privative feature representation is mapped to a + value in the binary representation. It is therefore to be expected that any relation between the two is between presence and the + value, because you cannot refer to an absent feature in the privative representation. In the previous section, I demonstrated that in morphology, features have to be binary. This section shows that the privative representation is also needed for a full understanding of position dependent agreement, and I take the privative representation to be the syntactic representation of φ-features. This has the important implication that the representation of φ-features is not the same across grammatical modules: φ-features are privative features in syntax, which affects the outcome of Agree; but they are binary in morphology, at the point of spell out.

2.5 Φ-features in syntax and morphology: a cross-linguistic perspective

The conclusion from the previous section that φ-features are privative, and geometrically organised, in syntax, but binary in morphology, is not the standard approach to φ-features. In this section, I consider several other phenomena from unrelated languages that have been used to argue in favour of privative or binary φ-features. The conclusion that I will draw is that the arguments from the literature are, in fact, compatible with a non-uniform representation of φ-features: arguments for privative, geometrically organised φ-features are syntactic in nature, whereas arguments for binary φ-features are relevant to morphology. Some of the discussion in this section is based on Preminger (2017), who is, to the best of my knowledge, the first to suggest that the representation of φ-features does not have to be the same across modules; and it builds on Kučerová (2019), who argues that φ-features have different representations in syntax and semantics.

The first set of arguments I will discuss are those in favour of privative φ-features that are organised in a geometry. These arguments are typically based on phenomena that involve Agree with multiple arguments, and where the outcome of Agree (spell out of agreement morphology or clitic doubling) is determined by the φ-features of the arguments. In other words: some φ-features take priority over other φ-features in terms of Agree. Because a privative and geometric representation of φ-features inherently encodes an inequality between features, priority effects in Agree can easily be accounted for.

The first phenomenon showing priority effects is omnivorous agreement. Omnivorous agreement is agreement where the agreement controller is not selected based on its grammatical function, but on its φ-features. For instance, in Georgian (Kartvelian) (Béjar, 2003), the verb inflects as plural if the subject *or* the object (or both) is plural; agreement is controlled by the argument that is plural. An illustration is given in (46).

The plural suffix on the verb in (46) signals that either the subject, or the object, or both the subject and object, are plural, resulting in ambiguity.

(46) g-xedav-t
2.OBJ-see-PL
'we saw you' plural subject
'I saw you all/he saw you all' plural object
'we saw you all' plural subject and object
Georgian (Béjar, 2003, p. 123, Nevins, 2011, p. 941)

Another example of omnivorous agreement can be found with complementiser agreement in Nez Perce (Penutian) (Deal, 2015). In a Nez Perce sentence with one 2SG argument and one 3SG argument, complementiser agreement is always with the 2SG argument, regardless of its grammatical role; the 2SG argument controls agreement because of its φ-features. This is illustrated in (47).

(47) a. ke-**m** kaa ***pro*$_{subj}$** 'e-cewcew-téetu A.-ne
C-2P then PRO.2SG 3OBJ-telephone-TAM A.-ACC
'when you call A.'

b. ke-**m** kaa A.-nim hi-cewcew-téetu ***pro*$_{obj}$**
C-2P then A.-ERG 3SBJ-telephone-TAM PRO.2SG
'when A. calls you' Nez Perce (Deal, 2015, p. 4)

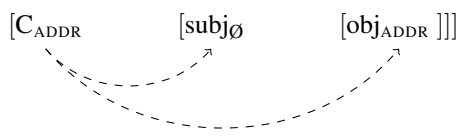
Omnivorous agreement has been analysed as follows (Béjar, 2003; Preminger, 2014; Deal, 2015). The main idea is that the Probe can be specified (or 'relativised') to look for a particular feature in the clause, for instance [Plural]. If the nearest Goal to the Probe (e.g. the subject) also has [Plural], it will value [Plural] on the Probe, resulting in the realisation of plural agreement morphology. This is schematised in (48). However, if the subject does not have [Plural], the Probe will continue its search for a next Goal. If the next Goal (e.g. the object) does have the feature [Plural], now the object's [Plural] feature can value [Plural] on the Probe, as schematised in (49). Again, the outcome is plural agreement morphology on the verb. Only if none of the Goals in the search domain of the Probe have [Plural], the outcome will be singular agreement. This is how omnivorous number agreement in Georgian (46) comes about.

(48) [V_{PL} [$subj_{PL}$ [obj_{SG}]]]

(49) [V_{PL} [$subj_{SG}$ [obj_{PL}]]]

Omnivorous person is analysed in the same way. For instance, a Probe could be relativised to look for the feature [Addressee]. If the closest Goal (here: the subject) also has [Addressee], it can value the feature on the Probe, leading to second person agreement morphology. If the closest Goal does not have [Addressee], the Probe will look for the next Goal (the object). If the object has [Addressee], then the object can

value [Addressee] on the Probe, and again the outcome will be second person agreement morphology. This is what happens in the examples from Nez Perce in (47), and is schematised in (50).[10]

(50) 

Omnivorous agreement is found in many languages, and follows the same hierarchical pattern: first and second person outrank third person (Béjar, 2003; Deal, 2015), and plural (and dual) outrank singular (Barrie, 2005; Preminger, 2014).[11] This can be modelled by assuming a privative φ-feature geometry, where first and second person, and plural, are more highly specified than third person and singular, respectively. The geometry captures the cross-linguistic pattern: for instance, because [Plural] corresponds to presence of a feature, but [Singular] does not, [Plural] can 'override' [Singular], but not the other way around. Importantly, under the assumption that Agree is syntactic (Georgi, 2014; Preminger, 2014), this implies that features must be privative and organised in a geometry in syntax as well.

The second set of phenomena that are argued to involve multiple Agree that is sensitive to φ-features are hierarchy effects, such as the Person Case Constraint (PCC). The PCC is found in many languages, and bans certain combinations of clitic objects of ditransitive verbs based on their person features. For instance, in Catalan, a clitic direct object of a ditransitive cannot be first or second person when the indirect object is a third person clitic (Bonet, 1991). The reverse, i.e. a third person direct object clitic in the context of a first or second person indirect object clitic, is fine. It is also possible for both the object clitics to be first or second person. The pattern is illustrated in (51). This particular variety of the PCC is called the 'weak' PCC; some other variants are the strong PCC (where the direct object must be third person), or the ultrastrong PCC (similar to the weak PCC, but additionally bans a first person direct object in the context of a second person indirect object) (see e.g. Nevins, 2007 for an overview of PCC variants).

(51) a. * A en Josep, me li va recomanar la Mireia.
to the Josep 1SG.ACC 3SG.DAT recommended the Mireia
'She (Mireia) recommended me to him (Josep).'

[10] It is interesting to note that a relativised Probe is essentially the opposite of a defective Probe; the relativised Probe 'wants' to Agree with a particular feature, while the defective Probe cannot Agree with a particular feature. These options should be seen as being on opposite sides on the continuum of Probe variation.

[11] Menominee (Algonquian) appears to be the only known exception; in this language, one person marker is omnivorous for third person (Trommer, 2008). Algonquian languages are known for their atypical and complex system of hierarchy effects (see e.g. Zúñiga, 2008), and also in Menominee, other person markers are omnivorous for first and second person. It seems possible that omnivorous third person in Menominee is therefore the result of a different source.

b. Te ’m van recomanar per a la feina.
2SG 1SG recommended for the job.
‘They recommended me to you for the job.’
Or: ‘They recommended you to me for the job.’

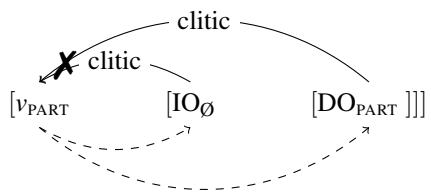
c. En Josep, me ’l va recomanar la Mireia.
the Josep 1SG.DAT 3SG.ACC recommended the Mireia
‘She (Mireia) recommended him (Josep) to me.’

Catalan (Bonet, 1991, pp. 178, 179)

Although the PCC has been analysed in a number of ways (see e.g. Anagnostopoulou, 2003; Béjar & Rezac, 2003; Nevins, 2007; Stegovec, 2020), I will discuss here the recent approach by Coon and Keine (2021). The intuition behind their analysis is that the PCC involves multiple Agree resulting in multiple clitic doubling, leading to problems with spell out.

According to Coon and Keine (2021), in a language with the PCC, *v* is a Probe that is specified to Agree with a particular feature. For example, *v* can be specified to Agree with [Participant]. As a result, *v* will keep Probing until it has found the feature [Participant]. In a ditransitive, there are two possible Goals in the search domain of the Probe: the closest Goal is the indirect object, and below that is the direct object. If the indirect object is a first or second person, and therefore has the feature [Participant], the [Participant] Probe will Agree with the indirect object and, importantly, triggers clitic doubling of that object. The Probing operation is now finished, because the Probe has found a [Participant] feature to Agree with, and the derivation continues. An indirect first or second person object therefore does not give rise to PCC effects. The other scenario is that the indirect object is a third person, and does not have a [Participant] feature. The indirect object is still the first Goal in the search domain of the Probe, so the Probe Agrees with it, and triggers clitic doubling. However, the [Participant] feature on the Probe has not been valued, so the Probe continues to search for another Goal that can value its [Participant] feature. The direct object is the second Goal. If the direct object is first or second person, and therefore has the feature [Participant], the Probe will also Agree with the direct object, and trigger clitic doubling. This is where the problem arises: there is one Probe that triggers two clitic doubling operations. According to Coon and Keine (2021), this leads to irresolvable problems with spell out: two clitics cannot cliticise onto the probing head *v* at the same time. This is schematically illustrated in (52). As a result, derivations with a third person indirect object, and a first or second person direct object, are ruled out, resulting in the weak PCC.

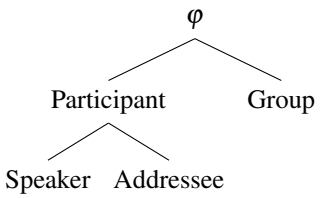
(52)



Importantly, other PCC variants can be accounted for by a different composition of the Probe. For example, the ultrastrong PCC follows if *v* is specified to probe for [Participant] and [Speaker].[12]

What this excursion into omnivorous agreement and the PCC demonstrates is that both phenomena show restrictions that are caused by Agree being restricted by one and the same φ-feature geometry, given in (53). Under the assumption that Agree is syntactic, these data provide further support for the idea that φ-features are privative and geometrically organised in syntax.

(53)



When we look at the evidence in favour of binary φ-features, it turns out that most arguments are based on morphological evidence. In particular, several morphological phenomena require reference to features that do not exist in the privative view of φ-features, because they are considered to be underspecified. These features are third person, and singular number. Nevins (2007) explicitly argues against a privative representation of φ-features by showing that reference to third person is necessary to account for certain data, but the majority of his examples are morphological (cf. Preminger, 2017). One phenomenon discussed by Nevins is 'spurious' *se* in Spanish: when a third person dative and a third person accusative clitic occur adjacent to each other, instead of the expected sequence *le lo*, the sequence *se lo* is realised. According to Nevins, this is due to a morphological dissimilation rule that says that the features on a third person dative clitic must undergo a process (that results in *se*), when it precedes a third person accusative clitic. Another phenomenon brought up by Nevins that requires reference to third person is the English verbal inflection suffix *-s*, that is only used for third person singular; under the simplest analysis, the lexical entry of *-s* is specified as [− Participant, − Plural]. Importantly, both features are not available under a privative representation of φ-features.

As Preminger (2017) points out, another argument in favour of binary features comes from verbal number suppletion in Hiaki (Uto-Aztecan) (Harley, 2014a). In Hiaki, a small set of verbs shows suppletion based on the number feature on the sole argument of an intransitive verb, or the internal argument of a transitive verb; this is illustrated with an intransitive verb in (54).

(54) a. Aapo aman **vuite**-k.
3SG there run.SG-PRF
'He ran over there.'

[12]Note that this means that languages with the ultrastrong PCC use [Speaker] rather than [Addressee] to differentiate between first and second person. This option is still in line with the structure of Harley and Ritter (2002)'s feature geometry.

b. Vempo aman **tenne**-k.
3PL there run.PL-PRF
'They ran over there.' Hiaki (Harley, 2014a, p. 236)

Importantly, the plural verb form is the default form, as this is the form that is used in e.g. impersonal passives, where there is no argument to determine the verb form:

(55) Aman yahi-wa / *yevih-wa.
there arrive.PL-PASS arrive.SG-PASS
'Arriving is happening over there.'
or: 'Someone / people / they is / are arriving over there.'
Hiaki (Harley, 2014b, p. 456)

Furthermore, verbal number suppletion is not the result of agreement: while suppletion follows an ergative-absolutive pattern, alignment of case in Hiaki is nominative-accusative, so the agreement analysis of verbal number suppletion would violate Bobaljik (2008)'s generalisation that agreement is with the unmarked case (i.e. nominative). Instead, Harley (2014a) (see also Harley et al. (2016)) proposes that verbal number suppletion should be analysed as contextual allomorphy of the verb when it is in a sisterhood relation to a [− Plural] argument. Crucially, this requires that [− Plural] is a feature that can be used for a morphological operation.

What the above arguments for binary features have in common is that they refer to morphological processes: dissimilation, affix insertion, and allomorphy. In other words, there is good evidence that in morphology, φ-features have a binary representation.[13]

To summarise what we have seen so far, multiple Agree contexts across different languages suggest that φ-features are privative and organised in a geometry, but morphological processes require that features are binary. But since Agree is a syntactic operation, and morphological processes take place outside of syntax, these conclusions are not necessarily in contradiction with each other. We can understand it when the representation of φ-features is variable across grammatical modules: privative in syntax, and binary in morphology. This is the same conclusion as was reached based on position dependent agreement in Dutch, and therefore provides further support for it.

A difference in representation of features across modules appears not to be unique to the syntax-morphology interface. Kučerová (2019) argues that the same thing applies to the syntax-semantics interface. In particular, she argues that person features have a binary value at LF in order to be semantically interpretable. Furthermore, Preminger (2017) provides several examples with the aim to demonstrate that mismatches between modules are the norm. For instance, in many cases, the agent theta-role is assigned to the argument with nominative case, so there is a relation between syntax

[13] A different argument for binary number features comes from Harbour (2011) and Kouneli (2021). They argue that in Kiowa and Kipsigis, respectively, noun class is determined by number features, and that reference to plus and minus features, as well as the absence of a feature, is required to capture all the noun classes without overgenerating. I will not discuss this argument here, because it deals with noun class, which arguably has a different internal organisation than φ-features (person, number, gender) proper.

(case) and semantics (theta roles). But there are also cases where this correspondence fails, such as with unaccusative verbs and passives, where the nominative argument is a patient. Considered against this background, the idea that the representation of φ-features is not identical across grammatical modules should not be surprising.

2.6 Extension: position dependent agreement in Standard Arabic

Apart from Dutch, another well-known case of PDA comes from Standard Arabic. In this language, number agreement fails in certain contexts with verb-subject word order. In this section, I propose an analysis of PDA in Standard Arabic based on a defective Probe, extending the account from Dutch. Standard Arabic is interesting, because in addition to person and number agreement, verbs show agreement for gender. Based on the PDA pattern of Standard Arabic, I put forward a proposal on the location of gender in the φ-feature geometry.

The main pattern of PDA in Standard Arabic is given in (56) and (57). In (56), the verb shows full 3PL feminine agreement in SV word order (full agreement, FA), but singular feminine agreement in VS (partial agreement, PA). In (57) we see the same pattern, but with a dual subject: in the SV word order, there is full agreement (3DU feminine), while in the VS word order, the verb is singular.[14]

(56) a. ʔal-fatayaat-u **qaraʔ-na** ʔal-dars-a — S V_{FA}
the-girls-NOM read-3PL.F the-lesson-ACC
'The girls read the lesson.'

b. **qaraʔ-at** ʔal-fatayaat-u ʔal-dars-a — V_{PA} S
read-3SG.F the-girls-NOM the-lesson-ACC
'The girls read the lesson.' (Soltan, 2007, p. 35)

(57) a. ʔal-bint-aani **qadim-ataa** — S V_{FA}
the-girl-DU came-3DU.F
'The two girls came.'

b. **qadim-at** al-bint-aani — V_{PA} S
came-3SG.F the-girl-DU
'The two girls came.' (Harbert & Bahloul, 2002, p. 45)

[14]Note that PDA in Standard Arabic only obtains with plural human nouns. Pronouns trigger full agreement in both word orders (see e.g. Soltan, 2007), and non-human plural nouns trigger feminine singular agreement also in both word orders (see Aoun et al., 1994). The latter observation is usually set aside as a regular idiosyncrasy of Arabic (see e.g. Alghamdi, 2015 for an analysis); I will do so too here. The absence of PDA with pronouns has been analysed in a variety of ways; see e.g. Soltan (2007) and Himmelreich (2019) for different approaches. My impression is that it is related to the fact that Standard Arabic is a *pro*-drop language, and that *pro*-drop can only be licensed by full agreement. I leave it for future research to see which of these approaches is compatible with my analysis of PDA in Standard Arabic.

Within the defective Probe approach to PDA, the PDA pattern of Standard Arabic can be explained as follows.[15] Following Wurmbrand and Haddad (2016), I assume that in a standard clause, there are two positions where the verb can be realised: T and *v*. T has an EPP feature, which can be checked by moving the subject to Spec,TP, or by moving the verb to T (see Wurmbrand and Haddad (2016) and Himmelreich (2019)). If the subject moves to Spec,TP to check the EPP feature, the verb stays in *v*. This results in SV word order. If the verb moves to T to check EPP, the subject stays *v*P-internal, resulting in VS word order. Following Wurmbrand and Haddad (2016), I assume that both T and *v* are φ-Probes. More specifically (and contra Wurmbrand and Haddad, 2016), I propose that *v* is a fully specified φ-Probe, whereas T is defective: it has person and gender features, but no number features. Finally, I assume that all Probes Agree with the subject (either via downward agreement or Spec-Head agreement),[16] but that the features on the Probe are only spelled out when the head they belong to is lexicalised by a verb.

With these assumptions in place, the derivation of SV and VS word order is as follows. If the subject moves to Spec,TP to check EPP, the verb spells out the features of *v*. Since *v* is a φ-complete Probe, this correctly predicts that we find full agreement in SV word order. This configuration is depicted in (58). The solid arrow indicates verb movement, and the dashed arrow indicates the Agree relation that will be spelled out.[17]

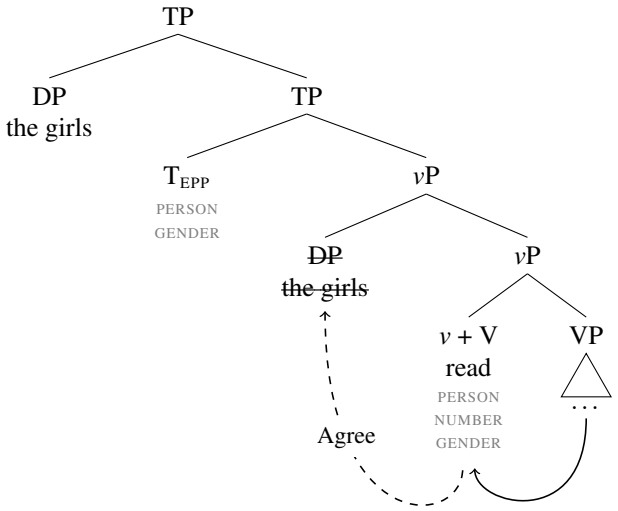
[15] It is important to point out that I am just focusing on the Probes here, and not on the intricacies of the grammar of Standard Arabic; see Fassi Fehri (1993), Aoun et al. (1994), Benmamoun (2000a), Soltan (2007), Wurmbrand and Haddad (2016) and Himmelreich (2019) for more detailed analyses.

[16] This can be formalised with the assumption that the Probe is relativised to Agree with nominative arguments only.

[17] For now, I gloss over the geometric representation of φ-features in the trees, but I will return to it below.

(58) a. ʔal-fatayaat-u **qaraʔ-na** ʔal-dars-a
the-girls-NOM read-3PL.F the-lesson-ACC
'The girls read the lesson.' (Soltan, 2007, p. 35)

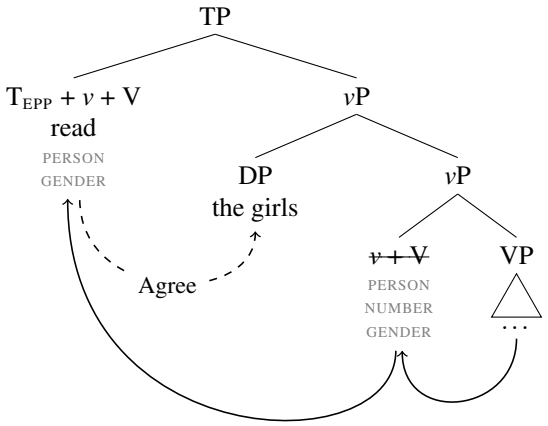
b.



If the verb moves to T to check EPP, it spells out the features of T. Because T is a defective Probe that lacks [Number], the number feature of the subject cannot be copied to the Probe, resulting in the absence of a number specification at morphology. As a result, the suffix that matches the person and gender features of the subject but that is the least marked for number features is inserted. I assume that singular number is the least marked, leading to singular agreement in VS word order. The configuration is given in (59).

(59) a. **qaraʔ-at** ʔal-fatayaat-u ʔal-dars-a
read-3SG.F the-girls-NOM the-lesson-ACC
'The girls read the lesson.' (Soltan, 2007, p. 35)

b.



In addition to the simple sentences in (56) and (57), PDA is found in sentences with two agreeing verbs, for example a progressive auxiliary and a lexical verb. The first option here is that the subject is between the auxiliary and the lexical verb; in this case, the auxiliary shows partial agreement, and the lexical verb shows full agreement (60a). The subject can also precede both verbs, in which case both show full agreement (60b). The subject cannot be preceded by both verbs (60c).

(60) a. **kanaat** aṭ-ṭaalibaat-u **ya-ʔkulna** Aux$_{PA}$ S V$_{FA}$
was.3SG.F the-students.F-NOM 3-eat.PL.F
'The female students were eating.'

b. aṭ-ṭaalibaat-u **kunna** **ya-ʔkulna** S Aux$_{FA}$ V$_{FA}$
the-students.F-NOM was.3PL.F 3-eat.PL.F
'The female students were eating.'
(Himmelreich, 2019, p. 5, cf. Benmamoun, 2000b)

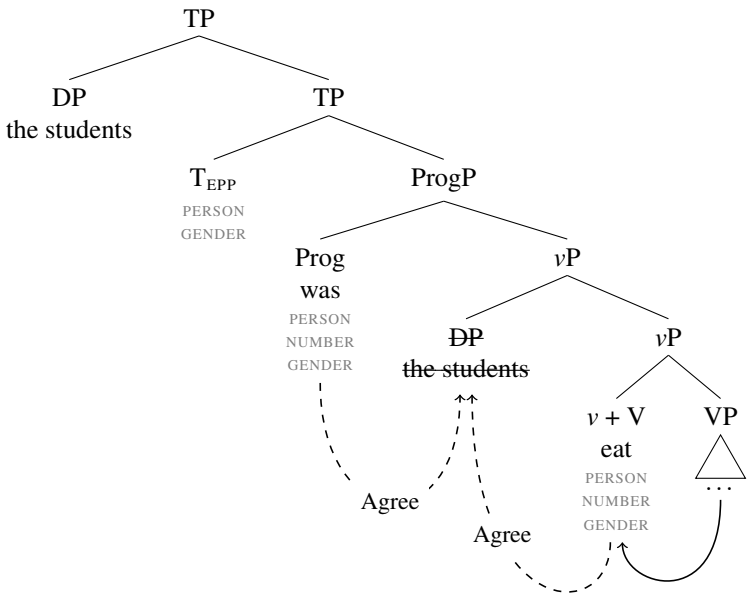
c. * kanaat / kunna ya-ʔkul-at / -na *Aux$_{FA/PA}$ V$_{FA/PA}$ S
was.3SG.F / was.3PL.F 3-eat-SG.F / -PL.F
aṭ-ṭaalibaat-u
the-students.F-NOM
'The female students were eating.' (Himmelreich, 2019, p. 5)

Following Himmelreich (2019), I assume that the progressive auxiliary is merged as the head of the functional projection ProgP between *v*P and TP, and that Prog is a φ-Probe. I propose that Prog is a non-defective Probe. The auxiliary agreement data come about as follows. Like in clauses without ProgP, T has an EPP feature that can be checked by the subject or a verb. If the subject checks EPP, it precedes both the auxiliary and the lexical verb; the verbs stay in Prog and *v*, respectively, and realise

the non-defective φ-features on those heads, resulting in full agreement on both verbs. See (61) for the configuration.

(61) a. aṭ-ṭaalibaat-u **kunna** **ya-ʔkulna**
the-students.F-NOM was.3PL.F 3-eat.PL.F
'The female students were eating.' (Himmelreich, 2019, p. 5)

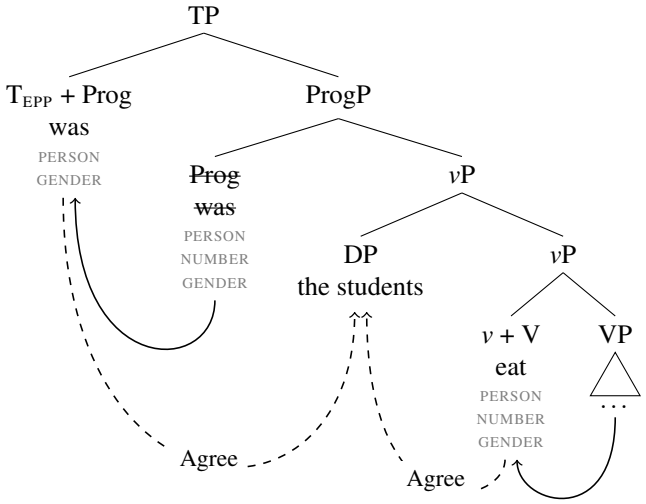
b.



Alternatively, the EPP can be checked by a verb. The auxiliary is the structurally closest verb to T, and can therefore move to T to check the EPP. The subject can stay in its *v*P internal position. Since the progressive auxiliary is in T, it will realise the φ-features on T, which is a defective set lacking number. As a result, the auxiliary shows partial agreement when it precedes the subject. The configuration is given in (62).

(62) a. **kanaat** aṭ-ṭaalibaat-u **ya-ʔkulna**
was.3SG.F the-students.F-NOM 3-eat.PL.F
'The female students were eating.' (Himmelreich, 2019, p. 5)

b.

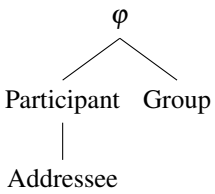


Finally, the configuration in which both verbs precede the subject (60c) is out, because the lexical verb cannot move out of the *v*P in which the subject is contained: the first head above *v*, Prog, is filled by the auxiliary. The word order auxiliary – verb – subject therefore cannot be derived.

In summary, the PDA pattern of Standard Arabic can be accounted for by the proposal that T is a defective Probe that has a person and gender feature, but no number feature. This proposal accounts for PDA in sentences with one or more agreeing verbs. The question is what this can tell us about the feature geometric organisation of φ-features, in particular the position of gender.

In the previous sections, I have presented evidence from Dutch for the following organisation of φ-features (repeated from (18)):

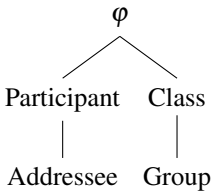
(63)



In Standard Arabic, the T Probe is defective for number. In (63), number is represented by [Group]. In order for a feature to be defective, it has to be terminal. One possibility for incorporating gender into the geometry in (63) is therefore that gender projects between φ and [Group]. This would mean that number is a dependent of

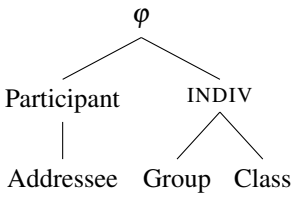
gender, as illustrated in (64) (following Harley and Ritter, 2002, I represent gender with the feature [Class]).

(64)



It is unlikely that the feature geometry is organised this way, for several reasons. First, the current organisation suggests that gender ([Class]) can only encode a two-way distinction (presence or absence of [Class]), but many languages distinguish more than two genders. Second, the geometry as it stands suggests that number distinctions can only be found in one gender, because the number feature [Group] can only be present when the gender feature [Class] is present. This is also incorrect: for instance, both Dutch neuter *meisje* ('girl'), as well as common *jongen* ('boy'), can be pluralised: *meisje-s* ('girl-s'), *jongen-s* ('boy-s'). Because both number and gender are features that can have more than two values, it is more likely that they are both dependents of one node called INDIV(IDUATION) (cf. Harley & Ritter, 2002), see (65).

(65)



This geometry is compatible with a Probe that is defective for number, because the number feature is a terminal feature. Moreover, Standard Arabic distinguishes three numbers (singular, dual, and plural), but only two genders (feminine and masculine); in order to represent the three numbers, we need an additional number feature (see e.g. Harbour, 2014 for the features involved in complex number systems). This means that the representation of number is the most complex, and will be the target of delinking, according to the complexity restriction on φ-feature defectiveness (21). This is exactly what we find. In other words, the defective Probe analysis provides an explanation for why agreement fails for number, and not for person or gender, in Standard Arabic. The geometry in (65) also overlaps with Harley and Ritter (2002)'s φ-feature geometry.[18] The defective Probe analysis of Standard Arabic therefore adds to the argument for a feature geometric representation of φ-features based on position dependent agreement.

[18] A note on INDIVIDUATION. While the Dutch data did not support the presence of the INDIVIDUATION node in the geometry, because it is vacuous, Standard Arabic does: if a language makes multiple number distinctions, or number and gender distinctions, INDIVIDUATION is projected to accommodate for this. The Dutch and Standard Arabic geometries thus overlap in the relevant sense.

2.7 Previous analyses of position dependent agreement

2.7.1 Morphological approaches

Ackema and Neeleman (2003), Postma (2011, 2013), and Don et al. (2013) propose that PDA arises in the morphology. In section 2.4.3, I already provided two arguments against a morphological approach to PDA. The first argument is that PDA is restricted to VS word orders. A morphological approach cannot easily give a principled account for this restriction. Second, I showed that PDA is not sensitive to linearity effects, which is a hallmark of morphological alternations. In this section, I will look at the morphological approaches in a bit more detail, and show that they face additional issues.

Ackema and Neeleman (2003) propose an analysis of various morphological alternations, that uses impoverishment rules that apply to linearised structures. To account for PDA in Standard Dutch (see table 2.24), Ackema and Neeleman assume the affix inventory in (66) (this is the same affix inventory as in section 2.4.4.1, example (39)). Affixes are inserted according to the Subset Principle, i.e. when the features on the affix are a subset of the features in the syntactic structure. The affix inventory, combined with the Subset Principle, derives the SV paradigm of Standard Dutch.

Table 2.24: Agreement paradigm Standard Dutch (= Hollandic Dutch)

	SV	VS
1SG	leef-Ø	leef-Ø
2SG	leef-t	leef-Ø
3SG	leef-t	leef-t
1PL	leev-ə	leev-ə
2PL	leev-ə	leev-ə
3PL	leev-ə	leev-ə

(66) [Participant] $\Longleftrightarrow$ Ø
[Participant] [Addressee] $\Longleftrightarrow$ -t
[Group] $\Longleftrightarrow$ -ə
Elsewhere $\Longleftrightarrow$ -t

Ackema and Neeleman propose that PDA is the result of the application of an impoverishment rule, given in (67), that deletes the feature [Addressee] on the verb (V), when the verb is in the same domain as a subject (D) with the feature [Addressee]. The result of this rule is that a 2SG verb will not inflect with the 2SG affix *-t*, but with the 1SG affix Ø. Ackema and Neeleman's main hypothesis is that the domain of application of a rule like (67) is determined by prosody: the rule can only apply within a prosodic domain. Assuming that in a VS structure, but not in a SV structure, the subject and the verb are in the same prosodic domain, the rule applies in the VS word order, but not in the SV word order. This leads to PDA.

(67) [V PART ADDR] [D PART ADDR] ⟶ [V PART] [D PART ADDR]

In addition to the morphological issues brought up earlier, the Dutch dialect data raise a problem for Ackema and Neeleman (2003)'s approach to PDA. In the affix inventory in (66), the affix *-t* is specified twice: once as the 2SG affix, and once as the elsewhere affix. Ackema and Neeleman justify this double specification by referring to dialects, because (as we have seen) in some Dutch dialects, 2SG corresponds to a unique affix. Ackema and Neeleman assume that the homophony between the 2SG and the 3SG affix is accidental, and that they are underlyingly distinct. However, in section 2.4.4.1, I showed that in Dutch dialects, there is an anti-correlation between having a unique 2SG affix and having PDA for 2SG. Under Ackema and Neeleman's account, this anti-correlation is unpredicted; rather, their account predicts that when there is evidence for a unique 2SG affix, we expect a rule such as (67) to apply, giving rise to PDA. When there is no evidence for a unique 2SG affix (as in PDA dialects), a rule like (67) should be less likely to apply, leading to the absence of PDA. The data show the opposite pattern, which is a problem for Ackema and Neeleman's approach to PDA, and to a privative approach to φ-features in morphology more generally, as I showed in section 2.4.4.1.[19]

Next, I discuss the morphological analysis of PDA by Don et al. (2013). Using the same data set as I have in this chapter (the paradigms of *leven* ('to live') from the DynaSAND), they formulate four generalisations on PDA, and an analysis that captures those generalisations.

Before going into Don et al.'s analysis, it is relevant to point out that they use a different methodology than I have done here. In my analysis, I focused on paradigms that are relatively frequent and show geographical clustering. The idea is that the paradigms that meet these criteria reflect the grammar of a stable Dutch dialect. In addition, I have taken into account other factors that affect the outcome of the paradigm, such as allomorphy and the form of pronouns. Don et al. (2013) take a different approach and consider every paradigm as is. For that reason, their generalisations and analysis might be affected by factors external to the verbal paradigm. This seems to have an important consequence for their analysis. In particular, Don et al. argue for a hybrid approach to PDA. In this approach, PDA can be the result of the interaction of a constraint on Dutch verbal morphology, and insertion of default morphemes (more on which below), or it can be the result of impoverishment rules (see Ackema & Neeleman, 2003, and above). As far as I can see, almost all data for which they need the impoverishment analysis disappear as explananda under the methodology I used, the exception being PDA in Northern Dutch. This makes the hybrid approach suspicious, because it requires an alternative analysis to account for only one data point, that shows the same behaviour as the other examples of PDA. A unified analysis (for instance as I defend in this chapter) is preferable.[20] Setting the methodology aside,

[19] Ackema and Neeleman (2003) argue for a similar analysis for PDA in Standard Arabic (see section 2.6), proposing that it results from an impoverishment rule that deletes [Group] in VS word order. This analysis has been criticised as well (Benmamoun & Lorimor, 2006; Himmelreich, 2019), for instance on based on linearity effects: similar to Dutch PDA, Arabic PDA does not require linear adjacency of the verb and the subject, suggesting that it is syntactic.

[20] An additional issue regarding the data presented by Don et al. (2013) is that they mention only 15

I will now discuss the analysis of PDA by Don et al. Since I have already discussed Ackema and Neeleman (2003)'s analysis of PDA based on impoverishment, and take the same issues to apply to Don et al. (2013)'s implementation of it too, I will focus on the other part of their analysis in the remainder of the discussion.

Don et al. (2013) start with the formulation of four generalisations on PDA in Dutch dialects, that mostly concern the 3SG. First, they claim that 3SG never shows PDA (generalisation 1). In addition, the 3SG affix (*-t*) is always dropped in the past tense (generalisation 3), and in cells of the paradigm that show PDA, the 3SG affix is never used as the affix in VS word order (generalisation 4). (The remaining generalisation (generalisation 2) says that the VS affix is never a novel affix.) In order to capture these generalisations, they argue for the following analysis. The main proposal is that Dutch verbs cannot be 'uninflected', i.e., they need to express at least one inflection feature; this is an inviolable morphological constraint in Dutch dialects. If a verb is transferred to morphology without an inflection feature, a default morpheme (= INFL) will be inserted to make it adhere to this constraint. Don et al. work with a highly impoverished, privative model of inflection features, consisting of [Speaker] (1P), [Addressee] (2P), [Plural] (PL), and [Past] (past tense). Crucially, 3SG is not represented with a feature. This means that the default morpheme INFL is inserted with every 3SG verb in the present tense. The realisation of this morpheme is what is generally considered to be the 3SG morpheme *-t*. In past tense, however, verbs come with the feature [Past]. This voids insertion of INFL, and thus realisation of *-t*. This set of assumptions therefore accounts for generalisations 1 (no PDA with 3SG) and 3 (no *-t* in past tense).

Turning now to the derivation of PDA, recall that many PDA paradigms have PDA for 2SG, and that this is typically a *-t* to Ø alternation, where *-t* is also used for 3SG, and Ø for 1SG. Thus, there is no unique 2SG affix. Don et al. (2013) take this as evidence that [Addressee] is not an active feature in these grammars. A verb agreeing with a 2SG subject is therefore uninflected. In order to adhere to the constraint that Dutch verbs cannot be uninflected, in the SV word order, the default feature INFL will be inserted at morphology, and is subsequently spelled out as *-t*. To account for PDA, Don et al. propose that in VS word orders, 1P and 2P pronouns 'count' as an inflectional feature, because they undergo M-merger with the verb. This voids insertion of INFL in the context of a 2SG subject, and therefore the insertion of the corresponding affix *-t*, in the VS word order. Because of the varying strategies to adhere to the morphological constraint on Dutch verbs in the SV and VS word order, the result is PDA for 2SG. This special ability of 1P and 2P pronouns to undergo M-merger with the verb derives generalisation 4: because 1P and 2P essentially count as inflection, insertion of default inflection is never needed.

To account for the generalisations on PDA, the analysis requires several assumptions that are non-standard and not very well motivated, such as the constraint on verbal inflection, and M-merger of pronouns with the verb. More importantly, how-

paradigms, whereas I found over 50 unique paradigms in my analysis of the data (most of which occur only once). Because they do not say anything about the remaining data, it is hard to assess whether their analysis holds for all the paradigms. In fact, taking into account all paradigms is challenging for any analysis, which I think is another reason to generalise to the more frequent and geographically coherent ones.

ever, there is an empirical issue with the generalisations. In particular, my data show that we do find PDA for 3SG, namely in East Flemish (see table 2.4 in section 2.2). This cannot be derived by Don et al. (2013)'s analysis as it stands: a 3SG verb is uninflected, leading to insertion of INFL at morphology, which is spelled out as *-t* on the verb. To solve this, we might consider expanding the items that count as inflection to include 3SG, but this raises the question why it is not as ubiquitous as with 2SG. An alternative would be to drop the constraint that Dutch verbs cannot be uninflected, but then we cannot account for the insertion *-t* with 2SG and 3SG in the SV word order. To conclude, the analysis of PDA by Don et al. (2013) is not able to derive the full array of PDA patterns.

A different morphological approach to PDA is proposed by Postma (2011, 2013). Taking a diachronic approach, he argues that PDA is the result of a morphological reanalysis of the verb-subject cluster. Central to the analysis is Postma's observation that there is a correlation between PDA and the form of the nominative 2SG pronoun: varieties with PDA use *jij* or *gij* (and related forms) as the 2SG pronoun, but varieties that do not have PDA use *du* or *dich* as the 2SG pronoun. Recall also that non-PDA varieties generally use a unique 2SG ending like *-s(t)*, in contrast to varieties with PDA, that usually use *-t* as the 2SG affix in SV word order. The proposed reanalysis of the verb-subject cluster is as follows:

(68) leef-s du ⟶ leef-s dig ⟶ leef-dze (gi) ⟶ leef=de (gi)
(cf. Postma, 2011, p. 73)

In the first stage, the unique 2SG *-s*-based affix and the pronoun *du* are used. In the next stage, the pronoun changes to *dich*. Then, the pronoun cliticises to the verb, which results in the disappearance of *-s*, and a palatalisation of *d*, resulting in *dz*. The next step represents the outcome of the reanalysis, where *de* functions as a pronominal clitic and verbal agreement is lost completely in VS word order.[21]

This approach leaves some questions unanswered, however. First, it is not clear why the 2SG affix also changes in the SV word order, from *-s(t)* to *-t*; no diachronic reanalysis is at work here, so there is no immediate pressure for the affix to change. Second, I showed that PDA does not only occur with 2SG, but also with 3SG, 1PL, and 2PL. However, in those person/number combinations, there is no correlation between the presence of PDA and the form of the pronoun. For example, varieties with and without PDA for 1PL use a similar pronoun. This is illustrated in (69) (no PDA for 1PL) and (70) (PDA for 1PL). If PDA is always the result of diachronic reanalysis of the verbal inflection and the pronoun, this is unexpected.

(69) a. wij leev-ə
we live-AGR

b. leev-ə wij
live-AGR we

Standard Dutch

[21] Postma (2011, 2013) writes that *de* is reanalysed as agreement, but his schematic representation implies that it is a clitic.

(70) a. wie leew-t
we live-AGR

b. leew wie
live-Ø we

Losser Dutch (DynaSAND)

In short, although morphological reanalysis may have contributed to the development of PDA diachronically, it cannot be used to account for all cases of PDA in the synchronic grammar of Dutch dialects.

2.7.2 Syntactic approaches

Zwart (1993, 1997) was the first to argue for a syntactic analysis of PDA in Standard Dutch and related varieties. The idea he pursues is the following. Zwart assumes a standard clause structure consisting of C, T (in fact, Zwart assumes a Pollock (1989)-style split IP, which I will gloss over here) and V. To derive the SV word order, the verb moves to T, and from this a VS order can be derived by moving the verb to C. Crucially, in the course of verb movement from V to the higher heads, a complex syntactic object is created. So, what is in T is not just the verb, but a complex structural object consisting of V adjoined to T. If the verb is in C, the complex syntactic object consists of the V-T object adjoined to C.

As a result, what is fed to morphology is different depending on whether the verb is in T or C. In particular, when the verb is in T, it lacks the C-part of the structure. Zwart's proposal is that morphology can be sensitive to this difference. More specifically, verbs can have two paradigms, one for the $[-\,\mathrm{C}]$ structure, and one for the $[+\,\mathrm{C}]$ structure. This leads to PDA: depending on word order (i.e. the presence/absence of C), a different form is inserted.[22]

Zwart (1993, 1997)'s approach to PDA is therefore in a sense similar to the approach I defend in this chapter, in that it depends on a syntactic difference between the heads that realise the verb in SV and VS word order. However, Zwart's approach is less restrictive. Under his analysis, in principle everything is possible, i.e. there are no restrictions on the different agreement paradigms for verbs in T and C. His analysis therefore cannot account for certain observations having to do with PDA, such as the observation that the same affix inventories are used in SV and VS agreement; under my analysis, the difference between the word orders is merely that the affixes show a different distribution. Under Zwart's approach, the SV and VS paradigms could theoretically consist of completely distinct forms.

Some data that Zwart presents in favour of his approach is a PDA pattern in Lower Bavarian. In this pattern, 1PL verbs that move to T or C show a different ending (*-ma*) from 1PL verbs that stay in V (*-n*) (71). The ending *-ma* is unique in the paradigm. This pattern thus differs from the PDA patterns from Dutch in two ways. First, the agreement split is between V and T/C in Lower Bavarian, whereas in varieties of Dutch, it is between V/T and C. And second, the pattern goes against the generalisation that unique markers do not show PDA.

[22] The implementation in Zwart (1993) is slightly different, as there he assumes a lexicalist approach to morphology. The idea that there are different paradigms for verbs realised in T and C is the same, however.

(71) a. dass-ma mir noch Minga fahr-n. verb in V
that-1PL we to Munich drive-PL
'that we drive to Munich.'

b. Mir fahr-ma noch Minga. verb in T
we drive-1PL to Munich
'We are driving to Munich.'

c. Fahr-ma mir noch Minga? verb in C
drive-1PL we to Munich
'Are we driving to Munich?' (Bayer, 1984, p. 251)

Zwart's analysis of these data is based on the idea that head movement creates complex syntactic structures, that morphology can be sensitive to. He proposes that in Lower Bavarian, morphology is not sensitive to the presence or absence of C (as in the Dutch dialects), but to the presence or absence of T: if the verb moves from V to T (and from there on to C), T is present; if the verb stays in V, T is absent. The paradigm with *-ma* is used when T is present (i.e. when the verb is in T or C), and the paradigm without it is used when T is absent (i.e. when the verb is in V). So whereas the Lower Bavarian PDA pattern is easy to account for under Zwart's analysis of PDA, it is problematic for my approach, since I argued that PDA is the result of φ-defectiveness of C, which causes affixes to be inserted in unexpected contexts. My account does not capture the V vs T/C split in Lower Bavarian, nor the observations regarding the form of the 1PL morpheme.

It is, however, not obvious that the Lower Bavarian data constitute a true PDA pattern. Example (71a) shows that *-ma* is not only used as a verbal ending, but also as an ending on the complementiser. In the next chapter of this dissertation, I argue that some cases of complementiser 'agreement' are in fact clitic doubling, and that the same holds when these morphemes are used as verbal agreement endings in VS word order. Assuming that the clitic doubling analysis of complementiser agreement in Bavarian extends to the data in (71), we can formulate an alternative account of this apparent PDA pattern. Under this account, *-ma* in (71a, 71c) is a clitic that doubles the subject in Spec,TP. The verbal agreement ending *-n* is not realised, because it fully assimilates to *-ma*. In (71b), we might be dealing with 'topic doubling', similar to what has been described for Flemish dialects (van Craenenbroeck & van Koppen, 2002). An example is given in (72). In this example, the sentence-initial subject (*Marie*) is doubled by a pronoun in the middle field (*zaai*). Assuming that a similar process is at work in (71b), the morpheme *-ma* should be considered a pronominal clitic, rather than an agreement ending.[23]

(72) **Marie** muu **zaai** ie nie kommen.
Marie must she here not come
'Marie shouldn't come here.'
Wambeek Dutch (van Craenenbroeck & van Koppen, 2002, p. 282)

[23] A difference between topic doubling in Flemish and Bavarian is that in Flemish, the clause-initial pronoun can only be strong if the second pronoun is also strong; in (71b), the clause-initial pronoun is strong, but the double is weak (i.e. clitic). I leave a further investigation of this difference for future research.

The reanalysis of *-ma* as a clitic means that Lower Bavarian does not actually have PDA, and that it is not something that an account of PDA should predict or account for. Given this conclusion, the φ-defective Probe approach to PDA fares better than Zwart (1993, 1997)'s approach to PDA, as the former is more restrictive.

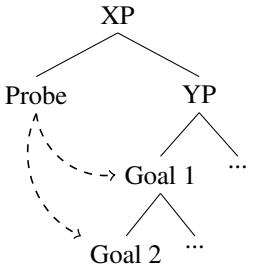
Van Koppen (2005) develops a different syntactic approach to PDA, specifically geared towards accounting for PDA in Hellendoorn Dutch. The paradigm (for the verb *goan* ('to go')) is given in table 2.25 (note that this paradigm differs from the paradigms that I analysed in this chapter, though it is close to the Dutch Low Saxon paradigm).

Table 2.25: Agreement paradigm Hellendoorn Dutch (van Koppen, 2005)

	SV	VS
1SG	goa-Ø	goa-Ø
2SG	goa-t	goa-Ø
3SG	gie-t	gie-t
1PL	goa-t	goar-ə
2PL	goa-t	goa-t
3PL	goa-t	goa-t

In this paradigm, 2SG and 1PL show PDA. Van Koppen focuses on PDA for 1PL. The central idea she pursues is that a Probe can agree with multiple Goals if they are equidistant; a configuration in which this happens is given in (73).

(73)

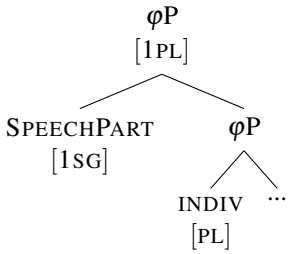


If there is agreement with more than one Goal, morphology determines which affix is inserted. What is important for our current purposes, is that a specified affix outcompetes an elsewhere affix for insertion.

Van Koppen argues, combining insights from Déchaine and Wiltschko (2002) and Harley and Ritter (2002), that pronouns are complex phrases (φPs), consisting of a Speech Participant layer (introducing the person features of the pronoun) and an Individuation layer (introducing number). The maximal projection φP is specified for the full set of features. Furthermore, van Koppen proposes that a first person pronoun is inherently singular, which means that the Speech Participant layer of a first person pronoun contains a [1P] feature and a [SG] feature. A 1PL pronoun corresponds to embedding the singular first person in a group. Structurally, this is represented with a [PL]

feature introduced by Individuation. This structure correctly captures the meaning of a 1PL pronoun, i.e. 1PL refers to a group that the (singular) speaker is a part of, not to a group of speakers (cf. Noyer, 1992; Cysouw, 2001; Siewierska, 2004). The structure of a 1PL pronoun is given in (74).

(74)



Complex pronouns are candidates for agreement with multiple Goals, since the full pronoun (φP) and the Speech Participant layer are equally close to the Probe. Van Koppen proposes that this is precisely what happens when the verb is in C: the verb agrees with both the 1PL φP and the 1SG SPEECHPART.[24] The agreement relation with SPEECHPART corresponds to a more specific affix than the agreement relation with 1PL, as there is a unique 1SG affix (Ø), while 1PL leads to insertion of the elsewhere morpheme *-t*. Therefore, the 1SG affix will be inserted instead of the 1PL affix. Assuming that the schwa that is used as 1PL agreement in VS is an allomorph of Ø, this derives PDA for 1PL in Hellendoorn Dutch.

While van Koppen's approach successfully captures PDA for 1PL in Hellendoorn Dutch, it leaves open the question of how to analyse PDA for 2SG. In addition, it is hard to generalise the analysis to other examples of PDA, as it depends on very specific assumptions about the structure of 1PL pronouns and the set of affixes that are used in a given variety. At the same time, the analysis based on defective Probes proposed in this chapter cannot account for the Hellendoorn Dutch pattern. Under the defective Probe analysis, PDA for 1PL can only be derived by the absence of [Group] on the Probe. According to generalisation (21), this implies that [Addressee] must also be absent on the Probe. Combined with the affix inventory of Hellendoorn Dutch, this would result in the Dutch Low Saxon paradigm, where we also find PDA with 2PL.

However, van Koppen's account of 1PL PDA can exist next to the defective Probe approach to PDA, and their combined force can account for PDA with both 2SG and 1PL in Hellendoorn Dutch. Under the combined analysis, the C Probe in Hellendoorn Dutch has [Participant] and [Group], so it is defective for [Addressee]. This results in PDA for 2SG: when the Probe in C agrees with a 2SG goal, only the [Participant] feature of the goal will be copied to the Probe. At morphology, this results in a 1SG interpretation, resulting in the insertion of the 1SG affix (Ø). PDA for 1PL comes about according to van Koppen's analysis: when a verb in C targets a 1PL pronoun for Agree, it establishes an agreement relation with both the full pronoun as well as with the 1SG

[24] Van Koppen proposes that the internal structure of the pronoun is not accessible to T—see also van Koppen (2007).

Speech Participant layer. Since the agreement relation with Speech Participant layer corresponds to a more specific affix, this affix will be inserted, resulting in PDA with 1PL. The fact that the Probe in C is defective has no consequences for 1PL agreement, since the [Addressee] feature is not involved here.

A remaining question is why Hellendoorn Dutch has a Probe that has both [Participant] and [Group] features, since closely related Dutch Low Saxon varieties that use the same affix inventory, have also lost [Group] as a Probe. I suggest that Hellendoorn Dutch is in an intermediate stage between Hollandic Dutch and Dutch Low Saxon. It has already lost the plural morpheme like the other Dutch Low Saxon varieties, but has not yet lost [Group] as a Probe. PDA for 1PL can be part of the paradigm, because of the option to Agree with the internal Speech Participant layer of the 1PL pronoun. However, the alternative way to derive PDA for 1PL, based on a Probe that is defective for [Addressee] and [Group], is simpler, because it requires fewer features on the Probe, and just one mechanism that gives rise to PDA in several person/number combinations. For this reason, there is a pressure to adopt the defective Probe analysis, but this will lead to PDA for 2PL as well. The expectation is therefore that the Hellendoorn Dutch pattern is not very stable, and this seems to be correct, as none of the 202 paradigms from DynaSAND overlaps with that of Hellendoorn Dutch from van Koppen (2005). Instead, the dominant pattern in Dutch Low Saxon varieties is PDA for 2SG, 1PL, and 2PL.

Finally, van Koppen's analysis of PDA for 1PL can potentially also give insight into one of the PDA paradigms that is not compatible with the defective Probe analysis. This paradigm is again highly similar to the Dutch Low Saxon paradigm, and part of the same dialect group, but instead of zero inflection in VS for 1PL, we find an *-ən* ending that is not attested elsewhere in the paradigm. The paradigm is given in table 2.26.

Table 2.26: PDA paradigm 1 ($n = 5$)

	SV	VS
1SG	leef-Ø	leef-Ø
2SG	leef-t	leef-Ø
3SG	leef-t	leef-t
1PL	leef-t	leev-ən
2PL	leef-t	leef-Ø
3PL	leef-t	leef-t

Although it does not follow directly from van Koppen's analysis, this paradigm is definitely compatible with the intuition that 1PL agreement in VS word order can lead to the insertion of a special form. A potential way to formalise this is that when there is agreement with the Speech Participant layer of the pronoun, not only 1SG features are copied, but also a categorial feature from SPEECHPART, which causes insertion of a special form. Further research is needed to flesh this out in more detail, yet this is a first step into accounting for the pattern in table 2.26.

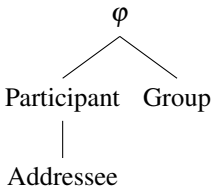
2.8 Conclusion

In this chapter, I investigated position dependent agreement (PDA) in Dutch dialects: verbal agreement that differs in subject-verb (SV) and verb-subject (VS) word order. I started by giving an empirical overview of PDA in Dutch dialects, focusing on the five most frequent PDA paradigms. Based on the empirical data, I showed that the Dutch dialects under discussion use different subsets of one shared affix inventory.

I then provided an analysis of PDA in terms of defective Probes: Probes that lack certain φ-features, and therefore cannot be valued for these features. This results in the insertion of unexpected affixes with certain person/number combinations in the agreement paradigm. For dialects with PDA, I proposed that C is a defective Probe, while T is not. Assuming that the verb is realised in T in SV word order, but in C in VS word order (Zwart, 1997), the defective Probe in C results in a difference in realisation of agreement depending on word order of the verb and the subject.

Given the three φ-features [Participant], [Addressee], and [Group], there are 6 possible defective Probes that miss one or two of those features. However, the Dutch dialect data is accounted for by only three types of defective Probes; the other three are not attested. I proposed that this can be understood if φ-features are organised according to the φ-feature geometry in (75) (cf. Harley & Ritter, 2002). A defective Probe is a Probe in which one or more features have undergone feature delinking, which is restricted by the φ-feature geometry in (75). As such, PDA provides a novel argument for a geometric organisation of φ-features.

(75)



Based on the distribution of PDA and the absence of adjacency effects on PDA, I argued that the φ-feature geometry is syntactic. This implies that φ-features are privative in syntax: [F]. However, morphological evidence on homonymy and the relation between PDA and the affix inventory shows that in morphology, features are binary: [± F]. I proposed to capture these conflicting results with the idea that privative syntactic features are translated into binary morphological features when structure is transferred from syntax to morphology. This proposal implies that syntax and morphology should be considered separate grammatical modules, not in terms of structure building, but in terms of lexicalisation of structure, and that the representation of features can vary between them (see also Preminger, 2017; Kučerová, 2019).

To conclude this chapter, I will focus on some of the consequences of the proposed distinction between the representation of φ-features in syntax and morphology. First of all, because the representation of φ-features differs across syntax and morphology, we can use feature representation as a diagnostic to locate phenomena in the

grammar. In particular, if a certain phenomenon requires reference to a feature that only has a binary representation, such as singular or third person, it must be morphological; a phenomenon that shows hierarchy effects, on the other hand, must be located in syntax. To illustrate the diagnostic, we will have a brief look at the English adnominal pronoun construction, e.g. *we linguists*. In English, this construction is impossible with third person pronouns: **they linguists*. Because banning the third person adnominal pronoun construction requires reference to third person, the diagnostic predicts that its ungrammaticality is morphological. In fact, Höhn (2020) argues that the third person adnominal pronoun construction is ungrammatical because of contextual allomorphy—a morphological explanation. If correct, the diagnostic based on feature valence makes the right prediction on the locus of the ungrammaticality of the English third person adnominal pronoun construction.

The idea that φ-features are translated to binary features for the purposes of spell out also predicts that there are differences between φ-features and features that are spelled out directly from the syntactic structure, such as case features (cf. Caha, 2009). A phenomenon with which we find such differences is syncretism. For case, it has been demonstrated that syncretism is restricted by the case hierarchy (Caha, 2009; Zompì, 2019). This means that two cases can only be syncretic if any intermediate cases on the case hierarchy show the same syncretism. For example, the nominative and the dative cannot be syncretic to the exclusion of the accusative. This type of restriction on syncretism follows under the assumption that the case hierarchy is represented in syntax as a hierarchy of projections, and spell out according to the Superset Principle: a vocabulary item that can realise both the nominative and the dative is specified for these features, and all intermediate case features. It will therefore be used for the intermediate cases as well, forcing case syncretism to adhere to the case hierarchy. Importantly, φ-features do not show restrictions on syncretism; in the domain of agreement, we can find all kinds of syncretism (see Cysouw, 2011; Harbour, 2016).[25] If φ-features were spelled out directly from the syntactic structure (i.e. the feature geometry), this would be unexpected. However, it is no problem if φ-features are spelled out based on binary features in morphology. The different behaviour of φ-features and case features in the domain of syncretism supports the idea that spell out of φ-features takes place separately from the spell out of e.g. case.

Appendix: remaining paradigms

In the data on *leven* 'to live' from the DynaSAND (Barbiers et al., 2006), I identified 15 paradigms that are relatively frequent and show clear geographical clustering. In addition to the 5 PDA paradigms that were the main focus of this chapter, these are 6 full agreement (FA) paradigms, and 4 remaining, less frequent, PDA paradigms.

The 6 FA paradigms are given below. Their geographical distribution is given in figure 2.3. These paradigms are accounted for by varying the affix inventory. No ref-

[25] Vanden Wyngaerd (2018), Moskal (2018), and Smith et al. (2019) show that there are restrictions on syncretism in the domain of pronouns, but this might be due to the structure of pronouns rather than the structure of φ-features.

erence to defective Probes is necessary, because these paradigms do not have position dependent agreement.

Table 2.27: FA paradigm 1 ($n = 6$)

	SV	VS
1SG	leef-Ø	leef-Ø
2SG	leef-Ø	leef-Ø
3SG	leef-t	leef-t
1PL	leev-ə	leev-ə
2PL	leev-ə	leev-ə
3PL	leev-ə	leev-ə

Table 2.28: FA paradigm 2 ($n = 4$)

	SV	VS
1SG	leef-Ø	leef-Ø
2SG	leef-s(t)	leef-s(t)
3SG	leef-t	leef-t
1PL	leev-ə(n)	leev-ə(n)
2PL	leev-ə(n)	leev-ə(n)
3PL	leev-ə(n)	leev-ə(n)

Table 2.29: FA paradigm 3 ($n = 7$)

	SV	VS
1SG	lib-jə	lib-jə
2SG	lib-əst	lib-əst
3SG	lib-ət	lib-ət
1PL	lib-jə	lib-jə
2PL	lib-jə	lib-jə
3PL	lib-jə	lib-jə

Table 2.30: FA paradigm 4 ($n = 6$)

	SV	VS
1SG	leef-Ø	leef-Ø
2SG	leef-s	leef-s
3SG	leef-Ø	leef-Ø
1PL	leev-ə	leev-ə
2PL	leef-Ø	leef-Ø
3PL	leev-ə	leev-ə

Table 2.31: FA paradigm 5 ($n = 5$)

	SV	VS
1SG	leef-Ø	leef-Ø
2SG	leef-Ø	leef-Ø
3SG	leef-Ø	leef-Ø
1PL	leev-ə	leev-ə
2PL	leef-Ø	leef-Ø
3PL	leev-ə	leev-ə

Table 2.32: FA paradigm 6 ($n = 4$)

	SV	VS
1SG	leef-Ø	leef-Ø
2SG	leef-s	leef-s
3SG	leef-t	leef-t
1PL	leev-ə	leev-ə
2PL	leef-t	leef-t
3PL	leev-ə	leev-ə

The 4 less frequent PDA paradigms are given in the tables below, and their geographical distribution is given in figure 2.4. These 4 paradigms do not fall out immediately for the theory proposed in this chapter, but with some additional assumptions, they can be accounted for. The first paradigm in table 2.33 was already discussed in section 2.7.2, where I suggested a potential analysis that combines the defective Probe approach to PDA with van Koppen (2005)'s approach, who argues that some types of PDA result from agreement with the internal structure of pronouns.

The paradigm in table 2.34 has PDA for 2SG and for 2PL. Assuming that C is a defective Probe that does not have [Addressee] in varieties with this paradigm would account for PDA with 2SG (in a parallel fashion to the Northern Dutch dialects), but not for PDA with 2PL, because the presence of the plural feature would still trigger

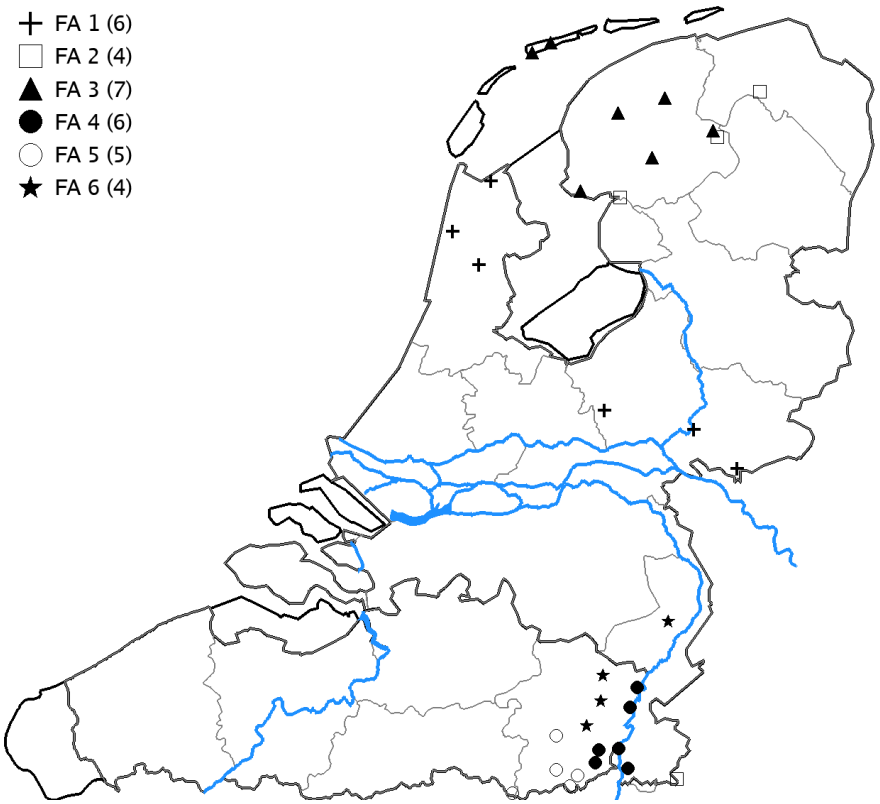


Figure 2.3: Geographical distribution of FA paradigms

insertion of *-ə(n)*. When we look at the 2PL data in more detail, we can observe that not only agreement is position dependent; in 3 out of 4 dialects, the pronoun also varies. Specifically, *jullie* is used in SV word order, and *ie* is used in VS word order. The pronoun *ie* is also used as the 2PL pronoun in neighbouring Dutch Low Saxon varieties, that have PDA with 2PL. It thus seems to be the case that the paradigm in table 2.34 reflects properties of both Northern Dutch dialects, and Dutch Low Saxon dialects, depending on word order and pronoun.

The paradigm in table 2.35 is perhaps not problematic at all, depending on the interpretation of -ə in 1SG. Many dialects show an alternation between -ə and Ø in 1SG, in particular in SV word order. VS word order typically uses Ø, presumably because of phonological factors: the 1SG pronoun starts with a vowel, which leads to deletion of -ə. However, some exceptions to this can be observed, i.e. in some cases -ə is even used in VS word order. In this light, it is not clear whether -ə in table 2.35 should be seen as a unique affix with its own specification, or as an allomorph of Ø. In case the latter is correct, the paradigm in table 2.35 should be treated similar

to the Hollandic Dutch paradigm in table 2.1, which was analysed with a defective Probe that lacks [Addressee]. This interpretation is also compatible with the observed regularities in other PDA paradigms, such as that the affix used in the PDA context is never a new affix. Further research into these varieties is required to confirm whether this interpretation is correct.

The final paradigm in table 2.36 has PDA with 2PL, but not with 2SG. This paradigm could come about as follows. The first thing to note is that many Limburgian varieties use a variant of *gij* as the 2PL pronoun. In neighbouring Brabantic varieties, *gij* functions as a number neutral form, that can be made plural by adding a plural ending (as discussed in section 2.2.1). It is possible that in at least some Limburgian dialects, *gij* shows the same number-neutral behaviour. This means that in terms of agreement, it behaves as if it were a 2SG pronoun. This is also compatible with the *-t* (elsewhere) affix being used with 2PL, rather than the general plural affix *-ə*. If C has a defective Probe that does not have an [Addressee] feature, then this would lead to insertion of the 1SG affix in the 2PL VS context, accounting for PDA. Assuming that this is correct, the next question is why there is no PDA in 2SG, as the 1SG affix should also be used in VS in this context. As I will argue in the next chapter, the Limburgian 2SG morpheme *-s* behaves more like a clitic than an agreement marker. If *-s* is a clitic, and thus a pronominal element, it should not be affected by the presence or absence of certain features on the Probe. This might explain why there is no PDA with 2SG in table 2.36. If the proposed account for this paradigm is on the right track, the expectation would be that it is not very stable, because it partially relies on influence from Brabantic, and it misses evidence for a defective Probe compared to other varieties that have PDA with 2SG. This in fact fits in well with the observation that the Limburgian language area shows a lot of variation in terms of agreement paradigms, as can be seen in figures 2.3 and 2.4.

Table 2.33: PDA paradigm 1 ($n = 5$)

	SV	VS
1SG	leef-Ø	leef-Ø
2SG	leef-t	leef-Ø
3SG	leef-t	leef-t
1PL	leef-t	leev-ən
2PL	leef-t	leef-Ø
3PL	leef-t	leef-t

Table 2.34: PDA paradigm 2 ($n = 4$)

	SV	VS
1SG	leef-Ø	leef-Ø
2SG	leev-ə(n)	leef-Ø
3SG	leef-t	leef-t
1PL	leev-ə(n)	leev-ə(n)
2PL	leev-ə(n)	leef-Ø
3PL	leev-ə(n)	leev-ə(n)

Table 2.35: PDA paradigm 3 ($n = 4$)

	SV	VS
1SG	leev-ə	leev-ə
2SG	leef-t	leef-Ø
3SG	leef-t	leef-t
1PL	leev-ə(n)	leev-ə(n)
2PL	leev-ə(n)	leev-ə(n)
3PL	leev-ə(n)	leev-ə(n)

Table 2.36: PDA paradigm 4 ($n = 4$)

	SV	VS
1SG	leef-Ø	leef-Ø
2SG	leef-s	leef-s
3SG	leef-t	leef-t
1PL	leev-ə	leev-ə
2PL	leef-t	leef-Ø
3PL	leev-ə	leev-ə

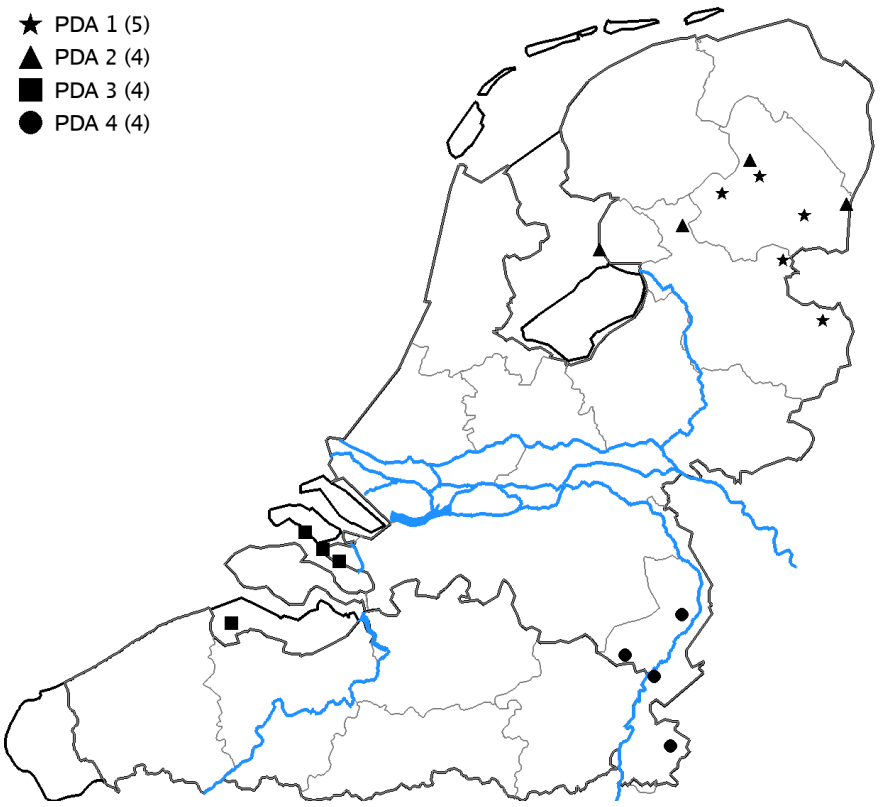


Figure 2.4: Geographical distribution of minor PDA paradigms

CHAPTER 3

Complementiser agreement and clitic doubling*

3.1 Introduction

In this chapter, I investigate the syntax of the elements that are inherently specified for φ-features, i.e. pronouns and clitics. I do so by looking at complementiser agreement in varieties of West-Germanic. An example with complementiser agreement (CA) is given in (1). In this example, not only the verb of the embedded clause, but also the complementiser, reflects the features of the subject of the embedded clause.

(1) Ik wait da-st-u de woarheit zegst.
I know that-2SG-you the truth say.2SG
'I know that you are telling the truth.' Stadskanaal Dutch

A recurring question surrounding CA concerns the nature of the morpheme that realises the features of the subject, and how it is inserted in the structure. Carstens (2003), van Koppen (2005, 2012), and Haegeman and van Koppen (2012) consider the morpheme that attaches to the complementiser (henceforth referred to as the CA morpheme) to be an affix that is inserted because of Agree between C and the subject. An alternative approach is pursued by Ackema and Neeleman (2004), Fuß (2014) and Weisser (2019), who argue that CA is inserted due to some operation that applies

*A slightly different version of this chapter has been submitted for publication as van Alem, A. (submitted). *Complementiser agreement is clitic doubling: Evidence from intervention effects in Frisian and Limburgian*. Parts of section 3.2.4 have been published in van Alem, A. (2020). Complementizer agreement is not allomorphy: A reply to Weisser (2019). *Glossa: a journal of general linguistics, 5*(1), 1–10. An expanded version of section 3.5.1 has been submitted as van Alem, A. (submitted) *First conjunct complementiser agreement and the structure of coordination*.

at PF. The core data in this debate concern cases where the complementiser and the subject are separated by an intervening element, such as a focus particle. In some varieties, intervention of this kind leads to the absence of CA, illustrated in (2) with an example from Hellendoorn Dutch; (2a) shows CA, but when an intervening focus particle separates the complementiser from the subject, CA is ungrammatical (2b).

(2) a. darr-e wiej den besten bint.
that-1PL we the best are
'that we are the best.'

b. dat/*darr-e zölfs wiej de westrijd wint.
that/that-1PL even we the game win.
'that even we win the game.'

Hellendoorn Dutch (van Koppen, 2005, pp. 127, 143)

In this chapter, I contribute to the debate on the nature and analysis of CA by looking at novel and understudied data from Frisian and Limburgian. In these varieties, intervention between the complementiser and the subject leads to different intervention effects. In Frisian, intervention causes ungrammaticality, and in Limburgian, intervention causes the CA morpheme to be realised on the intervener, instead of on the complementiser. I argue that these data require a different analysis of CA than the existing accounts. More specifically, I argue that the CA morpheme is a clitic that doubles the subject, and this forms the basis for a novel analysis that accounts for the intervention effects on CA in Frisian and Limburgian.

The goal of this chapter is two-fold. First, it introduces new empirical data and presents a new analysis of complementiser agreement. This not only has implications for how we look at CA and clitic doubling, but also for other phenomena, such as *pro*-drop. Second, this chapter functions as a case study into the syntax of the elements that inherently bear φ-features, i.e., pronouns and clitics, and the relation between syntactic structure and morphology.

The organisation of the chapter is as follows. In section 3.2, I introduce the data on CA and intervention effects in Frisian and Limburgian. I illustrate how these data are different from other varieties, and I show that previous analysis of CA fail to capture the Frisian and Limburgian intervention effects. In section 3.3, I argue that the CA morpheme is a clitic, based on a detailed study of the properties of the CA morpheme. I also discuss (and dismiss) counterarguments against the clitic analysis, and the implications for verbal agreement. Section 3.4 presents the analysis of CA as clitic doubling in Frisian and Limburgian, starting with introducing the general approach to clitic doubling by van Craenenbroeck and van Koppen (2008), and the identification of the structural size of the CA morpheme. The derivation of the intervention effects is presented in section 3.4.3. The remainder of the chapter looks at other configurations for complementiser agreement. In section 3.5.1, I look at first conjunct complementiser agreement in Frisian, and I argue that it comes about as a result of clausal coordination and conjunct reduction. In section 3.5.2, I discuss CA in subject relatives and with extracted subjects, and show that the clitic analysis gives us a straightforward understanding of these phenomena. Section 3.6 concludes.

3.2 Intervention effects on complementiser agreement

In this section, I discuss the data on intervention effects on complementiser agreement in various West Germanic languages. The first two subsections introduce the core data of this chapter from Frisian and Limburgian. These varieties show intervention effects that have not been taken into account by existing analyses of CA, or that have not been observed before. In section 3.2.3, I briefly discuss intervention effects on CA in other varieties to demonstrate the relevance of the Frisian and Limburgian data. Section 3.2.4 discusses previous analyses of CA, and demonstrates why the Frisian and Limburgian data are problematic for them.

3.2.1 Frisian

Frisian has CA for 2SG (3).[1,2] In a context where the complementiser and the subject are adjacent (and the embedded clause is not a V2 clause, cf. below), CA is obligatory, as illustrated in (4).

(3) dat-st-o [...] fegetarysk ytst.
that-2SG-you vegetarian eat.2SG
'that you eat vegetarian.'

(4) a. Ik hoopje dat-st-o ek komst.
I hope that-2SG-you also come.2SG
'I hope that you will come.'

b. * Ik hoopje dat do ek komst.
I hope that you also come.2SG
'I hope that you will come.' (van der Meer, 1991, pp. 67, 69)

When a focus particle intervenes between the complementiser and the subject, the structure becomes ungrammatical. This is the case when CA is present (5a,c), and when CA is absent (5b,d) (see also de Haan, 2010 for the same observation).

(5) a. * dat-st sels do de maraton rinne kinst.
that-2SG even you the marathon walk can.2SG
'that even you can run the marathon.'

b. * dat sels do de maraton rinne kinst.
that even you the marathon walk can.2SG
'that even you can run the marathon' (E. Hoekstra, 2020c)

c. * dat-st ek do [...] fegetarysk ytst.
that-2SG also you vegetarian eat.2SG
'that you, too, eat vegetarian.'

[1] The full 2SG pronoun in Frisian is *do*, but in CA contexts, CA and the pronoun are realised as *sto*. In the presentation of the examples, I gloss *st* as the CA morpheme, and *o* as the pronoun. I assume with de Haan (2010) that the underlying sequence is *st-do*, which undergoes progressive assimilation and degemination, resulting in *sto*.

[2] The Frisian data without a source come from elicitations with one native speaker of Frisian, to confirm the judgements for similar sentences from the literature.

d. * dat ek do [...] fegetarysk ytst.
that also you vegetarian eat.2SG
'that you, too, eat vegetarian.'

Intervention of a focus particle as well as a whole constituent, such as a fronted object or a high adverb, also leads to ungrammaticality, both in the absence and presence of CA (6).

(6) a. * dat-st dizze film sels do noch net sjoen hast.
that-2SG this movie even you yet not seen has.2SG
'that even you haven't seen this movie yet.'

b. * dat dizze film sels do noch net sjoen hast.
that this movie even you yet not seen has.2SG
'that even you haven't seen this movie yet.'

c. * dat-st helaas ek do gjin priis wûn hast.
that-2SG unfortunately also you no prize won have.2SG
'that you unfortunately also didn't win a prize.'

d. * dat helaas ek do gjin priis wûn hast.
that unfortunately also you no prize won have.2SG
'that you unfortunately also didn't win a prize.'

Finally, intervention of an intervener that does not contain a focus particle also leads to an ungrammatical structure (7).

(7) a. * Hy leaude dat-st moarn do komme soest.
he believes that-2SG tomorrow you come should.2SG
'He believed that you should come tomorrow.'

b. * Hy leaude dat moarn do komme soest.
he believes that tomorrow you come should.2SG
'He believed that you should come tomorrow.' (Fuß, 2008, p. 85)

It is not the case that Frisian does not allow intervention between a complementiser and a subject at all. The examples in (8) show that intervention of a focus particle, or both a focus particle and an adverbial, is fine with 1SG and 3SG subjects.

(8) a. dat sels ik / Jan komme soe.
that even I / Jan come will
'that even I / Jan will come.'

b. dat altyd sels Feikje net thús is.
that always even Feikje not home is
'that even Feikje is not always home' (J. Hoekstra, 2014, p. 143)

Furthermore, the ungrammaticality of intervention is not due to a special prohibition on modifying the 2SG subject pronoun with a focus particle. This can be demonstrated in two contexts. Frisian allows for embedded V2, but there is no CA with

embedded V2 clauses (9). In embedded V2 clauses, it is possible to modify the 2SG subject with a preceding focus particle, as illustrated in (10).[3]

(9) Heit sei, dat do moast soks net leauwe.
father said that you must.2SG such not believe
'Father said that you shouldn't believe such things.'
(van der Meer, 1991, p. 71)

(10) dat ek do ytst al fegetarysk.
that also you eat.2SG already vegetarian
'that you, too, eat vegetarian.'

When the subject of the embedded clause is a coordination with the 2SG pronoun *do* as the first conjunct, CA can be present, but this is optional (11). The coordinated subject can be modified by a focus particle, but in that case, CA is obligatorily absent, as (12) shows. Again, this illustrates that there is not a ban on modifying 2SG subject pronouns with a focus particle.[4]

(11) a. dat-st-o en Jan de wedstriden winne sille.
that-2SG-you and Jan the games win will.PL

b. dat do en Jan de wedstriden winne sille.
that you and Jan the games win will.PL
'that you and Jan will win the games.'

(12) dat ek do en Jan in wedstriid winne sille.
that also you and Jan a game win will.PL
'that also you and Jan are going to win a game.'

To summarise, the data suggest that the ungrammaticality of intervention between a complementiser and a 2SG subject in Frisian is related to CA: in the absence of intervention, CA is obligatory, and the intervening element(s) cause insertion of CA to be blocked, leading to ungrammaticality.

3.2.2 Limburgian

Like Frisian, Limburgian has obligatory CA with 2SG subjects, as (13) illustrates.[5]

[3]Frisian V2 clauses that are embedded under a complementiser show very little connection to the main clause. For instance, extraction from the embedded clause into the main clause is impossible, as is binding from outside of the embedded V2 clause. For this reason, de Haan (2001) analyses embedded V2 under a complementiser in Frisian as an embedded root phenomenon. The absence of CA in this construction is then the result of the absence of real embedding (cf. van Koppen, 2017) (though see Zwart (1997) for a different interpretation).

[4]CA with coordinated subjects in Frisian will be discussed in detail in section 3.5.1.

[5]The Limburgian data come from elicitations with two native speakers of a southern Limburgian dialect. It is their variety of Limburgian that I report on in this section. However, there is variation between speakers of Limburgian regarding intervention effects on CA. Van Koppen (2005) discusses the Limburgian dialect Tegelen Dutch in much detail, and shows that Tegelen Dutch behaves very differently from the Limburgian variety discussed here; in Tegelen Dutch, intervention does not affect CA (see also section 3.2.3). This

(13) a. dat-s-tich de westrijd geis winne.
that-2SG-you the game go.2SG win
'that you are going to win the game.'

b. * dat dich de westrijd geis winne.
that you the game go.2SG win
'that you are going to win the game.'

When an element, such as a focus particle, intervenes between the complementiser and the subject, the CA morpheme is realised between the focus particle and the subject, instead of on the complementiser (14).[6] The size of the intervening material does not matter: in (14b), both a topicalised object and a focus particle intervene between the complementiser and the subject, and in (14c), both an adverb and a focus particle intervene; in both cases, the CA morpheme is realised to the right of the focus particle. Note that in Limburgian, *dich* and *doe* are in (apparent) free variation as 2SG subject pronouns.[7]

(14) a. dat auch-s-tich waal ens vegetarisch uts.
that also-2SG-you sometimes vegetarian eat.2SG
'that you, too, sometimes eat vegetarian.'

b. dat zaun book allein-(s)-tich in 't openboar lus.
that such.a book only-2SG-you in the public read.2SG
'that only you would read such a book in public.'

c. dat messchien auch-(s)-toe een andere baan geis zeuke.
that maybe also-2SG-you a other job go.2SG look.for
'that maybe you, too, will look for another job.'

The CA morpheme *-s* attaches to a focus particle exclusively in sentences where the subject follows a complementiser. As illustrated in (15), in sentences where the subject follows the main verb, inserting *-s* between an intervening focus particle and the subject is impossible. Furthermore, (16) shows that *-s* cannot attach to a focus particle that modifies a sentence-initial subject. These examples show that it is not the case that *-s* is inserted between a focus particle and the 2SG subject by default, as some kind of epenthesis; embedding under a complementiser is crucial.

(15) a. * Volgens Jan uts auch-s-toe waal ens vegetarisch.
according.to Jan eat.2SG also-2SG-you sometimes vegetarian
'According to Jan, you, too, sometimes eat vegetarian.'

---

might be the reflection of a regional difference within Dutch Limburg, as Tegelen is in the north of the Limburgian area, whereas my informants are from the south (Stein and Sittard, specifically). I have also consulted speakers of Limburgian for whom intervention leads to the absence of CA. This might be related to the fact that all the speakers I consulted are bilingual in Dutch and Limburgian, and have spent at least a few years of their lives living outside of the province of Limburg. The different judgements could therefore be an influence from Dutch, or the consequence of dialect attrition.

[6] When the intervener is larger than just a focus particle, CA appears to be optional. At the moment, I do not have an explanation for this.

[7] I come back to this in footnote 21.

b. Volgens Jan uts auch doe waal ens vegetarisch.
according.to Jan eat.2SG also you sometimes vegetarian
'According to Jan, you, too, sometimes eat vegetarian.'

c. * Volgens mich lus zaun book allein-s-tich in 't openboar.
according.to me read.2SG such.a book only-2SG-you in the public
'According to me would only you read such a book in public.'

d. Volgens mich lus zaun book allein dich in 't openboar.
according.to me read.2SG such.a book only you in the public
'According to me would only you read such a book in public.'

(16) * Auch-s-tich uts waal ens vegetarisch.
also-2SG-you eat.2SG sometimes vegetarian.
'You, too, sometimes eat vegetarian.'

The morpheme *-s* is also not an inherent part of the subject itself, as demonstrated by the example in (17); a non-modified sentence-initial subject cannot be preceded by *-s*.

(17) * s-tich / s-toe dè de wedstrijd geis winne
2SG-you / 2SG-you that the game go.2SG win
'you, who will win the game'

In Limburgian, intervention between the complementiser and the subject appears to be possible only if the intervener is, or contains, a focus particle that modifies the subject. This is the case regardless of the φ-features of the subject, as demonstrated with a 2SG and 3SG subject below. Presumably, this is due to factors related to information structure: intervention between the complementiser and the subject is only possible if the subject is focus. Modification of the subject with a preceding focus particle most likely facilitates this reading.

(18) a. * dat zaun book-s-tich zelfs neet in 't openboar lus.
that such.a book-2SG-you even not in the public read
'that such a book you would not even read in public.'

b. * dat zaun book hea zelfs neet in 't openboar lus.
that such.a book he even not in the public read
'that such a book he would not even read in public.'

In summary, when there is intervention between the complementiser and the subject in Limburgian, CA is not spelled out on the complementiser, but on the intervener.

3.2.3 Complementiser agreement in other West Germanic varieties

Frisian and Limburgian show different intervention effects on CA than the varieties that have been discussed in the literature. In this section, I will demonstrate what the patterns in other varieties are.

In the first set of West Germanic languages with CA, intervention between the complementiser and the subject does not seem to affect CA; the complementiser shows agreement despite the presence of an intervening element. Varieties that behave this way are Bavarian (Bayer, 1984; Gruber, 2008), Tegelen Dutch (van Koppen, 2005), and West Flemish (Haegeman, 1992; Haegeman & van Koppen, 2012), illustrated below.

(19) a. dass-st du kummst.
that-2SG you come.2SG
'that you are coming.'

b. dass-st auch du an Hauptpreis gwunna hosd.
that-2SG also you the first.prize won have.2SG
'that you, too, have won the first prize.'

Bavarian (van Koppen, 2005, pp. 43, 144)

(20) a. de-s doow Marie ontmoets.
that-2SG you Marie meet.2SG
'that you will meet Marie.'

b. de-s auch doow merge kums.
that-2SG also you tomorrow come.2SG
'that you, too, will come tomorrow.'

Tegelen Dutch (van Koppen, 2005, pp. 137, 144)

(21) a. Kpeinzen da-n die venten Marie kennen.
I.think that-PL those guys Marie know.PL
'I think that those guys know Marie.'

b. Kpeizen da-n zelfs men broers zuknen boek niet lezen.
I.think that-PL even my brothers such.a book not read.PL
'I think that even my brothers do not read such a book.'

West Flemish (Haegeman & van Koppen, 2012, pp. 445, 446)

Bavarian and Tegelen Dutch are similar to Frisian and Limburgian in that they have CA for 2SG. In addition, Bavarian has CA for 2PL and, in Lower Bavarian, 1PL (Bayer, 1984). West Flemish is unique in that it has a full CA paradigm (Haegeman, 1992).

The other type of intervention effect is found in Hellendoorn Dutch. As already shown in the introduction, in Hellendoorn Dutch, intervention results in the complete absence of CA:

(22) a. darr-e wiej den besten bint!
that-1PL we the best are.PL
'that we are the best!'

b. dat zölfs wiej de westrijd wint.
that even we the game win.PL
'that even we win the game.'

Hellendoorn Dutch (van Koppen, 2005, pp. 110, 143)

Hellendoorn Dutch differs from the other varieties with CA on some other points as well. First of all, it only has CA for 1PL, and not for 2SG, as all the other varieties have. Furthermore, Hellendoorn Dutch is a position dependent agreement language: agreement on a verb that follows the subject is different than agreement on a verb that precedes the subject, or on a complementiser: in the word order C/V-subject, the agreement morpheme is -ə, whereas in the subject-V, the verb inflects with the morpheme *-t*, as can be seen on the verbs in (22) (see also Chapter 2 for a more detailed discussion of position dependent agreement in Hellendoorn Dutch). On the relation between position dependent agreement and CA, see Zwart (1997) and van Koppen (2005).

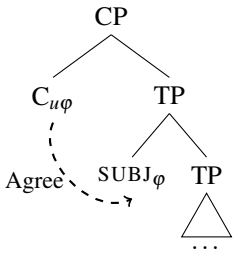
To sum up, West Germanic varieties can respond in four different ways to intervention between an agreeing complementiser and the subject. In existing literature, it is observed that in e.g. Bavarian and Tegelen Dutch, CA is not affected by intervention, and that in Hellendoorn Dutch, CA disappears under intervention. This chapter shows that there are two additional intervention effects: in Frisian, intervention leads to ungrammaticality (see also de Haan, 2010), and in Limburgian, intervention causes the CA morpheme to be realised between the intervener and the subject.

3.2.4 Problems for previous analyses

In recent literature on CA, two types of analyses of CA can be found, that make different predictions regarding intervention effects (see van Koppen, 2017 for a recent overview). I will discuss them here, and show that they cannot account for the Frisian and Limburgian data from sections 3.2.1 and 3.2.2.

According to the first type of analysis, CA is the spell out of an Agree relation (Carstens, 2003; van Koppen, 2005; Haegeman & van Koppen, 2012). The idea is that C is a φ-Probe that Agrees with the subject in Spec,TP, as in (23). The valued φ-features are spelled out as inflection on the complementiser. This analysis is well-suited to account for languages in which CA is not affected by intervention, such as in Bavarian, Tegelen Dutch, and West Flemish (see the previous section); an intervening element should not affect the Agree relation between the Probe C and the subject in Spec,TP, because the hierarchical relationship between the Probe and the subject remains the same. The Agree analysis of CA thus predicts that CA is not affected by intervention.

(23)



The alternative analysis is that CA is the result of a PF operation. There are several implementations of this analysis. Ackema and Neeleman (2004) propose that CA is the result of feature checking at PF. According to Weisser (2019), CA is the result of allomorphy. Finally, Fuß (2008, 2014) proposes that CA is the result of PF feature copying. The different implementations make slightly different predictions about intervention effects on CA. The approaches based on feature checking and allomorphy require that the complementiser and the subject are adjacent for CA to be inserted. These approaches therefore predict that CA disappears under intervention, as is the case in Hellendoorn Dutch. In other words, the PF approaches based on feature checking and allomorphy are well-suited to account for CA in Hellendoorn Dutch.[8]

The PF feature copying approach by Fuß (2008, 2014) is slightly different. Fuß observes that in Bavarian, a complementiser only shows CA when the clause it embeds contains a finite verb. For instance, in comparative clauses, the comparative complementiser shows CA when the comparative is clausal and contains a finite verb, but not when the comparative clause is phrasal and only contains a noun. This is illustrated in (24).

(24) a. D'Resl is gresser als wia-st du bist.
the.Resl is taller than as-2SG you are.2SG
'Resl is taller than you are.'

b. D'Resl is gresser als wia du.
the.Resl is taller than as you.
'Resl is taller than you.'

c. * D'Resl is gresser als wia-st du.
the.Resl is taller than as-2SG you
'Resl is taller than you.'

Bavarian (Fuß, 2014, p. 60)

Based on these and other data, Fuß proposed that CA is copied from the verb to the complementiser. Because copying does not depend on adjacency between the subject and the complementiser, but on the presence of a finite verb in the embedded clause, this account does not predict an effect of intervention between the subject and the complementiser on CA. Fuß' account is therefore compatible with the absence of intervention effects on CA in e.g. Bavarian and Tegelen Dutch.

Although the Agree and PF analyses of CA are successful in deriving the intervention effects of the varieties that I discussed in section 3.2.3, the Frisian and Limburgian data pose problems for both of them. Recall that in Frisian, disrupting adjacency between the complementiser and the 2SG subject by a focus particle, in contexts that would otherwise trigger CA, leads to ungrammaticality (illustrated in (25), repeated from (5)). This is unexpected from an Agree perspective, as linear adjacency is not a requirement for Agree to succeed. In fact, when a focus particle intervenes between

[8]The analyses of CA based on PF feature checking and allomorphy differ on the timing of the PF operation; according to the order of operations at PF argued for by Ackema and Neeleman (2004), PF feature checking takes place before deletion of traces, whereas allomorphy takes place after traces are deleted. These accounts therefore make different predictions about whether CA can be triggered by a trace. Dialects vary on this point, see van Koppen (2005).

an agreeing verb and a non-2SG subject, Agree succeeds even in Frisian. This is illustrated in (26), where the verb can Agree with a 3SG or 3PL subject despite the presence of an intervening focus particle. The contrast with (25) is not due to the fact that the Agreeing element is a verb instead of a complementiser, as (27) shows that intervention between a verb and a 2SG pronoun also leads to ungrammaticality.

(25) * dat-(st) ek do [...] fegetarysk ytst.
that-(2SG) also you vegetarian eat.2SG
'that you, too, eat vegetarian.'

(26) a. Miskien giet sels hy Jan helpen.
maybe go.3SG even he Jan help
'Even he is maybe going to help Jan.'

b. Miskien gean sels sy Jan helpen.
maybe go.3PL even they Jan help
'Even they are maybe going to help Jan.'

(27) * Neffens Jan giest sels do net nei it feest.
according.to Jan go.2SG even you not to the party
'According to Jan, even you are not going to the party.'

We can conclude that CA in Frisian (as well as 2SG verbal agreement) differs from agreement with other subjects, in that it requires adjacency of the Agreeing element to the pronoun it Agrees with. Since this requirement is unexpected for Agree, and not found with other agreement morphemes, it is unlikely that CA in Frisian is the result of Agree.

In Limburgian, when an intervener is present the CA morpheme does not attach to the complementiser, but between the subject modifier and the subject itself ((14), repeated as (28)). It was further shown that presence of the CA morpheme crucially depends on presence of the complementiser.

(28) a. dat auch-s-tich waal ens vegetarisch uts.
that also-2SG-you sometimes vegetarian eat.2SG
'that you, too, sometimes eat vegetarian.'

b. dat zaun book allein-(s)-tich in 't openboar lus.
that such.a book only-2SG-you in the public read.2SG
'that only you would read such a book in public.'

These data are also problematic for Agree approaches to CA. Under the Agree approach, the complementiser is the target of Agree. Given this, we do not expect that the agreement is not spelled out on the target of Agree, but on a different element further down in the structure.

A potential solution to this problem is that the agreement morpheme and an adjacent syllable undergo metathesis (as in Harris and Halle, 2005's approach to mesoclisis in Spanish imperatives) or local dislocation (Embick & Noyer, 2001). The result of such an operation would be that the agreement morpheme is not attached to the agreement target, but to the next syllable. The problem for this account is that the material

that can intervene between the complementiser and the subject can be of variable complexity; while in (28a) the intervener is just one word, in (28b), it consists of a whole phrase and a word. Yet in both examples, the CA morpheme *-s* attaches to the focus particle. This shows that placement of the CA morpheme is structurally determined, not phonologically. Another potential solution to the Limburgian data is that we are not dealing with CA, but with an agreeing adverb (cf. Corbett, 2006). This is unlikely as well, because the presence of the CA morpheme is conditioned by the presence of a complementiser: when the subject is not embedded, the CA morpheme is absent. This is the case for both sentence-initial subjects and subjects that are preceded by a verb, as illustrated in section 3.2.2. This shows that the adverb agreement analysis does not work. I therefore conclude that an Agree analysis of CA in Limburgian cannot account for the observations.

The Frisian and Limburgian data also pose several issues to PF accounts of CA.[9] Starting with Frisian, PF accounts cannot explain the ungrammaticality, caused by intervention between a complementiser and a subject, that is linked to CA. According to the various PF analyses, CA is inserted as the result of a rule that applies at PF. The rule applies when a particular input is present at PF. For the feature copying account (Fuß, 2008, 2014), the PF rule applies when the embedded clause contains a finite verb. The presence of an intervener between the complementiser and the subject does not affect the presence of the finite verb, so the features on the finite verb should be copied to the complementiser and be spelled out as CA. Ungrammaticality of intervention does not follow under this PF account of CA. For the feature checking and allomorphy accounts, the input for application of the PF rule would be the sequence *that you*. If this sequence is disrupted by the presence of an intervener, the PF input is simply a PF representation that does not contain the sequence *that you*. The PF rule will therefore not apply. Non-application of the PF rule does not have further consequences, because there is an infinite number of PF representations that do not contain the sequence *that you*. The fact that adjacency leads to ungrammaticality is therefore very hard to account for. Instead, the Frisian data suggest that the ungrammaticality of intervention in Frisian is a syntactic problem, caused by a derivation that is not syntactically convergent, because CA and an intervener are present at the same time.

The Limburgian data are also problematic for PF accounts of CA. The PF analyses assume that CA is the result of a PF operation that involves C (be it feature checking on C, feature copying to C, or choosing an allomorph of C). However, when an intervener is present between the complementiser and the subject in Limburgian, it is not the complementiser that is morphologically affected, but the subject modifier or the subject itself. This is difficult to account for under any analysis that assumes C to be the target of the operation that is responsible for CA.

Apart from the data on the intervention effect on CA, there are additional data that are problematic for PF approaches to CA, that involve a semantic effect of CA. In Frisian, the complementiser optionally shows first conjunct complementiser agree-

[9] In addition to the objections raised here, several other arguments against PF analyses of CA have been put forth in the literature; see in particular van Koppen (2005, 2012), and Haegeman and van Koppen (2012).

ment (FCCA) when the first conjunct of a coordinated subject is a 2SG pronoun. When FCCA is present, the preferred interpretation is a two-event reading, i.e. in (29a) 'you' and 'Jan' are participating in (and winning) separate games. When FCCA is absent, the preferred interpretation is a one-event reading. In (29b), 'you' and 'Jan' are playing and winning games as a team.[10]

(29) a. Ik tink dat-st-o en Jan de wedstriden winne sille.
I think that-2SG-you and Jan the games win will.PL
'I think that you and Jan will win the games.'
(two-event reading preferred: you and Jan are each playing their own games)

b. Ik tink dat do en Jan de wedstriden winne sille.
I think that you and Jan the games win will.PL
'I think that you and Jan will win the games.'
(one-event reading preferred: you and Jan are a team)

These data pose a serious problem for PF analyses of CA. Given the standard inverted Y-model on the organisation of the grammar (see also Chapter 1), PF and semantics (LF) are not connected. This means that alternations at PF should not have an effect on semantics. The observation that the presence of CA has semantic consequences shows that it must be established in the syntactic component, before the derivation is sent to PF and LF. I will return to these data in section 3.5.1.

3.3 CA morpheme is a clitic

In the previous section, I introduced the data on the intervention effect on CA in Frisian and Limburgian, and showed that the intervention effect in these varieties cannot be analysed as the result of Agree or a PF phenomenon. In this section, I argue that the CA morpheme in Frisian and Limburgian is a pronominal clitic.

3.3.1 Diagnosing clitics

As the discussion of previous analyses of CA shows, most previous analyses treat the CA morpheme as an affix (e.g. Ackema & Neeleman, 2004; van Koppen, 2005; Fuß, 2008, 2014). I show in this section that when we consider the properties of the CA morpheme in more detail, it turns out to behave more like a clitic than an affix. I go through several morphosyntactic and morphological diagnostics to distinguish between clitics and affixes, and consider whether they can be applied to the CA morpheme, and if so, what the outcome is. Next to demonstrating that the CA morpheme behaves clitic-like in all testable respects, this section shows that some of the tests that diagnose the status of object referencing morphology do not work for subjects, because of their different positions in the syntactic structure.

[10]This example has been checked with multiple speakers of Frisian. The contrast between the two readings is not equally strong for all speakers.

Starting with the morphosyntactic diagnostics, the first property of clitic doubling I will consider is the 'featural coarseness' of clitic doubling (Preminger, 2014). Preminger argues that clitic doubling always copies the full set of features of the pronoun, whereas inflection can be partial.[11] As demonstrated in Chapter 2, in many varieties of Dutch, 2SG verbal inflection is position dependent: the verb shows different agreement morphology in VS and SV word order. This is illustrated in (30) with an example from standard Dutch. In Chapter 2, I analysed position dependent agreement as partial agreement; in particular, in the case of position dependent agreement for 2SG, the verb inflects as if it were a 1SG in VS word order.

(30) a. ik werk
I work

b. jij werk-t
you work-2SG

c. werk ik
work I

d. werk jij
work you

Standard Dutch

When we look at the complete Dutch language area, including Frisian, we can observe that position dependent agreement for 2SG exists in almost all varieties, but crucially not in Frisian and Limburgian. This is illustrated in figure 3.1, based on data from the DynaSAND (Barbiers et al., 2006) (see also Chapter 2); the Frisian (north-west) and Limburgian (south-east) areas do not have position dependent agreement, but do have CA for 2SG. These observations are easily understood if the 2SG morpheme is a clitic. Because of the featural coarseness of clitic doubling, the clitic never enters into partial agreement of the type in (30), resulting in the absence of position dependent agreement with this morpheme. The clitic nature of the 2SG morpheme also allows it to attach to a complementiser, accounting for the anti-correlation between CA and position dependent agreement. This interpretation implies that agreement on the verb in C (in VS word order) and CA have the same status. This is not surprising, since both CA and verbal agreement in VS word order spell out features of C. In the remainder of this section, I will therefore also consider verbal agreement in VS word order to determine whether the CA morpheme is a clitic or agreement.[12]

Next to the featural coarseness of clitic doubling, Preminger (2009, 2014) looks at failed Agree to tell apart the spell out of agreement and clitic doubling. A typical context for failed Agree are cases where an argument in an A-position intervenes between

[11] Richard Kayne and Sjef Barbiers point out to me that there are some phenomena that do not adhere to the generalisation that clitic doubling is featurally coarse, at least superficially. For instance, in Spanish, a singular dative clitic can double a plural noun phrase (R. Kayne p.c.). In Finnish, a subject can be doubled by an element that mismatches in number (Holmberg & Nikanne, 2008). However, both phenomena have received alternative explanations in the literature. For Spanish, Guajardo (2020) argues that the element that fails to double the number feature of Spanish datives is, in fact, an agreement marker, whereas the element that doubles all features is a clitic. Van Urk (2018) provides an analysis of the Finnish data, according to which the copied pronoun undergoes partial deletion because of economy requirements at PF. Having set aside these counterexamples, I conclude that the diagnostic based on featural coarseness is valid.

[12] Something more needs to be said about some other cases of verbal agreement, i.e. verbal agreement in SV word order, and verbal agreement in Limburgian VS contexts where an element intervenes between the verb and the subject. I will come back to these cases in section 3.3.3.

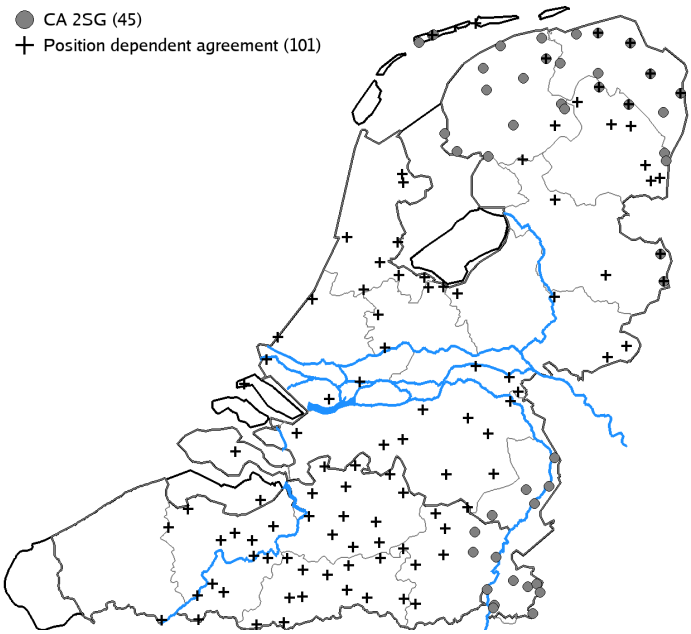


Figure 3.1: CA and position dependent agreement (based on paradigm for *leven* 'to live', DynaSAND) in the Dutch language area

the targeted Goal and the Probe; the higher argument is unable to value the features of the Probe, but also blocks further Probing. Failed agreement leads to the insertion of a default morpheme (as the result of default valuation), whereas failed clitic doubling results in the absence of an exponent altogether. Because failed Agree requires intervention of an argument in A-position, this diagnostic can only be applied to cases where the targeted Goal is not the highest argument. In West Germanic, CA always reflects the features of the nominative subject in Spec,TP. The Agree relation between the Probe C and the targeted Goal therefore never 'fails' in the relevant sense; there is no higher argument in an A-position than the subject in Spec,TP. This diagnostic can therefore not be applied to CA.[13] A similar issue arises with Harizanov (2014),

[13]For completeness, it is good to note that constructions where the nominative argument is not the highest element in an A-position exist (in Dutch, but to the best of my knowledge, also in Frisian and Limburgian). However, these do not obtain with pronominal nominative arguments, but with DPs. The first of those constructions involve nominative-dative verbs like *bevallen* 'to please'. Although the arguments can occur in both orders in an embedded clause, when the nominative argument is pronominal, it has to come first: **dat mij*$_{\text{DAT}}$ *jij*$_{\text{NOM}}$ *bevalt.* ('that you please me.'). *It*-clefts are another example in which the nominative is not necessarily the highest element (e.g. *dat het de jongens zijn.* (lit. 'that it the boys are')). Again, if the nominative argument is pronominal, the word order where the nominative is below 'it' is extremely marked (cf. Hartmann & Heycock, 2019); instead, the inverse word order pronoun-*it*-verb is used: *dat hij het is* (lit. 'that he it is'). Finally, constructions with expletive *er* 'there' in Spec,TP are allowed only with indefinites, which pronouns are not: *dat er een jongen viel* (lit. 'that there a boy fell'); **dat er hij viel* (lit. 'that there he fell.').

Kramer (2014) and Baker and Kramer (2018)'s diagnostic for clitic doubling. These authors argue that clitic doubling extends the binding domain of the doubled argument. Although this works well for object markers, as demonstrated for several languages in Baker and Kramer (2018), it cannot be applied to subjects, because an extension of the binding domain of the subject will not have any detectable consequences, it being the highest argument in the clause already.

An additional relevant morphosyntactic property of the CA morpheme in Frisian (as well as in some other varieties with CA, such as Bavarian (Fuß, 2004)), is that it appears to license *pro*-drop, as illustrated in (31).

(31) a. Miskien moat-st my helpe.
maybe must-2SG me help
'Perhaps you have to help me.' (de Haan, 2010, p. 216)

b. dat-st de wedstriid winne silst.
that-2SG the game win will.2SG
'that you will win the game.'

Examples like (31) are often considered as evidence that Frisian is a partial *pro*-drop language, where *-st* is strong enough to license an empty subject position because it is an inflectional morpheme that is unique to the 2SG context (see e.g. de Haan, 2010; Koeneman and Zeijlstra, 2019). There are several reasons to doubt this interpretation, however. First of all, the 2SG morpheme is not the only unique morpheme in the paradigm; the 1SG and 3SG agreement affixes are also unique in in Frisian (Ø and *-t*, respectively). However, these affixes do not licence *pro*-drop. Furthermore, while partial *pro*-drop is attested in several languages outside of West Germanic, these languages show a participant-based split: typically, only 1P and 2P pronouns may be dropped (e.g. in Finnish and Hebrew (Vainikka & Levy, 1999)). Frisian, and other West Germanic varieties that behave similar to Frisian, do not fit into this typology. For these reasons, I conclude that Frisian does not have partial *pro*-drop. Instead, I propose that data like (31) should be interpreted as an argument that *-st* is pronominal, instead of an agreement affix. In other words, *-st* in (31) is the subject pronoun, that cliticises to the verb or the complementiser. This interpretation explains the contrast with the 1SG and 3SG morphemes, since these are agreement affixes, and therefore require the realisation of an overt pronoun. Furthermore, it explains why Frisian behaves differently from other languages with partial *pro*-drop, since Frisian does not have partial *pro*-drop.[14]

To summarise so far: although some morphosyntactic diagnostics for clitichood cannot be applied to the CA morpheme, its featural coarseness and its ability to appear without an independent pronoun indicate that the CA morpheme is a clitic, rather than agreement. This conclusion is further supported by the morphological behaviour of the CA morpheme. Even though morphophonological clitichood and pronominal clitichood do not always overlap (cf. Yuan, 2021 for recent discussion), the morphological behaviour of the CA morpheme sets it apart from other members in the paradigm of subject referencing morphology, as I will demonstrate below. I suggest that the

[14] In section 3.4.2, I discuss why the Limburgian CA morpheme cannot be used as the subject pronoun.

special morphological behaviour of the CA morpheme further promotes its syntactic status of a clitic, in order to maintain a one-to-one mapping between pronominal clitic and morphological clitic, and Agree and affixes, within the same paradigm.

The first morphological property I consider is the degree of host selectivity: clitics, but not affixes, exhibit a low degree of selection with respect to their hosts (Zwicky & Pullum, 1983). As already demonstrated by Gruber (2008) for Bavarian (see also Bayer, 1984, f.n. 36), CA passes this diagnostic. The CA morpheme can occur not only on subordinating complementisers, but also on wh-phrases (32), relative pronouns (33)[15], comparative complementisers (34)[16], and focus particles ((35), repeated from (14)). Other subject referencing morphemes do not show this behaviour.

(32) CA on wh-phrases

a. wanneart-st-o dat dochst.
when-2SG-you that thought.2SG
'when you thought that.' Frisian (Visser, 1988, p. 202)

b. Iech wil waete wievöl geld-s te höbs.
I want know how-much money-2SG you have.2SG
'I want to know how much money you have.'
Limburgian (E. Hoekstra & Smits, 1997, p. 11)

(33) CA on relative pronouns

a. Grutte omkoal, dyt-st biste!
big dullard that-2SG are.2SG
'Such a dullard you are.' Frisian (J. Hoekstra, 1997, p. 80)

b. Det is eine man woo-s-te neit van op aan kèns.
that is a man who-2SG-you not of on on can.2SG
'That is a man that you cannot count on.'
Limburgian (van der Sijs, 2019)

(34) CA on comparative complementisers

a. Ik bin grutter as-st-o bist.
I am bigger than-2SG-you are.2SG
'I am bigger than you' Frisian (van der Meer, 1991, p. 65)

b. Du geloofst zeker niet dat er sterker is wie-s-tu.
you believe.2SG surely not that he stronger is than-2SG-you
'You surely don't believe that he is stronger than you.'
Limburgian (van Koppen, 2017, p. 5)

[15]Descriptively, Frisian phrasal complementisers (e.g. *foar* 'before', *nei* 'after', *hoewol* 'although') obligatorily co-ocur with *dat* 'that' or *oft* 'if', or a clitic form *-t* (Visser, 1988; data from E. Hoekstra, 2020a). These constructions are undergoing a process of grammaticalisation: while in many cases both the full and the clitic complementiser are fine (e.g. *foardat*, *foar-t* 'before-that'), some phrasal complementisers only occur with the clitic form (*of-t*, **of-dat* 'if-that'). Moreover, with some examples of the latter type, the complementiser can be doubled again: *oan* 'until' can be *oan-t* (but not **oan-dat*), but also attested is *oan-t dat* ('until-that that'). The relative pronoun *dyt* is of the type that does not allow realisation of the full form of the complementiser (**dy-dat*). I therefore assume that it has completely grammaticalised and that this is not a case of doubly filled COMP.

[16]The glossing of (34) as containing CA is supported by van der Meer (1991) and Fuß (2014).

(35) CA on focus particles

a. dat auch-s-tich waal ens vegetarisch uts.
that also-2SG-you sometimes vegetarian eat.2SG
'that you, too, sometimes eat vegetarian.'

b. dat zo'n boek allein-s-tich in 't openboar lus.
that such.a book only-2SG-you in the public read.2SG
'that only you would read such a book in public.' Limburgian

Two additional relevant morphological features of the CA morpheme have to do with allomorphy and morphologically idiosyncratic behaviour. Starting with allomorphy, Nevins (2011) argues that clitics are typically tense-invariant, whereas affixes can have tense-sensitive allomorphs. E. Hoekstra and Smits (1997) observe that CA morphemes are tense-invariant, leading to their 'agreement in present tense = agreement in past tense' generalisation:

(36) **The 'agreement in present tense = agreement in past tense' generalisation:**
complementiser agreement can only occur when the agreement ending of the verb in inversion [verb-subject word order, AvA] in the present tense is identical to the ending of the verb in inversion in the past tense.
(E. Hoekstra & Smits, 1997, p. 23, translated from Dutch)

Using data from GTRP and DynaSAND, I will now demonstrate that this generalisation holds for 2SG CA in a large number of Dutch and Frisian varieties. Figure 3.2 depicts the varieties that have an overt 2SG morpheme in verb-subject word order in present tense (for the verb *leven* 'to live'), and for which the there is a past tense counterpart that uses an overt past tense morpheme (data from GTRP). Almost all of these varieties use the same 2SG morpheme in present and past tense. In addition, the varieties with 2SG CA are depicted (data from DynaSAND). It is clear that the areas fully overlap.

However, recall from Chapter 2 that essentially all varieties that do not have a unique 2SG morpheme have position dependent agreement for 2SG. That means that in the verb-subject word order, the 2SG affix is replaced by the (typically) zero 1SG affix. Because in these varieties, there is no overt inflection on the verb in the verb-subject word order, it is hard to tell whether inflection is the same across tenses in varieties with position dependent agreement. Instead, we can compare the pattern of tense allomorphy of the 2SG agreement morpheme with tense allomorphy of the 3SG agreement morpheme in the same language, because the 3SG does not show position dependent agreement (in most varieties). Because data on 3SG past tense inflection in the verb-subject word order is not available in the GTRP, here I use the subject-verb word order of the verb *leven* 'to live'. There are 73 data points on tense allomorphy with the 3SG that overlap with the data points in figure 3.2. For all these data points, the 3SG affix is tense-variant, showing a sharp contrast with the 2SG morpheme. A linguistic example illustrating the pattern is given in (37); the 2SG morpheme *-st* is used both in present and past tense, but the 3SG morpheme, as well as the 2PL morpheme,

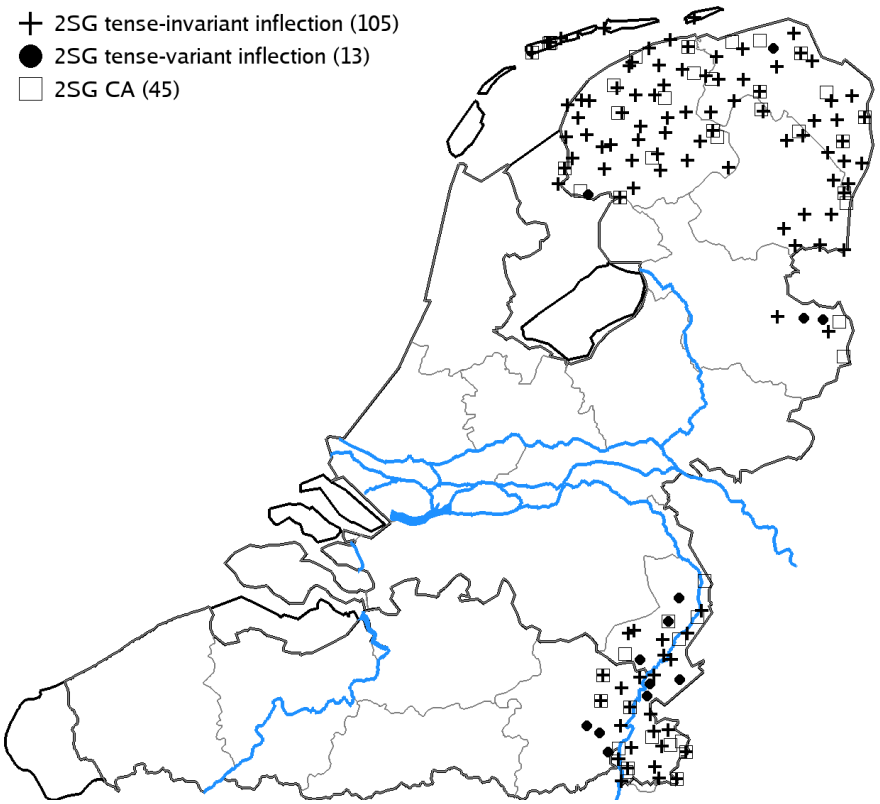


Figure 3.2: Tense-invariance of 2SG morpheme and 2SG CA

varies across tenses. I conclude that the tense-invariance of the 2SG CA morpheme is a unique property of this morpheme compared to other agreement morphemes in the paradigm, which is compatible with treating the CA morpheme as a clitic, according to Nevins (2011)'s diagnostic.

(37) a. gie-st-o
go-2SG-you

b. gie-t hy
go-3SG.PRS he

c. gean-e jim
go-PL.PRS you.PL

d. gong-st-o
went-2SG-you

e. gong hy
went he

f. gong-en jimme
went-PL.PST you.PL

Frisian (DynaSAND)

In addition to not showing allomorphy, clitics are typically insensitive to properties of the host, whereas affixes can show morphological irregularities (Zwicky & Pullum,

1983). A relevant contrast is found in Limburgian verbal paradigms where the 2SG and 3SG verbs exhibit umlaut. In these contexts, the 3SG affix is dropped, but the 2SG morpheme is unaffected by verbal umlaut. This is illustrated in (38): the a–c examples contain a verb without umlaut, and both the 2SG and 3SG verb have an inflectional morpheme. In the d–f examples that contain a verb with umlaut, the 3SG morpheme is dropped, but the 2SG morpheme is not. Thus, in terms of morphological variability, the 2SG morpheme shows considerably less variation than other markers in the paradigm, which is compatible with analysing it as a morphological clitic.

(38)
a. werk ich
work I
b. werk-s-toe
work-2SG-you
c. werk-t her
work-3SG he
d. help ich
help I
e. hulp-s-toe
help-2SG-you
f. hulp her
help he

Limburgian

To sum up, the CA morpheme has the following properties that make it look more like a (pronominal and morphological) clitic than an agreement marker: it is featurally coarse; it can appear without an independent pronoun; it attaches to a variety of hosts; and it lacks the morphological variability that we find with other members of the subject referencing paradigm. I conclude that this combination of properties show that the CA morpheme in Frisian and Limburgian is not the realisation of agreement, but a pronominal clitic.

3.3.2 Arguments against the clitic analysis

The idea that the CA morpheme has clitic-like properties is not entirely new; in particular some older literature took the CA morpheme to be a clitic (Tiersma, 1985; van der Meer, 1991; Nübling, 1992).[17] As a response, several arguments have been put forth claiming that the CA morpheme should not be analysed as a clitic. In this section, I will discuss two arguments from Frisian against the clitic analysis of the CA morpheme, and argue that they are not conclusive.

De Haan (1994, 1997, 2010) compares the Frisian CA morpheme to the weak 3SG subject morpheme *er* ('he'). De Haan shows that the two morphemes behave differently in reduction and extraction contexts. First, the sentences in (39) and (40) involve a coordination of sentences that have been reduced. As the contrast between (39b) and (40b) shows, the 3SG morpheme *er* can be reduced, but the CA morpheme *-st* cannot.

[17] Gruber (2008), who also applies several tests to determine whether the CA morpheme in Gmunden Bavarian is a clitic or inflection, finds that the CA morpheme shows properties of both affixes and clitics, and concludes that it is neither, but rather constitutes a third category that shows properties of both inflection and clitics.

(39) a. hoe-t er en wannear-t er hjir komt.
how-that he and when-that he here comes
'how and when he comes here.'

b. hoe-t en wannear-t er hjir komt.
hoe-that and when-that he here comes
'how and when he comes here.' (de Haan, 2010, p. 219)

(40) a. hoe-t-st en wannear-t-st hjir komst.
how-that-2SG and when-that-2SG here come.2SG
'how and when you come here.'

b. * hoe-t en wannear-t-st hjir komst.
how-that and when-that-2SG here come.2SG
'how and when you come here.' (de Haan, 2010, p. 219)

Second, in subject extraction contexts, such as relativisations or topicalisations, the CA morpheme can be used in the extraction site, but *er* cannot. This is illustrated for relativisations in (41), and for topicalisations in (42).

(41) a. do, dyt-st gjin siler bist
you who-2SG no sailor are
'you, who are no sailor'

b. * hy, dyt er gjin siler is
he who he no sailor is
'he, who is no sailor' (de Haan, 2010, pp. 219, 220)

(42) a. Do tink ik dat-st moarn komme silst.
you think I that-2SG tomorrow come will.2SG
'You, I think, will come tomorrow.'

b. * Hy tink ik dat er moarn komme sil
he think I that he tomorrow come will
'He, I think, will come tomorrow.' (de Haan, 2010, pp. 219, 220)

The examples in (39–42) demonstrate that the CA morpheme and the weak subject morpheme *er* have a different distribution. Based on this observation, de Haan, who takes *er* to be an 'undisputed' subject clitic, concludes that the CA morpheme is not a clitic. I think there are reasons to doubt this conclusion. Most importantly, it is not at all clear that *er* is a clitic. In contrast to the CA morpheme, *er* cannot be used as a double of the pronoun. This is an indication that *er* is a weak pronoun, instead of a clitic (Cardinaletti & Starke, 1999). Furthermore, there are other, independent, differences between the CA morpheme and *er*. For instance, *er* is syllabic, while the CA morpheme (*-st*) is not. This might have consequences for the behaviour of these elements in e.g. conjunction reduction (cf. Ionova, 2020 for the interaction between the prosodic properties of clitics and ellipsis).

The second argument that has been given against analysing the CA morpheme as a clitic, is that can appear without an independent pronoun, giving the appearance of *pro*-drop. This is illustrated in (43) (de Haan, 1994, 1997, 2010):

(43) a. Miskien moat-st Pyt helpe.
maybe must-2SG Pyt help
'Perhaps you have to help Pyt.'

b. dat-st Pyt helpe moatst.
that-2SG Pyt help must.2SG
'that you have to help Pyt.' Frisian (de Haan, 2010, p. 220)

I argued for the inverse interpretation of these data in the previous section (see also section 3.4.2): given the observation that an independent pronoun can be absent exclusively in the context of the 2SG morpheme indicates that the 2SG morpheme itself is pronominal, and that the data in (43) do not involve *pro*-drop.

3.3.3 Verbal agreement

In the preceding sections, I have presented several arguments for the claim that the 2SG CA morpheme in Frisian and Limburgian is a clitic. However, I have not addressed the status of the 2SG verbal agreement morpheme, even though verbal agreement and complementiser agreement have the same form. Moreover, I have used the verbal agreement data to support the clitic analysis. In this section, I will address this issue.

The idea that I will defend is that in Frisian and Limburgian, the 2SG verbal agreement morpheme and the 2SG clitic are homophonous. More specifically, 2SG verbal agreement is the realisation of valued φ-features on a head (T or C), and the 2SG clitic is the realisation of a syntactically independent double of the pronoun, triggered via Agree with C (see section 3.4.3 below). These separate exponents have the same phonological form. This means that, in theory, both morphemes can be present in the same clause. I propose that when these morphemes are sufficiently local to each other, one of them is deleted by haplology. In other contexts, both morphemes are realised. I will now go over the relevant configurations, and show that this proposal derives the data.

The first configuration I will consider are clauses with the word order complementiser–subject–(X)–verb. In this configuration, the clitic double of the 2SG subject attaches to the complementiser, and the verb (spelling out the valued φ-features on T) agrees with the subject. In other words, both the 2SG clitic and 2SG agreement are realised, as in (3) (repeated as (44)). The clitic and the agreement morpheme are homophonous. An analysis according to which the agreement morpheme on the verb is also a clitic cannot easily account for this pattern, as it would require the subject to clitic double twice, and the clitic to move downwards to attach to the verb, both of which are not standard properties of clitic doubling.

(44) dat-st-o [...] fegetarysk ytst.
that-2SG-you vegetarian eat.2SG
'that you eat vegetarian.' Frisian

The second configuration in which the 2SG clitic and the 2SG agreement marker could both be present are main clauses with VS word order. In this configuration,

the verb (in C) spells out the valued φ-features on C, realising 2SG agreement, and because the verb is in C, the subject also undergoes clitic doubling. This would lead to the outcome below:

(45) V-AGR-CLITIC pronoun

Because the agreement morpheme and the clitic are homophonous, this is a context in which one of the morphemes will be deleted by haplology. The surface form therefore contains the realisation of only one of the morphemes:

(46) Moarn gie-st-o de wedstriid winnen.
tomorrow go-2SG-you the game win
'You are going to win the game tomorrow.' Frisian

The homophony approach to 2SG agreement and the 2SG clitic also allows us to understand the parallel intervention effect on verbs and complementisers in Frisian. Recall that in Frisian, the presence of an intervener between the complementiser and a 2SG subject leads to ungrammaticality, in contexts that would have shown CA if the intervener had not been present. Furthermore, intervention between a verb and a 2SG subject (but not other subjects) also leads to ungrammaticality in Frisian. This pattern fits within the homophony account as follows. The VS word order is a context in which clitic doubling of the 2SG subject is triggered. As we know from the CA data, in Frisian it is not possible to have an intervener and a clitic in the same structure. Intervention between the verb and the subject in a VS context is therefore also predicted to be ungrammatical. Haplology to delete the clitic is not able to save the structure, because this takes place after the morphemes have been replaced with phonological material. This is 'too late' to save the ungrammatical syntax caused by the simultaneous presence of an intervener and a clitic.

Further support for the homophony approach to CA and verbal agreement comes from cases where the haplology rule seems to have failed to apply. Recall that in Limburgian, intervention between a complementiser and a 2SG subject causes CA to be displaced, as in (47a). However, when the intervener comes between a verb and 2SG subject, no such displacement takes place (47b) (examples repeated from section 3.2.2).

(47) a. dat auch-s-tich waal ens vegetarisch uts.
that also-2SG-you sometimes vegetarian eat.2SG
'that you, too, sometimes eat vegetarian.'

b. Volgens Jan ut-s auch doe waal ens vegetarisch.
according.to Jan eat-2SG also you sometimes vegetarian
'According to Jan, you, too, sometimes eat vegetarian.' Limburgian

For cases like (47b), I propose that the haplology operation that deletes one of the homophonous morphemes can also apply when the two morphemes are not adjacent (see e.g. Yip, 1998 and Nevins, 2012 for other examples of non-adjacent haplology), as schematised in (48).

(48) V-AGR intervener-CLITIC pronoun ⇒ V-AGR intervener pronoun

Interestingly, it is marginally possible to realise both the agreement morpheme and the clitic (as on the left side of the arrow in (48)), or to realise the clitic, instead of the agreement morpheme:

(49) a. ? Volgens Jan ut-s auch-s-toe waal ens vegetarisch.
according.to Jan eat-2SG also-2SG-you sometimes vegetarian
'According to Jan, you, too, sometimes eat vegetarian.'

b. ? Volgens Jan it auch-s-toe waal ens vegetarisch.
according.to Jan eat also-2SG-you sometimes vegetarian
'According to Jan, you, too, sometimes eat vegetarian.' Limburgian

I take these marginal examples to show that underlyingly, both the agreement morpheme and the clitic are present. One of these morphemes is deleted by haplology. The failed or incorrect application of haplology can be modelled in a constraint-based model of phonology.

In clauses with SV word order, the syntactic structure projects up to TP (see Chapter 2). Because C is not present in this structure, there will be no clitic doubling. Agreement is realised on the verb in T.

To conclude, in this section I argued that 2SG verbal agreement is homophonous with the CA clitic in Limburgian and Frisian. In particular contexts, both morphemes can be part of the structure, and they can also both be realised within the same clause. An important take-away is that the clitic is always created, even when it is in the end not distinguishable from verbal agreement if a verb is in C. We thus still expect the clitic to be syntactically active; this accounts for the parallel behaviour of verbs and complementisers in Frisian.

3.4 Analysis

In the previous sections, I demonstrated that the intervention effect on CA in Frisian and Limburgian is unaccounted for under existing analyses of CA, and that the CA morpheme in these varieties is a pronominal clitic. In this section, I develop an analysis of the intervention effect based on these results. I first discuss the analysis of clitic doubling by van Craenenbroeck and van Koppen (2008) that I adopt. Then, I look at further syntactic properties of the CA clitic, arguing that the clitic in Frisian and Limburgian is of a different structural size. This leads to the different intervention effects in these varieties, as I demonstrate in section 3.4.3.

3.4.1 The analysis of clitic doubling: van Craenenbroeck & van Koppen (2008)

In the literature, several analyses of clitic doubling have been proposed, with most of the recent ones using the 'big DP-hypothesis', or the idea that the clitic and the element that it doubles enter the structure as one unit (Uriagereka, 1995; Anagnostopoulou,

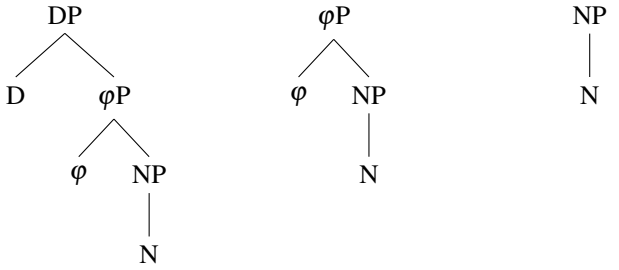
2003; van Craenenbroeck & van Koppen, 2008; Nevins, 2011, and others). Here, I will adopt the analysis of clitic doubling by van Craenenbroeck and van Koppen (2008). In contrast to the other analyses, their analysis deals with clitic doubling of subjects, in a variety of Brabantic Dutch; if CA is clitic doubling too, as I argue in this chapter, it is expected that it can be analysed with the same means as clitic doubling in other West Germanic varieties.

Van Craenenbroeck and van Koppen discuss clitic doubling of pronominal subjects in Wambeek Dutch, illustrated for 3PL in (50). In this example, the clitic *se* doubles the strong subject pronoun *zaailn*.

(50) Ik paus da se zaailn kommen.
I think that they$_{\text{CLITIC}}$ they come
'I think that they are coming.'
Wambeek Dutch (van Craenenbroeck & van Koppen, 2008, p. 208)

To analyse this type of clitic doubling, van Craenenbroeck and van Koppen adopt the typology of pronouns by Déchaine and Wiltschko (2002), who propose that pronouns are phrasal structures that can be divided into three categories: pro-DPs, pro-φPs, or pro-NPs (see Cardinaletti and Starke, 1999 for a related proposal). These pronouns are in a containment relation to each other (see (51)). At the point of spell out, the whole pronominal structure is lexicalised by the corresponding pronoun (phrasal spell out).

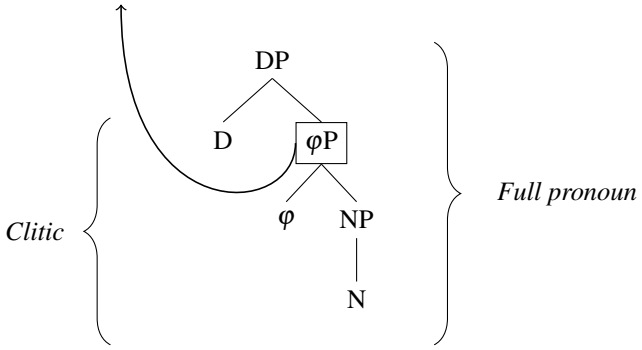
(51) a. pro-DP b. pro-φP c. pro-NP



Pro-DPs, pro-φPs, and pro-NPs be teased apart by looking at properties such as binding and argument status (see Déchaine and Wiltschko, 2002; Rullman, 2004). For instance, pro-DPs cannot function as bound variables, but pro-φPs can. Based on this and other properties, van Craenenbroeck and van Koppen show that in Wambeek Dutch, clitics are pro-φPs, and doubled pronouns are pro-DPs. In order to implement this observation in their analysis, van Craenenbroeck and van Koppen argue that clitic doubling is partial copying of the strong pronoun. More specifically, the φP part of a DP pronoun can undergo copying and subsequent movement to a different position in the sentence. This leads to double spell out of the DP: the copied and moved φP is spelled out as the clitic, while the whole DP is spelled out as the strong pronoun. This

is illustrated in (52) (partial copying as the underlying operation to syntactic doubling has also been proposed by Barbiers, 2006; Barbiers et al., 2010; Boef, 2013).[18]

(52)



Since this analysis of clitic doubling makes use of movement, it predicts that the structural size of the clitic has an effect on its syntactic behaviour, as a result of general syntactic restrictions on movement. In the next subsection, I will therefore identify the structural size of the CA clitic in Frisian and Limburgian.

3.4.2 The structural size of the clitic

In order to distinguish between pro-DPs, pro-φPs, and pro-NPs, several tests have been proposed. First, the pronouns differ in their binding possibilities, such as being subject to Condition B or C of the Binding Theory, and the availability of bound variable readings (Déchaine & Wiltschko, 2002; Rullman, 2004): while pro-DPs are subject to condition C and cannot be used as bound variables, pro-φPs are subject to Condition B, and can be used as bound variables. Second, pronouns differ in their argument status: both pro-DPs and pro-φPs can be used as arguments, but pro-NPs cannot (Déchaine & Wiltschko, 2002; van Craenenbroeck & van Koppen, 2008). Finally, while pro-φPs allow for generic readings, pro-DPs do not (Gruber, 2017).

However, while the binding properties of pronouns play a relatively big role in identifying their structural status, tests based on binding have been shown to not always work for first and second person pronouns (Déchaine & Wiltschko, 2002; Rullman, 2004; Gruber, 2017). Since the CA morphemes are 2SG morphemes, I will not use binding and bound variable readings as diagnostics.[19] Instead, I will only use argument status of the pronouns and the availability of generic readings. The properties of each of the types of pronouns are summarised in table 3.1.

With this background in place, I now turn to the identification of the structural size of 2SG morphemes, including the CA morpheme, in Frisian and Limburgian. Frisian has three 2SG morphemes: the full pronoun *do*, a weakened form *de* (/*də*/), and the CA morpheme *-st*. *Do* and *de* can occur in the canonical subject position with *-st* present

[18] Of course, the NP can also undergo copying and movement in the same fashion as φP can; see section 3.4.3 for an example of when this happens.

[19] Indeed, the outcome of applying these diagnostics to the CA varieties discussed here differs from the outcome of the other diagnostics.

Table 3.1: Properties of pronouns

	Argument status	Generic readings
Pro-DP	+	–
Pro-φP	+	+
Pro-NP	–	N/A

as a double (53a, 53b); in addition, *-st* can appear on its own ((53c, 53d), repeated from (31)).[20]

(53) a. Do moat-st my helpe.
you must-2SG me help
'You have to help me.' (de Haan, 2010, p. 215)

b. De kinst poerbêst ite yn dat restaurant.
you can.2SG very.well eat in that restaurant
'You can eat very well in that restaurant.' (J. Hoekstra, 2010, p. 40)

c. Miskien moat-st my helpe.
maybe must-2SG me help
'Perhaps you have to help me.' (de Haan, 2010, p. 216)

d. dat-st de wedstriid winne silst
that-2SG the game win will.2SG
'that you will win the game.'

It is clear that *do* and *de* can be used as arguments. In section 3.3, I argued that *-st* in (53c, 53d) is the subject of the clause that cliticises to the verb or complementiser. This means that *-st* is the argument here, and that all 2SG morphemes in Frisian are either pro-DPs or pro-φPs in the Déchaine and Wiltschko typology.

The availability of a generic interpretation allows us to decide between the two options. J. Hoekstra (2010) and E. Hoekstra (2020d) show that a generic reading is available with *-st* and *de*, but not with *do*. That is, (53b), and (54a,b) below, can receive a generic interpretation, but (54c) containing *do* cannot. I conclude that *do* is a pro-DP, while *-st* and *de* are pro-φPs.

(54) a. Kinst poerbêst ite yn dat restaurant.
can.2SG very.well eat in that restaurant
'You (generic) can eat very well in that restaurant.'
(E. Hoekstra, 2020d)

[20]The examples in (53c, 53d) can also contain an additional full pronoun, as illustrated below:

(i) a. Miskien moat-st-o my helpe.
maybe must-2SG-you me help
'Perhaps you have to help me.' (de Haan, 2010, p. 216)

b. dat-st-o de wedstriid winne silst.
that-2SG-you the game win will.2SG
'that you will win the game.'

b. dat-st hurd riidst yn sa'n auto.
that-2SG fast drive.2SG in such.a car
'that you (generic) drive fast in such a car.'

c. dat-st do hurd riidst yn sa'n auto.
that-2SG you fast drive.2SG in such.a car
'that you (specific) drive fast in such a car.' (J. Hoekstra, 2010, p. 40)

Limburgian has the following 2SG morphemes: *doe*, *dich*, *de* (/*də*/), *se* (/*sə*/), and *-s*. See (55) for examples. Except for the CA morpheme *-s*, all 2SG morphemes can be used as the subject. The morpheme *-s* must always co-occur with one of the other morphemes. This is illustrated in (55c). I conclude that *-s* cannot be an argument by itself, and that it is therefore a pro-NP. Example (55b) illustrates that a generic reading is available for the pronouns *de* and *se*; these morphemes are therefore pro-φPs. The pronouns *doe* and *dich*, on the other hand, do not allow for a generic reading, as illustrated in (55a). These pronouns are pro-DPs.

(55) a. Doe / dich kries un gooj baan es se gooje cijfers hoals.
you / you get.2SG a good job if you good grades obtain.2SG
'You (specific) will get a good job if you obtain high grades.'

b. De kries un gooj baan es se gooje cijfers hoals.
you get.2SG a good job if you good grades obtain.2SG
'You (generic) will get a good job if you (generic) obtain high grades.'

c. * Morge geis de wedstried winne.
tomorrow go.2SG the game win
'Tomorrow you will win the game.'

The structural status of each the pronouns is summarised in table 3.2. The CA morphemes are boxed for clarity.[21]

Table 3.2: Structural status of 2SG morphemes

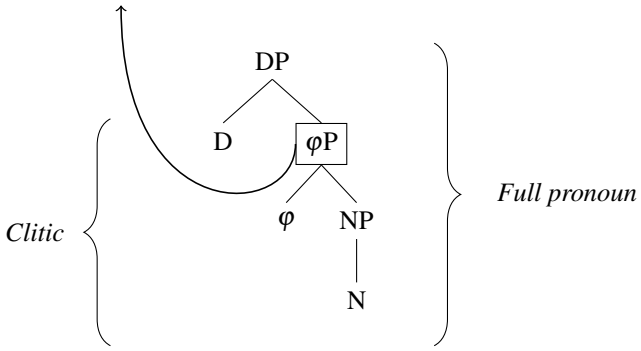
	pro-DP	pro-φP	pro-NP
Frisian	*do*	*de*, *-st*	
Limburgian	*doe*, *dich*	*de*, *-se*	*-s*

[21] As can be seen in the table, there are several instances where there are two different morphemes that have the same structural status. In the case of pro-φP in Frisian and Limburgian, this appears to be the result of allomorphy: *de* (in both Frisian and Limburgian) is used in pre-verbal contexts, and *-st* (Frisian) and *-se* (Limburgian) are used in post-verbal contexts, and when following a complementiser. The alternation between *doe* and *dich* in Limburgian cannot be treated this way, because these forms are both used pre- and post-verbally and following complementisers. Instead, what appears to be relevant here is that *dich* is the accusative 2SG pronoun. Its use in nominative contexts is thus an example of a more common pattern in varieties of Dutch where the accusative pronoun is also used for nominative case (see e.g. van Bergen et al., 2011 for the same phenomenon with 3PL pronouns in colloqiual Dutch, and the DynaSAND for examples with the 1PL pronoun in Zeeland Dutch). Why this happens, and whether *doe* and *dich* are truly in free variation, is a matter that is outside of the scope of this chapter.

3.4.3 Analysing the intervention effects

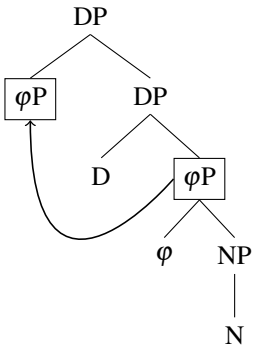
Having established the structural status of the CA morphemes in Frisian and Limburgian, we can now proceed with the analysis of CA as clitic doubling in these varieties. Recall that the analysis of clitic doubling by van Craenenbroeck and van Koppen (2008), adopted here, is that clitic doubling is partial copying and subsequent double spell out of the pronoun, schematically represented in (52), repeated below.

(56)



A crucial component of the analysis is that movement takes place: this enables double spell out of the clitic and the pronoun. This raises several questions, though. First, extraction from subject is barred by the Subject Condition (Chomsky, 1973), meaning that the movement operation depicted in (56) should be blocked from the subject position.[22] To resolve this issue, movement has to apply within the DP, as in (57) (cf. van Craenenbroeck and van Koppen, 2018).

(57)

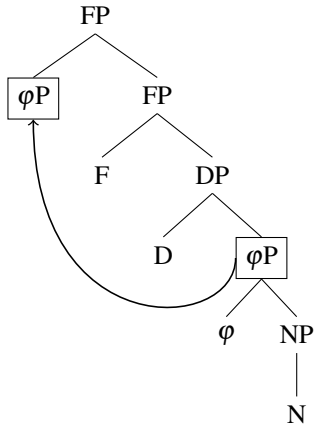


The configuration in (57) introduces another issue, as it involves movement of a Complement to the Specifier of the same phrase. This has been argued to be an illicit

[22] Van Craenenbroeck and van Koppen (2008) claim that the Subject Condition is not violated because the two movements are part of a single movement chain, where each movement step (for them movement of the full subject to Spec,TP, and movement of the clitic substructure to Spec,FinP) is triggered by a separate Probe. It is not exactly clear to me, however, how this voids the problem of extraction from a derived position. Van Craenenbroeck and van Koppen (2018) seem to agree and assume DP-internal movement instead, as I do here.

movement step, because it is too local (Abels, 2003). Van Craenenbroeck and van Koppen (2008) are aware of these issues,[23] and in later work (van Craenenbroeck & van Koppen, 2019) they propose that there is an additional functional layer (FP) on top of the DP. The clitic can move to this projection without violating anti-locality or the Subject Condition, as in (58) (a similar idea can be found in Béjar and Rezac, 2003, who argue for a multi-purpose FP under which strong pronouns are embedded).

(58)



The idea that pronominal DPs have an extended left periphery in the form of the FP finds empirical support when we look at subject modification by focus particles: a simple constituency test using V2 shows that a focus particle forms a constituent with the pronominal subject when it attaches to the left of it (59, 60a). Focus particles can only attach to pro-DP pronominal subjects (60b). These observations fall into place easily under the proposal that there is a FP layer dominating the DP: the extra functional layer houses the FP and allows focus particles to form a constituent with the subject, but this is only possible when the subject is projected up to the DP level and are therefore pro-DPs, because FP projects on top of DP.[24]

(59) Sels do moatst dy noait fan in faam belêze litte.
even you.NOM must.2SG you.ACC never of a girl lecture let
'Even you should never let yourself be lectured by a girl.'
Frisian (E. Hoekstra, 2020c)

(60) a. Auch doe uts waal ens vegetarisch.
also you eat.2SG sometimes vegetarian
'You, too, sometimes eat vegetarian.'

b. * Auch de / se uts waal ens vegetarisch.
also you / you eat.2SG sometimes vegetarian
'You, too, sometimes eat vegetarian.' Limburgian

[23] They mention the anti-locality violation in a footnote of a manuscript version of their 2008 paper.
[24] Following Cinque (1999), I assume adjunction (of the focus particle to DP) not to be an option.

Barbiers (2010) identifies two types of focus particles in standard Dutch (61). Class I particles are heads, whereas class II particles are phrases. Only particles of class II can attach to the left of a pronominal argument to form a constituent with it; attempting to do this with class I particles leads to strong ungrammatically, as illustrated in (62).[25] While the exact inventory of particles may differ across varieties, I assume that all particles that attach to the left of pronouns are phrasal. More precisely, I propose that all particles exhibiting this behaviour reside in Spec,FP.

(61) a. Class I: *maar* ('only'), *wel* (positive polarity particle), *al* ('already')
b. Class II: *zelfs* ('even'), *ook* ('also'), *alleen* ('only')

(62) a. Zelfs / alleen / ook jij bent vegetariër.
even / only / also you are vegetarian
'Even / only / also you are a vegetarian.'
b. * Maar / wel / al jij bent vegetariër.
only / PTCL / already you are vegetarian
'Only / indeed / already you are a vegetarian.' Dutch

With this background in place, we can turn to deriving the different patterns of intervention effects on CA. Starting the discussion by looking at Frisian, recall that intervention leads to ungrammaticality (63) (examples repeated from (3, 5)). Furthermore, as argued in the previous section, the Frisian CA morpheme is a pro-φP.

(63) a. dat-st-o [...] fegetarysk ytst.
that-2SG-you vegetarian eat.2SG
'that you eat vegetarian'
b. * dat(-st) ek do [...] fegetarysk ytst.
that-2SG also you vegetarian eat.2SG
'that you, too, eat vegetarian'
c. * dat(-st) helaas ek do gjin priis wûn hast.
that-2SG unfortunately also you no prize won have.2SG
'that you unfortunately also didn't win a prize.' Frisian

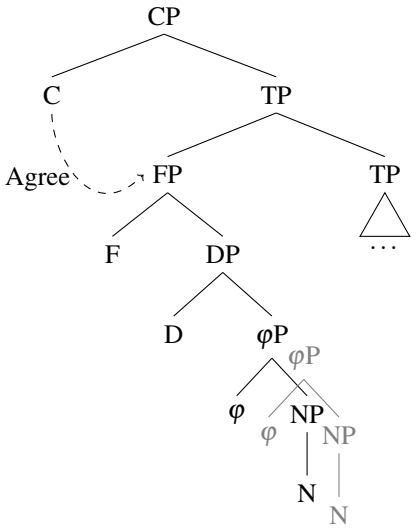
Let us start with the derivation of (63a), where there is no intervention between the complementiser and the subject. I assume that clitic doubling is triggered by Agree between the subject DP and the C head (see Preminger, 2009; Kramer, 2014; Baker and Kramer, 2018; Preminger, 2019, among others, for Agree as underlying to clitic doubling; and see Chapter 2 for evidence that C triggers Agree in varieties of Dutch and Frisian). In Frisian and Limburgian, the Agree relation between the subject and C does not lead to the presence of agreement morphology, but just to clitic doubling. In other varieties, such as West Flemish, both agreement and clitic doubling can be realised. This is illustrated (64).

[25] *Maar jij bent vegetariër* is grammatical under the (non-intended) reading where *maar* is a coordinating conjunction ('but').

(64) da-n-k ik werken.
that-1SG-I_{clitic} I work.1SG
'that I work.' West Flemish (Haegeman, 1990, p. 334)

When clitic doubling is triggered, part of the structure of the pronoun is duplicated. This is illustrated in (65), where the duplicated clitic structure is in grey.[26]

(65)

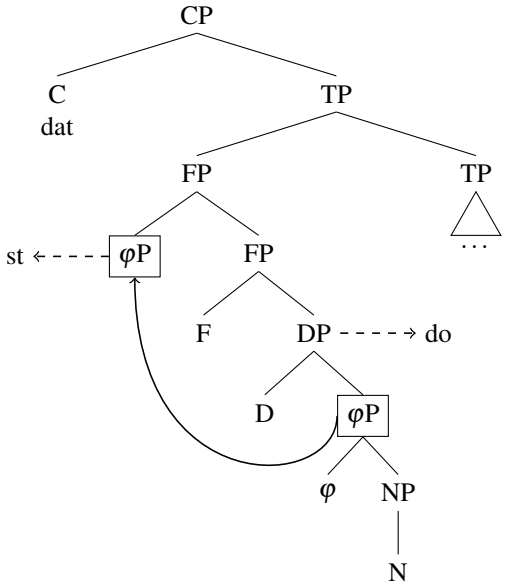


The duplicated clitic structure subsequently has to move to its own position in the syntactic structure, by being attracted by the Probe. Because the subject is an island, the clitic cannot move all the way up to the Probe; instead, it is stranded inside of the subject FP. I assume that the clitic moves as close to the Probe as possible, i.e. to Spec,FP. The clitic is then spelled out in Spec,FP, and the DP is spelled out as the full pronoun. This is illustrated in (66); the φP clitic moves to Spec,FP. Because the subject is adjacent to the complementiser, the CA morpheme can cliticise to the complementiser after linearisation, giving the appearance of complementiser agreement when the structure is spelled out.

[26] I assume that the portion of the structure that is doubled is φP in Frisian, and NP in Limburgian (see below). I must leave the question of why this is the case for future research.

(66) a. dat-st-o [...] fegetarysk ytst.
that-2SG-you vegetarian eat.2SG
'that you eat vegetarian'

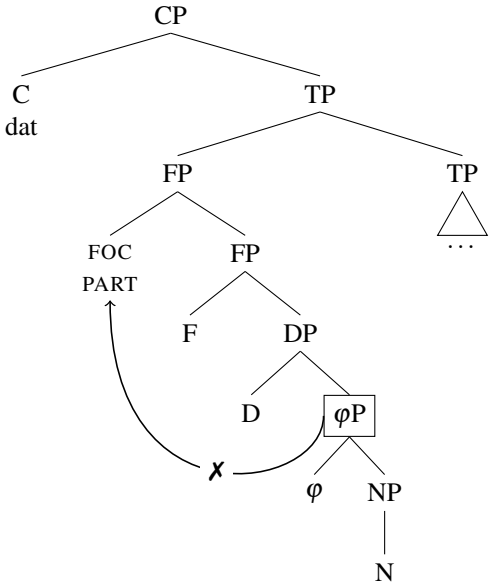
b.



A focus particle that intervenes between the complementiser and the subject sits in Spec,FP. When C Agrees with the subject in this case, φP is doubled, but there is no position for φP to move to, as illustrated in (67): movement to Spec,DP is an instance of movement of the Complement to the Specifier of the same phrase, and is therefore too local; and movement out of the subject violates the Subject Condition. I propose that this is the reason behind the ungrammaticality of (63b): the syntactic structure contains a duplicate clitic structure that has to move to a position in the phrase marker, but every type of movement of the clitic structure violates a grammatical principle. This causes the structure to crash, and results in the ungrammaticality of intervention between a complementiser and a 2SG subject in Frisian.

(67) a. * dat(-st) ek do [...] fegetarysk ytst.
that-2SG also you vegetarian eat.2SG
'that you, too, eat vegetarian'

b.

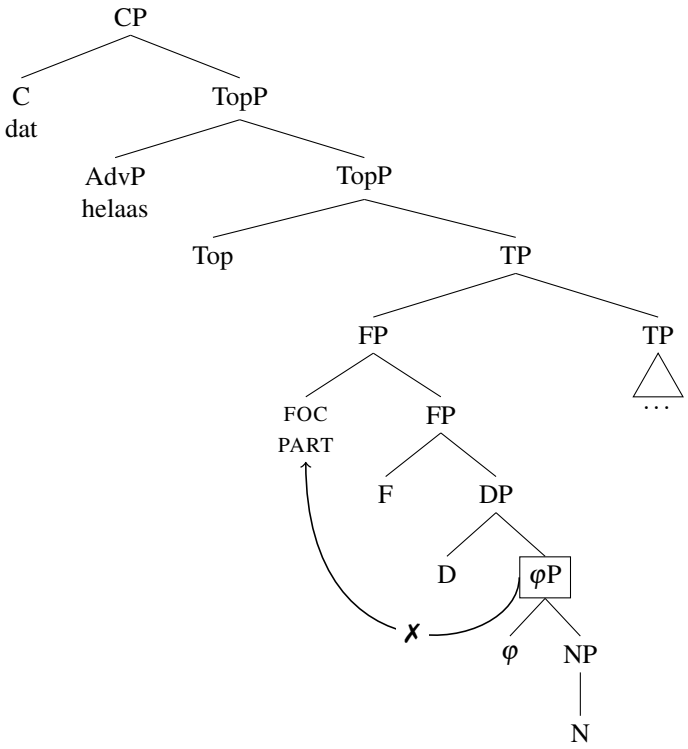


If the intervener consists of a focus particle and a fronted object or adverb, ungrammaticality is derived in the same way as in (67): when clitic doubling is triggered by Agree between C and the subject, the φP clitic tries to move to Spec,FP, but this position is already occupied by the focus particle, illustrated in (68).[27] The structure cannot be spelled out without violating some grammatical principle, resulting in ungrammaticality.

[27] I assume that the adverb is fronted to a separate projection, here called 'TopP', but not much hinges on this.

(68) a. * dat(-st) helaas ek do gjin priis wûn hast.
that-2SG unfortunately also you no prize won have.2SG
'that you unfortunately also didn't win a prize.'

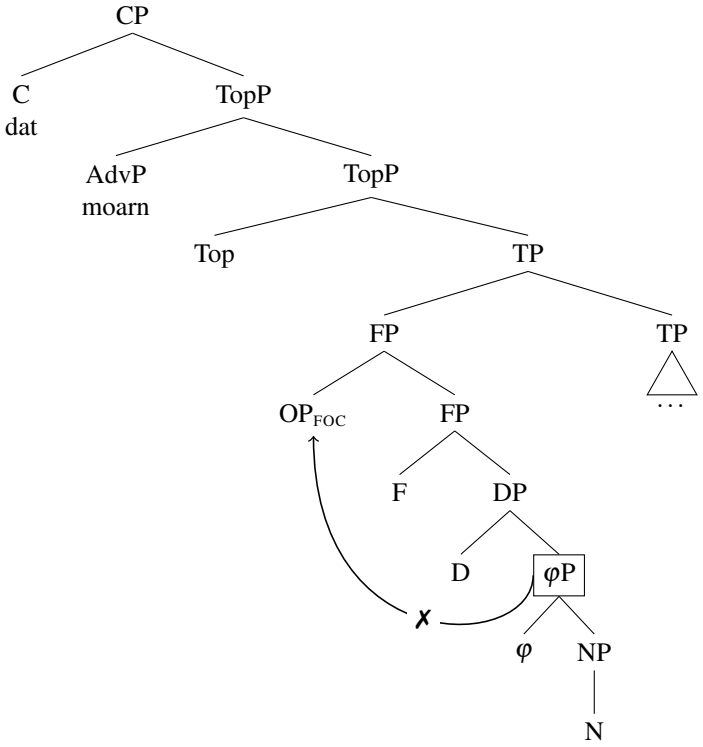
b.



Intervention that does not involve a focus particle also leads to ungrammaticality in Frisian ((7), repeated as (69a)). As J. Hoekstra (2014) points out for Frisian (see also Neeleman and Van de Koot, 2008 on Dutch), intervention between a complementiser and a subject always requires the subject to be focus. I therefore assume that although no overt focus particle is present, there is still a covert focus operator in Spec,FP. The focus operator plays exactly the same role as an overt focus particle; it ensures that the subject is focus, and crucially, it blocks movement to Spec,FP. When clitic doubling is triggered through Agree between C and the subject, movement of the φP clitic to Spec,FP cannot take place, and there is no other position that the clitic can move to without violating anti-locality or the Subject Condition. This causes the structure to be ungrammatical (69b).

(69) a. * Hy leaude dat(-st) moarn do komme soest.
he believes that-2SG tomorrow you come should.2SG
'He believed that you should come tomorrow.' (Fuß, 2008, p. 85)

b.



We now turn to the derivation of the intervention effect in Limburgian. In this variety, the CA morpheme attaches to the focus particle under intervention (70) (examples repeated from (13, 14)). As demonstrated in the previous section, the CA morpheme is a pro-NP.

(70) a. dat-s-tich de westrijd geis winne.
dat-2SG-you the game go.2SG win
'that you are going to win the game.

b. dat auch-s-tich waal ens vegetarisch uts.
that also-2SG-you sometimes vegetarian eat.2SG
'that you, too, sometimes eat vegetarian.'

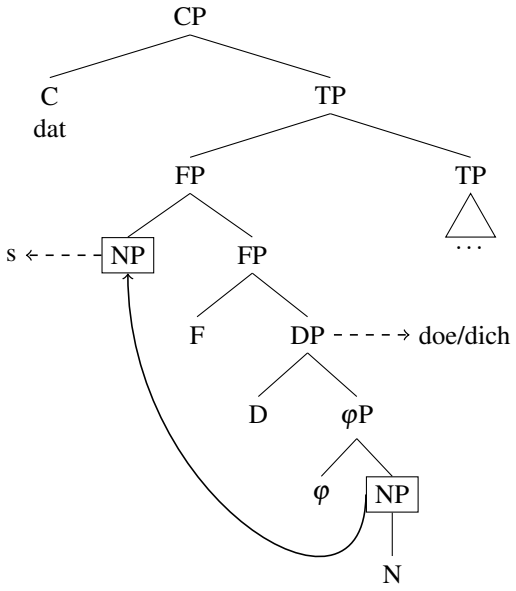
c. dat zo'n boek allein-(s)-tich in 't openboar lus.
that such.a book only-2SG-you in the public read.2SG
'that only you would read such a book in public.' Limburgian

When C Agrees with a 2SG subject in a sentence without intervention between the complementiser and the subject, the NP part of the subject is doubled. NP can move to

Spec,FP, where it undergoes spell out and cliticisation to the complementiser, leading to CA.[28] This is depicted in (71).

(71) a. dat-s-tich de westrijd geis winne.
dat-2SG-you the game go.2SG win
'that you are going to win the game.

b.

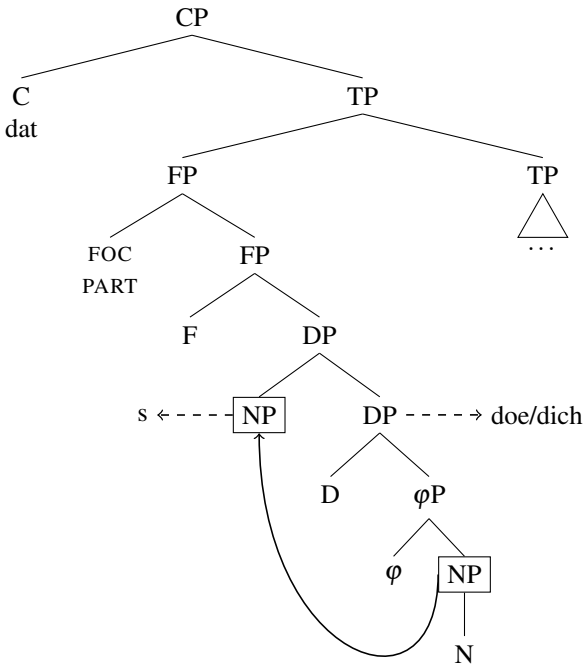


When a focus particle intervenes between the subject and the complementiser, it occupies Spec,FP. When the subject is clitic doubled, the NP clitic cannot move to Spec,FP anymore. Like in Frisian, the clitic cannot move out of the subject, because of the Subject Condition. However, Frisian and Limburgian crucially differ in the structural size of the CA morpheme: in Limburgian, the CA morpheme is a pro-NP, whereas in Frisian, it is a pro-φP. As a consequence, movement of the clitic to Spec,DP is possible in Limburgian, because it crosses a phrase boundary, and therefore does not violate anti-locality (72). When the structure is spelled out, the clitic is realised subject internally, and cliticises to the left of the first element it finds, which is the focus particle.

[28] NP could also move to Spec,DP. Although not much hinges on this, I assume it moves to Spec,FP to keep uniformity with the other varieties, and because it intuitively makes sense that the clitic moves as close to its movement trigger (C) as possible.

(72) a. dat auch-s-tich waal ens vegetarisch uts.
that also-2SG-you sometimes vegetarian eat.2SG
'that you, too, sometimes eat vegetarian.'

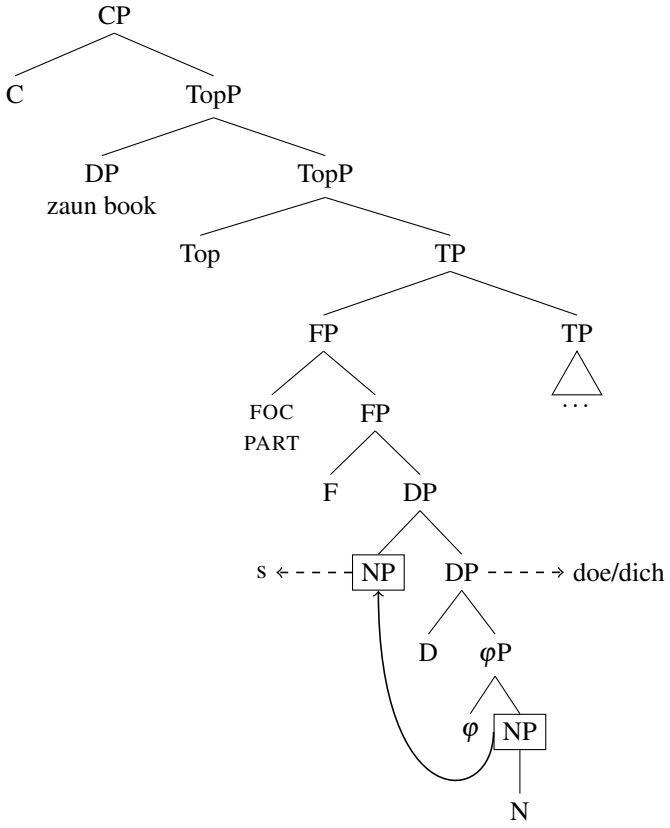
b.



In a sentence where the intervening material consists of a fronted element and a focus particle, the derivation of CA works the same: because the focus particle is in Spec,FP, it blocks movement of the clitic all the way to the left of the extended projection of the subject. Instead, the clitic moves to Spec,DP, and is realised to the right of the focus particle, as illustrated in (73).

(73) a. dat zaun book allein-(s)-tich in 't openboar lus.
that such.a book only-2SG-you in the public read.2SG
'that only you would read such a book in public.'

b.



To summarise, this section illustrated how treating the CA morpheme as a clitic accounts for the intervention effects on CA in Frisian and Limburgian, using van Craenenbroeck and van Koppen (2008)'s analysis of clitic doubling, combined with the Subject Condition and anti-locality. In Frisian, intervention leads to ungrammaticality, which I argued is because the clitic targets the same position as the intervening focus particle. This causes the structure to crash. In Limburgian, intervention causes the CA morpheme to be realised on the intervening focus particle, which follows under the clitic doubling account if the clitic moves to a position below the focus particle. The difference between Frisian and Limburgian is due to the differing structural size of the clitics in these varieties.

An important implication of the analysis is that clitic doubling is a two-step process, of which both steps can fail, with different outcomes as a result. The first step is the creation of the clitic double (as the result of Agree), and the second step is movement of the double to a position where it can be spelled out. That the first step can fail

has been demonstrated by Preminger (2014): when the Agree relation that precedes clitic doubling fails, this does not result in a crash of the derivation, but simply in the absence of clitic doubling (see also the discussion in section 3.3). I showed that in Frisian, step two of clitic doubling fails, i.e. the subject is successfully targeted by Agree and a clitic double is created, but the clitic fails to move, because there is no position it can move to. This results in ungrammaticality, because either the clitic moves and by doing so violates the Subject Condition or anti-locality, or the clitic does not move, in which case it cannot be spelled out.

3.5 Other configurations for complementiser agreement

In this section, I look at other configurations for complementiser agreement. I first look at a case that is potentially problematic for the clitic doubling analysis of CA, namely first conjunct complementiser agreement. I argue that first conjunct complementiser agreement in Frisian is only apparent, and that it results from clausal coordination. Next, I look at CA with subject relatives and CA with extracted subjects, and I show that the clitic doubling analysis of CA allows for a straightforward understanding of these phenomena.

3.5.1 Complementiser agreement with coordinated subjects

Many varieties with CA also allow the complementiser to agree with the first conjunct of a coordinated subject. An example from Frisian is given below:

(74) dat-st [do en Marie] dit wykein yn Rome west ha.
that-2SG you and Marie this weekend in Rome been have
'that you and Marie have been to Rome this weekend.'
Frisian (van Koppen, 2006, p. 126)

First conjunct complementiser agreement (FCCA) is potentially problematic for a clitic doubling analysis of CA, because of the coordinate structure constraint: movement from one of the conjuncts should be excluded (see also Paparounas and Salzmann, to appear, who address this problem in more detail). In this section, I will look at FCCA in Frisian, and argue that Frisian does not have real FCCA. Instead, what appears to be FCCA, is in fact agreement with the subject of the first conjunct of a coordinated TP that has undergone deletion to make it look like a coordination of nouns. This accounts for some special properties of FCCA in Frisian in terms of semantics and its distribution. I also show that the clausal coordination as underlying to FCCA is not restricted to Frisian, but is found in Polish as well.

As demonstrated in section 3.2.4 and in (74), the Frisian complementiser can agree with the first conjunct of a coordination. However, first conjunct agreement (FCA) in Frisian is restricted to complementisers; verbs can only agree with the whole coordination, but not with the first conjunct, as illustrated in (75).

(75) * Hast [do en Marie] dit wykein yn Rome west?
have.2SG you and Marie this weekend in Rome been
'Have you and Marie been in Rome this weekend?
Frisian (van Koppen, 2006, p. 128)

Next to the C-V asymmetry for FCA, another special property of FCCA in Frisian is that it has an effect on interpretation. As illustrated in section 3.2.4, for most speakers, FCCA triggers a two-event reading of the sentence, whereas the absence of complementiser agreement triggers a one-event reading. The relevant examples are repeated in (76).

(76) a. Ik tink dat-st-o en Jan de wedstriden winne sille.
I think that-2SG-you and Jan the games win will.PL
'I think that you and Jan will win the games.'
(two-event reading preferred: you and Jan are each playing their own games)

b. Ik tink dat do en Jan de wedstriden winne sille.
I think that you and Jan the games win will.PL
'I think that you and Jan will win the games.'
(one-event reading preferred: you and Jan are a team)

This interpretative effect is reminiscent of data reported for varieties of Arabic, and Polish, in relation to FCA. In particular, it has been shown that FCA on verbs in these languages is incompatible with number sensitive items, such as *together*, and reciprocals (Aoun et al., 1994; Citko, 2004). This is illustrated for Lebanese Arabic in (77) and for Polish in (78). The similarity to the Frisian data is that in all cases that show FCA, the subject does not behave like a semantic plurality, leading to ungrammaticality with number sensitive items in Lebanese Arabic and Polish, and a two-event reading of the predicate in Frisian.

(77) a. * Biḥibb Kariim w Marwaan baʕḍun.
love.3SG Kareem and Marwaan each.other
'Kareem and Marwaan love each other.'

b. Biḥibbo Kariim w Marwaan baʕḍun.
love.3PL Kareem and Marwaan each.other
'Kareem and Marwaan love each other.'
Lebanese Arabic (Aoun et al., 1994, p. 214)

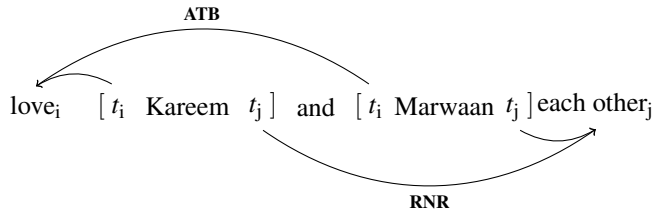
(78) a. * Do pokoju razem weszła Maria i Jan.
to room together entered.SG Maria and Jan
'Maria and Jan entered the room together.'

b. Do pokoju razem weszli Maria i Jan.
to room together entered.PL Maria and Jan
'Maria and Jan entered the room together.' Polish (Citko, 2004, p. 93)

Based on the observation in (77) and similar data, Aoun et al. (1994, 1999) propose that FCA in Arabic comes about as a result of coordination of TPs, combined with

conjunction reduction, which causes everything but the subject to move or delete. This yields a structure that looks like a coordination of NPs. The verb agrees with the subject of the first clause, giving the impression of FCA. The structure that Aoun et al. propose is given in (79).

(79)



(cf. Aoun et al., 1999, p. 669)

In (79), the verb undergoes ATB-movement from both conjuncts, moving it to a position preceding the coordination. The remaining material (here: the reciprocal) undergoes Right Node Raising (RNR) to the right of the clause. This analysis explains why examples like (77) are ungrammatical, because they are derived from a coordination of ungrammatical clauses such as **Kareem loves each other* and **Marwaan loves each other*.

This analysis has received a lot of critique. Munn (1999) and Citko (2004) argue that the diagnostic based on number sensitive items does not hold up for theoretical and empirical reasons. For instance, Munn argues that it is not syntactic plurality that plays a role in licensing number sensitive items, but semantic plurality; for this reason, number sensitive items do not tell us much about syntactic structure. Furthermore, Citko (2004) shows that the clausal analysis requires that the identity requirement on ATB-movement is violated in examples such as (80a). According to the clausal analysis of FCA, (80a) is derived from (80b). The verb undergoes ATB-movement as in (79), but this should be blocked because the two verbs that move are non-identical, (incorrectly) ruling out example (80a).[29]

(80) a. Do pokoju weszła Maria i Jan.
to room entered.F Maria and Jan.
'Into the room walked Maria and Jan.'

b. Do pokoju weszła Maria i do pokoju wszedł Jan.
to room entered.F Maria and to room entered.M Jan
'Maria walked into the room and Jan walked into the room.'

Polish (Citko, 2004, p. 94)

While these criticism are warranted, they are not fatal for the general idea of analysing FCA as resulting from clausal coordination. In particular, a context that does

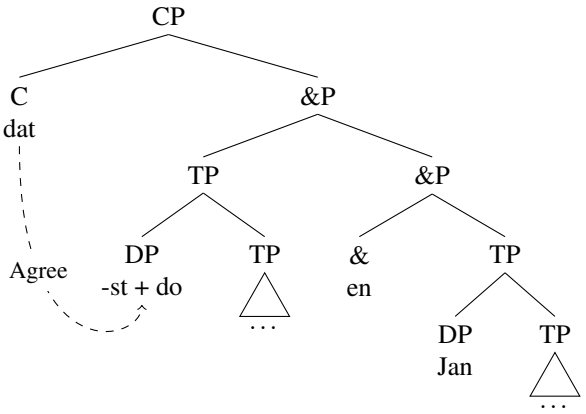
[29] It has been demonstrated that in some cases, non-identical verbs can undergo ATB-movement (see e.g. An, 2006; Salzmann, 2012), potentially weakening Citko (2004)'s argument; all relevant examples seem to involve auxiliary verbs, however, so it is not clear whether the same holds for ATB-movement of lexical verbs as would be required in (80a)—I leave this for further research.

not require ATB-movement from the conjuncts does not fall afoul of violating the identity requirement on ATB-movement. And while number sensitive items do not constitute good testing grounds for assessing if FCA results from clausal coordination, the clausal coordination analysis still leads to the expectation that there is a strong preference for a two-event reading because the structure contains two clauses, as Nevins and Weisser (2019) point out.

Incidentally, FCCA in Frisian meets exactly these requirements. First, because we are dealing with CA, movement from the coordinated clauses (TPs) is not necessary; rather, the agreeing element (C) is external to the coordination of TPs. Second, as already demonstrated, the preferred interpretation for clauses with FCCA in Frisian is a two-event reading. I therefore propose that Frisian FCCA is the result of clausal coordination, instead of a coordination of NPs, where the complementiser Agrees with the subject of the first clausal conjunct, because it is the first subject within its c-command domain. This triggers clitic doubling of that subject, giving the appearance of FCA. The structural configuration for FCCA is given in (81).

(81) a. Ik tink dat-st-o en Jan de wedstriden winne sille.
I think that-2SG-you and Jan the games win will.PL
'I think that you and Jan will win the games.'

b.

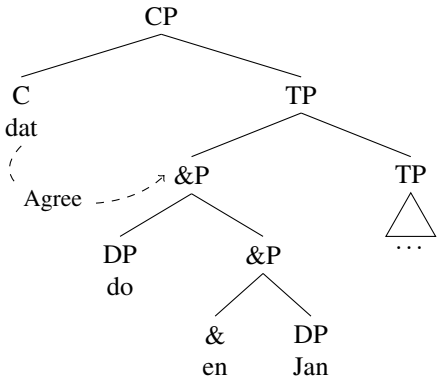


Of course, the equivalent of this structure with a coordination of NPs is also possible; in that case, the complementiser Agrees with the whole coordinated subject, leading to the absence of CA.[30] The structural configuration is given in (82). Adopting the clausal analysis of FCA (in addition to the nominal coordination analysis) thus gives us a means to explain the optionality of FCCA.

[30]There are languages in which the first conjunct of a nominal coordination can be the Goal for Agree, such as Polish (see below), but Frisian is not one of them, as the absence of FCA on verbs indicates.

(82) a. Ik tink dat do en Jan de wedstriden winne sille.
I think that you and Jan the games win will.PL
'I think that you and Jan will win the games.'

b.



In addition, the clausal analysis explains the asymmetry between verbs and complementisers in terms of FCA. FCA in Frisian is possible only with clausal coordination. To derive (83a) (repeated from above), where the verb shows FCA, the verb would need to undergo ATB-movement from the clausal conjuncts to a higher position. But as (83b) illustrates, the full structure contains non-identical verbs. ATB-movement of the verb is excluded because it violates the identity requirement on ATB-movement.

(83) a. * Hast [do en Marie] dit wykein yn Rome west?
have.2SG you and Marie this weekend in Rome been
'Have you and Marie been in Rome this weekend?
(van Koppen, 2006, p. 128)

b. Hast do dit wykein yn Rome west en hat Marie dit wykein
have.2SG you this weekend in Rome been and has.3SG Marie this weekend
yn Rome west?
un Rome been?
'Have you been in Rome this weekend and has Marie been in Rome this weekend?

A remaining question is how we should deal with agreement on the verb in clauses with FCCA. In all examples we have seen so far, both conjuncts contain a singular subject, but the verb is always plural. Recall that according to the clausal analysis of FCA, all material except for the subject is evacuated from the clausal conjuncts, either by ATB-movement or by RNR. This means that in sentences with FCCA, the embedded verb undergoes RNR. It has been shown that languages vary in how verbal agreement is resolved under RNR (Grosz, 2015; Shen, 2019): either the verb agrees with the subject of both conjuncts (summative agreement), or the verb agrees with the subject of the closest conjunct (distributive agreement).[31] Frisian falls in the first class of languages: the verb shows summative agreement in RNR contexts, such as (84); in this

[31] See Shen (2019) for a proposal on how these different resolution strategies come about.

context, the biclausal structure is forced by the presence of the second complementiser 'dat'. Plural agreement on the verb in structures with FCCA is therefore exactly what is predicted, and what we find, see (85).

(84) Ik tink [dat-st-o ___] en [dat Jan de wedstriden winne **sille**]
I think that-2SG-you and that Jan the game win will.PL
'I think that you and that Jan are going to win the game.'

(85) Ik tink dat-st-o en Jan de wedstriden winne sille.
I think that-2SG-you and Jan the games win will.PL
'I think that you and Jan will win the games.'

The clausal coordination analysis of FCCA combined with language-dependent agreement resolution under RNR also provides insight into an intriguing pattern of FCCA and verbal agreement in Polish. Citko (2018) shows that the Polish conditional complementiser shows obligatory agreement with the subject, illustrated below:

(86) Chcę, że-by-ś przestał mi przeszkadzać.
want.1SG that-COND-2SG stop.PART.SG.M I.DAT disturb
'I want you to stop disturbing me.' Polish (Migdalski, 2006, p. 252)

If the subject is a coordinated subject, there are three possible outcomes of CA and verbal agreement. First, both the verb and the complementiser agree with the whole coordination, and show resolved agreement (87a). Second, the complementiser agrees with the first conjunct (FCCA), but the verb agrees with the whole coordination and shows resolved agreement (87b). Finally, the complementiser agrees with the first conjunct, and the verb agrees with the last conjunct of the coordinated subject (87c); this is also referred to as 'sandwiched' agreement. It is impossible to have complementiser agreement with the whole coordination, but last conjunct agreement (LCA) on the verb. In other words, verbal LCA is parasitic on FCCA.

(87) a. Maria chce, żebyśmy ja i mój sąsiad wyszli.
Maria wants that.COND.1PL I and my neighbor.M.SG left.VIR.PL
'Maria wants me and my neighbor to leave.'

b. Maria chce, żebym ja i mój sąsiad wyszli.
Maria wants that.COND.1SG I and my neighbor.M.SG left.VIR.PL
'Maria wants me and my neighbor to leave.'

c. Maria chce, żebym ja i mój sąsiad wyszedł.
Maria wants that.COND.1SG I and my neighbor.M.SG left.M.SG
'Maria wants me (F) and my neighbor to leave.'

Polish (Citko, 2018, pp. 3–5)

In Citko (2018)'s analysis of these data, agreement with the whole coordination results from Multiple Agree (i.e. Agree that targets both conjuncts simultaneously), while closest conjunct agreement (both FCCA and verbal LCA) results from Singular Agree (i.e. each conjunct is targeted by an independent instance of Agree). Multiple Agree is spelled out as resolved agreement on the target, whereas Singular Agree leads

to agreement with the element that is linearly closest (cf. Bhatt & Walkow, 2013, for a similar approach).[32] Under this analysis, Multiple Agree and Singular Agree are essentially in free variation. The patterns in (87) are then derived as follows. First, when both the complementiser and the verb show resolved agreement, as in (87a), both undergo Multiple Agree. Second, when the complementiser agrees with the first conjunct of the coordinated subject, and the verb shows resolved agreement (87b), the complementiser undergoes Singular Agree, but the verb Multiple Agree. Finally, when both the complementiser and the verb show closest conjunct agreement (FCCA and verbal LCA, as in (87c), both undergo Singular Agree. This derives the attested patterns.

However, there is one more option available: the complementiser undergoes Multiple Agree, and the verb Singular Agree. The predicted pattern would be that the complementiser shows resolved agreement, but the verb with the last conjunct only. Crucially, this pattern is not attested. Citko provides some speculation on why this pattern is excluded, proposing that the less economical Singular Agree operation responsible for verbal agreement cannot be followed by the more economical Multiple Agree operation, responsible for complementiser agreement. This is not entirely satisfactory, however, as it raises the question of why the less economical Singular Agree operation would exist at all (in fact, Citko raises a similar point herself as well).

The patterns of CA and verbal agreement in Polish receive a straightforward explanation within the analysis outlined in this section, in particular the idea that embedded sentences with a coordinated subject can be derived by nominal coordination, or clausal coordination and RNR. If we are dealing with a real nominal coordination, the complementiser can agree with the whole coordination. Furthermore, the verb has to agree with the whole coordination, as it cannot agree 'into' a subject that it does not c-command. The result is (87a), where both the complementiser and the verb show resolved agreement.

If we are dealing with clausal coordination and RNR, the complementiser has to agree with the first conjunct; the subjects of the conjuncts do not form a constituent, so agreement with both is excluded. This results in FCCA. The question is then what happens to verbal agreement under RNR in Polish. Shen (2018, 2019) shows that, in contrast to e.g. Frisian, Polish shows distributive agreement under RNR, i.e. agreement with the linearly closest subject. This is illustrated in (88).

(88) Jan myśli że Maria, a Bill wierzy że Sue, podróżowała / *podróżowały
Jan thinks that Maria and Bill believes that Sue travel.SG.F / travel.PL.F
do Chin.
to China
'Jan thinks that Maria, and Bill believes that Sue, travelled to China.'
Polish (Shen, 2018, p. 221)

Given this observation, we predict that the verb shows distributive agreement also in cases of FCCA that are derived by clausal coordination, as this also involves RNR.

[32] According to Citko (2018), two instances of Singular Agree can also be resolved by syncretism, i.e. the independent feature values of both conjuncts lead to a syncretic agreeing form; I do not see how this can be distinguished from agreeing with the linearly closest conjunct.

And in fact, FCCA cooccurs with verbal LCA, or rather distributive agreement, in Polish (87c). Furthermore, as clausal coordination forces FCCA, this is the only context in which we expect to find verbal LCA. In other words, the dependence of verbal LCA of FCCA is successfully derived.

There is a third option where the complementiser shows FCA, and the verb agreement with the whole coordination. As I showed before, and in contrast to Frisian, Polish also allows FCA on verbs (89a); the variant where the verb agrees with the whole coordination is also grammatical (89b).

(89) a. Do pokoju weszła młoda kobieta i chłopiec.
to room entered.SG.F young woman and boy
'Into the room walked a young woman and boy.'

b. Do pokoju weszli kobieta i chłopiec.
to room entered.PL woman and boy
'Into the room walked a woman and boy.' Polish (Citko, 2004, p. 91)

Citko (2004) and Mendes and Ruda (2019) argue that verbal FCA in Polish cannot be analysed with a clausal coordination analysis (see also the arguments discussed earlier in this section). They conclude that Polish has 'real' FCA, meaning that the verb can agree with the first conjunct of a coordinated subject. I propose that this ability is not just restricted to verbs; complementisers can do the same. This is what happens in the final pattern of CA and verbal agreement in Polish (87b): the complementiser agrees with the highest conjunct of a nominal coordination. But since the verb is not in a position c-commanding the subject, nor does it undergo RNR, it can only agree with the whole coordination, resulting in FCCA and resolved verbal agreement.

To conclude, in this section I have argued for a reinstatement of the clausal analysis of FCA to account for (some instances of) FCCA. This analysis accounts for the Frisian complementiser-verb asymmetry, the interpretative effect of FCCA in Frisian, and for the interactions between agreement on complementisers and verbs in Polish.

3.5.2 Complementiser agreement with displaced subjects

3.5.2.1 Complementiser agreement in subject relatives

In several varieties with CA, CA is not only found on the complementiser, but also the relative pronoun in subject relatives. This is illustrated with an example from Frisian in (90), repeated from (41).[33]

(90) Do, dyt-st gjin siler bist
you who-2SG no sailor are.2SG
'You, who are not a sailor' Frisian (de Haan, 2010, p. 220)

CA in subject relatives is optional. As illustrated in (91), a subject relative can also occur without CA.

[33] In addition to CA in subject relatives, the relative pronoun in object relative also often shows CA, see e.g. the examples in (33). The current section focuses on subject relatives.

(91) do dyt de wedstriid winne sil
you who the game win will.3SG
'you, who will win the game' Frisian

The examples in (90) and (91) differ on a further point: in (90), the verb shows 2SG inflection, whereas in (91), the verb shows 3SG (default) inflection. In addition to these two options, a subject relative without CA, but with 2SG inflection on the verb, is also possible, illustrated in (92). Crucially, what is not possible is 3SG inflection on the verb when the relative pronoun shows CA.

(92) do dyt mem helpe wolste
you who mother help want.2SG
'you, who wants to help mother' Frisian (E. Hoekstra, 2020b)

This gap is strikingly similar to a pattern found in (standard) German subject relatives. In German subject relatives with a pronominal head noun, it is possible to double the head noun inside the relative clause (93a) (Ito & Mester, 2000; Trutkowski & Weiß, 2016). When the head noun is doubled, the verb has to agree with this noun; it cannot show 3SG default inflection. Doubling of the head noun is optional, and if there is no doubling, the verb can either agree with the head noun, as in (93b), or show 3SG default agreement (93c).

(93) a. ich, der ich sechzig bin
I who I sixty am
'I, who am sixty'

b. ich, der sechzig bin
I who sixty am
'I, who am sixty'

c. ich, der sechzig ist
I who sixty is
'I, who is sixty'
German (Ito & Mester, 2000; Trutkowski & Weiss, 2016, pp. 136, 141)

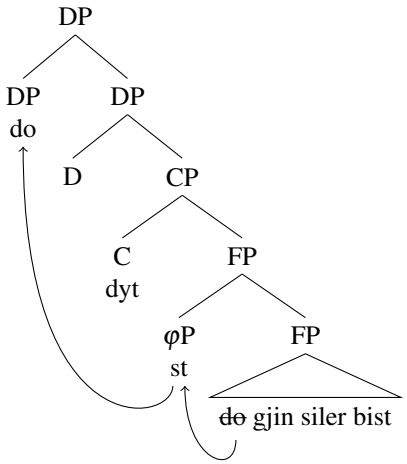
The clitic analysis of CA allows us to treat pronoun doubling in German subject relatives and CA in Frisian subject relatives as the same phenomenon. According to the clitic doubling analysis of CA, the CA morpheme is a pronominal clitic. This means that in subject relatives with CA, a pronominal element is present. Just as in German, when a pronominal element is present as a double of the head noun of the relative clause, the verb has to agree with this element. The obligatory agreement of the verb with the head noun in the relatives with doubling can be understood if these relatives correspond to a head-internal relative clause structure (in line with the analysis by Trutkowski and Weiß, 2016).[34] In a head-internal relative clause, the verb and the subject head noun are part of the same clause, so they will agree with each other. Furthermore, the complete derivation involves movement of the head noun to a relative clause-external position. Trutkowski and Weiß (2016) propose that this movement

[34]Thanks to Anikó Lipták for suggesting this analysis to me.

proceeds through a position directly below C (here: FP). Doubling can then be understood as multiple spell-out of copies in movement positions, as illustrated in (94) (see Trutkowski and Weiß, 2016 for a more detailed analysis).

(94) a. Do, dyt-st gjin siler bist
you who-2SG no sailor are.2SG
'You, who are not a sailor' Frisian (de Haan, 2010, p. 220)

b.



Both in German and Frisian subject relatives, presence of a doubled pronominal element is optional. If the pronominal element is absent, the verb can either agree with the head of the relative clause, or it can show 3SG agreement. If the verb agrees with the head noun, we can assume the same head-internal relative clause structure as for the examples with doubling, given in (94). The only difference is that the intermediate copy of the head noun is not spelled out, resulting in the absence of doubling. Finally, the relative clauses without doubling and with 3SG agreement on the verb correspond to a head-external relative clause structure. Because the head noun is external to the relative clause, the verb cannot agree with it (the verb and the head noun are not sufficiently local). Instead, the verb shows default 3SG agreement. Doubling is not possible in these relative clauses because there are no copies of the head noun inside the relative clause that can be spelled out.

To conclude, this section has shown that doubling in German subject relatives and CA in Frisian subject relatives can be treated as the same phenomenon, and that we can analyse the empirical patterns by treating the CA morpheme as a pronominal element.

3.5.2.2 Complementiser agreement with extracted subjects

In addition to CA with relativised subjects, some varieties also allow for CA with a subject that has been extracted. This is illustrated for Frisian in (95), repeated from (42) (see also Mayr, 2010 on CA with extracted subjects in Bavarian).

(95) Do$_i$ tink ik dat-st t_i moarn komme silst.
you think I that-2SG tomorrow come will.2SG
'You, I think, will come tomorrow.' Frisian (de Haan, 2010, p. 220)

At first sight, CA with extracted subjects is unexpected from the clitic doubling perspective, according to which CA is a clitic that has undergone subject-internal copying and movement. The first problem is that the clitic should not be able to leave the subject at all, because of the Subject Condition. But even if there is a way around the Subject Condition, then clitic doubling of the subject should be excluded, because this would require movement from the copy of the subject that has itself moved to the higher clause.

When we look at the properties of extraction in Frisian, it turns out that the presence of pronominal features on the complementiser when the subject has been extracted falls out straightforwardly under the clitic doubling analysis of CA. In particular, J. Hoekstra (1991) shows that Frisian allows for the insertion of a resumptive pronoun in the extraction site of an extracted subject. This is illustrated in (96) with extraction of wh-phrases; the resumptive pronoun is the weak third person singular feminine pronoun *se*.

(96) a. Wa miendest dat se dy skille hie?
who thought.2SG that she you called had
'Who did you think called you?'

b. Hokker famke miendest dat se dy skille hie?
which girl thought.2SG that she you called had?
'Which girl did you think called you?' Frisian (J. Hoekstra, 1991, p. 70)

Given these data, it is likely that extraction of a 2SG pronoun can also co-occur with a resumptive pronoun in the extraction site. According to the clitic doubling analysis of CA, the CA morpheme is a pronominal element. This should then be able to function as a resumptive pronoun. According to this approach, the CA morpheme in (95) is not a doubled clitic, but a resumptive pronoun. In other words, because Frisian allows for resumption, we can explain the presence of CA with extracted subjects by treating the CA morpheme as a pronominal (resumptive) element.

3.6 Conclusion

This chapter looked at complementiser agreement (CA) in West Germanic, with a focus on intervention effects on CA in Frisian and Limburgian. In Frisian, the presence of an intervening element between the complementiser and the subject leads to ungrammaticality. In Limburgian, intervention causes CA to be realised on the intervener. Using novel data and data from the literature, I showed that these intervention effects are different from intervention effects in other varieties with CA, and that they are problematic for existing Agree and PF approaches to CA.

Based on a detailed study of the CA morpheme, I argued that the CA morpheme is not an agreement affix, but a doubled pronominal clitic. I then showed how the intervention effects in Frisian and Limburgian follow from this conclusion. I adopted

the approach to clitic doubling by van Craenenbroeck and van Koppen (2008), who propose that clitic doubling is partial copying of a phrasal pronoun. I proposed that when the clitic has been doubled, it has to move to be spelled out, but that movement of the clitic is restricted by the Subject Condition and anti-locality. In Frisian, there is only one structural position that meets the requirements imposed by these conditions. When an intervening element is present, this element occupies exactly that position. Because there are two elements competing for the same structural position in Frisian, intervention leads to ungrammaticality. In Limburgian, the clitic is structurally smaller than in Frisian, and for this reason there is an additional structural position that the clitic can move to. If an intervener is present, the clitic moves to this additional position below the intervener, which causes the clitic to be spelled out to the right of the intervener, instead of on the complementiser. The clitic analysis of the CA morpheme thus allows for uniform treatment of the different intervention effects in Frisian and Limburgian. Finally, I showed that the clitic analysis gives us insight into (what looks like) CA in different contexts, such as subject relatives and subject extraction contexts.

The analysis of CA in Frisian and Limburgian has several implications. The first is empirical and relates to *pro*-drop. By treating the CA morpheme as a clitic, I reanalysed cases of *pro*-drop licensed by the CA morpheme as not involving *pro*-drop at all; instead, I proposed that the CA morpheme itself is the pronoun in these contexts. This reanalysis fits well with generalisations about other partial *pro*-drop languages, that tend to show a participant-based split when it comes to which pronouns can be dropped. Interestingly, in Koeneman and Zeijlstra (2019)'s empirical overview of *pro*-drop languages, the only languages that have partial *pro*-drop in a single cell in the paradigm, specifically for 2SG, are continental West Germanic languages (such as Frisian and different Alemannic dialects). It seems possible that all these examples involve a 2SG morpheme that is a pronominal clitic, instead of an affix. A first indication is that Koeneman and Zeijlstra (2019) observe that all these example involve an agreement marker that is tense-invariant, which I took as a property of clitics, following Nevins (2011). If correct, then the typology of partial *pro*-drop can potentially be restricted to participant-based splits, meaning that partial *pro*-drop of random cells in the paradigm does not exist.

A second implication of my analysis is that it demonstrates that the operation responsible for clitic doubling consists of two steps: copy and move. Crucially, both steps can independently fail, leading to different outcomes. Failure of copying is discussed by Preminger (2009), and leads to the absence of a clitic, but not to ungrammaticality. In this chapter, I showed that movement can also fail. In particular, in Frisian CA contexts with intervention, the CA clitic can be copied, but it cannot move without violating a syntactic constraint. As a result, the structure is ungrammatical. Frisian is not the only language in which failure of movement of a clitic leads to ungrammaticality. In their account of the Person Case Constraint, Coon and Keine (2021) argue that some combinations of clitics are ungrammatical because two clitics are created, but cannot both successfully move (see also Chapter 2, section 5). The finding that failure of clitic movement is found in multiple languages and grammatical contexts provides further support for the idea that clitic doubling is a two-step operation.

CHAPTER 4

V2 imperatives and φ-features across clause types*

4.1 Introduction

In this chapter, I discuss the final case study of the dissertation. The phenomenon that I focus on is word order in imperatives in (varieties of) Dutch and German. In some of those varieties, verb second (V2) word order is allowed in imperatives, in addition to a standard verb first (V1) word order (cf. Barbiers, 2013). Both word orders are illustrated in (1) with examples from Veghel Dutch, a Dutch dialect.

(1) a. Die pruuf mar is!
that taste.IMP PTCL PTCL
'Taste that one!'

b. Pruuf die mar is!
taste.IMP that PTCL PTCL
'Taste that one!' Veghel Dutch

It is surprising that the V2 word order in imperatives is allowed in some continental West Germanic languages. Imperatives are often assumed to have an operator in the sentence-initial position that blocks movement to that position. Because of the strict V2 nature of main clauses in continental West Germanic languages, the expectation is that imperatives in these varieties are obligatorily V1. In order to account for the V2 word order in imperatives, I start with the novel observation that all varieties that allow

*A different version of this chapter has been published as van Alem, A. (2021). Licensing imperatives subjects without an imperative operator: Evidence from word order in West Germanic imperatives. *The Journal of Comparative Germanic Linguistics, 24*, pp. 221–243. This chapter also has roots in van Alem, A. (2017). *Topics in Dutch imperatives* (Master's thesis). Utrecht University.

for V2 imperatives of the type in (1b), also have verbal umlaut in the verbal paradigm. Based on the properties of verbal umlaut, I argue that verbal umlaut is suppletion conditioned by φ-features. Building on the analysis of V2 imperatives by Barbiers (2013), I propose that the φ-features on the imperative verb, and φ-features on the sentence-initial constituent, can license the imperative subject. As a result, no operator is needed in the sentence-initial position, and this position can be filled by another constituent. The consequence of this analysis is that the imperative subject can be licensed without making recourse to a special imperative operator in Spec,CP. Instead, φ-features on lexical elements are used for the purpose of licensing the imperative subject. Furthermore, these features control which elements can and cannot move to the sentence-initial position in imperatives.

The chapter is organised as follows. I start by introducing the data on V2 imperatives in different varieties of West Germanic in section 4.2.1, and I outline the questions raised by these data for the syntax of imperatives in section 4.2.2. In section 4.3, I introduce the correlation between verbal umlaut and V2 imperatives, and I discuss the patterns of verbal umlaut that are found across the relevant West Germanic varieties. I then argue that verbal umlaut is suppletion, conditioned by φ-features on the different verbal stem forms. In section 4.4, I turn to the analysis of V2 imperatives. I start by discussing φ-features on the imperative verb, and then move on to the actual analysis of the V2 word order in imperatives in the different varieties, arguing that the imperative subject can be licensed by φ-features on the imperative verb and on the sentence-initial element. In section 4.5, I discuss the analysis of allocutive imperatives in Punjabi by Kaur (2020), which shows striking parallels to West Germanic imperatives in terms of licensing the imperative subject. In section 4.6, I discuss two alternative analyses of V2 imperatives, and show that my approach overcomes the empirical and theoretical issues with these analyses. Section 4.7 concludes.

4.2 V2 imperatives

4.2.1 Data and properties

This section illustrates the word order patterns in imperatives that we find in varieties of West Germanic, specifically in standard Dutch, standard German, and eastern Dutch dialects. The data and observations are based on Koopman (2007) and Barbiers (2007, 2013).

In all varieties under discussion, imperatives are typically V1. That is, a neutral imperative that does not have a special discourse structure is V1. Examples of these imperatives are given in (2). Note that a typical imperative has a covert *pro* subject, and throughout this chapter, I will focus exclusively on imperatives that have a covert subject.

(2) a. Lees dat boek maar niet!
read.IMP that book PTCL not
'Don't read that book!' Standard Dutch

b. Lies das Buch mal nicht!
read.IMP that book PTCL not
'Don't read that book!' Standard German

c. Lees da boek maar nie!
read.IMP that book PTCL not
'Don't read that book!' Eastern Dutch dialects (cf. Barbiers, 2013, p. 5)

In addition to the canonical V1 imperative, German imperatives can be V2. This is illustrated in (3) (see also Reis & Rosengren, 1992). Similar sentences in standard Dutch and eastern Dutch dialects are ungrammatical, as illustrated in (4).

(3) a. Das Buch lies mal nicht!
that book read.IMP PTCL not
'Don't read that book!'

b. Nun kauf mal das Buch [...]
now buy.IMP PTCL that book
'Buy that book now!' Standard German (cf. Barbiers, 2013, p. 5)

(4) a. * Dat boek lees maar niet!
that book read.IMP PTCL not
'Don't read that book!'

b. * Nu koop maar dat boek!
now buy.IMP PTCL that book
'Buy that book now!' Standard Dutch

c. * Da boek lees maar nie!
that book read.IMP PTCL not
'Don't read that book!' Eastern Dutch dialects (Barbiers, 2013, p. 5)

d. * Nou werk maar weer dur!
now work.IMP PTCL again through
'Continue working now!' Someren Dutch

In eastern Dutch dialects, there is one exception to the generalisation that V2 imperatives are not allowed: as Barbiers (2013) observes, in these varieties V2 imperatives are grammatical if the initial element is a distal demonstrative pro-form, as in the examples in (5). The standard Dutch equivalents of these sentences are ungrammatical, see (6).

(5) a. Da / die lees maar nie!
that / those read.IMP PTCL not
'Don't read that/those!'

b. Dan ga maar naar de gemeente!
then go.IMP PTCL to the municipality
'Then go to the municipality!'

c. Daar reken maar niet op!
there count.IMP PTCL not on
'Don't count on that!' Eastern Dutch dialects (Barbiers, 2013, p. 14)

(6) a. * Dat lees maar niet!
that read.IMP PTCL not
'Don't read that/those!'

b. * Dan ga maar naar de gemeente!
then go.IMP PTCL to the municipality
'Then go to the municipality!'

c. * Daar reken maar niet op!
there count.IMP PTCL not on
'Don't count on that!' Standard Dutch

Because the term 'eastern Dutch dialects' is quite unspecific, I will now illustrate which varieties fall under this label, using the DynaSAND (Barbiers et al., 2006). I will base the illustration on the two sentences in (7).[1] For most varieties that are documented in the DynaSAND, data are available for only one of the two sentences in (7). The reason for this is that these two sentences were part of separate stages of the data collection: (7a) was part of the written questionnaire, whereas (7b) was part of the spoken questionnaire.

(7) a. Als je echt niet kunt wachten, **dan kom maar**.
if you really not can wait then come PTCL
'If you really cannot wait, then just come.'

b. Persoon A vraagt: 'Zal ik koken?' Persoon B antwoordt: '**Dat doe maar**!'
person A asks shall I cook person B replies that do PTCL
'Person A asks: "Shall I cook?" Person B replies: "Do that!"'

When we map the varieties where at least one of the sentences in (7) is considered acceptable, as in figure 4.1, we can see that V2 imperatives only occur in the eastern part of the Netherlands. From north to south, the areas where V2 imperatives are accepted are Groningen and the rest of the Dutch Low Saxon area, and east Brabant and Limburg, where Low Franconian dialects are spoken. Because these areas are not part of the same dialect subgroup, I will continue to refer to them as eastern Dutch dialects, following Barbiers (2013).

Let us move on to the syntactic properties of V2 imperatives. It can be shown that the V2 word in imperative is the result of movement of the sentence-initial constituent, instead of e.g. failure of movement of the imperative verb. The first argument is that the initial constituent in V2 imperatives is interpreted as topic (Koopman, 2007) or focus (Schwager, 2008). This suggests that the constituent moves to a position in the left periphery in the clause, on a par with topic or focus movement to Spec,CP in West Germanic declarative clauses, illustrated with examples from standard Dutch in (8) ((8b) contains a focus particle to force the focus interpretation).

[1] The DynaSAND also contains data on V2 imperatives where the sentence-initial element is a full NP, or a wh-phrase. These sentences were not accepted in (almost) any of the dialects, and were the basis of Barbiers' (2013) observation that V2 imperatives in Dutch dialects are restricted to distal demonstrative pro-forms in the sentence-initial position.

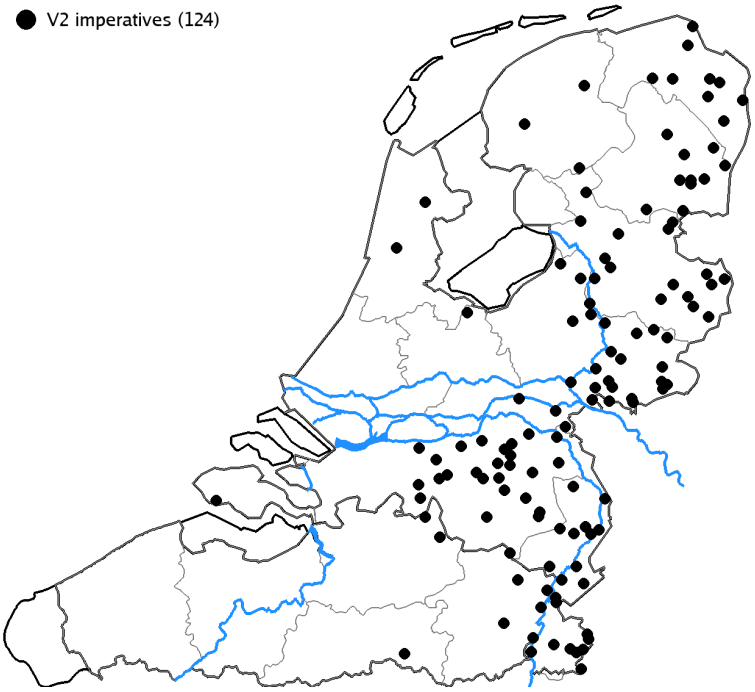


Figure 4.1: Varieties with V2 imperatives (fronting of distal demonstrative pro-forms)

(8) a. Dat boek heb ik niet gelezen.
that book have I not read
'That book I haven't read.'

b. Ook DAT boek heb ik nog niet gelezen.
also that book have I not yet read
'Also that book I haven't read yet.' Standard Dutch

The second argument that shows that V2 imperatives involve movement of the sentence-initial element comes from complex V2 imperative clauses. Reis and Rosengren (1992) show that in German, the V2 word order in imperatives is not restricted to simplex clauses. If the V2 imperative contains an embedded clause, then the sentence-initial element can be a constituent that has undergone long-distance movement from the embedded clause. An example is given in (9); the fronted NP *den Fritz* is an argument of the embedded verb 'to visit'. This clearly shows that the sentence-initial constituent in the V2 imperative has undergone movement.

(9) Den Fritz versprich mir bitte, dass du nie wieder besuchen wirst.
the Fritz promise.IMP me please that you never again visit will
'As for Fritz, please promise me that you will never visit him again.'
(Reis & Rosengren, 1992, p. 80)

When the sentence-initial constituent in a German V2 imperative is a wh-phrase, it must originate in the embedded clause. This is illustrated in (10). Example (10a) involves short movement of the wh-phrase *wen* to the left periphery of the imperative; this is ungrammatical. However, if the wh-phrase originates in the embedded clause of the imperative, wh-movement to the sentence-initial position of the imperative is fine, as illustrated in (10b).[2]

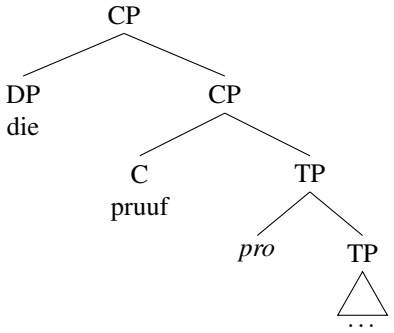
(10) a. * Wen benenne als meinen Nachfolger.
whom nominate.IMP as my successor

b. Wen sag mir doch mal gleich dass Peter als deinen Nachfolger
whom tell.IMP me PTCL PTCL right.away that Peter as your successor
benennen wird.
nominate will.
'Tell me right away who Peter will nominate as your successor.'
(Reis & Rosengren, 1992, p. 86)

Based on these arguments, I conclude that V2 imperatives have the same structure as standard imperatives, but in addition have movement of a constituent to the left periphery. Following Bennis (2007), the imperative verb is in C. The fronted constituent is in Spec,CP. The structure of a V2 imperative is depicted in (11).

(11) a. Die pruuf mar is!
that taste.IMP PTCL PTCL
'Taste that one!' Veghel Dutch

b.



4.2.2 Questions for the syntax of imperatives

On the surface, imperatives differ substantially from declaratives and interrogatives. For instance, word order in imperatives often differs from that of declaratives and interrogatives (in particular in relation to clitics and negation), and in many languages,

[2] According to Reis and Rosengren (1992), (10a) is ungrammatical because a clause cannot be imperative and interrogative at the same time; this problem does not arise in (10b), because here the embedded clause is interpreted as the interrogative.

imperative verbs have impoverished morphology (see van der Wurff, 2007 for an overview of the properties of imperatives). Furthermore, the subject in imperatives is generally covert, but it is canonically interpreted as an addressee. The imperative subject also has the ability to license second person reflexives, as illustrated in (12) (Zanuttini, 2008). Because of these special properties, the syntax of imperatives has received a considerable amount of attention in the literature.

(12) Wash yourself! (Zanuttini, 2008, p. 187)

An influential proposal regarding the syntax of imperatives, in particular focusing on the imperative subject, is formulated by Zanuttini (2008) and Zanuttini et al. (2012). They argue that imperatives contain a dedicated functional projection, the Jussive Phrase, which projects instead of CP. The Jussive Phrase differs from the normal CP in that it contains an operator that is specified for person features (second person features in imperatives). The operator binds and Agrees with the subject, which enables sharing of the person features on the operator with the (underspecified) subject of imperatives. This accounts for the special behaviour of the subject in imperatives, for instance that it is interpreted as an addressee. This proposal is in line with many other proposals that imperatives contain a special operator that interacts with the subject (Potsdam, 1998; Portner, 2004; Barbiers, 2007; Bennis, 2007). Crucially, the Jussive Phrase and the operator it introduces are proposed to be obligatory components of the structure of imperatives. According to Bennis (2007) and Zanuttini (2008), the imperative operator resides in the specifier of the phrase that codes the sentence as imperative (JussiveP for Zanuttini, CP for Bennis).

This proposal makes a specific prediction regarding imperatives in V2 languages like Dutch and German. If the imperative operator sits in the specifier of the highest projection (which I will refer to as CP from here on), this would prevent movement of a constituent to that position. Because the imperative verb sits in C, this predicts that no element can precede a verb in imperative, as illustrated in (13).

(13) OP_{IMP} lees dat boek maar niet!
read that book PTCL not
'Don't read that book!' Standard Dutch

This state of affairs is comparable to the situation in yes-no questions, that are always V1, since a yes-no operator is assumed to be in the specifier of CP, as illustrated in (14).

(14) a. $\text{OP}_{\text{YES/NO}}$ heb je gedanst?
have you danced
'Did you dance?'

b. Gisteren heb je gedanst.
yesterday have you danced
'Yesterday you danced.' (not: 'Did you dance yesterday?) Standard Dutch

In this light, it is surprising that eastern Dutch dialects and German do allow for V2 imperatives, as described in section 4.2.1. In particular, we can raise the question

of how the imperative subject is licensed in V2 imperatives, as there is no space for an imperative operator in Spec,CP. In other words, is there an alternative way of licensing imperative subjects? In this chapter, I argue that there is, which means that the operator in Spec,CP (or Spec,JussiveP) in imperatives cannot be obligatory.

4.3 Verbal umlaut

Before we get into the analysis of V2 imperatives in West Germanic, this section demonstrates that there is a correlation between V2 imperatives and verbal umlaut. I also show that varieties differ regarding which verbs exhibit umlaut. Then, I show that umlaut should be treated as suppletion conditioned by φ-features in West Germanic.

4.3.1 The correlation between V2 imperatives and verbal umlaut

In this section, I demonstrate the correlation between V2 imperatives and verbal umlaut: if a variety allows for the V2 word order in imperatives, it has verbal umlaut in some of its verbal paradigms. Before I do so, a note on terminology is in order.

The term 'umlaut' is generally used to refer to stem vowel fronting in a derived or inflected form. Historically, umlaut results from vowel harmony with a vowel in the affix; synchronically, however, this vowel has disappeared, and thus also the phonological trigger for the vowel fronting (more on this in section 4.3.3). Umlaut can be found both with nouns (e.g. with plurals or diminutives) and verbs (with certain inflections). In this chapter, I use 'verbal umlaut' for stem vowel alternations in the present tense verbal paradigm, that are not phonologically induced in the synchronic grammar.[3] In contrast with the traditional German terminology, I also use the term 'umlaut' for *e/i-Wechsel* ('e/i-change'), which has similar properties and a similar distribution as umlaut (although not the same historical origin) (cf. Bendjaballah, 2014). An example of a (sub)paradigm with verbal umlaut is given in (15). In this example, there is umlaut with 2SG and 3SG. Throughout this chapter, I represent the phonological properties of umlaut roughly using Dutch orthographic conventions, based on my fieldwork or the data in the databases I consulted. What is relevant is that a variety has umlaut, but not what the exact phonological properties of the alternations are, so the approximate representation suffices for the purposes of this chapter. I also focus exclusively on the singular forms in the paradigm, because plural forms do not exhibit umlaut.

(15) a. ik geef
I give

b. gij gift
you give

c. hij gift
he gives

Veghel Dutch

Standard Dutch does not have verbal umlaut, but standard German does, as illustrated in (16) and (17). The GTRP contains data on verbal paradigms in Dutch dialects,

[3]This definition excludes stem vowel shortenings in Flemish dialects, since these are triggered when a suffix creates a consonant cluster, i.e. have a phonological trigger (see e.g. De Vriendt (2003) on Brussel Dutch).

based on which we can determine whether Dutch dialects have verbal umlaut. For this, I use the verbs *breken* ('to break') and *doen* ('to do'). Examples (18) and (19) illustrate verbal umlaut in two Dutch dialects.

(16) a. ich fahre — I drive
b. du fährst — you drive
c. er fährt — he drives
Standard German

(17) a. ich helfe — I help
b. du hilfst — you help
c. er hilft — he helps
Standard German

(18) a. ik doo — I do
b. ie doot — you do
c. hee dat — he does
Ruurlo Dutch (GTRP)

(19) a. ich breek — I break
b. doe briks — you break
c. hee brik — he breaks
Reuver Dutch (GTRP)

When we depict all Dutch dialects with verbal umlaut for 'to break' and/or 'to do' on a map, as in figure 4.2 (next page), we find that verbal umlaut is attested mostly in dialects in the east of the Netherlands. Figure 4.2 also depicts the locations where V2 imperatives are allowed according to the DynaSAND, and it is clear that this area overlaps to a great extent with the area where we find verbal umlaut. This suggests a potential correlation between V2 imperatives and verbal umlaut.

Because the GTRP and the DynaSAND contain data from different sets of dialects, it is hard to check for all the dialects whether the correlation between V2 imperatives and verbal umlaut holds. For 183 dialects, the databases contain data on both verbal umlaut and V2 imperatives, and we can use these dialects to give statistical evidence for the correlation. The values for each of these dialects are given in table 4.1. A chi-square test shows that there is a highly significant association between verbal umlaut and V2 imperatives: $\chi^2(1, N = 183) = 51.4, p < .01$. This provides further support in favour of the correlation that is suggested by the geographical distribution of verbal umlaut and V2 imperatives.

It is worth zooming in on the cases that behave exceptionally in light of the relation between verbal umlaut and V2 imperatives. First, there are 5 dialects where we do find V2 imperatives, but that do not have verbal umlaut. One of those dialects

Table 4.1: V2 imperatives and verbal umlaut

	+ V2 imperatives	− V2 imperatives
+ Verbal umlaut	48	42
− Verbal umlaut	5	88

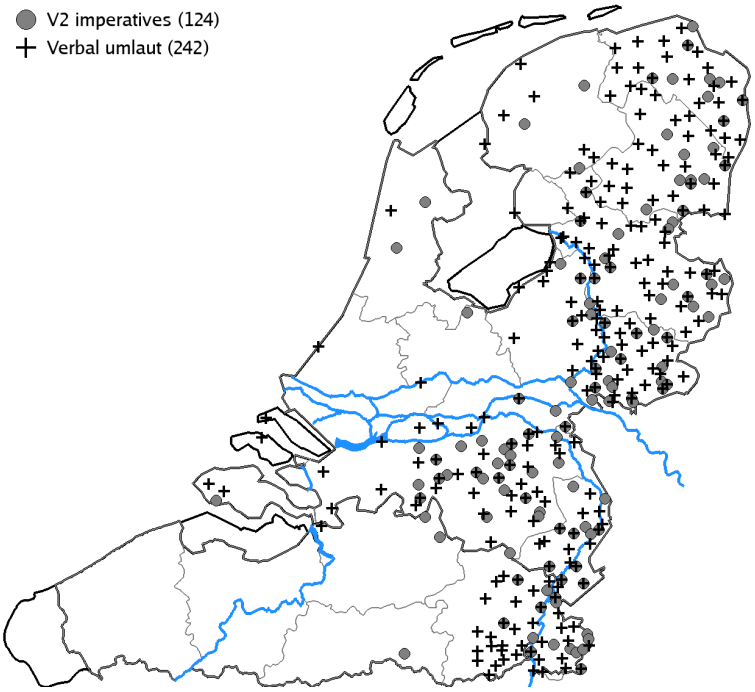


Figure 4.2: Varieties with verbal umlaut and V2 imperatives

(Sneek Frisian) is located outside of the main area where we find V2 imperatives. It therefore seems likely that this variety, like other Frisian varieties, does not have V2 imperatives, but that it shows up in the DynaSAND because the V2 imperative was erroneously judged as grammatical. For the remaining 4 dialects (Arendonk Dutch, Nijmegen Dutch, Maasbree Dutch, and Hamont Dutch), it is possible that the verbs that are in GTRP (i.e. 'to break' and 'to do') are not umlauting, but other verbs might be. Another point to take into consideration are the varying sources of the data: the data in the DynaSAND and GTRP were collected in different time spans, and from different speakers. It is possible that the dialects that behave exceptionally do not adhere to the correlation between V2 imperatives and verbal umlaut because the language has been undergoing change, or because the idiolects of the speakers that provided the data differ on this point. I will leave a detailed investigation of those dialects for further research. Since this set of dialects makes up such a small proportion of the complete set of data points, I will not consider them problematic for the correlation between V2 imperatives and verbal umlaut.

A larger number of dialects (42) have verbal umlaut, but do not allow for V2 imperatives. There are two potential explanations for the exceptional behaviour of these dialects. The first is again methodological: as noted in section 4.2.1, for many dialects we only have data on V2 imperatives for just one of the two sentences that

are part of the DynaSAND. The V2 word order in imperatives is always optional, and requires the initial constituent to be interpreted as a topic or focus. During elicitation, the topical or focal nature of the fronted constituent might not have been clear to the informants, leading them to reject the sentence, or the informants may have had a preference for the V1 imperative for some other reason.

Another possibility is that the relation between verbal umlaut and V2 imperatives is unidirectional, i.e. verbal umlaut is a necessary, but not sufficient condition for allowing V2 imperatives. Testing this would require further research into these 42 varieties that have verbal umlaut but not V2 imperatives, which is a task I will leave for future work. In the remainder of this chapter, I will focus on the dialects with verbal umlaut that allow for V2 imperatives.

Additional support for the correlation between V2 imperatives and verbal umlaut comes from fieldwork with dialect speakers from 14 locations in the east of the Netherlands. The locations are listed and depicted in figure 4.3. In each of these locations, I administered a grammaticality judgement task looking at V2 imperatives with different types of sentence-initial elements. The sentences were prerecorded by a native speaker of the dialect and played to 2–3 native speaker informants, who were asked to judge whether the sentence could occur in their dialect on a 5-point Likert scale. The informants were 55 years or older, grew up speaking the local dialect, and reported to be proficient in the local dialect. In 12 locations, V2 imperatives with fronted distal demonstrative pro-forms were accepted by the informants; fronting of other types of elements was generally rejected.[4] Various examples will be given in section 4.4.2. I also administered a translation task for five verbal paradigms, to assess whether these varieties have verbal umlaut. The verbs are *gaan* ('to go'), *helpen* ('to help'), *geven* ('to give'), *werken* ('to work'), and *stoppen* ('to stop'). The verbs *gaan*, *helpen*, and *geven* are known to exhibit umlaut in varieties of Dutch (see DynaSAND and GTRP). The verbs *werken* and *stoppen* typically do not exhibit umlaut and were included to collect data on agreement suffixes in non-umlauting contexts. All varieties have verbal umlaut with at least one of the verbs *gaan*, *helpen*, and *geven*. The picture that arises from the fieldwork data is thus similar to the corpus data: dialects that allow for V2 imperatives also have verbal umlaut. The two dialects for which the inverse does not hold are Scheemda Dutch and Ootmarsum Dutch. That is, the dialects of Scheemda and Ootmarsum have verbal umlaut, but not V2 imperatives. For Scheemda Dutch, the informants noted that verbal umlaut appears to be disappearing from their dialect: according to them, younger speakers do not use it anymore. The informants themselves also were not consistent in their use of verbal umlaut. This might point to ongoing language change regarding verbal umlaut, which has already affected the possibility of V2 imperatives in this variety. It is less clear why V2 imperatives are not allowed in Ootmarsum Dutch according to my fieldwork. In fact, the DynaSAND reports that V2 imperatives are grammatical in Ootmarsum Dutch. I leave a further investigation into this discrepancy for future work, and conclude that the overall picture is that varieties with verbal umlaut allow for V2 imperatives.

[4]There is some variation in this domain, but because of the lack of clear generalisations, I will not go into this variation here; see van Alem (2017) for a more detailed discussion of these data.

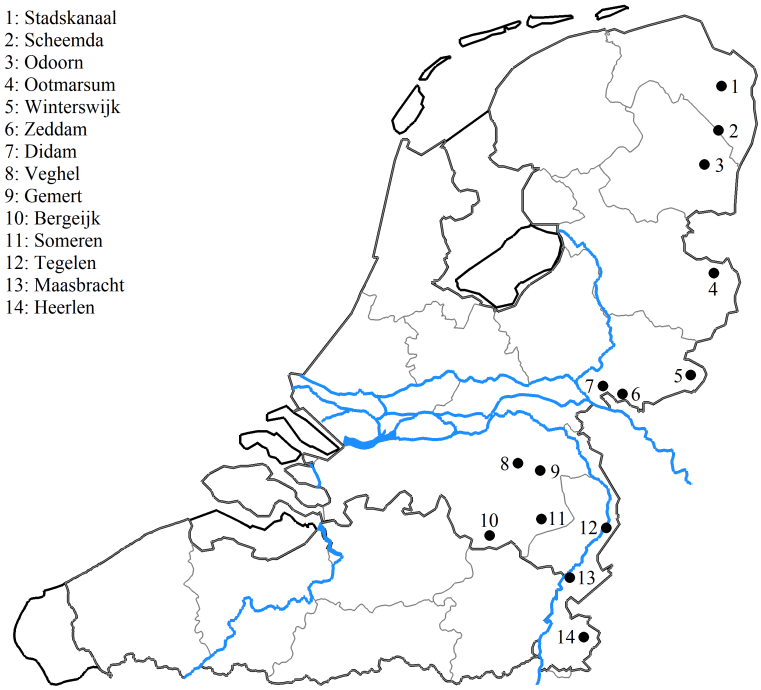


Figure 4.3: Fieldwork locations

To summarise this section: I have illustrated, based on geographical distribution, statistical analysis, and fieldwork data, that there is a strong relation between V2 imperatives and verbal umlaut in Dutch dialects. The relation also holds in standard Dutch and standard German: standard Dutch does not have verbal umlaut and does not allow for V2 imperatives, while standard German has both. The correlation holds on the level of the language, not on the level of the sentence: in the relevant varieties, an imperative can be V2 even if the imperative verb is not part of an umlauting paradigm, but only as long as the variety has umlaut in some of its verbal paradigms.

4.3.2 Variation in verbal umlaut

In this section, I zoom in on the variation we find in verbal paradigms with umlaut in Dutch dialects and German. There is variation in the contexts that trigger verbal umlaut within the present tense paradigm, and in the form of the imperative verb: while in all varieties, the imperative verb is a bare verb stem that is syncretic with a verb stem from the present tense paradigm, there is variation in whether the imperative verb exhibits umlaut or not.

In the data from the eastern Dutch dialects and German, three patterns can be

identified.[5] In the first pattern, we find verbal umlaut with 3SG in the present tense paradigm, and no umlaut on the imperative verb. This pattern is found in Ootmarsum, Winterswijk, Zeddam, and Didam, or in other words, the Dutch Low Saxon varieties in my data set. An example is given in (20).

(20) a. ik geef
I give
b. gij geef
you give
c. hij gif
he gives
d. geef!
give.IMP
Zeddam Dutch

The second pattern is characterised by verbal umlaut with 2SG and 3SG in the present tense paradigm, and the absence of verbal umlaut on imperative verbs. In the Dutch language area, we find this pattern in Stadskanaal, Scheemda, Tegelen, Maasbracht, and Heerlen. The first two varieties are part of the Groningen Dutch area, whereas the latter three are dialects of Limburgian. A subset of German verbs also show this pattern. See (21) and (22) for an illustration.

(21) a. ich gef
I give
b. doe gief-s
you give-AGR
c. her gief-t
he give-AGR
d. gef!
give.IMP
Heerlen Dutch

(22) a. ich fahr-e
I drive-AGR
b. du fähr-st
you drive-AGR
c. er fähr-t
he drive-AGR
d. fahr!
drive.IMP
Standard German

In the final pattern, 2SG and 3SG verbs in the present tense paradigm exhibit umlaut, as well as the imperative verb. We find this pattern in East Brabantic varieties (Veghel, Gemert, Bergeijk, and Someren) and in the other subset of German verbs with umlaut. It is illustrated in (23) and (24).

(23) a. ik geef
I give
b. gij gif-t
you give-AGR
c. hij gif-t
he give-AGR
d. gif!
give.IMP
Veghel Dutch

(24) a. ich geb-e
I give-AGR
b. du gib-st
you give-AGR
c. er gib-t
he give-AGR
d. gib!
give.IMP
Standard German

To summarise, the full range of variation regarding verbal umlaut and V2 imperatives in West Germanic is schematically given in table 4.2.

[5] Since the DynaSAND and GTRP do not contain systematic data on the morphology of imperative verbs, the generalisations regarding imperatives verbs are based exclusively on the fieldwork data.

Table 4.2: Summary of the data

	Dutch Low Saxon dialects	Groningen Dutch & Limburgian	East Brabantic Dutch	German
Umlaut				
1SG	−	−	−	−
2SG	−	+	+	+
3SG	+	+	+	+
IMP	−	−	+	−/+
V2 imperatives	distal pro-forms	distal pro-forms	distal pro-forms	no restrictions

4.3.3 Verbal umlaut is suppletion

In this section, I discuss the analysis of verbal umlaut. I start by considering three possible analyses of verbal umlaut: umlaut as the result of a phonological rule, word-external allomorphy, or Agree. Based on the properties of verbal umlaut, I conclude that none of these analysis are correct. Instead, I propose that umlaut is the result of lexically conditioned suppletion. More specifically, I propose that verbs with umlaut correspond to two (or more) lexical items that are specified for the person features that determine in which context the different forms occur. This analysis also provides us with a means to analyse the syncretism between the imperative verb and a present tense verb stem. This conclusion will have important consequences for the analysis of V2 imperatives, which will be discussed in the next section.

I start by considering a phonological explanation of verbal umlaut. Since it is in my definition of verbal umlaut that it is not phonologically induced, this should be a non-starter, and it is easy to show that it is. As mentioned in section 4.3.1, historically umlaut was the result of vowel harmony with a vowel in an affix. In the synchronic grammar, this vowel has disappeared, so synchronically, umlaut is not the result of vowel harmony. Furthermore, in the synchronic grammar, umlaut is a highly idiosyncratic process. Consider the partial paradigm of the German verb *geben* 'to give' in (25). The 3SG verb exhibits umlaut, while the 2PL verb does not, even though these verbs are inflected with the same affix *-t*. Based on these data, we can exclude that umlaut is the result of a rule that fronts the verb stem vowel in the context of (a certain phonological feature on) *-t*.

(25) a. ich geb-e
I give-AGR

b. er gib-t
he give-AGR

c. ihr geb-t
you.PL give-AGR
Standard German

Another argument against umlaut being the result of a general phonological process is that highly similar contexts vary in whether they exhibit umlaut or not. For instance, in contrast to *geben*, the minimally different verb *leben* 'to live' does not exhibit umlaut (26). A phonological rule should not be able to distinguish between different verbs when they are phonologically nearly identical. I thus conclude that verbal umlaut is not the result of an operation in phonology.

(26) a. ich leb-e
I live-AGR

b. er leb-t
he live-AGR

Standard German

The second analysis I consider is that umlaut is the result of a morphophonological process, in particular of word-external allomorphy. I will evaluate this analysis using Weisser (2019)'s diagnostics for identifying word-external allomorphy, supplemented with the revisions argued for in van Alem (2020). Since the form of the verb stem varies depending on the features of the subject, I will apply the tests based on the hypothesis that the subject is the trigger for allomorphy.

The first diagnostic for allomorphy concerns the linear position of the trigger and the target of allomorphy. The idea is that allomorphy is triggered by elements that are in a specific linear position with respect to the target. In other words, the trigger has to precede or follow the target. Applied to verbal umlaut, this would mean that verbal umlaut is triggered when the subject (the trigger) is in a specific linear position with respect to the verb (the target). Verbal umlaut does not pass this diagnostic. In the sentences in (27), the position of the trigger and the target vary: in (27a), the trigger precedes the target; and in (27b), the trigger follows the target. Yet in both examples, the verb exhibits umlaut. The linear position of the trigger is thus not relevant for umlaut.[6]

(27) a. Er gibt Maria ein Buch.
he gives Mary a book
'He gives Mary a book.'

b. Gibt er Maria ein Buch?
gives he Mary a book
'Does he give Mary a book?'

Standard German

The second diagnostic for allomorphy is that it requires linear adjacency between the trigger and target. In the case of verbal umlaut, this would mean that the subject and the verb have to be linearly adjacent. This also is not the case for verbal umlaut, as the examples in (28) illustrate. In (28a), the accusative direct object has scrambled to a position in between the verb and the subject, disrupting the linear adjacency between these elements. In the embedded clause in (28b), the verb is in the final position, and therefore far removed from the subject. In both cases, the verb still exhibits umlaut, demonstrating that linear adjacency between the verb and the subject is not a requirement for verbal umlaut.

[6]The sentences in (27) are derivationally related to each other, meaning that in the underlying representation of (27b), the verb is followed by a copy of the subject. If copies can also be triggers for allomorphy, the examples in (27) would pass the diagnostic for allomorphy based on linear position of the trigger and the target. However, it is generally assumed that traces cannot be triggers for allomorphy. For instance, Ackema and Neeleman (2004) propose the following order of operations at PF: first, the syntactic structure is linearised. Then, copies are deleted. Finally, context-sensitive allomorphy rules apply. Assuming that this order of operations is correct, the examples (27) show that verbal umlaut is not triggered by an allomorphy rule.

(28) a. Gibt die Schlüssel der Junge dem Mann?
give the.ACC keys the.NOM boy the.DAT man
'Does the boy give the keys to the man?'

b. dass er Maria ein Buch gibt.
that he Maria a book gives
'that he gives a book to Maria.' Standard German

A third property of allomorphy that Weisser (2019) identifies, is that it is typically triggered by features that are not canonical agreement features, such as person and number. I have demonstrated in much detail (cf. section 4.3.2) that verbal umlaut is sensitive to exactly those features. This is in line with the outcome of the other diagnostics, and I conclude that verbal umlaut is not triggered by a word-external allomorphy rule.[7]

This brings us to the next analytical possibility, according to which verbal umlaut is the result of Agree between the verb and the subject. Under this analysis, umlaut is predicted to have the same properties and distribution as inflectional affixes that are inserted as the result of subject-verb agreement. While in a number of cases this is true, in Dutch dialects we find cases where the correspondence between subject-verb agreement and verbal umlaut breaks down. This shows that verbal umlaut cannot be the result of subject-verb agreement either. The crucial data are cases of position dependent agreement, which was the topic of Chapter 2 of this dissertation. With position dependent agreement, verbal inflection varies depending on the word order of the verb and the subject. An illustration of the pattern is given in (29). Chapter 2 argues that in cases like (29), the agreement morpheme in the verb-subject word order is the 1SG morpheme, instead of the 2SG (elsewhere) morpheme.

(29) a. jij geef-t
you give-AGR

b. geef-Ø jij
give-Ø you

Standard Dutch

East Brabantic dialects have both position dependent agreement and verbal umlaut with 2SG. This allows us to test if verbal umlaut shows the same alternation as subject-verb agreement in the different word orders. If verbal umlaut is the result of subject-verb agreement, the prediction is that the verb stem shows a similar alternation as the affix that attaches to the verb: in the verb-subject word order, the verb stem should look like the 1SG stem, and thus not exhibit verbal umlaut. This prediction is not borne out. Consider the data in (30).

[7] Weisser (2019) proposes three more diagnostics to distinguish between allomorphy and agreement. Two of those (i.e. the size of the inventory of alternating forms, and whether the alternation obeys the regularities of agreement in a given language) are more suitable for identifying agreement. The remaining diagnostic states that if an alternation is bled by post-syntactic operations, it is most likely post-syntactic as well. I have not been able to find a context that can be used to test whether a post-syntactic operation that affects the subject (e.g. ellipsis) bleeds verbal umlaut.

(30) a. ik geef-Ø
I give-Ø

b. gij gif-t
you give-AGR

c. gif-Ø=de gij
give-Ø=2P you

Veghel Dutch

In the subject-verb order, the verb inflects with a *-t* suffix when it agrees with a 2SG subject. In the verb-subject order, a verb that agrees with a 2SG subject does not show overt inflection; this corresponds to the 1SG inflection (cf. 30a).[8] Crucially, however, the vowel of the verb stem is not affected in this context. The verb stem keeps the same vowel as in the subject-verb word order. This shows that verbal umlaut behaves differently from the subject-verb agreement. Because the latter is the result of Agree between the verb and the subject, the former cannot be. In other words, verbal umlaut is not triggered by Agree.

So far, I have demonstrated that verbal umlaut is not the result of a phonological rule, word-external allomorphy, or Agree. Instead, I suggest that verbal umlaut is suppletion (in particular, weak suppletion). This proposal can account for the properties of verbal umlaut, such as its idiosyncratic nature, and its independence from syntactic factors such as word order and agreement. Because under the suppletion approach, every stem form corresponds to an independent entry in the mental lexicon, it is unpredictable which verbs exhibits umlaut and which ones do not. And because verbal umlaut is lexical, it is not predicted to be sensitive to other lexical items.

Evidence that the idea that verbal umlaut is suppletion is on the right track comes from Bendjaballah (2014). Bendjaballah argues that umlaut 'marks a morphosyntactic feature' (p. 62), which she calls [F]. My proposal is that [F] is in fact a short-hand for φ-features. The main argument that Bendjaballah provides in favour of the idea that verbal umlaut is marked with a morphosyntactic feature is that verbal umlaut and 3SG agreement are in complementary distribution with some verbs in standard German. Example (31) illustrates that the verb *fechten* 'to fence' has two forms for 3SG: (31a) exhibits umlaut, (31b) does not. Importantly, only the version that does not exhibit umlaut contains an overt inflectional affix.

(31) a. er ficht
he fences

b. er fecht-et
he fence-3SG

Standard German (Bendjaballah, 2014, p. 61)

Limburgian dialects show a similar contrast. The 3SG form of verbs that do not exhibit umlaut require the presence of an overt inflectional affix (32a,b), whereas the 3SG form of verbs that do exhibit umlaut do not inflect with an affix (32c,d).

[8] See Chapter 2 for arguments that *de* should be treated as a clitic.

(32) a. ich werk
I work

b. her werk-t
he work-3SG

c. ich help
I help

d. her hulp
he help

Limburgian

What the German and Limburgian data show is that verbal umlaut can prevent the insertion of a suffix that spells out agreement features, here 3SG. This shows that verbal umlaut plays an active role in the morphosyntax. This follows under the suppletion analysis of verbal umlaut, according to which the different stem forms of an umlauting paradigm are separate items in the mental lexicon, and have a φ-feature specification. When such a stem is inserted in the syntactic structure, it is already specified for φ-features. The absence of the 3SG suffix on the verbs in (31a) and (32d) can be accounted for as follows. The verb agrees with the 3SG subject, and gets valued as 3SG. If the verb stem exhibits umlaut, the stem itself already realises 3SG features. The suffix is redundant in this context, and need not be inserted. If the verb stem is a regular, non-umlauting stem, it does not spell out any features. In this case, the 3SG features the verb acquired through agreement will be spelled out with the 3SG suffix.[9]

The proposal that verbal umlaut is marked with φ-features also allows us to model where umlaut occurs in a verbal paradigm. I showed in section 4.3.2 that where umlaut occurs is subject to cross-linguistic variation: in some varieties, only 3SG verb stems exhibit umlaut, whereas in other varieties, both 2SG and 3SG verb stems do. There is also variation in whether the imperative verb exhibits umlaut. If umlaut were determined by a yet unidentified feature, such as [F], the presence of that feature would need to vary arbitrarily between varieties, in order to give rise to this type of variation. Φ-features, on the other hand, are part of the morphosyntax anyway. If umlauting and non-umlauting stems can be distinguished by different sets of φ-features in different varieties, this variation can be captured straightforwardly. I therefore conclude that stems that are part of a paradigm that exhibits umlaut are stored in the mental lexicon with a specification for φ-features, that can be different in different varieties.

In section 4.3.2, I also showed that the imperative verb is always syncretic with a stem form of the present tense paradigm. I propose that this syncretism is not accidental, but that the imperative verb is in fact borrowed from the present tense paradigm. Importantly, in varieties with umlaut, this means that the imperative verb will be specified for the same φ-features that determine the distribution of the stem in the present tense paradigm. In the next section, I show what these specifications are and how they affect the word order in imperatives.

[9] In addition to the pattern in (31), where verbal umlaut is in complementary distribution with the 3SG suffix, there are many German verbs where both verbal umlaut and an inflectional suffix need to be present in 2SG and 3SG contexts. I take these cases to involve multiple exponence, i.e. both the stem and the suffix express φ-features (Caballero & Harris, 2012). A similar pattern is found with some German nouns. For example, in *Würm-er* 'worms', both umlaut and the suffix express the feature plural.

4.4 Analysing V2 imperatives

With the background about imperatives and verbal umlaut in place, we can now turn to the analysis of V2 imperatives in West Germanic languages. In a nutshell, the analysis is as follows. Following Zanuttini (2008) and Zanuttini et al. (2012), I assume that imperative subjects need to be bound by and Agree with second person features; these binding and Agree operations license the imperative subject and assign the addressee interpretation to it. In the previous section, I concluded that imperative verbs in varieties with verbal umlaut introduce φ-features into the structure. Building on Barbiers (2013), I propose that the features on the imperative verb can bind and Agree with the imperative subject, either fully or partially. If the imperative verb is specified for the complete set of second person features that license the imperative subject, the sentence-initial position (Spec,CP) remains open for another element to move to, resulting in V2 imperatives without restrictions on the fronted constituent. In case the imperative verb is specified for only a part of the second person features that license the imperative subject, V2 imperatives are possible as long as the fronted constituent can provide the other part of the second person features; this results in a restriction on the type of element that can be fronted in V2 imperatives (cf. Barbiers, 2013). An important consequence is that, in these cases, there is no need for an imperative operator in the left periphery to bind the imperative subject.

Before discussing how this works for each of the varieties in more detail, I will make explicit which features imperative verbs are specified for in each variety, and which other elements can contribute to licensing the imperative subject.

4.4.1 Feature specifications of imperative verbs and distal proforms

Zanuttini (2008) and Zanuttini et al. (2012) argue that the subject in imperatives need to be bound by second person features. Assuming binding under Agree (e.g. Kratzer, 2009), the main binder for the imperative subject is the imperative verb in C, when C Agrees with the subject. Assuming Spec-Head Agree under binding as well (see again Kratzer, 2009), the element in Spec,CP is also a potential binder. In this section, I consider what features the imperative verb and the elements in Spec,CP can be specified for.

Recall that varieties differ regarding the cells in the verbal paradigm that exhibit umlaut, and regarding umlaut on the imperative verb. In the previous section, I argued that verbal umlaut is the result of suppletion conditioned by φ-features. For this reason, the imperative verb comes with an inherent specification for φ-features in varieties with verbal umlaut.

In Chapter 2, I argued that the syntactic representation of φ-features is as in (33): φ-features are privative and organised in a feature geometry. In table 4.3, I have given the feature representation of the singular persons based on the feature geometry in (33).

(33)

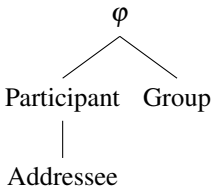


Table 4.3: Representation of φ-features in syntax

Features	Syntactic representation
1SG	[PART]
2SG	[PART] [ADDR]
3SG	

Based on these assumptions about φ-features, we can now establish the feature specification of the verb stems in a paradigm with umlaut, and the imperative verb. Starting with the Dutch Low Saxon dialects, recall that these dialects have verbal umlaut for 3SG, and that the imperative verb does not exhibit verbal umlaut (cf. (20), repeated as (34)). We can distinguish between 3SG and the other persons using the feature [Participant]: 1SG and 2SG are specified for the feature [Participant], but 3SG is not. I conclude that the non-umlauting stem is specified for [Participant], and that the umlauting stem is fully underspecified for person features (as per table 4.3), as illustrated in (35). Because the non-umlauting stem form is used as the imperative verb, the imperative verb comes with the [Participant] specification too.

(34) a. ik geef
I give

b. gij geef
you give

c. hij gif
he gives

d. geef!
give.IMP

Zeddam Dutch

(35) a. geef: [PART]
b. gif:

All other varieties have verbal umlaut for 2SG and 3SG. The Groningen Dutch and Limburgian pattern is illustrated in (36) (repeated from (21)), and the German and East Brabantic pattern is illustrated in (37) (repeated from (23)).

(36) a. ich gef
I give

b. doe gief-s
you give-AGR

c. her gief-t
he give-AGR

d. gef!
give.IMP

Heerlen Dutch

(37) a. ik geef
I give

b. gij gif-t
you give-AGR

c. hij gif-t
he give-AGR

d. gif!
give.IMP

Veghel Dutch

Based on the feature specifications in table 4.3, there is no natural grouping of 1SG on the one hand, and 2SG and 3SG on the other hand, because there is no feature that distinguishes between these sets of persons. [Participant] distinguishes 1SG and 2SG from 3SG, and [Addressee] distinuishes 2SG from the other two persons. To account for the umlaut pattern in Groningen Dutch and Limburgian, and in German and East Brabantic, we therefore have to assume there are three independent lexical items, that are each fully specified for φ-features.

In fact, there is empirical evidence that in varieties where 2SG and 3SG verb forms exhibit umlaut, we need to distinguish between three stem forms. In some East Brabantic dialects, there are verbs that make a three-way contrast between stem forms, in addition to 'normal' verbs with umlaut that make a two-way contrast. This is illustrated for Gemert Dutch in (38).

(38) a. ik gaow
I go

b. gij go-t
you go-AGR

c. hij gè
he goes

d. go!
go.IMP

Gemert Dutch

The three-way contrast can only be captured if there are three lexical items that are fully specified for φ-features. I assume that this extends to verbs that do not overtly show a three-way contrast. Umlauting verbs in Groningen Dutch and Limburgian, and German and East Brabantic, thus correspond to three lexical items with the feature specifications illustrated in (39).

(39) a. gaow: [PART]
b. go: [PART] [ADDR]
c. gè:

The groups of varieties differ in which stem is used as the imperative verb. In Groningen Dutch and Limburgian, the 1SG stem is used as the imperative verb (cf. section 4.3.2 and (36)). This means that the imperative verb in these varieties is specified for [Participant]. In German and East Brabantic, the umlauting verb stem is used as the imperative verb. Since both the 2SG and 3SG stems are umlauting, we can ask the question of which of those two is used as the imperative verb. The verbs with a three-way contrast, such as (38), provide an answer: this example shows that the 2SG stem is used as the imperative verb. I therefore conclude that German and East Brabantic imperative verbs are specified for [Participant] and [Addressee].

The second class of elements that can contribute to licensing imperative subjects are the elements that are in Spec,CP. In German, there are no clear restrictions on which elements can be in Spec,CP in imperatives. However, the Dutch dialect data suggest a special role for distal demonstrative pro-forms, such as *that* and *then*. In fact,

while full NPs are generally not thought to be specified for φ-features, this is different for deictic pro-forms. It is generally recognised that in deictic systems, the anchor typically coincides with the speech act participants (Imai, 2003). In recent years, this has been formalised by using person features to represent spatial and temporal deixis as well. For example, Barbiers (2013) decomposes the persons as consisting of the features [Person] plus [Neutral], [Proximal], or [Distal]; according to him, deictic pro-forms are also specified for [Neutral], [Proximal], or [Distal]. A more radical proposal is pursued by Harbour (2016) and Terenghi (2021). They argue that all person and deictic systems are made up of the features [± Participant] and [± Author], that combine in varying orders with a φ- or spatial root. According to this analysis, the whole range of cross-linguistic variation in systems of person and deixis can be derived this way. A similar idea is proposed by Ackema and Neeleman (2018), who use the deictic features [Distal] and [Proximal] to derive the different persons. What all these analyses have in common is that distal pro-forms and second person pronouns have a feature in common (the exact feature depends on the specific analysis). In the feature system that I am using in this thesis, [Addressee] is the defining syntactic feature for second person. Building on the works that relate person to deixis, I take the feature [Addressee] to be shared with distal pro-forms. In other words, distal pro-forms like *that*, *there*, and *then*, are specified for the feature [Addressee]. This means that, if the distal pro-form is in an Agree relation with the imperative subject, the pro-form can partially license the imperative subject.[10]

4.4.2 Deriving V2 imperatives

In this section, I discuss how V2 imperatives are derived in the different groups of language varieties. The analysis is based on the idea that imperative subjects need to be licensed through Agree with second person features (i.e., [Participant] and [Addressee]) (Zanuttini, 2008; Zanuttini et al., 2012). Potential licensers with φ-features are the imperative verb in C, and the element in Spec,CP, that interact with the subject due to Agree between C and the subject, and indirectly due to Spec-Head Agree in the CP.

I will start by looking at the Dutch Low Saxon varieties. In these varieties, V2 imperatives are allowed when a distal pro-form is fronted, but not with other types of fronted constituents. Some representative examples are given in (40) and (41).[11]

(40) a. Den doe mor es aan!
that do.IMP PTCL PTCL on
'Put on that one!'

[10] Barbiers (2013) brings up the question if full NPs containing a distal demonstrative pro-form, such as *dat boek* ('that book'), can contribute features to CP (or in my case: the imperative subject). I follow his approach that in those cases, the distal demonstrative is too deeply embedded; specifically, a distal demonstrative inside a full NP cannot c-command out of that constituent, blocking an Agree or binding interaction with CP or the subject.

[11] All examples of V2 imperatives contain one or more discourse particles; these particles are very common in imperatives in general and seem to facilitate fronting in imperatives (cf. Barbiers, 2013). As they do not play any role in the analysis, I will not comment on them further and just gloss them as 'particle'.

b. * Da kuukske nem mor niet!
that cookie take.IMP PTCL not
'Don't eat that cookie!' Didam Dutch

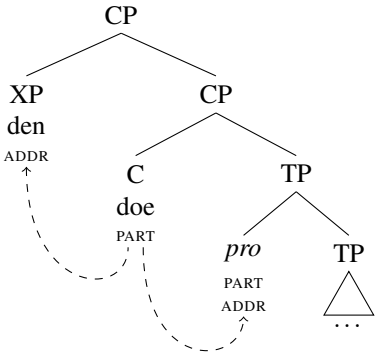
(41) a. Den koop moar nie!
that buy.IMP PTCL not
'Don't buy that one!'

b. * Dizze kiek moar us!
this look PTCL PTCL
'Watch this one!' Zeddam Dutch

In Dutch Low Saxon, 3SG verbs exhibit umlaut. The imperative verb does not exhibit umlaut. Based on this pattern, I concluded in section 4.4.1 that the Dutch Low Saxon imperative verb is specified as [Participant]. The imperative subject needs to Agree with second person features, i.e. [Participant] and [Addressee]. Because of the [Participant] specification on the imperative verb, the imperative verb Agrees in the [Participant] feature with the imperative subject. However, to get to a full second person interpretation, the imperative subject still needs to Agree with the feature [Addressee]. As I argued in the previous section, distal pro-forms are specified for the feature [Addressee]. When the distal pro-form moves to Spec,CP, it can establish an (indirect) Agree relation with the subject, due to Spec-Head Agree in CP and Agree between C and the subject. From its position in Spec,CP, the distal pro-form can thus Agree in the feature [Addressee] with the subject. Together with the [Participant] feature on the imperative verb, this licenses the imperative subject. This is schematically represented in (42), with arrows indicating Agree relations. The licensing configuration involving the distal pro-form results in the V2 word order in Dutch Low Saxon imperatives, and the restriction to distal pro-forms as the initial constituent: other constituents are not specified for [Addressee], and thus prevent the subject from being fully licensed. A V2 imperative that does not have a distal pro-form, but a different constituent in Spec,CP is therefore ungrammatical. In V1 imperatives, I assume that the imperative operator is inserted into Spec,CP as a last resort, and that the operator licenses the imperative subject.

(42) a. Den doe mor es aan!
that do.IMP PTCL PTCL on
'Put on that one!' Didam Dutch

b.



I will now turn to the derivation of V2 imperatives in Groningen Dutch and Limburgian. Like the Dutch Low Saxon dialects, these varieties allow for V2 imperatives with fronted distal pro-forms. Other types of fronting are not allowed, as illustrated in (43) for Limburgian, and in (44) for Groningen Dutch.

(43) a. Dan kom moar ens aan!
then come.IMP PTCL PTCL by
'Just drop by then!'

b. * Dè vriedag gef moar 'n feestje!
that Friday give.IMP PTCL a party
'Throw a party on that Friday!' Maasbracht Dutch

(44) a. Den kom mar-s langs!
then come.IMP PTCL-PTCL along
'Just drop by then!'

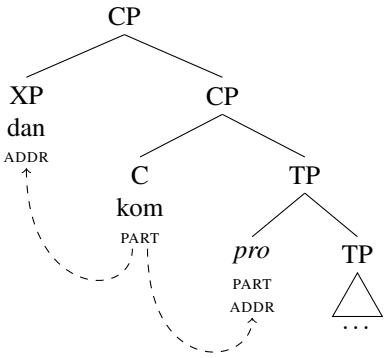
b. * Mie geef mar appelsap!
me give.IMP PTCL apple.juice
'Give me apple juice!' Stadskanaal Dutch

In Groningen Dutch and Limburgian, we find verbal umlaut with 2SG and 3SG, but the imperative verb does not exhibit verbal umlaut. In section 4.4.1, I concluded that this indicates that the imperative verb is specified for the feature [Participant]. This means that licensing the imperative subject in Groningen Dutch and Limburgian proceeds in the same way as in the Dutch Low Saxon dialects: the imperative verb can Agree with the imperative subject in one part of the required second person features (i.e. [Participant]). For full licensing, the imperative subject also needs to Agree with an element that has the feature [Addressee]. Distal pro-forms in Spec,CP can Agree with the subject in this feature, by first Agreeing with the verb, which subsequently Agrees with the subject; see the schematic representation in (45). The result is that

V2 word orders in Groningen Dutch and Limburgian imperatives are allowed, but that the initial element can only be a distal pro-form. If a different constituent is fronted to Spec,CP, the imperative subject cannot be licensed, resulting in ungrammaticality. V1 imperatives are possible, because in that case, an imperative operator in Spec,CP licenses the imperative subject.

(45) a. Dan kom moar ens aan!
then come.IMP PTCL PTCL by
'Just drop by then!' Maasbracht Dutch

b.



The final varieties to discuss are German and East Brabantic. East Brabantic is similar to the other varieties in terms of V2 imperatives: only fronted distal pro-forms are allowed in imperatives, as illustrated for two East Brabantic dialects in (46) and (47). German is crucially different: in German, V2 imperatives do not show any restrictions on which restrictions can be fronted (48) (repeated from (3)).

(46) a. Daar goa moar es heen!
there go.IMP PTCL PTCL to
'Go there!'

b. * Op die stoel goa moar zitte!
on that chair go.IMP PTCL sit
'Sit on that chair!' Bergeijk Dutch

(47) a. Dan goa mar erpels schille!
then go.IMP PTCL potatoes peel
'Go and peel potatoes then!'

b. * Dizze week doe better oew best!
this week do.IMP better your best
'Try harder this week! Someren Dutch

(48) a. Das Buch lies mal nicht!
that book read.IMP PTCL not
'Don't read that book!'

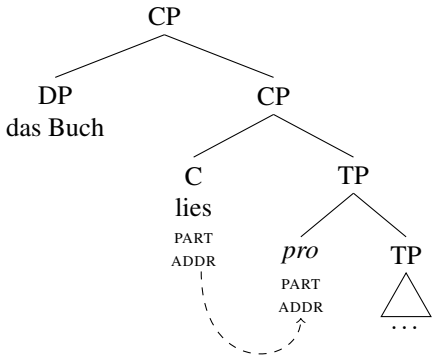
b. Nun kauf mal das Buch [...]
now buy.IMP PTCL that book
'Buy that book now.' Standard German (cf. Barbiers, 2013, p. 5)

Both East Brabantic and German have verbal umlaut for 2SG and 3SG, and verbal umlaut on the imperative verb.[12] In the previous section, I concluded that these imperative verbs are specified for [Participant] and [Addressee], or in other words, a full set of second person features. The prediction is thus that the imperative subject, that needs to be licensed by second person features, is able to acquire those features through Agree with the imperative verb alone. This means that there is no requirement on what can move to Spec,CP, and that there should not be any restrictions on the initial element in V2 imperatives.

For German, this prediction is correct: German does not have restrictions on the sentence-initial constituent in V2 imperatives. The syntactic representation for licensing imperative subjects in German is given in (49). The imperative verb is specified for second person features and licenses the imperative subject through Agree. Spec,CP is free for other elements to move to.

(49) a. Das Buch lies mal nicht!
that book read.IMP PTCL not
'Don't read that book!' Standard German (cf. Barbiers, 2013, p. 5)

b.



East Brabantic does not adhere to the prediction: in East Brabantic, only distal pro-forms may be fronted in imperatives. I propose that the reason for the different behaviour of East Brabantic has to be sought in a different phenomenon, namely position dependent agreement. German does not have position dependent agreement, while East Brabantic does, as illustrated in (50) and (51) (repeated from (30)).

[12] For German, only a subset of imperative verbs has umlaut, and I will come back to this at the end of this section.

(50) a. du gib-st
you give-AGR

b. gib-st du
give-AGR you

German

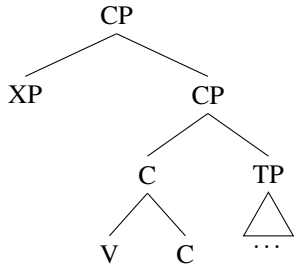
(51) a. gij gif-t
you give-AGR

b. gif=de gij
give=2P you

Veghel Dutch

I argued in Chapter 2 that position dependent agreement is the result of a defective φ-Probe in C. The East Brabantic pattern of position dependent agreement was analysed as resulting from a C Probe that has unvalued [Participant] and [Group] features, but no unvalued [Addressee]. The result of C being a defective Probe is that C cannot Agree for the feature [Addressee]. I propose that this also affect the visibility of the features on the imperative verb for the purpose of Agree with the subject. The reasoning is as follows. The imperative verb moves from V (via intermediate heads) to C; assuming head adjunction as the output of head movement (e.g. Travis, 1984; Vicente, 2007; Roberts, 2010), the structure in C is minimally as in (52).

(52)

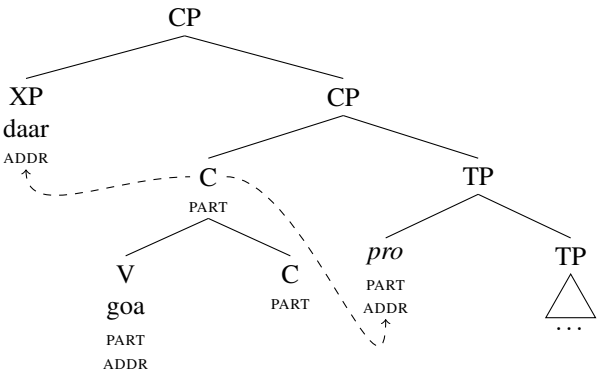


Because V is embedded under C, it cannot by itself Agree with any material outside of C; Agree with V is mediated through C. C, however, is a defective Probe, and does not have an unvalued [Addressee] feature. My proposal is that the absence of an unvalued [Addressee] feature on C causes the [Addressee] feature on the verb to be invisible to the structure outside of the head adjunction structure in C. The [Participant] feature on V is visible, because C also has a [Participant] feature that can be valued by the [Participant] feature on V. For the purposes of licensing the imperative subject, the East Brabantic verb is thus treated in the same way as the imperative verbs in the other Dutch varieties with V2 imperatives: the imperative verb can, mediated by C, Agree with the subject for [Participant]. The subject also needs to Agree with the feature [Addressee] for full licensing. This is possible when the element in Spec,CP is a distal pro-form: C Agrees with the distal pro-form in Spec,CP through Spec-Head Agreement, and with the subject through standard downwards agreement. Because both the subject and the distal pro-form are in an Agree relation with C, the [Addressee] feature

of the distal pro-form can value the [Addressee] feature of the subject.[13] The result is that V2 imperatives in East Brabantic are allowed only with fronted distal pro-forms. The structure is given in (53).

(53) a. Daar goa moar es heen!
there go.IMP PTCL PTCL to
'Go there!' Bergeijk Dutch

b.



The Dutch Low Saxon varieties also have a defective φ-Probe in C. As argued in Chapter 2, in these varieties C only Probes for [Participant]. However, since the verb only has a [Participant] feature as well, C's defective nature does not have an effect on subject licensing in imperatives by the imperative verb.

In summary, I showed that the V2 imperatives in different varieties of Dutch and in standard German can be fully derived based on the verbal umlaut paradigms. The imperative verb in languages with umlaut contributes to licensing the imperative subject, because the imperative verb is specified for person features. If the imperative verb can license the imperative subject on its own, Spec,CP remains open for movement. This results in V2 imperatives without restrictions on the sentence-initial constituent, as in German. If the imperative verb only partially licenses the imperative subject, the element in Spec,CP has to contribute to licensing of the imperative subject as well, and this restricts elements that can move to that position to distal pro-forms, as in eastern Dutch dialects.

A question I have not addressed is how the V2 word order is licensed in imperatives with non-umlauting verbs. It is not the case that the V2 word order is only allowed when the imperative verb is part of a verbal paradigm with umlaut; as long as a variety has some verbs with umlaut, it allows for V2 imperatives. German poses us with an additional related question: as we have seen, a set of German verbs does not use the umlauting stem as the imperative, but the non-umlauting stem. However, this does

[13] I assume that the visibility of features on the element in Spec,CP is not affected by the Probing features on C, either because Spec-Head Agree is more of a 'sharing' or unification operation (cf. Kratzer, 2009), or because the distal pro-form c-commands the subject by itself.

not affect the possibility of having V2 word order in imperatives. The solution I suggest, and that will solve both issues, is that it is the most highly specified imperative verb that will serve as a 'model' for all imperative verbs in the language (see Barbiers (2007) for a similar approach). The intuition is that when a child acquires their language, they learn that a substantial part of the imperative verbs in their language are able to license the imperative subject, fully or partially, because these verbs are specified for φ-features. They will then extrapolate (or overgeneralise) this knowledge to other verbs; it is a reasonable and economic assumption that all imperative verbs have the same morphosyntactic properties. Because the model imperative is able to licenses imperative subjects, all other imperative verbs will be able to do this too. In the German case, the umlauting verb that seems to determine V2 imperatives is more highly specified than the non-umlauting verb; it is thus more informative, and will be used as the 'model' verb for German imperatives.

4.4.3 Interim conclusion

This section discussed the analysis of V2 imperatives in varieties of West Germanic. The main proposal is that the imperative subject can be licensed by features on lexical elements in the CP, specifically the imperative verb in C, and topicalised constituents in Spec,CP. If the imperative subject is licensed this way, there is no need for an imperative operator in Spec,CP that licenses the imperative subject. This means that Spec,CP is empty in these imperatives, and that this position can be targeted by movement. This results in the V2 word order in imperatives.

On the other hand, we cannot do away with the imperative operator entirely. In all the varieties that I discussed, V1 imperatives are also allowed. This is particularly noteworthy for the Dutch varieties, because the imperative subject in these varieties requires the presence of a distal pro-form in Spec,CP to be fully licensed. In V1 imperatives in these varieties, we therefore need an operator in Spec,CP for full licensing of the imperative subject. Even more so, in standard Dutch, there is no way to license the imperative verb using lexical items, because standard Dutch does not have umlaut, and therefore its imperative verbs are not specified for φ-features. Instead, every standard Dutch imperative needs an operator to license the subject. This explains why standard Dutch only allows V1 imperatives: the imperative operator always fills Spec,CP, blocking movement to that position.[14]

Based on these results, I conclude that insertion of the imperative operator in Spec,CP is a last resort solution to licensing the imperative subject. If the subject cannot be licensed by lexical material, the imperative operator will be used. What this means is that imperatives do not inherently have a special syntax. Instead, imperatives

[14] One might wonder why the one unique imperative verb in Standard Dutch (*wees* 'be') does not license V2 imperatives. In fact, it follows from the theory presented here that it cannot. The form *wees* in indeed unique to imperatives, i.e. it is not used as a stem anywhere else in the paradigm. This means that *wees* is specified as IMP, but not for person features. Since IMP can be regarded as an instruction for which form is to be inserted, but does not have to say anything about the formal licensing of imperative subjects, the actual imperative subject licenser needs to come from elsewhere, namely Spec,CP, blocking V2 imperatives also when using this unique imperative verb.

use the same lexical and syntactic building blocks as other clause types. But in imperatives, these building blocks can show different interactions. For instance, inherent φ-features on verbs, that play little to no functional role in declaratives and interrogatives, perform a crucial syntactic function in imperatives by licensing the imperative subject. Furthermore, they control what type of elements can move to Spec,CP in imperatives.

In the next section, I will show that licensing of the imperative subject without an imperative operator is not just found in West Germanic. I discuss the analysis of allocutive imperatives in Punjabi by Kaur (2020), who shows that in these imperatives, the allocutive marking licenses the imperative subject. This shows that it is a more general phenomenon that imperatives use independently present lexical or functional material to gain imperative force.

4.5 Imperatives beyond West Germanic: Allocutive imperatives in Punjabi (Kaur, 2020)

In a recent paper, Kaur (2020) looks at the syntax of allocutive imperatives in Punjabi (Indo-Aryan). She starts by showing that Punjabi has two types of imperatives. The first is a plain imperative, in which the imperative verb inflects for features of the subject according to an imperative-specific paradigm. This imperative is illustrated in (54), where the verb shows singular or plural agreement, depending on the number feature of the subject (addressee). The second imperative is an 'allocutive' imperative. In the allocutive imperative, the verb is suffixed with a unique morpheme *(e)yaa*. Crucially, instead of regular imperative agreement, this imperative expresses allocutive marking. An example is given in (55). The allocutive imperative is morphologically plural, but can be used both with singular and plural addressees.

(54) a. kitaab paRh-∅
book read-IMP.2SG
'Read the book!' (to a singular addressee)

b. kitaab paRh-o
book read-IMP.2PL
'Read the book!' (to a plurality of addressees) (Kaur, 2020, p. 7)

(55) kitaab parheyaa je
book read ALLOC.PL
'Read the book!' (to a honorific addressee (SG/PL)) (Kaur, 2020, p. 9)

Kaur shows that allocutive marking does not only appear in imperatives in Punjabi, but also in other clause types, as illustrated in (56). In Punjabi, there are two verbal elements in the clause: the main verb, that agrees for number and gender, and a clause-final auxiliary, that inflects for person and number (see (57)). As (56) shows, allocutive marking is also expressed in a clause-final position. In the present tense, allocutive marking blocks the realisation of the clause-final auxiliary, compare (57) with (56a). In the past tense, the auxiliary and allocutive agreement co-occur, as in (56b).

(56) a. o billii paaldaa je
3SG.NOM cat.F.SG raise.HAB.M.SG ALLOC.PL
'He raises cats.'

b. o billii paaldaa sii je
3SG.NOM cat.F.SG raise.HAB.M.SG be.PST.3SG ALLOC.PL
'He used to raise cats.' (Kaur, 2020, p. 18)

(57) o billii paaldaa e
3SG.NOM cat.F.SG raise.HAB.M.SG be.PRS.3SG
'He raises cats.' (Kaur, 2020, p. 16)

There is an important restriction on the distribution of allocutive marking: allocutive marking cannot be used in clauses that would express first or second person agreement on the auxiliary. In (58), the auxiliary inflects for first person plural. Example (59) shows that it is not possible to replace the auxiliary with the allocutive marker.

(58) asii / tusii billii paalde aaN / o
1PL.NOM / 2PL.NOM cat.F.SG raise.HAB.M.PL be.PRS.1PL / be.PRS.2PL
'We / you raise cats.' (Kaur, 2020, p. 16)

(59) * asii / tusii billii paalde je
1PL.NOM / 2PL.NOM cat.F.SG raise.HAB.M.PL ALLOC.PL
'We / you raise cats.' (Kaur, 2020, p. 17)

Based on this pattern, Kaur concludes that in Punjabi, every clause can host exactly one instance of first or second person agreement; in (56), the allocutive marker expresses second person agreement. In (58), the auxiliary expresses first person agreement. In (59), both the (suppressed) auxiliary and the allocutive marker express person, and this causes ungrammaticality.

Kaur argues that this pattern can be understood if Punjabi has a unique person Probe in every clause. There are two ways to value this Probe. First, the Probe can Agree with a first or second person subject, resulting in agreement on the auxiliary (58). The second option is that the Probe Agrees with a syntactically represented Addressee (following Miyagawa, 2017). This leads to allocutive marking. Both first or second person agreement, and allocutive marking, are thus due to agreement with the same Probe. For this reason, first or second person agreement on the auxiliary and allocutive marking cannot be present at the same time; they depend on the same Probe which can only be valued once.

The one-Probe analysis has an important implication for imperatives. In the plain imperative, the verb shows imperative-specific inflection. Kaur proposes that this results from a person Probe that is marked as imperative (formalised as the Jussive head, cf. Zanuttini, 2008; Zanuttini et al., 2012). Allocutive imperatives show allocutive marking; this requires a different Probe that leads to allocutive marking. Because of the one-Probe restriction, the special imperative Probe must be absent in the allocutive imperatives. Still, the allocutive imperative is an imperative; so its imperative nature cannot depend on the presence of imperative specific material such as the Jussive head.

If allocutive imperatives in Punjabi do not contain dedicated imperative material, how does the subject get licensed in these imperatives? The idea that Kaur puts forward is that the Probe in allocutive imperatives Agrees with both the subject of the imperative and the syntactically represented Addressee. When the Addressee values the features of the Probe, the features of the Addressee will also be shared with the subject. The proposal is that this is what licenses the imperative subject in allocutive imperatives.

This mechanism of licensing the imperative subject in Punjabi allocutive imperatives shows many similarities to the mechanism of licensing the imperative subject in V2 imperatives in West Germanic. In both cases, the features that are used to license the imperative subject are not exclusively part of imperatives; rather, they show up in all clause types in the form of allocutive marking or umlaut, but are put to use in a special way in imperatives. And, crucially, both cases do not rely on the presence of dedicated imperative material. Both in Punjabi and in West Germanic, there are empirically motivated arguments against the presence of special imperative material: in Punjabi, this is the one-Probe restriction, and in West Germanic, it is V2 word order. Finally, this excursion into Punjabi shows that languages can employ completely different and language-specific means for licensing imperative subjects, but on an abstract level, these mechanisms are highly similar, involving an interaction between the imperative subject and second person features that are introduced in the clause as part of the lexical items or the morphosyntactic properties of a language.

4.6 Alternative analyses

4.6.1 Barbiers (2013)

The first alternative analysis of the contrasts in V2 imperatives in West Germanic I will discuss is by Barbiers (2013) (see also Barbiers, 2007). Barbiers starts from the observation that German allows V2 imperatives, and that eastern Dutch dialects do too, but only with distal pro-forms in the sentence-initial position. He furthermore notes that some German verbs have a unique imperative verb due to umlaut. This is illustrated with *geben* 'to give' in (60). Note that Barbiers considers the stem plus inflectional morphology to be the relevant form.

(60) a. ich gebe
I give

b. du gibst
you give

c. er gibt
he gives

d. gib!
give.IMP

Standard German

In spirit with many earlier proposals, he proposes that imperatives need to be marked as second person in the CP. For German, he argues that the unique German imperative verb is specified as [2P]. When it moves to C, it can successfully mark the CP as second person, leaving Spec,CP free for other elements to move to.

For the eastern Dutch dialects, Barbiers (2013) shows that there is a certain overlap between varieties that allow V2 imperatives and varieties that have subject clitic doubling of second person pronouns in verb-subject word orders. A Brabantic example is given in (61) (cf. (30)), where *de* is the clitic double of the subject.

(61) a. gij gift
you give

b. gif=de gij
give=2P you

Veghel Dutch

As already mentioned in section 4.4.1, Barbiers (2013) decomposes second person into the features [Person] and [Distal]. He proposes that the clitic double *de* is specified for a partial set of these features, in particular only the feature [Person]. The idea is then that in the varieties with subject doubling, the clitic double incorporates into the declarative verb, marking it as [Person]. While in imperative clauses there is no overt subject doubling of the second person subject, Barbiers proposes to extend the process that happens in declaratives to imperatives, with the result that imperatives in these varieties are also, covertly, marked as [Person]. In order to mark the imperative CP as second person, the feature [Distal] is still needed, and this can be supplied via a distal pro-form, deriving the restricted nature of V2 imperatives in the varieties with subject doubling.

The analysis proposed by Barbiers overlaps to a certain extent with the analysis developed in this chapter. In particular, both analyses take into account the fact that German has umlaut and that this can affect the form of the imperative verb, and the analyses converge on the idea that marking of the imperative as second person results from the combined force of the verb and the distal pro-form in dialects of Dutch. There are several empirical and theoretical reasons why the current analysis is more attractive, though.

Starting with the empirical issues, Barbiers' analysis both over- and undergenerates, as there is not a perfect match between the Dutch varieties that allow V2 imperatives and the varieties that have subject clitic doubling of second person pronouns. As can be seen in figure 4.4 (which, for clitic doubling, includes varieties with complementiser agreement for 2SG, which I argued to be clitic doubling in Chapter 3), the whole Frisian language area has clitic doubling, but does not allow for the V2 word order in imperatives.[15] In addition, dialects in the Low Saxon area do not have subject clitic doubling, but do allow V2 imperatives.

Barbiers is aware of the undergeneration issue regarding the Dutch Low Saxon varieties, and suggests that some varieties have abstract clitic doubling and subsequent incorporation. However, in the absence of empirical evidence, it seems impossible for such a system to be acquirable, so this is not a tenable solution. The correlation between verbal umlaut and V2 imperatives that I observed in section 4.3.1 shows a much greater overlap in terms of the geographical distribution, and thus reaches a

[15] Barbiers does not consider Frisian to be a clitic doubling language, so these varieties are not problematic in his original proposal.

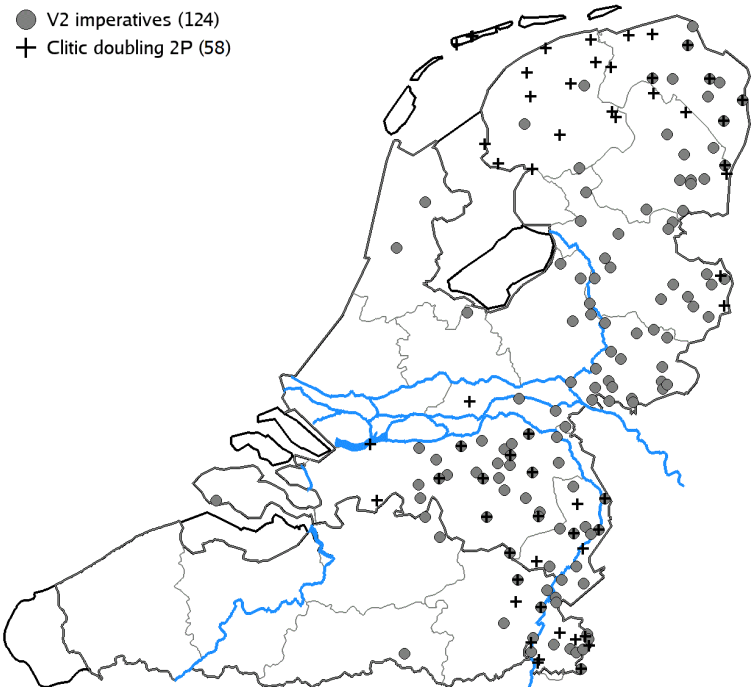


Figure 4.4: V2 imperatives and clitic doubling of 2P (DynaSAND)

higher level of empirical adequacy than the correlation between V2 imperatives and clitic doubling.

The Brabantic dialects present another issue for Barbiers' (2013) analysis. As shown in section 4.3.2, the umlaut pattern in East Brabantic and German is the same; as a consequence, the East Brabantic imperative verb has a unique form. In Barbiers's analysis, this means that the East Brabantic imperative verb is inherently specified for second person features, and that it would allow for V2 imperatives without any restrictions on the type of elements that can be fronted. East Brabantic only allows for fronting of distal pro-forms, however. Although this problem could be solved using a similar solution as I have opted for in section 4.4.2, as it stands, it is a problem for Barbiers' analysis of the contrasts in V2 imperatives in West Germanic.

As illustrated in much detail in the previous sections, the analysis that I proposed in this chapter does not face the undergeneration issue that the analysis by Barbiers faces: the current analysis derives all patterns of V2 imperatives. While Barbiers recognises the relevance of umlaut for accounting for the pattern in German, I have shown that umlaut correlates with V2 imperatives in the whole language area, and I argued that umlaut is the relevant factor for accounting for V2 imperatives in all varieties. This allowed me to provide a uniform account of the variation in V2 imperatives. As such, the current analysis is an extension of Barbiers (2013) and makes the analysis more precise.

4.6.2 Koopman (2007)

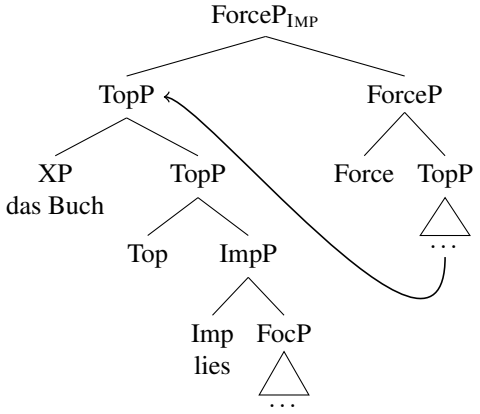
A different approach to V2 imperatives is argued for by Koopman (2007), who specifically looks at the contrast between Dutch (no V2 imperatives) and German (V2 imperatives are allowed). Her analysis is embedded in the more general decomposition of the left periphery by Rizzi (1997, 2001) into the projections in (62).[16]

(62) [Force [Top [Int/Imp/Decl [Foc [Top [Fin [...]]]]]]]

Koopman (2007) proposes that in Dutch imperatives, Force attracts the projection containing the imperative verb (ImpP) to Spec,ForceP, which results in typing the clause as an imperative. Because ForceP is the highest projection, It also causes the verb to be in a position that precedes potential hosts for constituents that move to the left periphery, such as Topic and Focus. Furthermore, Koopman assumes a strict Doubly filled COMP filter (cf. Koopman, 1996). Because of this filter and clause typing in ForceP, V2 imperatives are blocked: First, there can be no element in Spec,ImpP (in Spec,ForceP). Imp hosts the imperative verb, and presence of an element in Spec,ImpP would violate Doubly filled COMP. Second, if a larger phrase in which ImpP is embedded is attracted to Spec,ForceP, the clause cannot be typed because ImpP is too deeply embedded; this excludes movement of e.g. TopP, which can contain an overt topic, to Spec,ForceP. This movement operation is illustrated in (63). The V1 effect in Dutch imperatives is thus derived without making recourse to an imperative operator (in contrast with the assumption in this chapter).

(63) a. Das Buch lies mal nicht!
that book read.IMP PTCL not
'Don't read that book!' Standard German (Barbiers, 2013, p. 5)

b.



(cf. Koopman, 2007, p. 176)

In contrast to Dutch, V2 imperatives are allowed in German. Koopman proposes that German has a less restrictive clause typing requirement, which does allow clause

[16] Instead of the Int/Imp/Decl projection, Rizzi (2001) exclusively speaks of IntP, but Koopman (2007) proposes that this position hosts clause-typing elements more generally.

typing by a projection that is embedded in another projection; clause typing by Imp is therefore allowed in the structure in (63). This way, she derives that German topics can occur to the left of the imperative verb.

However, as I have discussed before, not only topics can occur in the left periphery of imperatives; contra Koopman (2007), according to Schwager (2008), foci are also allowed (64). This is unexpected under Koopman's approach to V2 imperatives: foci are lower in the left periphery than the imperative verb (62), so they should never be able to occur as the initial constituent in the imperative.

(64) DAS gib mir mal züruck!
that give me PTCL back
'Give me THAT back!' German (Schwager, 2008, p. 557)

The intermediate status of V2 imperatives in dialectal Dutch also does not seem to follow straightforwardly under Koopman (2007)'s analysis. In order to account for the grammaticality of V2 imperatives with a distal pro-form as the sentence-initial element, we would need to assume that a TopP with a distal pro-form in its specifier behaves differently than a TopP with another type of constituent in its specifier. There is no evidence that this is the case.

The final issue with Koopman (2007)'s analysis concerns the locus of variation. To explain the contrast between Dutch and German imperatives, Koopman proposes that imperatives in these languages differ in their clause typing restrictions: in Dutch imperatives, a clause typer cannot be embedded, whereas in German imperatives it can. This type of variation is not restricted to cross-linguistic variation; in order to account for V2 word order in declaratives, a structure like (63) must be allowed in declaratives in both languages. This means that the clause typing requirement in Dutch varies across clause types. Within Minimalist syntax, this is an unattractive move, as it seems to require parametrisation of basic syntactic operations and locality. Ideally, the configuration that is required to achieve clause typing can be derived from basic syntactic operations and principles, and it is thus unlikely to find variation in this domain. Although Koopman's analysis can dispense with the imperative operator, the assumption of such an operator does not violate core assumptions about syntax, which is why I think it is preferable.

4.7 Conclusion

In this chapter, I investigated the V2 word order in imperatives in varieties of West Germanic, with a focus on the variation between dialectal Dutch (V2 imperatives allowed with fronted distal pro-forms) and German (all V2 imperatives allowed). Given the hypothesis that imperatives contain a phrasal operator in Spec,CP, the V2 word order in West Germanic imperatives is surprising: because of the strict V2 nature of continental West Germanic languages, presence of an operator in Spec,CP should block movement to that position, resulting in V1 word order in imperatives.

I observed that there is a correlation between verbal umlaut and V2 imperatives; all varieties that allow V2 imperatives have verbs with umlaut. Based on a detailed

look at verbal umlaut, I concluded that verbal umlaut is the result of suppletion, discarding potential alternative analyses that are based on phonology, allomorphy, and Agree. I argued that the conclusion that verbal is suppletion implies that an umlauting verb corresponds to two lexical entries that are specified for person features in the mental lexicon. When such a stem is used as an imperative verb, it brings along those person features. Following Zanuttini (2008) and Zanuttini et al. (2012), I assumed that the imperative subject needs to be licensed via Agree with second person features: [Participant] and [Addressee]. Building on Barbiers (2013), I proposed that the person features on the imperative verb can (partially) license the imperative subject. In Dutch Low Saxon varieties and in Groningen and Limburg Dutch, the stem used as the imperative verb has the person feature specification [Participant]. The imperative verb can therefore partially license the imperative subject. The [Addressee] feature can come from a distal pro-form in Spec,CP, that is inherently specified as [Addressee]; this results in the V2 word order with a distal pro-form in the sentence initial position. In East Brabantic, the imperative verb is specified as [Participant] and [Addressee], but the [Addressee] feature cannot interact with the subject because the C head is a defective Probe (cf. Chapter 2). The [Addressee] feature can come from a distal pro-form in Spec,CP, again resulting in V2 word order with the restriction that the sentence initial element is a distal element. In German, the imperative verb is also specified as [Participant] and [Addressee]. These features can license the imperative subject, voiding the need for an operator in Spec,CP. Instead, Spec,CP remains open for other elements to move to, resulting in the possibility of a V2 word order in German imperatives.

I showed that licensing of the imperative subject by material that is not specific to imperatives is an option that is more generally available cross-linguistically, by looking at allocutive imperatives in Punjabi (Kaur, 2020). Punjabi allocutive imperatives differ from standard imperatives in that they do not have imperative specific verbal agreement, but allocutive agreement. I discussed the analysis by Kaur (2020), who argues that in allocutive imperatives, the imperative subject is licensed because of the presence of the allocutive agreement. The parallel to the analysis of V2 imperatives in West Germanic is that the imperative subject is licensed by something (verbal umlaut, allocutive agreement) that occurs also in other clause types. Furthermore, verbal umlaut and allocutive agreement are not just licensers of imperative subjects, but have different functions elsewhere in the syntax. On an abstract level, V2 imperatives in West Germanic and allocutive imperatives in Punjabi illustrate that imperative subjects can be licensed by non-imperative specific material. Finally, I considered two alternative analyses of V2 imperatives in West Germanic by Barbiers (2013) and Koopman (2007), and highlighted some empirical and theoretical issues that are overcome in my approach.

This chapter shows that φ-features on lexical (and functional) elements can be used to license the imperative subject, if the lexical items and the subject are the right structural configuration. When φ-features on lexical items are sufficient for subject licensing, there is no need for an imperative operator in Spec,CP. I argued that in West Germanic, φ-features on verbal stems can contribute to imperative subject licensing. Morphologically, these features trigger verbal umlaut. This proposal accounted for

the properties and distribution of verbal umlaut in these languages. In addition the φ-features on the verb, φ-features on distal demonstrative pro-forms can license the imperative subject. As a result, only distal pro-forms can move to the sentence-initial position of the imperative. That means that φ-features can restrict which elements undergo movement in imperatives.

CHAPTER 5

Summary and conclusion

In this thesis, I investigated various aspects of φ-features, by studying microvariation in non-standard and minority West Germanic languages. The goal was to gain insight into the nature and locus of linguistic variation at the syntax-morphology interface.

In **Chapter 2**, I investigated variation in agreement in Dutch dialects, with a focus on position dependent agreement (PDA): agreement that varies depending on the word order of the subject and the verb. A sentence illustrating PDA is given in (1). In the first clause of this example, the subject precedes the verb (subject-verb or SV word order), and the verb inflects with *-t*. In the second clause, the subject follows the verb (verb-subject or VS word order), and here the verb does not show overt inflection. The question that I set out to answer in Chapter 2 is how to derive this agreement alternation, and how we can explain variation in PDA in Dutch dialects.

(1) Als je gezond **leef-t**, **leef-Ø** je langer.
if you healthy live-AGR, live-Ø you longer
'If you live healthy, you will live longer.' Standard Dutch

Using data from the DynaSAND (Barbiers et al., 2006), I looked at over 200 verbal paradigms of Dutch dialects. Although there is a lot of variation between dialects, I showed that the major patterns can be captured by only six paradigms, five of which have PDA, and one does not. Furthermore, I showed that these paradigms all make use of the same affix inventory.

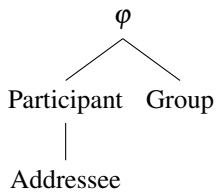
I then proposed a new analysis of PDA, that captures the five different PDA paradigms in a uniform way. Following Zwart (1997), I assumed that the verb in SV word order is in T, and that the verb in VS word order is in C. Both T and C are agreement Probes that Agree with the subject (in Spec,TP). My proposal is that the varying

agreement in T and C is the result of different agreement features in T and C: while T can copy all features of the subject under Agree, C is 'defective' and is unable to copy certain features of the subject to C.

To illustrate the analysis, consider again example (1). The agreement suffix used in the SV word order (*-t*) is also used in other contexts, and is the elsewhere suffix. The Ø ending used in the VS word order is only also used with first person singular, and I therefore argued that it is a uniquely specified first person singular suffix. In (1), the subject is a second person singular pronoun. When T Agrees with the subject (SV word order), it copies the whole set of features that make up second person singular. The suffix that matches this set of features is the elsewhere suffix *-t*, which will be inserted in T. When C Agrees with the subject (VS order order), it can only copy a subset of features from the second person singular subject. I assumed that the second person singular consists of three features: [+ Participant], [+ Addressee], [− Group]. In standard Dutch, the defective Probe C cannot copy [+ Addressee]. The features that are copied to C are [+ Participant] and [− Group]. This matches the specification of first person singular. Therefore, the Ø suffix will be inserted in the VS word order. This results in position dependent agreement: in the SV word order, the verb spells out full agreement, with the suffix *-t*. In the VS word order, the verb spells out defective agreement, with the Ø suffix.

To derive the five PDA paradigms, I demonstrated that we need three different types of defective C Probes, that differ in which φ-features they are unable to copy. I argued that this distribution of defective C Probes follows if features are organised in a φ-feature geometry (2) (cf. Harley and Ritter, 2002). The feature geometry expresses dependency relations between features. For instance, the feature [Addressee] is a dependent of the feature [Participant]. For the C Probe, this means that the feature [Addressee] can only be copied to the Probe if [Participant] is also copied. The feature geometry therefore imposes restrictions on possible defective Probes, capturing exactly which defective Probes are attested in Dutch dialects, and which are not.

(2)



Then, I looked in more detail at the representation of φ-features: are φ-features privative, univalent elements, that are either present or absent? Or are φ-features binary elements that have a + or a − value? This question addresses a foundational property of φ-features. I showed that in the PDA paradigms, there is evidence for both types of representations. In order to account for common and regular patterns of syncretism in PDA paradigms, reference to both the + and − values of features is necessary. This supports the idea that features are binary. However, the + and − values of φ-features do not behave equally. There is a direct relation between having a (contrastive) + value of a feature in the affix inventory, and presence of that feature

on the C Probe. No such relation is observed between a − value and the C Probe. This observation is best captured with privative φ-features, because the distinction between presence (or +) and absence (or −) is inherent to the privative representation of features. I showed that in the literature on φ-features, arguments in favour of privative φ-features are based on syntactic phenomena, whereas arguments in favour of binary φ-features are based on phenomena in morphology. Based on this, and the evidence from the PDA paradigms, I concluded that the representation of φ-features is not uniform in syntax and morphology. In syntax, φ-features are privative, but in morphology, φ-features are binary. The evidence for privative and binary features based on the Dutch PDA paradigms can now be easily understood. The C Probe plays a role in syntax, and can therefore encode the inherently unequal distinction between presence and absence of φ-features using privative features. Patterns of syncretism, on the other hand, are derived in morphology, and can thus make use of both the + and − values of the binary representation of φ-features.

In the remainder of the chapter, I demonstrated how the analysis of PDA based on defective Probes can be extended to account for PDA in standard Arabic. I also showed that the defective Probe analysis is more successful in capturing the different paradigms with PDA than previous morphological and syntactic approaches.

The wider theoretical implications of Chapter 2 are as follows. First, I presented a novel argument that φ-features are organised in a feature geometry, based on an entirely new empirical domain: microvariation in position dependent agreement in Dutch dialects. Based on my analysis of PDA in terms of defective C Probes, I showed that the feature geometry of φ-features captures all and exactly those defective Probes attested in Dutch dialects. The idea that φ-features are organised in a geometry is not new: Harley and Ritter (2002) also argue for a φ-feature geometry, based on a completely different set of data: the inventory of pronouns in a large, typologically diverse set of languages. The convergence of my and Harley and Ritter (2002)'s results shows that the φ-feature geometry has wide-ranging effects in the grammar, from pronouns to agreement, on a micro- and macrocomparative scale.

Second, I proposed that the representation of φ-features is different in syntax and morphology. I argued that in syntax, φ-features are privative, but that they are binary in morphology. This is a radical proposal, but not without precedent (see Preminger, 2017, and Kučerová, 2019 on the syntax-semantic interface). If correct, it opens up a whole range of possibilities for future research. On the empirical side, φ-feature valence can be used to diagnose if a phenomenon is syntactic or morphological in nature. On the theoretical side, the proposal has the potential to explain differences between φ-features and other types of features, such as case features. For instance, in the domain of case, there are strong restrictions on the sort of syncretisms that are attested cross-linguistically (see e.g. Caha, 2009). In the domain of φ-features, there are no such restrictions (Cysouw, 2011). The difference can be explained if for φ-features, we have access to a binary representation, whereas case features are only privative.

In **Chapter 3**, I looked at complementiser agreement (CA), with a focus on intervention effects in Frisian and Limburgian. An example of CA in Frisian is given in (3). In this example, the complementiser *dat* ('that') agrees with the subject of the

embedded clause.

(3) Jan sei dat-st do fegetarysk ytst.
Jan said that-2SG you vegetarian eat.2SG
'Jan said that you eat vegetarian.' Frisian

When an element, typically a focus particle, linearly intervenes between the complementiser and the subject, CA is often disrupted. In Frisian, intervention of this kind leads to ungrammaticality, see (4). In Limburgian, intervention leads to a shift of CA from the complementiser to the intervener, illustrated in (5). In Chapter 3, I analysed these intervention effects, with the goal of gaining insight into the nature of CA.

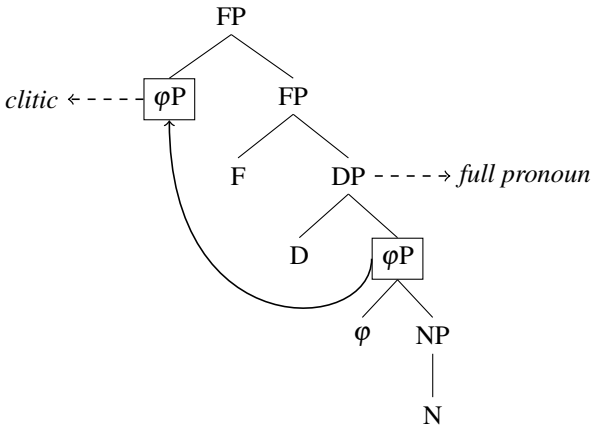
(4) * Jan sei dat-st ek do fegetarysk ytst.
Jan said that-2SG also you vegetarian eat.2SG
'Jan said that you, too, eat vegetarian.' Frisian

(5) Jan zei dat auch-s tich waal ens vegetarisch uts.
Jan said that also-2SG you sometimes vegetarian eat.2SG
'Jan said that you, too, sometimes eat vegetarian.' Limburgian

I started by looking at the properties of the CA morpheme in detail. Morphologically and syntactically, the CA morpheme shows different behaviour from other agreement morphemes in Frisian and Limburgian. The first special property of the CA morpheme is that it can attach to a variety of elements; apart from complementisers and verbs, it can also attach to, for example, wh-phrases and focus particles. The next property is that the CA morpheme is insensitive to alternations of the (verbal) stem it attaches to. This can be seen in two contexts. First, in contrast to many other agreement morphemes in Dutch and Frisian dialects, the CA morpheme does not show tense allomorphy; the form of the CA morpheme is always the same, regardless of the tense of the verbal stem. Second, when a verbal stem is umlauting in Limburgian, the CA morpheme is never dropped, in contrast to the third person singular agreement morpheme. Another property of the CA morpheme in Frisian and Limburgian is that it is a unique, non-syncretic morpheme. The final special property of the CA morpheme is that it can appear without an independent pronoun in Frisian, giving rise to apparent *pro*-drop. These properties of the CA morpheme all point to the conclusion that the CA morpheme is not an affix, but a clitic. I therefore concluded that in Frisian and Limburgian, CA is not agreement, but the result of subject clitic doubling.

The conclusion that CA is clitic doubling formed the starting point for the analysis of the intervention effects on CA in Frisian and Limburgian. I adopted the analysis of clitic doubling by van Craenenbroeck and van Koppen (2008). According to this analysis, a clitic is structurally contained in a full pronoun (cf. Déchaine & Wiltschko, 2002). Clitic doubling is the result of copying of the clitic substructure, followed by movement of the copy to a higher position, where is it realised. The analysis is illustrated in (6). In this structure, the full pronoun is the DP, and the clitic is the φP, that moves to Spec,FP. Both the clitic and the full pronoun are then spelled out.

(6)

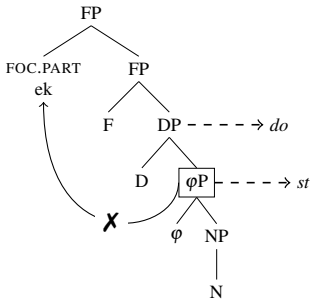


I assumed that movement of the clitic is restricted by two factors: the Subject Condition (Chomsky, 1973) and anti-locality (Abels, 2003). The Subject Condition blocks movement of the clitic out of the subject (the FP in (6)). Anti-locality forces the clitic to skip at least one maximal projection when it moves (DP in (6)). As a result, the only possible landing site for the φP clitic in (6) is Spec,FP, as indicated.

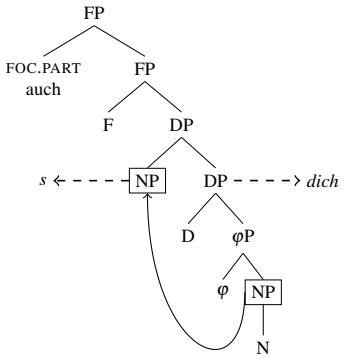
For Frisian, I showed that the clitic is a φP. In a Frisian sentence with CA, the φP part of the subject undergoes doubling and movement to Spec,FP (as in (6)), where it is spelled out. This leads to CA. I argued that a focus particle that intervenes between the complementiser and the subject sits in Spec,FP. In a sentence with CA and an intervening focus particle, movement of the φP clitic to Spec,FP is therefore blocked. There is also no other position that the clitic can move to. The clitic cannot move out of the FP because of the Subject Condition. It also cannot move to Spec,DP, because this would violate anti-locality. Because the clitic is created, but cannot move, the structure crashes, illustrated in (7). This results in the ungrammaticality of intervention between a complementiser and a second person singular subject in Frisian.

In Limburgian, the CA clitic is not a φP, but a NP. In a Limburgian sentence with CA, the clitic NP can move to Spec,FP to be spelled out there, leading to CA. When a focus particle intervenes between the complementiser and the subject, Spec,FP is filled by it. Therefore, the clitic cannot move to Spec,FP anymore. However, because the Limburgian CA clitic is structurally smaller than the Frisian CA clitic, the Limburgian CA clitic can move to Spec,DP instead, without violating anti-locality. This is illustrated in (8). When the structure is realised, the clitic will be spelled out in between the focus particle and the full subject pronoun, leading to the observed shift of the CA morpheme when a focus particle intervenes between the complementiser and the subject in Limburgian.

(7)



(8)



In short, the clitic doubling analysis of CA accounts for the intervention effects on CA in Frisian and Limburgian. In the chapter, I additionally show that previous analyses of CA, that take CA to be agreement or the result of a PF operation, do not account for the observed intervention effects. Furthermore, I demonstrate that the clitic analysis offers insight into other contexts with CA, such as CA in subject relatives, and CA with extracted subjects.

The first implication of the analysis concerns the clitic doubling operation. In Frisian, intervention between the complementiser and the subject is ungrammatical, because the CA clitic is created, but unable to move. This shows that doubling or creation of the clitic, and movement of the clitic are separate steps. In other words, clitic doubling is a two-step operation. Both steps can fail, and this leads to different grammatical outcomes. Failure of doubling is discussed by Preminger (2014), and leads to a grammatical structure, but without clitic doubling. Failure of movement is what happens in Frisian, and leads to ungrammaticality.

The second implication is empirical, and relates to the typology of partial *pro*-drop languages. Partial *pro*-drop languages often show a participant-based split regarding the pronouns that can be dropped; for instance, in Hebrew, only first and second person pronouns can be dropped (Vainikka & Levy, 1999). West Germanic languages with CA are among the very few examples that show a different pattern: in these languages, only the subjects that trigger CA, or have other clitic-like properties, can undergo *pro*-drop. For instance, in Frisian, only a second person subject triggers CA and can be dropped. The analysis of CA as clitic doubling calls for a reinterpretation of partial *pro*-drop in West Germanic. Rather than an example of a unique type of partial *pro*-drop, we are dealing with a case where the pronoun is realised as a clitic. Because the West Germanic examples of partial *pro*-drop can be reanalysed this way, the typology of partial *pro*-drop should be restricted to only participant-based splits.

In **Chapter 4**, I investigated verb-first (V1) and verb-second (V2) word order in imperatives in standard Dutch, Dutch dialects, and standard German. Imperatives in these language varieties are typically V1, as illustrated for standard Dutch in (9). In eastern Dutch dialects and German, imperatives can also have a V2 word order. Examples are given in (10) and (11). Between the eastern Dutch dialects and German,

there is a further contrast: in eastern Dutch dialects, only distal demonstratives and adverbs, such as *dat* 'that' or *dan* 'then', can be the first element in an imperative. In German, there is no such restriction (Barbiers, 2013).

(9) Lees dat boek maar niet!
read.IMP that book PTCL not
'Don't read that book!' Standard Dutch

(10) Da lees maar nie!
that read.IMP PTCL not
'Don't read that!' Eastern Dutch dialects (Barbiers, 2013, p. 5)

(11) Das Buch lies mal nicht!
that book read PRTC not
'Don't read that book!' Standard German (Barbiers, 2013, p. 5)

It is surprising that V2 imperatives are grammatical in eastern Dutch dialects and German. Continental West Germanic languages are V2 languages, meaning that exactly one constituent can precede the main verb in matrix clauses. In imperatives, the first constituent is assumed to be an empty imperative operator (Bennis, 2007; Zanuttini, 2008). It should therefore not be possible to also have an overt constituent to the left of the main verb. The aim of Chapter 4 was to explain the variation in word order in imperatives in Dutch, Dutch dialects, and German.

Using data from the DynaSAND and GTRP, I demonstrated that in Dutch dialects, there is a correlation between allowing V2 imperatives, and umlaut in the present indicative verbal paradigm. An example of verbal umlaut is given in (12). In this example, the second and third person singular verbs are umlauting, meaning that the stem vowel of the verb is fronted. The correlation is uni-directional: if a variety allows for V2 imperatives, it also has verbal umlaut. The correlation was further supported by statistical evidence and fieldwork data. It also holds for German.

(12) a. ik geef b. gij gift c. hij gift
I give you give he gives
Veghel Dutch

I then looked in more detail at the properties of verbal umlaut to identify its underlying cause. First, I showed that umlaut is not phonologically conditioned; it is not the result of a phonological rule. I then considered whether umlaut is the result of stem allomorphy. Based on the tests by Weisser (2019) and van Alem (2020), I showed that umlaut is not the result of allomorphy. The next hypothesis I considered was that umlaut is the result of Agree. I demonstrated that umlaut does not behave like other agreement morphemes, based on which I also rejected the idea that umlaut is the result of Agree. The remaining option is that umlaut is the result of lexically conditioned suppletion. I showed that this approach correctly captured the properties and distribution of verbal umlaut. Concretely, this conclusion means that the alternating stem forms are each stored in the mental lexicon. The stem forms are inserted based

on the morphosyntactic features in the syntactic structure. I argued that the features that condition insertion of the alternating stems are person features. This means that the lexical entry of the verbal stems includes a specification for person features.

In Dutch dialects and German, there are three distinct patterns of verbal umlaut. In Dutch Low Saxon dialects, only the third person singular stem is umlauting. The other verbs of the present indicative paradigm, and the imperative verb, are not umlauting. In order to capture this pattern, I argued that the umlauting form is underspecified, and that the non-umlauting form is specified as [Participant]. This means that the imperative verb is also specified for the feature [Participant]. In Groningen and Limburg Dutch, the second and third person singular stems are umlauting. The other present tense verbs and the imperative verb are not. In East Brabantic dialects of Dutch, and German, the second and third person singular verbs in the present indicative are umlauting, as is the imperative verb, which has the same form as the second person singular verb stem. To capture these patterns, I proposed that there are three stems in the mental lexicon, that are fully specified for person features. Importantly, the imperative verb in Groningen and Limburg Dutch is specified as [Participant], and the imperative verb in East Brabantic and German is specified as [Participant] and [Addressee].

The analysis of verbal umlaut is essential to the analysis of word order in imperatives. Following Zanuttini (2008) and Zanuttini et al. (2012), I assumed that the subject in imperatives needs to be licensed through Agree with second person features ([Participant] and [Addressee]). Building on the analysis of V2 imperatives by Barbiers (2013), I argued that the second person features can come from three different sources: the imperative verb; the element preceding the imperative verb; or a covert imperative operator. With this background in mind, the variation in word order in (dialectal) Dutch and German imperatives can be derived.

In standard Dutch, imperatives are always V1. Because standard Dutch does not have verbal umlaut, the imperative verb is not specified for person features. In the imperative, the features that are required to license the imperative verb therefore have to all come from the element that precedes the imperative verb. The only element that is able to provide these features is the covert imperative operator. Because the operator occupies the position preceding the imperative verb, standard Dutch imperatives will always be V1.

In the eastern Dutch dialects, V2 imperatives are allowed. Dutch Low Saxon dialects and Groningen and Limburg Dutch are varieties with verbal umlaut. The imperative verb in these varieties is specified for the feature [Participant]. It can therefore contribute half of the required features to the imperative subject; the other feature ([Addressee]) should come from the element preceding the imperative verb. In Dutch dialects, V2 imperatives are only allowed when the sentence-initial element is a distal pro-form. It has been argued that distal element share features with second person (see e.g. Barbiers, 2013; Harbour, 2016). Based on these arguments, I proposed that distal elements are specified for the feature [Addressee]. That means that a distal element that precedes the imperative verb can contribute the remaining [Addressee] feature to the imperative subject in Dutch Low Saxon dialects and in Groningen and Limburg Dutch. The result is that V2 imperatives are allowed in these varieties, with the restriction that the element preceding the imperative verb is a distal pro-form.

East Brabantic dialects also allow for V2 imperatives, with the restriction that the initial element is distal. The imperative verb in east Brabantic is specified for the features [Participant] and [Addressee]. However, the C head in east Brabantic, where the imperative verb is spelled out, is a defective Probe (see Chapter 2): it only has a [Participant] feature, but not an [Addressee] feature. I argued that for this reason, only [Participant] on the imperative verb can Agree with the imperative subject. The feature [Addressee] needs to come from the element that precedes the imperative verb. A distal element can provide this feature. As a consequene, V2 imperatives, where the initial element is a distal pro-form, are possible in east Brabantic dialects.

Finally, in German, V2 imperatives are allowed with no restriction on the sentence-initial element. The imperative verb in German is specified for [Participant] and [Addressee]. The C head in German is not a defective Probe; both [Participant] and [Addressee] can Agree with the subject to license it. The position preceding the imperative verb is left free, and can be the landing site for movement of any constituent from inside the imperative. This results in the V2 word order. In the chapter, I also discuss two previous analyses of V2 imperatives by Koopman (2007) and Barbiers (2013), and show that my analysis overcomes the theoretical and empirical issues of those analyses.

What the analysis of V2 imperative shows is that imperatives can 'opportunistically' use φ-features that are present in the sentence to license the imperative subject. In West Germanic, the features that are used to license imperatives come from verbal umlaut. I argued that this is possible, based on the proposal that verbal umlaut is suppletion, and that the alternating stem forms are stored in the lexicon with a φ-feature specification. This approach to verbal umlaut accounts for its morphological properties and distribution. Moreover, φ-features on lexical items can restrict certain types of movement in the imperatives, based on whether the moved element can contribute to licensing of the subject. If the imperative subject is licensed by φ-features on lexical items, then an imperative operator is not needed. This shows that the imperative operator is not obligatory in imperatives. Rather, it seems that the imperative operator can be inserted as a last resort option. This result calls for a a flexible approach to imperative licensing, in which φ-features can be used for licensing regardless of their origin.

Bibliography

Aalberse, S. (2009). *Inflectional economy and politeness: Morphology-internal and morphology-external factors in the loss of second person marking in Dutch* (Doctoral dissertation). University of Amsterdam.

Aalberse, S. & Don, J. (2011). Person and number syncretisms in Dutch. *Morphology*, *21*(2), 327–350.

Abels, K. (2003). *Successive cyclicity, anti-locality, and adposition stranding* (Doctoral dissertation). University of Connecticut.

Ackema, P. & Neeleman, A. (2003). Context-sensitive spell-out. *Natural Language & Linguistic Theory*, *21*(4), 681–735.

Ackema, P. & Neeleman, A. (2004). *Beyond morphology: Interface conditions on word formation*. Oxford University Press.

Ackema, P. & Neeleman, A. (2018). *Features of person: From the inventory of persons to their morphological realization*. MIT Press.

van Alem, A. (2017). *Topics in Dutch imperatives* (Master's thesis). Utrecht University.

van Alem, A. (2020). Complementizer agreement is not allomorphy: A reply to Weisser (2019). *Glossa: a journal of general linguistics*, *5*(1), 1–10.

van Alem, A. (2021). Licensing imperative subjects without an imperative operator: Evidence from word order in West Germanic imperatives. *The Journal of Comparative Germanic Linguistics*, *24*, 221–243.

van Alem, A. (Submitted-a). Complementiser agreement is clitic doubling: Evidence from intervention effects in Frisian and Limburgian.

van Alem, A. (Submitted-b). First conjunct complementiser agreement and the structure of coordination.

Alghamdi, A. (2015). *From root to nunation: The morphology of Arabic nouns* (Doctoral dissertation). University of New South Wales.

An, D.-H. (2006). Asymmetric T-to-C movement in ATB constructions. In S. Blaho, L. Vicente & E. Schoorlemmer (Eds.), *Proceedings of ConSOLE XIV* (pp. 1–19). Leiden University.

Anagnostopoulou, E. (2003). *The syntax of ditransitives: Evidence from clitics*. Mouton de Gruyter.

Aoun, J., Benmamoun, E. & Sportiche, D. (1994). Agreement, word order, and conjunction in some varieties of Arabic. *Linguistic Inquiry*, *25*(2), 195–220.

Aoun, J., Benmamoun, E. & Sportiche, D. (1999). Further remarks on first conjunct agreement. *Linguistic Inquiry*, *30*(4), 669–681.

Baker, M. (2008). *The syntax of agreement and concord*. Cambridge University Press.

Baker, M. & Kramer, R. (2018). Doubled clitics are pronouns: Amharic objects (and beyond). *Natural Language & Linguistic Theory*, *36*(4), 1035–1088.

Barbiers, S. et al. (2006). *Dynamische Syntactische Atlas van de Nederlandse Dialecten (DynaSAND)*. http://www.meertens.knaw.nl/sand

Barbiers, S. (2006). *Er zijn grenzen aan wat je kunt zeggen*. Inaugural lecture, Utrecht University.

Barbiers, S. (2007). On the periphery of imperative and declarative clauses in Dutch and German. In W. van der Wurff (Ed.), *Imperative clauses in generative grammar* (pp. 95–112). John Benjamins Publishing Company.

Barbiers, S. (2010). Focus particle doubling. In J.-W. Zwart & M. de Vries (Eds.), *Structure preserved: Studies in syntax for Jan Koster* (pp. 21–30). John Benjamins Publishing Company.

Barbiers, S. (2013). Geography and cartography of the left periphery: The case of Dutch and German imperatives. In X. Alvarez, E. Carrilho & C. Magro (Eds.), *Current approaches to limits and areas in dialectology* (pp. 267–292). Cambridge Scholars Publishing.

Barbiers, S. (2020). A sociogrammatical analysis of linguistic gaps and transitional forms. In K. V. Beaman, I. Buchstaller, S. Fox & J. A. Walker (Eds.), *Advancing socio-grammatical variation and change: In honour of Jenny Cheshire* (pp. 187–204). Routledge.

Barbiers, S. & Bennis, H. (2007). The Syntactic Atlas of the Dutch Dialects: A discussion of choices in the SAND-project. *Nordlyd*, *34*, 53–72.

Barbiers, S., Cornips, L. & Kunst, J. P. (2007). The Syntactic Atlas of the Dutch Dialects: A corpus of elicited speech and text as an online dynamic atlas. In J. Beal, K. Corrigan & H. Moisl (Eds.), *Creating and digitizing language corpora* (pp. 54–90). Palgrave Macmillan.

Barbiers, S., Koeneman, O. & Lekakou, M. (2010). Syntactic doubling and the structure of wh-chains. *Journal of Linguistics*, 1–46.

Barbiers, S., van Koppen, M., Bennis, H. & Corver, N. (2016). Microcomparative MOrphosyntactic REsearch (MIMORE): Mapping partial grammars of Flemish, Brabantish and Dutch. *Lingua*, *178*, 5–31.

Barrie, M. (2005). φ-features in the Onondaga agreement paradigm. In C. Gurski (Ed.), *Proceedings of the 2005 annual conference of the canadian linguistic association* (pp. 1–12).

Bayer, J. (1984). COMP in Bavarian syntax. *The Linguistic Review*, *3*(3), 209–274.

Béjar, S. (2003). *Phi-syntax: A theory of agreement* (Doctoral dissertation). University of Toronto.

Béjar, S. & Rezac, M. (2003). Person licensing and the derivation of PCC effects. In A. T. Pérez-Leroux & Y. Roberge (Eds.), *Romance linguistics: Theory and acquisition* (pp. 49–62). John Benjamins Publishing Company.

Bendjaballah, S. (2014). Remarks on nonconcatenative affixation. *Brill's Journal of Afroasiatic Languages and Linguistics*, *6*(1), 45–73.

Benmamoun, E. (2000a). Agreement asymmetries and the PF interface. In J. Lecarme, J. Lowenstamm & U. Shlonsky (Eds.), *Research in Afroasiatic grammar* (pp. 23–40). John Benjamins Publishing Company.

Benmamoun, E. (2000b). *The feature structure of functional categories: A comparative study of Arabic dialects*. Oxford University Press.

Benmamoun, E. & Lorimor, H. (2006). Featureless expressions: When morphophonological markers are absent. *Linguistic Inquiry*, *37*(1), 1–23.

Bennis, H. (2007). Featuring the subject in Dutch imperatives. In W. van der Wurff (Ed.), *Imperative clauses in generative grammar* (pp. 113–134). John Benjamins Publishing Company.

Bennis, H. & MacLean, A. (2006). Variation in verbal inflection in Dutch dialects. *Morphology*, *16*(2), 291–312.

van Bergen, G., Stoop, W., Vogels, J. & de Hoop, H. (2011). Leve hun! Waarom hun nog steeds hun zeggen [Long live them! Why them still say them]. *Nederlandse taalkunde*, *16*(1), 2–29.

Bhatt, R. & Walkow, M. (2013). Locating agreement in grammar: An argument from agreement in conjunctions. *Natural Language & Linguistic Theory*, *31*(4), 951–1013.

Bjorkman, B. & Zeijlstra, H. (2019). Checking up on (ϕ-)agree. *Linguistic Inquiry*, *50*(3), 527–569.

Bobaljik, J. (2008). Where's phi? Agreement as a post-syntactic operation. In D. Harbour, D. Adger & S. Béjar (Eds.), *Phi-theory: Phi-features across modules and interfaces* (pp. 295–328). Oxford University Press.

Boef, E. (2013). *Doubling in relative clauses: Aspects of morphosyntactic microvariation in Dutch* (Doctoral dissertation). Utrecht University.

Bonet, E. (1991). *Morphology after syntax: Pronominal clitics in Romance* (Doctoral dissertation). MIT.

Caballero, G. & Harris, A. C. (2012). A working typology of multiple exponence. In F. Kiefer, M. Ladányi & P. Siptár (Eds.), *Current issues in morphological theory: (ir)regularity, analogy and frequency* (pp. 163–188). John Benjamins Publishing Company.

Caha, P. (2009). *The nanosyntax of case* (Doctoral dissertation). University of Tromsø.

Caha, P. (2018). Notes on insertion in Distributed Morphology and Nanosyntax. In L. Baunaz, K. De Clerq, L. Haegeman & E. Lander (Eds.), *Exploring Nanosyntax* (pp. 57–87). Oxford University Press.

Cardinaletti, A. & Starke, M. (1999). The typology of structural deficiency: A case study of the three classes of pronouns. In H. van Riemsdijk (Ed.), *Clitics in the languages of Europe* (pp. 145–234). De Gruyter Mouton.

Carstens, V. (2003). Rethinking complementizer agreement: Agree with a case-checked goal. *Linguistic Inquiry*, *34*(3), 393–412.

Chomsky, N. (1973). Conditions on transformations. In S. R. Anderson & P. Kiparsky (Eds.), *A festschrift for Morris Halle* (pp. 232–286). Holt, Rinehart & Winston.

Chomsky, N. (1993). A Minimalist Program for linguistic theory. In K. Hale & S. J. Keyser (Eds.), *The view from Building 20: Essays in linguistics in honor of Sylvain Bromberger* (pp. 1–52). MIT Press.

Chomsky, N. (2000). Minimalist inquiries: The framework. In J. U. Roger Martin David Michaels & S. J. Keyser (Eds.), *Step by step: Essays on minimalist syntax in honor of Howard Lasnik* (pp. 89–155). MIT Press.

Chomsky, N. (2001). Derivation by Phase. In M. Kenstowicz (Ed.), *Ken hale: A life in language* (pp. 1–52). MIT Press.

Cinque, G. (1999). *Adverbs and functional heads: A cross-linguistic perspective*. Oxford University Press.

Citko, B. (2004). Agreement asymmetries in coordinate structures. In O. Arnaudova, W. Browne, M. L. Rivero & D. Stojanović (Eds.), *Proceedings of FASL* (pp. 91–109). Michigan Slavic Publications.

Citko, B. (2018). Complementizer agreement with coordinated subjects in Polish. *Glossa: a journal of general linguistics*, *3*(1), 1–25.

Coon, J. & Keine, S. (2021). Feature gluttony. *Linguistic Inquiry*, *52*(4), 655–710.

Corbett, G. (2006). *Agreement*. Cambridge University Press.

Cornips, L. & Poletto, C. (2005). On standardising syntactic elicitation techniques (part 1). *Lingua*, *115*(7), 939–957.

van Craenenbroeck, J. & van Koppen, M. (2002). Pronominal doubling and the structure of the left periphery in southern Dutch. In S. Barbiers, L. Cornips & S. van der Kleij (Eds.), *Syntactic microvariation* (pp. 280–304). Meertens Institute.

van Craenenbroeck, J. & van Koppen, M. (2008). Pronominal doubling in Dutch dialects: Big DPs and coordinations. In S. Barbiers, O. Koeneman, M. Lekakou & M. van der Ham (Eds.), *Microvariation in syntactic doubling* (pp. 207–249). Brill.

van Craenenbroeck, J. & van Koppen, M. (2018). *Phase voidance through clitic movement: Clitic interactions in Dutch dialects*. Unpublished manuscript, KU Leuven and Meertens Institute.

van Craenenbroeck, J. & van Koppen, M. (2019). *Untangling microvariation: A quantitative-qualitative analysis of morphosyntactic variation in Dutch dialects*. Slides of a talk at European Dialect Syntax 9, University of Glasgow.

Cysouw, M. (2001). *The paradigmatic structure of person marking* (Doctoral dissertation). Katholieke Universiteit Nijmegen.

Cysouw, M. (2011). The expression of person and number: A typologist's perspective. *Morphology*, *21*(2), 419–443.

De Schutter, G. et al. (2005). *Morfologische atlas van de Nederlandse dialecten (MAND).* http://www.meertens.knaw.nl/mand/database/

De Vriendt, S. (2003). *Grammatica van het Brussels*. Koninklijke Academie voor Nederlandse Taal- en Letterkunde.

Deal, A. R. (2015). Interaction and satisfaction in φ-agreement. In T. Bui & D. Özyıldız (Eds.), *NELS 45: Proceedings of the 45th meeting of the North East Linguistics Society* (pp. 179–192). GLSA.

Déchaine, R.-M. & Wiltschko, M. (2002). Decomposing pronouns. *Linguistic Inquiry*, *33*(3), 409–442.

Don, J., Fenger, P. & Koeneman, O. (2013). *Microvariation as a tool for linguistic analysis*. Unpublished manuscript, University of Amsterdam, University of Connecticut, and Radboud University.

Embick, D. & Noyer, R. (2001). Movement operations after syntax. *Linguistic Inquiry*, *32*(4), 555–595.

Fassi Fehri, A. (1993). *Issues in the structure of Arabic clauses and words*. Kluwer Academic Publishers.

Frampton, J. (2002). Syncretism, impoverishment, and the structure of person features. In M. Andronis, E. Depenport, A. Pycha & K. Yoshimura (Eds.), *CLS 38: The main session. Papers from the 38th meeting of the Chicago Linguistic Society* (pp. 207–222). CLS.

Fuß, E. (2004). Diachronic clues to pro-drop and complementizer agreement in Bavarian. In E. Fuß & C. Trips (Eds.), *Diachronic clues to synchronic grammar* (pp. 59–100). John Benjamins Publishing Company.

Fuß, E. (2008). Multiple agreement and the representation of inflection in the C-domain. *Linguistische Berichte*, *2008*(213), 77–106.

Fuß, E. (2014). Complementizer agreement (in Bavarian): Feature inheritance or feature insertion? In G. Grewendorf & H. Weiß (Eds.), *Bavarian Syntax. Contributions to the theory of syntax* (pp. 51–82). John Benjamins Publishing Company.

Georgi, D. (2014). *Opaque interactions of Merge and Agree: On the nature and order of elementary operations* (Doctoral dissertation). University of Leipzig.

Goeman, T. & Taeldeman, J. (1996). Fonologie en morfologie van de Nederlandse dialecten. Een nieuwe materiaalverzameling en twee nieuwe atlasprojecten. *Taal en Tongval*, *48*, 38–59.

Grosz, P. G. (2015). Movement and agreement in Right-Node-Raising constructions. *Syntax*, *18*(1), 1–38.

Gruber, B. (2008). *Complementiser agreement: New evidence from the Upper Austrian variant of Gmunden* (Master's thesis). University of Vienna.

Gruber, B. (2017). Temporal and atemporal uses of 'you': Indexical and generic second person pronouns in English, German, and Dutch. *The Journal of Comparative Germanic Linguistics*, *20*(3), 199–227.

Guajardo, G. (2020). *Defective agreement in Spanish dative clitic-doubling: A cross-dialectal study of morphosyntactic variation*. Unpublished manuscript, University of Tromsø.

de Haan, G. (1994). Inflection and cliticization in Frisian: -sto, -ste, -st. *NOWELE. North-Western European Language Evolution*, *23*(1), 75–90.

de Haan, G. (1997). Voegwoordcongruentie in het Fries. In E. Hoekstra & C. Smits (Eds.), *Vervoegde voegwoorden* (pp. 50–67). Meertens Institute.

de Haan, G. (2001). More is going on upstairs than downstairs: Embedded root phenomena in West Frisian. *The Journal of Comparative Germanic Linguistics*, *4*(1), 3–38.

de Haan, G. (2010). Complementizer agreement. In J. Hoekstra, W. Visser & G. Jensma (Eds.), *Studies in West Frisian grammar: Selected papers by Germen J. de Haan* (pp. 215–232). John Benjamins Publishing Company.

Haegeman, L. (1990). Subject pronouns and subject clitics in West-Flemish. *The Linguistic Review*, *7*, 333–363.

Haegeman, L. (1992). *Theory and description in generative syntax: A case study in West Flemish*. Cambridge University Press Cambridge.

Haegeman, L. & van Koppen, M. (2012). Complementizer agreement and the relation between C0 and T0. *Linguistic Inquiry*, *43*(3), 441–454.

Halle, M. (1997). Distributed morphology: Impoverishment and fission. In Y. K. Benjamin Bruening & M. McGinnis (Eds.), *MIT working papers in linguistics: PF—Papers at the interface* (pp. 425–449). MITWPL.

Halle, M. & Marantz, A. (1993). Distributed Morphology and the pieces of inflection. In K. Hale & S. J. Keyser (Eds.), *The view from Building 20: Essays in linguistics in honor of Sylvain Bromberger* (pp. 111–176). MIT Press.

Harbert, W. & Bahloul, M. (2002). Postverbal subjects in Arabic and the theory of agreement. In J. Ouhalla & U. Shlonsky (Eds.), *Themes in Arabic and Hebrew syntax* (pp. 45–70). Springer.

Harbour, D. (2011). Valence and atomic number. *Linguistic Inquiry*, *42*(4), 561–594.

Harbour, D. (2014). Paucity, abundance, and the theory of number. *Language*, *90*(1), 185–229.

Harbour, D. (2016). *Impossible persons*. MIT Press.

Harizanov, B. (2014). Clitic doubling at the syntax-morphophonology interface: A-movement and morphological merger in Bulgarian. *Natural Language & Linguistic Theory*, *32*, 1033–1088.

Harley, H. (1994). Hug a tree: Deriving the morphosyntactic feature hierarchy. In A. Carnie & H. Harley (Eds.), *Papers on phonology and morphology: MIT working papers in linguistics* (pp. 289–320). MITWPL.

Harley, H. (2014a). On the identity of roots. *Theoretical Linguistics*, *40*(3), 225–276.

Harley, H. (2014b). Reply to commentaries: On the identify of roots. *Theoretical Linguistics*, *40*(4), 447–474.

Harley, H. & Noyer, R. (1999). Distributed Morphology. *Glot international*, *4*(4), 3–9.

Harley, H. & Ritter, E. (2002). Person and number in pronouns: A feature-geometric analysis. *Language*, *78*(3), 482–526.

Harley, H., Tubino, M. & Haugen, J. D. (2016). Locality conditions on suppletive verbs in Hiaki. In V. Gribanova & S. Shih (Eds.), *The morphosyntax-phonology connection: Locality and directionality at the interface* (pp. 91–111). Oxford University Press.

Harris, J. & Halle, M. (2005). Unexpected plural inflections in Spanish: Reduplication and metathesis. *Linguistic Inquiry*, *36*(2), 195–222.

Hartmann, J. & Heycock, C. (2019). Restrictions on "low" person agreement in Dutch specificational copular constructions. *Linguistics in the Netherlands*, *36*(1), 130–146.

Himmelreich, A. (2019). Feature deletion by head movement–a new solution to agreement asymmetries in Modern Standard Arabic. In A. Murphy (Ed.), *Structure removal* (pp. 385–418). Universität Leipzig.

Hoekstra, E. (2020a). Double complementisers and reduction of the complementiser dat to /t/. https://www.taalportaal.org/taalportaal/topic/pid/topic-14151849553248698

Hoekstra, E. (2020b). Relative clause. https://www.taalportaal.org/taalportaal/topic/pid/topic-14115577585513502

Hoekstra, E. (2020c). Second person agreement and premodification. https://taalportaal.org/taalportaal/topic/pid/topic-14115562574967964

Hoekstra, E. (2020d). Unspecific or arbitrary 3SG pronoun. https://www.taalportaal.org/taalportaal/topic/pid/topic-13998813348869581

Hoekstra, E. & Smits, C. (1997). Vervoegde voegwoorden in de Nederlandse dialecten: Een aantal generalisaties. In E. Hoekstra & C. Smits (Eds.), *Vervoegde voegwoorden* (pp. 6–30).

Hoekstra, J. (1991). Expletive *der* and resumptive *pro* in Frisian. *Leuvense Bijdragen*, (80), 61–80.

Hoekstra, J. (1997). Pro-drop, clitisering en voegwoordcongruentie in het Westgermaans. *Vervoegde voegwoorden* (pp. 68–86). Meertens Institute.

Hoekstra, J. (2010). On the impersonal pronoun men in Modern West Frisian. *The Journal of Comparative Germanic Linguistics*, *13*(1), 31–59.

Hoekstra, J. (2014). Sa kâld net as juster. eat oer scrambling yn it Frysk. *Us Wurk*, *63*(3-4), 115–154.

Höhn, G. (2020). The third person gap in adnominal pronoun constructions. *Glossa: a journal of general linguistics*, *5*(1), 1–69.

Holmberg, A. & Nikanne, U. (2008). Subject doubling in Finnish: The role of deficient pronouns. In S. Barbiers, M. Lekakou & O. Koeneman (Eds.), *Microvariation in syntactic doubling* (pp. 325–349). Brill.

Imai, S. (2003). *Spatial deixis* (Doctoral dissertation). State University of New York.

Ionova, A. (2020). *The unbearable lightness of clitics* (Doctoral dissertation). Leiden University.

Ito, J. & Mester, A. (2000). "ich, der ich sechzig bin": An agreement puzzle. https://babel.ucsc.edu/jorgewebfest/index.html

Kaur, G. (2020). On the syntax of addressee in imperatives: Insights from allocutivity. *Glossa: a journal of general linguistics*, *5*(1), 1–44.

Kayne, R. (1996). Microparametric syntax: Some introductory remarks. In J. R. Black & V. Motapanyane (Eds.), *Microparametric syntax and dialect variation* (pp. ix–xviii). John Benjamins.

Kayne, R. (2005). Some notes on comparative syntax, with special reference to English and French. In G. Cinque & R. Kayne (Eds.), *The Oxford handbook of comparative syntax* (pp. 3–69). Oxford University Press.

Koeneman, O. & Zeijlstra, H. (2019). Morphology and pro drop. In R. Lieber (Ed.), *The oxford encyclopedia of morphology*. Oxford University Press.

Koopman, H. (1996). The spec head configuration. In E. Garrett & F. Lee (Eds.), *Syntax at sunset* (pp. 37–64). UCLA.

Koopman, H. (2007). Topics in imperatives. In W. van der Wurff (Ed.), *Imperative clauses in generative grammar* (pp. 153–180). John Benjamins Publishing Company.

van Koppen, M. (2005). *One Probe, two Goals: Aspects of agreement in Dutch dialects* (Doctoral dissertation). Leiden University. Leiden.

van Koppen, M. (2006). A new view on first conjunct agreement: Evidence from Dutch dialects. In J. Costa & M. C. Figueiredo Silva (Eds.), *Studies on agreement* (pp. 121–140). John Benjamins Publishing Company.

van Koppen, M. (2007). Agreement with (the internal structure of) copies of movement. In N. Corver & J. Nunes (Eds.), *The copy theory of movement* (pp. 327–350). John Benjamins Publishing Company.

van Koppen, M. (2012). The distribution of phi-features in pronouns. *Natural Language & Linguistic Theory*, *30*(1), 135–177.

van Koppen, M. (2017). Complementizer agreement. In M. Everaert & H. van Riemsdijk (Eds.), *The Wiley Blackwell Companion to Syntax, Second Edition* (pp. 1–40). Wiley Online Library.

Kouneli, M. (2021). Number-based noun classification: The view from Kipsigis. *Natural Language & Linguistic Theory*, *39*, 1195–1251.

Kramer, R. (2014). Clitic doubling or object agreement: The view from Amharic. *Natural Language & Linguistic Theory*, *32*(2), 593–634.

Kratzer, A. (2009). Making a pronoun: Fake indexicals as windows into the properties of pronouns. *Linguistic Inquiry*, *40*(2), 187–237.

Kučerová, I. (2019). On the role of person in the mapping of syntactic features onto their interpretable counterparts. *Canadian Journal of Linguistics/Revue Canadienne de Linguistique*, *64*(4), 649–672.

Mayr, C. (2010). On the necessity of phi-features: The case of Bavarian subject extraction. In E. P. Panagiotidis (Ed.), *The complementizer phase: Subjects and wh-dependencies* (pp. 117–142). Oxford University Press.

van der Meer, G. (1991). The “conjugation" of subclause introducers: Frisian -st. *NOWELE. North-Western European Language Evolution*, *17*(1), 63–84.

Mendes, G. & Ruda, M. (2019). First conjunct agreement in Polish: Evidence for a mono-clausal analysis. *Snippets*, (36), 3–5.

Migdalski, K. M. (2006). *The syntax of compound tenses in Slavic* (Doctoral dissertation). Tilburg University.

Miyagawa, S. (2017). *Agreement beyond phi*. MIT Press.

Moskal, B. (2018). Excluding exclusively the exclusive: Suppletion patterns in clusivity. *Glossa: a journal of general linguistics*, *3*(1), 1–34.

Munn, A. (1999). First conjunct agreement: Against a clausal analysis. *Linguistic Inquiry*, *30*(4), 643–668.

Neeleman, A. & Van de Koot, H. (2008). Dutch scrambling and the nature of discourse templates. *The Journal of Comparative Germanic Linguistics*, *11*(2), 137–189.

Nevins, A. (2007). The representation of third person and its consequences for person-case effects. *Natural Language & Linguistic Theory*, *25*(2), 273–313.

Nevins, A. (2011). Multiple agree with clitics: Person complementarity vs. omnivorous number. *Natural Language & Linguistic Theory*, *29*(4), 939–971.

Nevins, A. (2012). Haplological dissimilation at distinct stages of exponence. In J. Trommer (Ed.), *The morphology and phonology of exponence* (pp. 84–116). Oxford University Press.

Nevins, A. & Weisser, P. (2019). Closest conjunct agreement. *Annual Review of Linguistics*, *5*, 219–241.

Noyer, R. R. (1992). *Features, positions and affixes in autonomous morphological structure* (Doctoral dissertation). Massachusetts Institute of Technology.

Nübling, D. (1992). *Klitika im Deutschen: Schriftsprache, Umgangssprache, alemannische Dialekte*. Gunter Narr Verlag.

Paparounas, L. & Salzmann, M. (to appear). First conjunct clitic doubing: Evidence for Agree-based approaches. *Proceedings of the 39th West Coast Conference on Formal Linguistics*. Cascadilla Press.

Pollock, J.-Y. (1989). Verb movement, universal grammar, and the structure of IP. *Linguistic inquiry*, *20*(3), 365–424.

Portner, P. (2004). The semantics of imperatives within a theory of clause types. In K. Watanabe & R. Young (Eds.), *Proceedings of SALT 14* (pp. 235–252). CLC Publications.

Postma, G. (2011). Het verval van het pronomen du. Dialectgeografie en de historische syntaxis. *Nederlandse taalkunde*, *16*(1), 56–87.

Postma, G. (2013). Clause-typing by [2] – the loss of the 2nd person pronoun *du* 'you' in Dutch, Frisian and Limburgian dialects. In V. Camacho-Taboada, Á. L. Jiménez-Fernández, J. Martín-González & M. Reyes-Tejedor (Eds.), *Information structure and agreement* (pp. 217–254). John Benjamins Publishing Company.

Potsdam, E. (1998). *Syntactic issues in the English imperative*. Garland Publishing Inc.

Preminger, O. (2009). Breaking agreements: Distinguishing agreement and clitic doubling by their failures. *Linguistic Inquiry*, *40*(4), 619–666.

Preminger, O. (2014). *Agreement and its failures*. MIT Press.

Preminger, O. (2017). *Assessing the morphosemantic program for φ-features: The prospects of a cross-modularly stable representation*. Slides of a talk at BCGL 10, KU Leuven.

Preminger, O. (2019). What the PCC tells us about "abstract" agreement, head movement, and locality. *Glossa: a journal of general linguistics*, *4*(1), 1–42.

Reis, M. & Rosengren, I. (1992). What do wh-imperatives tell us about wh-movement? *Natural Language & Linguistic Theory*, *10*(1), 79–118.

Rizzi, L. (1997). The fine structure of the left periphery. In L. Haegeman (Ed.), *Elements of grammar* (pp. 281–337). Kluwer Academic Publishers.

Rizzi, L. (2001). On the position "int(errogative)" in the left periphery of the clause. In G. Cinque & G. Salvi (Eds.), *Current studies in Italian syntax: Essays offered to Lorenzo Renzi* (pp. 287–296). Elsevier.

Roberts, I. (2010). *Agreement and head movement: Clitics, incorporation, and defective goals*. MIT Press.

Rullman, H. (2004). First and second person pronouns as bound variables. *Linguistic Inquiry*, *35*(1), 159–168.

Salzmann, M. (2012). A derivational ellipsis approach to ATB-movement. *The Linguistic Review*, *29*(3), 397–438.

Schwager, M. (2008). Review of Imperative clauses in generative grammar. *Journal of Linguistics*, *44*(2), 552–558.

Shen, Z. (2018). *Feature arithmetic in the nominal domain* (Doctoral dissertation). University of Connecticut.

Shen, Z. (2019). The multi-valuation Agreement Hierarchy. *Glossa: a journal of general linguistics*, *4*(1), 1–29.

Siewierska, A. (2004). *Person*. Cambridge University Press.

van der Sijs, N. (2019). Vragenlijstbank. https://vragenlijstenbank.meertens.knaw.nl

Smith, P. W., Moskal, B., Xu, T., Kang, J. & Bobaljik, J. (2019). Case and number suppletion in pronouns. *Natural Language & Linguistic Theory*, *37*(3), 1029–1101.

Soltan, U. (2007). *On formal feature licensing in minimalism: Aspects of Standard Arabic morphosyntax* (Doctoral dissertation). University of Maryland.

Starke, M. (2010). Nanosyntax: A short primer to a new approach to language. *Nordlyd*, *36*(1), 1–6.

Stegovec, A. (2020). Taking case out of the Person-Case Constraint. *Natural Language & Linguistic Theory*, *38*(1), 261–311.

Terenghi, S. (2021). Stable and unstable person features: A structural account. In A. Farinella & A. Hill (Eds.), *NELS 51: Proceedings of the 51st annual meeting of the North East Linguistics Society* (pp. 229–242). University of Massachusetts.

Tiersma, P. M. (1985). *Frisian reference grammar*. Foris Publications.

Travis, L. d. (1984). *Parameters and effects of word order variation* (Doctoral dissertation). MIT.

Trommer, J. (2008). Third-person marking in Menominee. In D. Harbour, D. Adger & S. Béjar (Eds.), *Phi-theory: Phi-features across modules and interfaces* (pp. 221–250). Oxford University Press.

Trutkowski, E. & Weiß, H. (2016). When personal pronouns compete with relative pronouns. In P. G. Grosz & P. Patel-Grosz (Eds.), *The impact of pronominal form on interpretation* (pp. 135–166). De Gruyter.

Uriagereka, J. (1995). Aspects of the syntax of clitic placement in Western Romance. *Linguistic inquiry*, *26*(1), 79–123.

van Urk, C. (2018). Pronoun copying in Dinka Bor and the Copy Theory of Movement. *Natural Language & Linguistic Theory*, *36*, 937–990.

Vainikka, A. & Levy, Y. (1999). Empty subjects in Finnish and Hebrew. *Natural Language & Linguistic Theory*, *17*(3), 613–671.

Vanden Wyngaerd, G. (2018). The feature structure of pronouns: A probe into multidimensional paradigms. In L. Baunaz, K. De Clercq, L. Haegeman & E. Lander (Eds.), *Exploring nanosyntax* (pp. 277–304). Oxford University Press.

Vicente, L. (2007). *The syntax of heads and phrases: A study of verb (phrase) fronting* (Doctoral dissertation). Leiden University.

Visser, W. (1988). In pear klitisearringsferskynsels yn it Frysk. In S. Dyk & G. de Haan (Eds.), *Wurdfoarried en wurdgrammatika, in bondel leksikale stúdzjes* (pp. 175–222). Fryske Akademy.

Weinreich, U. (1954). Is a structural dialectology possible? *Word*, *10*(2–3), 388–400.

Weisser, P. (2019). Telling allomorphy from agreement. *Glossa: a journal of general linguistics*, *4*(1), 1–23.

van der Wurff, W. (2007). Imperative clauses in generative grammar: An introduction. In W. van der Wurff (Ed.), *Imperative clauses in generative grammar* (pp. 1–94). John Benjamins Publishing Company.

Wurmbrand, S. & Haddad, Y. A. (2016). Cyclic spell-out derived agreement in Arabic raising constructions. In Y. A. Haddad & E. Potsdam (Eds.), *Perspectives on Arabic Linguistics XXVIII* (pp. 193–226). John Benjamins Publishing Company.

Yip, M. (1998). Identity avoidance in phonology and morphology. In S. G. Lapointe, D. K. Brentari & P. M. Farrell (Eds.), *Morphology and its relation to phonology and syntax* (pp. 216–246). CSLI publications.

Yuan, M. (2021). Diagnosing object agreement vs. clitic doubling: An Inuit case study. *Linguistic Inquiry*, *52*(1), 153–179.

Zanuttini, R., Pak, M. & Portner, P. (2012). A syntactic analysis of interpretive restrictions on imperative, promissive, and exhortative subjects. *Natural Language & Linguistic Theory*, *30*(4), 1231–1274.

Zanuttini, R. (2008). Encoding the addressee in the syntax: Evidence from English imperative subjects. *Natural Language & Linguistic Theory*, *26*(1), 185–218.

Zompì, S. (2019). Ergative is not inherent: Evidence from *ABA in suppletion and syncretism. *Glossa: a journal of general linguistics*, *4*(1), 1–28.

Zonneveld, W. (2007). Dutch 2nd singular prosodic weakening: Two rejoinders. *Linguistic Inquiry*, *38*(4), 737–748.

Zúñiga, F. (2008). How many hierarchies, really? Evidence from several Algonquian languages. *Linguistische Arbeitsberichte*, (86), 277–294.

Zwart, J.-W. (1993). *Dutch syntax: A minimalist approach* (Doctoral dissertation). Rijksuniversiteit Groningen.

Zwart, J.-W. (1997). *Morphosyntax of verb movement: A minimalist approach to the syntax of Dutch*. Kluwer Academic Publishers.

Zwicky, A. M. & Pullum, G. K. (1983). Cliticization vs. inflection: English n't. *Language*, 502–513.

Samenvatting in het Nederlands

Dit proefschrift onderzoekt de eigenschappen van de kenmerken persoon en getal, ofwel de φ-kenmerken, in West-Germaanse dialecten en minderheidstalen. Omdat φ-kenmerken van belang zijn voor verschillende onderdelen van ons taalsysteem, zoals de syntaxis en de morfologie, vormen ze een goede casus om de relaties tussen die onderdelen te bestuderen. West-Germaanse talen verschillen sterk van elkaar wat betreft φ-kenmerken, én die variatie is goed gedocumenteerd. Hierdoor kan de onderzoeker in detail onderzoeken welke variatie er bestaat, en welk onderdeel van het taalsysteem ervoor verantwoordelijk is.

In hoofdstuk 2 onderzoek ik positie-afhankelijke vervoeging in dialecten van het Nederlands. Voorbeeldzin (1) illustreert positie-afhankelijke vervoeging in het dialect van Losser (Overijssel). In het eerste deel van de zin staat het werkwoord aan de rechterkant van het onderwerp *wie*, en heeft het de vorm *leewt*. In het tweede deel van de zin staat het werkwoord aan de linkerkant van het onderwerp, en heeft het de vorm *leew*. De vorm van het werkwoord is dus afhankelijk van de positie van het werkwoord ten opzichte van het onderwerp.

(1) As wie sober **leewt**, **leew** wie gelukkig.
'Als we sober leven, leven we gelukkig.' (DynaSAND)

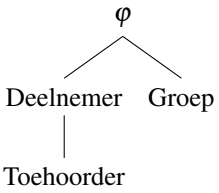
De DynaSAND bevat informatie over positie-afhankelijke vervoeging in meer dan 200 Nederlandse dialecten. Hoewel er veel verschillen bestaan tussen de dialecten, laat ik zien dat er slechts 6 vervoegingsparadigma's nodig zijn om om het grootste deel van de variatie te beschrijven. Van deze vervoegingsparadigma's bevatten er 5 ten minste één geval van positie-afhankelijke vervoeging.

Om positie-afhankelijke vervoeging te verklaren, stel ik een nieuwe analyse voor. Een belangrijke aanname in mijn analyse is dat een werkwoord dat aan de rechterkant van het onderwerp staat een andere structurele positie inneemt dan een werkwoord dat aan de linkerkant van het onderwerp staat (Zwart, 1997). Mijn voorstel is dat de structurele positie van het werkwoord aan de linkerkant van het onderwerp een subset van de φ-kenmerken bevat ten opzichte van de structurele positie van het werkwoord aan

het rechterkant van het onderwerp. Dit leidt in sommige gevallen tot een onverwachte vervoeging op het werkwoord aan het linkerkant van het onderwerp.

In navolging van eerder onderzoek neem ik aan dat de φ-kenmerken voor persoon en getal als volgt zijn: deelnemer (voor eerste en tweede persoon), toehoorder (voor tweede persoon), en groep (voor meervoud). De structurele positie van het werkwoord aan het rechterkant van het onderwerp bevat al deze kenmerken. Om de paradigma's met positie-afhankelijke vervoeging te kunnen analyseren, stel ik voor dat de structurele positie van het werkwoord aan de linkerkant van het onderwerp kan bestaan uit 3 verschillende subsetcombinaties van kenmerken: deelnemer en groep; alleen deelnemer; alleen groep. Als we uitgaan van 3 kenmerken, zijn er logisch gezien echter 6 verschillende subsets van kenmerkcombinaties mogelijk. De afwezigheid van de 3 andere kenmerkcombinaties verklaar ik door aan te nemen dat φ-kenmerken georganiseerd zijn in een kenmerkboom, zoals in voorbeeld (2) (Harley & Ritter, 2002). Delen van de kenmerkboom kunnen afwezig zijn, maar als een hoger deel afwezig is, zijn alle delen daaronder ook afwezig. Op deze manier kunnen we verklaren waarom slechts 3 kenmerkcombinaties mogelijk zijn: de kenmerkcombinatie 'toehoorder, groep' is bijvoorbeeld uitgesloten, omdat toehoorder alleen onderdeel van de kenmerkcombinatie kan zijn als deelnemer dat ook is.

(2)



Vervolgens richt ik me op de vraag of φ-kenmerken binair of privatief zijn. Een binair kenmerk heeft twee waardes, $+$ en $-$. Een privatief kenmerk heeft geen waarde, maar is aan- ofwel afwezig. Op basis van syncretisme in de paradigma's laat ik zien dat er bewijs is voor beide representaties. Ik beargumenteer dat φ-kenmerken privatief zijn in de syntaxis, maar binair in de morfologie. Ik ondersteun deze conclusie met argumenten uit de literatuur: argumenten voor privatieve φ-kenmerken zijn gebaseerd op syntactisch bewijs, en argumenten voor binaire φ-kenmerken op morfologisch bewijs.

In de rest van het hoofdstuk laat ik zien hoe mijn analyse van positie-afhankelijke vervoeging in Nederlandse dialecten ook toegepast kan worden op positie-afhankelijke vervoeging in het Arabisch. Daarnaast vergelijk ik mijn analyse met eerdere analyses van positie-afhankelijke vervoeging in het Nederlands, en laat ik zien dat eerdere analyses niet in staat zijn alle paradigma's te verklaren.

De implicaties van hoofdstuk 2 zijn als volgt. Ten eerste geef ik een nieuw argument dat φ-kenmerken georganiseerd zijn in een kenmerkboom. Ten tweede beargumenteer ik dat φ-kenmerken privatief zijn in de syntaxis, maar binair in de morfologie.

In hoofdstuk 3 richt ik me op voegwoordvervoeging in het Fries en het Limburgs. Een voorbeeldzin met voegwoordvervoeging in het Fries is gegeven in (3). In de bijzin

vervoegen het werkwoord *yt* en het voegwoord *dat* voor de kenmerken van het onderwerp *do* (tweede persoon enkelvoud) met het morfeem *st*. De vervoeging van *dat* noemen we voegwoordvervoeging.

(3) Jan sei dat-**st** do fegetarysk ytst.
'Jan zei dat jij vegetarisch eet.'

Als er een woord (bijv. het focusbijwoord *ook*) tussen het voegwoord en het onderwerp van de bijzin staat, heeft dat in veel talen effect op voegwoordvervoeging. In het Fries is het niet mogelijk om een woord tussen het voegwoord en het onderwerp te plaatsen. Voorbeeldzin (4) laat zien dat het resultaat ongrammaticaal is. In het Limburgs kan er wel een woord tussen het voegwoord en het onderwerp staan, maar in dat geval verplaatst de vervoeging naar de rechterkant van het interveniërende woord. Voorbeeldzin (5) laat dit zien; in dit voorbeeld vinden we de vervoeging (*s*) op *auch*, in plaats van op het voegwoord *dat*.

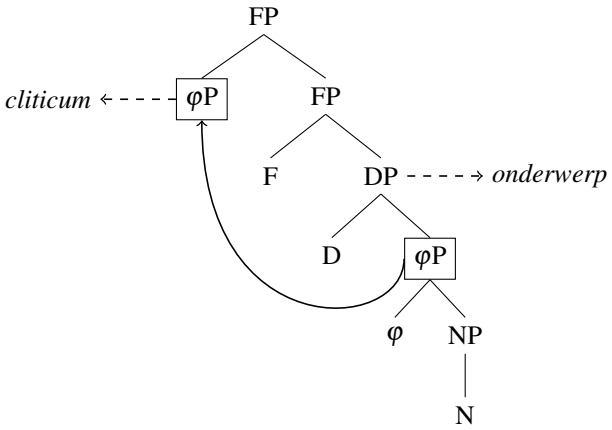
(4) * Jan sei dat-**st** ek do fegetarysk ytst.
'Jan zei dat ook jij vegetarisch eet.'

(5) Jan zei dat auch-**s** tich waal ens vegetarisch uts.
'Jan zei dat ook jij wel eens vegetarisch eet.'

Voegwoordvervoeging is eerder geanalyseerd als inflectie (bijv. van Koppen, 2005), en als morfofonologisch fenomeen (bijv. Fuß, 2014), maar deze analyses kunnen de eigenschappen van het Fries en Limburgs niet verklaren. Ik stel voor dat de vervoeging op het voegwoord in het Fries en het Limburgs een cliticum is, d.w.z. een syntactisch zelfstandig morfeem dat in fonologisch opzicht onderdeel is van een ander woord. Ik ondersteun dit voorstel met verschillende eigenschappen van het morfeem die kenmerkend zijn voor clitica. Zo vinden we het cliticum niet alleen op voegwoorden, maar ook op bijvoorbeeld vraagwoorden en focusbijwoorden. Daarnaast is het cliticum ongevoelig voor de kenmerken van het woord waarop het leunt. Ook kan het cliticum voorkomen zonder onderwerp in het Fries. Wanneer er wel een onderwerp aanwezig is in de zin, is de aanwezigheid van het cliticum op het voegwoord dus een geval van onderwerpsverdubbeling.

Om het effect van een interveniërend woord tussen het voegwoord en het onderwerp in het Fries en Limburgs te verklaren, neem ik de analyse van onderwerpsverdubbeling van van Craenenbroeck en van Koppen (2008) als uitgangspunt. Zij beargumenteren dat een cliticum dat een onderwerp verdubbelt een gedeeltelijke kopie is van het onderwerp, die vervolgens verplaatst. De analyse is geïllustreerd in (6). Het onderwerp is de DP, en het cliticum is de φP. Het cliticum verplaatst naar de specificeerderpositie (Spec) van FP, en het cliticum en het onderwerp worden beide gerealiseerd.

(6)



Er zijn twee beperkingen op de verplaatsing van het cliticum. Ten eerste kan het cliticum niet uit het onderwerp verplaatsen (*Subject Condition*, Chomsky, 1973). Ten tweede moet het cliticum over ten minste één XP heen verplaatsen (*anti-locality*, Abels, 2003). De enige positie waar het cliticum in (6) heen kan verplaatsen is dus de specificeerder van FP.

Ik beargumenteer dat in het Fries het cliticum een φP is. In een Friese zin met voegwoordvervoeging verplaatst de φP naar Spec,FP, en wordt daar gerealiseerd. Ik laat zien dat een focusbijwoord dat tussen het voegwoord en het onderwerp staat ook in Spec,FP zit. Aanwezigheid van een focusbijwoord blokkeert dus verplaatsing van het cliticum naar Spec,FP. Vanwege de beperkingen op verplaatsing is er ook geen andere positie waar het cliticum heen kan verplaatsen: het cliticum kan niet uit het onderwerp verplaatsen vanwege de *Subject Condition*, en het cliticum kan ook niet naar een lagere positie verplaatsen, omdat het dan niet over ten minste één XP heen verplaatst. Er is dus geen positie waar het cliticum heen kan verplaatsen, en dit verklaart de ongrammaticaliteit van een focusbijwoord tussen het voegwoord en het onderwerp in het Fries.

In het Limburgs is het cliticum een NP. In een zin met voegwoordvervoeging verplaatst het cliticum naar een hogere positie en wordt daar gerealiseerd. Als er een focusbijwoord in Spec,FP staat, kan het cliticum niet naar Spec,FP verplaatsen. Het cliticum kan wel naar Spec,DP verplaatsen, omdat deze verplaatsing binnen het onderwerp plaatsvindt, en omdat het cliticum over φP heen verplaatst. Als het cliticum in Spec,DP wordt gerealiseerd, staat het aan de rechterkant van het focusbijwoord, in plaats van aan de rechterkant van het voegwoord. Dit verklaart de verplaatsing van voegwoordvervoeging in het Limburgs.

Deze analyse van voegwoordvervoeging leidt tot de volgende implicaties. Ten eerste laat de analyse zien dat onderwerpsverdubbeling uit twee stappen bestaat: verdubbeling en verplaatsing. Beide stappen kunnen mislukken, en dit leidt tot verschillende resultaten (vergelijk Preminger, 2014). Ten tweede heeft de analyse gevolgen voor talen die beschouwd worden als *pro*-drop talen, d.w.z. talen waarin het onderwerp van een zin weggelaten kan worden. Mijn analyse van het Fries laat zien dat in som-

mige gevallen het vervoegingsmorfeem in feite het onderwerp is. Dit heeft potentieel gevolgen voor de typologie van *pro*-drop talen.

In hoofdstuk 4 onderzoek ik de woordvolgorde in imperatiefzinnen in dialecten van het Nederlands en het Duits. In imperatiefzinnen in deze talen staat het werkwoord normaals gesproken aan het begin van de zin. Voorbeeldzin (7) laat dit zien voor het Standaardnederlands. In Oost-Nederlandse dialecten en in het Duits kan het werkwoord ook op de tweede plaats staan in een imperatiefzin. Dit laten de zinnen in (8) (Oost-Nederlandse dialecten) en (9) (Duits) zien. In Oost-Nederlandse dialecten is deze woordvolgorde alleen mogelijk als het eerste woord een 'distaal' voornaamwoord is, zoals *dat*, *die*, *dan*, en *daar* (Barbiers, 2013).

(7) Lees dat boek maar niet!

(8) Da lees maar nie!
'Lees dat maar niet!' (Barbiers, 2013)

(9) Das Buch lies mal nicht!
'Lees dat boek maar niet!' (Barbiers, 2013)

In het Nederlands en het Duits staat het werkwoord normaal gesproken op de tweede positie in de zin. In een imperatief wordt de eerste positie ingenomen door een niet-hoorbare operator, waardoor het eerste hoorbare element het werkwoord is. Vanwege de aanwezigheid van de operator is het onverwacht dat er een hoorbaar element vóór het werkwoord kan staan in imperatieven in Oost-Nederlandse dialecten en in het Duits.

Op basis van data uit DynaSAND en GTRP, en nieuw verzamelde data, laat ik zien dat alle talen waarin de woordvolgorde in (8) en (9) voorkomt ook werkwoorden met umlaut hebben. Een voorbeeld van een werkwoord met umlaut uit het dialect van Veghel is gegeven in (10). De klinker in de werkwoordsvormen voor de tweede en derde persoon enkelvoud verschilt van die van de eerste persoon enkelvoud. De werkwoorden voor de tweede en derde persoon enkelvoud hebben umlaut.

(10) a. ik geef b. gij gift 'jij geeft' c. hij gift 'hij geeft'

Ik beargumenteer dat alle vormen van de werkwoorden met umlaut in het mentale lexicon opgeslagen zijn met de φ-kenmerken die bepalen in welke context ze gebruikt kunnen worden. Welke φ-kenmerken per werkwoordsvorm dat zijn is afhankelijk van het precieze patroon van umlaut in een bepaalde taalvariant. In Nedersaksische dialecten vinden we umlaut op het werkwoord in de derde persoon enkelvoud. Ik beargumenteer dat de werkwoordsvorm met umlaut niet gespecificeerd is voor φ-kenmerken, en dat de vorm zonder umlaut gespecificeerd is voor het kenmerk 'deelnemer'. In het Gronings, Limburgs, Oost-Brabants, en Duits vinden we umlaut op het werkwoord in de tweede en derde persoon enkelvoud. In sommige Oost-Brabantse dialecten verschillen de werkwoordsvormen voor de tweede en derde persoon enkelvoud ook van

elkaar. Ik stel voor dat we voor de verklaring van dit patroon drie vormen in het mentale lexicon nodig hebben. De vorm voor de eerste persoon enkelvoud is gespecificeerd voor het kenmerk 'deelnemer'. De werkwoordsvorm voor de tweede persoon enkelvoud is specificieerd voor de kenmerken 'deelnemer, toehoorder'. De vorm voor de derde persoon enkelvoud is niet gespecificeerd.

Om de verschillen in woordvolgorde in Nederlandse en Duitse imperatieven te verklaren, neem ik aan dat het onderwerp van een imperatief gelicenseerd moet worden door tweedepersoonskenmerken ('deelnemer, toehoorder') van het werkwoord of het element dat voor het werkwoord staat (in navolging van Barbiers, 2013). Het imperatieve werkwoord heeft altijd dezelfde stam als een geïnflecteerde werkwoordsvorm. In een taalvariant met umlaut kan het imperatieve werkwoord dus gespecificeerd zijn voor φ-kenmerken.

In het Standaardnederlandse staat het imperatieve werkwoord altijd op de eerste positie van de zin. Het Standaardnederlands heeft geen umlaut, dus het imperatieve werkwoord is niet gespecificeerd voor φ-kenmerken. De tweedepersoonskenmerken die het onderwerp licenseren moeten daarom van het element voor het werkwoord komen. Het enige element dat die kenmerken kan bijdragen is de onhoorbare operator. Het eerste hoorbare element in een Standaardnederlandse imperatiefzin is dus het werkwoord.

In Oost-Nederlandse dialecten kan het werkwoord in een imperatief op de tweede positie staan als het eerste element in de zin een distaal voornaamwoord is. Oost-Nederlandse dialecten hebben ook umlaut. Het imperatieve werkwoord in deze talen is de vorm zonder umlaut (behalve in Oost-Brabant, zie onder), en is dus gespecificeerd voor het kenmerk 'deelnemer'. Er is beargumenteerd dat distale elementen eigenschappen delen met de tweede persoon (Barbiers, 2013; Harbour, 2016). Ik stel voor dat distale voornaamwoorden gespecificeerd zijn voor het φ-kenmerk 'toehoorder'. Een distaal voornaamwoord en een imperatief werkwoord kunnen in Oost-Nederlandse dialecten samen het onderwerp licenseren, met de kenmerken 'deelnemer, toehoorder'. Om die reden zijn imperatieven waarin het werkwoord op de tweede plaats staat grammaticaal in Oost-Nederlandse dialecten.

In het Oost-Brabants is de werkwoordsvorm die gebruikt wordt als imperatief werkwoord de werkwoordsvorm die ook gebruikt wordt voor de tweede persoon enkelvoud. De φ-kenmerken van deze vorm zijn 'deelnemer, toehoorder'. We zouden daarom verwachten dat het werkwoord in staat is om het onderwerp van de imperatief te licenseren. De eerste positie van de imperatief zou dan open zijn voor allerlei soorten woordgroepen. In hoofdstuk 2 heb ik echter later zien dat in Oost-Brabantse dialecten, de positie van het werkwoord het kenmerk 'toehoorder' niet kan zien. Dit kenmerk moet daarom komen van de positie voor het werkwoord. Een distaal voornaamwoord kan dit kenmerk bijdragen, en dit verklaart waarom in Oost-Brabantse dialecten alleen distale voornaamwoorden voor het werkwoord in de imperatief kunnen staan.

Tot slot kent het Duits geen beperkingen op wat voor constituenten voor het werkwoord in de imperatief kunnen staan. Het Duitse imperatiefwerkwoord is, net als in het Oost-Brabants, de vorm die ook voor de tweede persoon enkelvoud wordt gebruikt, en is gespecificeerd voor de φ-kenmerken 'deelnemer, toehoorder'. In tegenstelling

tot het Oost-Brabants kan de positie van het werkwoord het kenmerk 'toehoorder' wel zien. Het imperatiefwerkwoord kan dus het onderwerp van de zin licenseren. De eerste positie van de zin is vrij, en iedere andere woordgroep kan hierheen verplaatsen, wat leidt tot de waargenomen woordvolgorde.

Hoofdstuk 4 laat zien dat φ-kenmerken die aanwezig zijn in de zin, ingezet kunnen worden voor externe doeleinden. Daarnaast kan de aanwezigheid van φ-kenmerken leiden tot syntactische verschillen tussen talen, zoals verschillen in woordvolgorde.

Curriculum Vitae

Astrid van Alem was born in 1994 in Roosendaal, the Netherlands. After graduating from high school, she started the Bachelor programme in Dutch Language and Culture at Utrecht University, where she soon developed a special interest in linguistics. During her BA, Astrid studied for a minor in language development, and was a research intern in a project investigating the effects of chat language on children's development at Utrecht University. After graduating from her BA in 2015, Astrid continued her studies in the Research Master in Linguistics at Utrecht University. During this time, she interned at Leiden University in the project Maps & Grammar, supervised by Prof. dr. Sjef Barbiers, and wrote a thesis on microvariation in West Germanic imperatives.

In 2017, Astrid graduated *cum laude* from her MA, and started as a PhD candidate at the Leiden University Centre for Linguistics (LUCL), where she continued working on microvariation in West Germanic under supervision of Prof. dr. Sjef Barbiers and Prof. dr. Lisa Cheng. In 2019, Astrid spent three months as a short term fellow in the SFB Limits of Variability in Language at the University of Potsdam, working with Prof. dr. Doreen Georgi. During her PhD years, Astrid was also a member of the board of the Student Organisation for Linguistics in Europe (SOLE) and of the LUCL PhD Council. This thesis is the result of Astrid's PhD research.

Astrid is currently a postdoctoral associate in the research group on syntax, morphology, and variability at the University of Potsdam.