Multifunctionality

The Internal and External Syntax of D- and W-Items in German and Dutch

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The Internal and External Syntax of D- and W-Items in German and Dutch

Multifunctionaliteit
De interne en externe syntaxis van d- en w-items in het Duits en het Nederlands

(met een samenvatting in het Nederlands)

Proefschrift

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door

Mirjam Hachem

geboren op 7 Juni 1985 te Tuttlingen, Duitsland

Promotoren: Prof.dr. N.F.M. Corver
Prof.dr. L.C.J. Barbiers

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Für meine Eltern

"At least three quarters if not the entire content of science is conditioned by the history of ideas, psychology, and the sociology of ideas and is thus explicable in these terms.

In the history of scientific knowledge, no formal relation of logic exists between conceptions and evidence. Evidence conforms to conceptions just as often as conceptions conform to evidence. After all, conceptions are not logical systems, no matter how much they aspire to that status. They are stylized units which either develop or atrophy just as they are or merge with their proofs into others."

Ludwik Fleck
Genesis and Development of a Scientific Fact (1935)

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Acknowledgments

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Abbreviations

1ST	first person
2ND	second person
3RD	third person
ACC	accusative
AD	Anchoring Domain
ADV	adverb
AFF	affirmative
CD	Classification Domain
CI	conceptual-intentional system
CL	clitic
COM	common gender
COMP	complementizer
DAT	dative
DA	definite article
DET	determiner
DIST	distal
DIV	division
DPR	demonstrative pronoun
E	domain of individuals
EXPL	expletive
F	focus
f	focus semantic value
F, FEM	feminine
FRC	free relative clause
FSV	focus semantic value
GEN	genitive
HN	head noun
HRC	headed relative clause

ID	Identification Domain
LC	limited control
LD	Linking Domain
LOC	locative
M, MASC	masculine
MT1	mass type 1 (unbounded mass)
MT2	mass type 2 (individuative)
MT3	mass type 3 (collective)
N, NEUT	neuter
NOM	nominative
OBJ	object
OSV	ordinary semantic value
PART	particle
φ (phi)	phi-features: gender, number and person
PL	plural
PRN	pronoun
QD	quantity domain
RC	relative clause
RP	relative pronoun
SG	singular
SM	sensorimotor system
SUB	subject
TN	TERMINAL NODE
TRANS	transitive
UDD	Universal Distinction Domain
VI	vocabulary item

Tables

Chapter 1

Introduction

1.1 Multifunctionality and Linguistic Theory

Multifunctionality is the ability of one linguistic element, such as a word or a morpheme, to surface in various syntactic environments and adopt a different function in each of these environments. A typical example of a multifunctional element is the English singular neuter pronoun *it*.

(1) a. I saw **it**.
b. **It** seems that the sun will shine today.

The element *it* in (1) displays two different functions. In (1a) *it* functions as a personal pronoun that establishes reference to an antecedent either present in the linguistic context or salient in the discourse. In (1b) *it* functions as an expletive that fulfills the role of the grammatical subject of the construction and does not establish any reference. The crucial characteristic of multifunctionality is that the different functions adopted by the same element are in complementary distribution. This means that a multifunctional element cannot be ambiguous between two or more functions in the same syntactic environment: *it* in (1a) can only be interpreted as a personal pronoun. It is impossible to interpret it as an expletive. The opposite holds for (1b): *it* in (1b) must be interpreted as an expletive and cannot be interpreted as a personal pronoun.

The present dissertation is an investigation into the internal structure and the multifunctional behavior of what I will call *d-items* and *w-items* in German and Dutch. The commonly used terms for w-items are w/*wh*-words, w-pronouns and interrogative pronouns. I will use the term *w-item* in order to remain as neutral as possible about their categorial and semantic nature. The term *d-item* refers partially to the group of items that have come to be called d-pronouns and d-determiners in the literature. D-pronouns are demonstrative pronouns like English *this* and *that*. D-determiners are definite determiners like English *the*. In addition to these, I will also include a number of spatial and temporal adverbs to the group of d-items, namely the ones that can be shown to share the initial *d*-morpheme that is typical for d-pronouns and d-determiners in Germanic languages.

D- and w-items in German and Dutch display a much higher degree of multifunctionality than the element *it* observed in (1). A prime example of such high multifunctionality is the German w-item *was* which corresponds to the English w-item *what*. Depending on the syntactic environment, German *was* can function as an interrogative pronoun, an indefinite pronoun, a relative pronoun, an exclamative marker and, in colloquial German, as a quantificational determiner. In some dialects of German, *was* can also function as a relative complementizer in the same way as English *that*. An overview over these functions is given in example (2).

(2) The multifunctional behavior of German *was*

a. interrogative pronoun
Was liegt da auf dem Boden?
What lies there on the ground?
'What is lying on the ground over there?'

b. indefinite pronoun
Ich habe **was** Interessantes gelesen.
I have what interesting read
'I read something interesting.'

c. relative pronoun in free relative clauses
Ich kaufe, **was** mir gefällt.
I buy what me pleases
'I buy what I like.'

d. relative pronoun in headed relative clauses (colloquial German)
% Das ist das Bild, **was** ich so schön finde.
that is the picture what I so beautiful find
'That is the picture that I find so beautiful.'

g. relative complementizer (dialectal German: Thüringen, Jäger 2000: 8)
Leite, **wos** allerwend ze spete kummn, warn nich fartch.
people what always too late come will not finish
'People who are always late never finish.'

e. quantificational determiner (colloquial German)
% Ich muss noch **was** Salz an die Suppe tun.
I must still what salt at the soup do
'I still have to put some salt in the soup.'

f. exclamative marker
Was ein sonniger Tag!
what a sunny day
'What a sunny day!'

The present investigation of both the internal structure and the multifunctional behavior of d- and w-items in German and Dutch aims at answering a number of research questions. The first question that arises when formulating an analysis of multifunctional elements is whether we are dealing with homonyms, i.e. distinct lexical items that fulfill different functions but share the same form or whether we are dealing with polysemy, i.e., one lexical item that can adopt different functions depending on the syntactic environment. Only polysemy can be regarded as true multifunctionality because it means that one single element carries out a number of different functions. Homonyms are monofunctional: every homonym out of a group of homonyms carries out one function. The question whether we are dealing with homonymy or polysemy translates to a more general question about the relation between lexicon and syntax. If we are dealing with homonymy then we are dealing with a problem that relates primarily to the lexicon and the construction of same-sounding lexical entries. If we are dealing with polysemy, we are presented with syntactic problem. In the case of polysemy, it is the syntax that contributes the surrounding structure that makes the element function in a particular way. These considerations lead to the primary research question of this thesis:

How can we account for the multifunctionality of d- and w-items?

The first decision that has to be made when formulating a theoretical account for an empirical phenomenon is the decision about what kind of theoretical account we want to use in order to the explain the phenomenon. Since the decline of Government and Binding Theory, Generative Grammar has been differentiated into a number of theoretical frameworks that have established distinct theories of the language system and further diversified into sub-frameworks. In each framework, multifunctionality has to be accommodated in a different way. Against this background, the second research question we have to ask is:

Which theoretical framework is suitable to account for multifunctionality?

This question will be the subject of Chapters 2 and 3. In Chapter 2, I will give an overview over the current theoretical landscape of Generative Grammar. In Chapter 3, I will motivate the choice of the theoretical account in which I will analyze the data that forms the empirical basis of this dissertation. After having

made the decision about the theoretical background, our first interest is to investigate the nature of the multifunctional element itself, in the present case the d- and w-items of German and Dutch. The goal is to find out which properties of these items allow them to adopt a number of different functions in the syntax and why they adopt precisely the particular functions that we observe and not others. This necessitates an investigation into the internal structure of the d- and w-items of German and Dutch. This leads us to the following question:

What is the internal structure of d- and w-items?

The investigation into the internal structure of d- and w-items in German and Dutch will be a crucial part of the analysis since the multifunctional behavior of these items will have to be derived from the interaction of their internal structure with the external syntactic environment. I will therefore dedicate one entire chapter to the internal structure of each group of items respectively. In Chapter 4 I will investigate the internal structure of d-items and in Chapter 5 I will discuss the internal structure of w-items. We have seen above that the different functions that multifunctional elements can adopt have a complementary distribution with respect to different syntactic environments. German *was,* for example*,* functions as an interrogative pronoun only when it surfaces in the highest layer of the clause*,* while it functions as an indefinite pronoun only when it surfaces in the lowest layer of the clause. If we are dealing with one and the same item across syntactic environments, then the different functions must be result of the interaction of the item with the specific syntactic environment it surfaces in. This brings us to our key research question with respect to multifunctionality:

How does the syntactic environment in which a d- or w-item surfaces determine the particular function of that item in this particular environment?

This question will be the subject of Chapters 6 and 7. In Chapter 6 I will deal with the multifunctionality of d-items and in Chapter 7 with the multifunctionality of w-items. A summary of the insights developed in this thesis and the conclusions drawn from them will be presented in Chapter 8, which is the final chapter of this dissertation.

By investigating the research questions presented above, I will formulate an analysis of the internal structure and the multifunctionality of d- and w-items in German and Dutch that will both account for the observed phenomena and touch on a number of conceptual issues in the current theoretical development in Generative Grammar. An implicit goal of this work is to show that empirical work and conceptual-theoretic work need not be as separated and remote from each other as it might seem.

1.2 Terminological Issues

As previously mentioned, the empirical part of this dissertation focuses on the d- and w-items of German and Dutch which in the literature are mostly referred to as d- and w-pronouns or, depending on their function, as interrogative pronouns, demonstrative pronouns, definite determiners etc. In conventional terminology, the general term *pronoun* refers to elements that can be place-holders for nouns. The *w* is a shorthand that was derived from the circumstance that the elements that are grouped under the class of w-words (*what*, *who, when*, *where* etc.) tend to start with a *w* in Germanic languages. Traditionally, the class of w-words is separated into w-pronouns (*who*, *what*), which are clear place-holders for nouns and establish subject-verb agreement, and w-adverbials, which refer to circumstances of, e.g., time, place and manner (*when*, *where*, *how*). The problem with this distinction is that it is tied to the behavior of w-words in interrogative contexts. In relative clauses, for example, w-adverbials display pronominal behavior as they can serve as place-holders for the antecedent of the relative clause:

(3) a. This was the moment **when** the truth was revealed to the press.
b. This is the town **where** she was born.

As I will show in the course of this dissertation, w-words can adopt a number of functions none of which should be regarded as central or defining. One of the main arguments that I will make is that w-words are internally structured and it is the nature of this structure that should be considered their defining property. The different functions w-words can adopt depend on the interaction between their internal structure and the syntactic environment they surface in. I have therefore decided to refer to all w-words with the most neutral term to my avail: *w-item*.

The task of properly defining d-pronouns is equally problematic, as there is no clear consensus in the literature about what the defining property of d-pronouns is. The shorthand *d* reflects the fact that all the items that are grouped under the class of d-words such as *the*, *this*, *that*, *then*, *then* and *there* start with a *d* (or *th*) in Germanic languages. Demonstratives are typically taken to be d-pronouns, yet in English, for example, they don't tend to act as place-holders for nouns (4a). When used in deictic contexts, demonstratives serve as place-holders for whatever the deictic gesture refers to in the utterance situation (4b).

(4) a. A: Have you seen my bike?
B: Yes *this / it is in the garden.
b. Look at that!

With respect to their syntactic distribution, d-items like *the* and *that* might seem to function primarily as articles (*the book*, *this book*). This may seem like and argument for grouping them together with quantifiers *(many books*) and other elements that can function as determiners, but not with d-adverbials (**then books*, **there books*). The property that is most frequently used to group d-words into one class is definiteness. This is certainly the best approximation so far, as this property is indeed shared across all d-words, yet definiteness itself is not a syntactic category and does not give us an answer to the question in what way *the* and *then* differ in their syntactic makeup, i.e., what allows only *the* but not *then* to function as a definite article. Given this unclear situation with respect to the proper classification of d-words, I will use the most neutral expression: *d-item*.

A further terminological issue concerns the use of the term *determiner*. This term can be used either for the class of elements that introduce a noun, which includes definite articles, indefinite articles, demonstrative pronouns, quantifiers etc. or for the class of elements that can be situated in D^0, which for many researchers reduces to the definite article. I will use the term determiner only in the former, rather descriptive sense. The use of the term here is therefore not related to one particular position within the DP or to a certain semantic property like definiteness.

1.3 A Note on Data Presentation

All data will be presented in the traditional format, with the first line of every example showing the datum, the second line showing the glossing and the third line showing the English translation. Since German and Dutch are extremely similar, I will specify from which language the datum is taken at the end of every example. Examples from colloquial speech will be marked with % and dialectal examples with #. Some of the data I will be presenting are taken from literature that is written in German or Dutch and therefore doesn't contain any glossing or translations to English. It furthermore happens rather frequently that authors contrast two elements in the same syntactic environment by showing them next to each other, with a forward slash in between. Whenever I add glosses and translation to a datum taken from literature not written in English, or whenever I produce two separate examples instead of one with forward slashes for convenience of design, I will mark these examples with 'adapted'. The 'adapted' marking thus refers only to changes in format, not to changes in content.

I will furthermore make a difference in glossing properties that are expressed with a dedicated morpheme and properties that are inherent. German

determiners, for example, inflect for gender and number on the same inflectional morpheme. The gender and number values will therefore be represented in capital letters with periods in between: for instance, F.SG for feminine singular. Spatial adverbs like Dutch *daar* (there-distal) and *toen* (then-distal), for example, have no distinct morphemes to express the difference between distance and proximity. In these cases, I will gloss the respective property with capital letters in brackets: for instance, (DIST) for distal.

A further issue in data presentation concerns diachronic data. Throughout this dissertation, I will refer to historical data from a number of Germanic languages. In historical grammars, both vowels and consonants are marked with a number of etymological diacritics, in order to distinguish the origins of the individual sounds, and phonetic diacritics, to indicate the sound contours of vowels. I will not make use of these diacritics in my presentation of historical data unless sound change or sound quality plays an important role in understanding a certain morphological paradigm.

The presentation of diachronic data includes references to dictionaries. Since the titles of dictionaries tend to be rather long, I will use abbreviations when referring to a dictionary. The dictionaries are listed with their abbreviations first in the bibliography.

1.4 Empirical Scope

The empirical scope of this dissertation consists of a comparative study of the inventory and multifunctional behavior of d- and w-items in German and Dutch. Comparative studies of German and Dutch are rather rare in theoretical syntax, which could be due to the circumstance that the two languages are so closely related that the differences between them might seem to be minor issues. It is important to be aware that German and Dutch were even much more alike in the early Middle Ages during the period of Old German (ca. 750-1050) and Old Dutch (ca. 500-1150). In this period, both German and Dutch possessed a morphological case system, inflecting for nominative, accusative, dative and genitive case, as well as a gender system, inflecting for masculine, feminine and neuter gender. After the Middle Dutch period (ca. 1200-1500), Dutch gradually lost its morphological case system, which was accompanied by a deterioration of gender morphology. Today the Dutch gender system has reduced to a two-way distinction between neuter and common gender on determiners while the three-way distinction is retained only on personal pronouns. In contrast to Dutch, the morphological case and gender systems of German are intact to the present day, which makes the comparison of the two languages an ideal testing ground for issues related to case and gender. Case and gender systems are core issues of syntactic theory and feature prominently in many syntactic phenomena. This

holds for the multifunctional behavior of d- and w-items as well. I will show that case and gender properties play a decisive role in the distribution of d- and w-items in German and Dutch syntax.

With regards to the comparative point of view, this dissertation follows the guiding idea of microvariation research that the closer two languages or dialects are related the greater is the control over the variables investigated. Microvariation data allows the construction of data samples in which the structures under comparison diverge by only one or two properties while keeping all other variables constant. Following Kayne (2005: 8), this method is the closest approximation to an ideal but impossible language experiment where the linguist would be able to manipulate one observable property of a particular language and then examine whether further properties of that language have changed in a chain reaction to the initial manipulation. If this were the case, the linguist could conclude that all the affected properties are linked to the same parameter. With respect to the locus of language variation, I will adopt a strong universalist point of view. This means that I will assume that there is no variation at the level of syntax. I will not follow the minimalist assumption that variation is located in the lexicon. Instead, I will defend an anti-lexicalist approach and argue that all variation arises in the externalization process, where syntactic structure is spelled out into phonological form.

The data I will introduce throughout this dissertation is comprised from the standard variety of German and Dutch, respectively. Well-established dialectal, crosslinguistic and diachronic evidence will be used as additional evidence.

1.5 Theoretical Background

Since its emergence in the 1950s, Generative Grammar has developed into a diverse landscape of theories, frameworks, accounts, proposals, solutions, and opinions. An important turning point in this development was the decline of Government and Binding Theory (GB) at the end of the 1980s. GB had a unifying effect in theoretical development because the ontological conceptualization of the language system – an elaborately structured theory of UG – provided a shared background for the individual frameworks developed within it. The decline of GB was accompanied by a reformation of generative theoretical linguistics, which led to a diversification into three major directions of theory building which I will refer to as *Minimalism*, *Cartography* and *Constructivism*.

The term *Minimalism* refers to the works that have been created under the research agenda of the *Minimalist Program* initiated in Chomsky (1995) and further developed in Chomsky (2000 et seq.). The guiding principle of

Minimalist Program is theoretical parsimony. The goal is to formulate explanations for linguistic phenomena that refer as little as possible to assumptions, rules and operations specific to the language system, and derive as much as possible from general constraints of economy and restrictions imposed on the language system by the language-external systems with which it interfaces. Syntactic operations are assumed to be triggered by formal-syntactic features of lexical items that enter the syntactic computation. Language variation is assumed to be confined to the lexicon. It is taken to reflect the idiosyncratic featural makeup of lexical items that drive the syntactic operations.

The framework of *Cartography* (Rizzi 1997, Cinque 1999-2006, Belletti 2004) emerged in parallel with the Minimalist Program in the 1990s, as a response to the explosion of functional heads in the P&P framework (see, e.g., Pollock 1989). Cartography assumes that every lexical category that enters the syntactic computation will be embedded in a series of functional heads "providing more abstract semantic specifications to the descriptive content of the lexical head" (Cinque & Rizzi 2008: 43). The goal of the cartographic research agenda is to "draw maps as precise and detailed as possible of syntactic configurations" (ibid: 42). Cartography takes a strong universalist point of view with respect to linguistic categories. It is assumed that all functional heads found across languages are universally present in all languages and ordered along a universal hierarchy of linguistic categories. Language variation is assumed to be a result of which functional heads are overtly realized in a specific language.

The term *Constructivism* (cf. Ramchand 2008: 9-12) refers to theories of syntax that are based on the assumption that the lexicon as a separate module of the language system doesn't exist. The most prominent constructivist frameworks are *Distributed Morphology* (Halle & Marantz 1993, 1994, Marantz 1997, 2001, Harley & Noyer 1999 a.o.) and the *Exo-Sceletal Model* (Borer 2005a,b, 2013). In these frameworks, the build-up of syntactic structure begins with so-called *roots*. Roots are morphological primitives, i.e., they carry no categorial information. Syntactic categories, which are part of the lexical inventory in lexicalist accounts, are assumed to be constructed by syntax itself in constructivist accounts. The syntactic category of each root will be determined in the course of the derivation by the functional structure that will be built on top of the root (cf. Harley & Noyer 1999: 4, Borer 2005a: 17-21, 30-35). Both word and sentence structure are therefore syntactic (cf. Marantz 1997: 201-212).[1] The content that lexical approaches store in the lexicon is distributed across a number of lists whose items are inserted into the derivation at separate moments in the

[1] Please note that this is a most basic description of the term *root*. The precise definitions of the term in DM and XSM differ from each other. For detailed discussion, see De Belder (2011: 37-73).

derivational history. Phonological material is inserted into the derivation after the derivation has been fully constructed in the syntactic component and further computed in a postsyntactic morphological component, that operates along its own specific rules and computations. Language variation is therefore a postsyntactic matter.

All of these three major theoretical frameworks have been further differentiated into a number of sub-frameworks. Yet, since they are all based on the same fundamental principles of Generative Grammar, they remain intelligible to each other. This allows a lot of mutual influence among the individual sub-frameworks, which is why they cannot always be clearly assigned to only one of the major frameworks. A case in point is the framework of *Nanosyntax*. Nanosyntax combines a number of insights from all three major lines of theory building above. In line with the general aims of Cartography, the primary interest of Nanosyntax lies in the detailed description of structural maps. Nanosyntax furthermore assumes that grammatical features are semantically motivated and each feature corresponds to one functional head in the syntax. In addition to these basic assumptions, Nanosyntax adopts the hypothesis from Distributed Morphology that phonological material is late-inserted into the structure, but it denies the existence of a postsyntactic morphological component that is vital in the Distributed Morphology system (cf. Caha 2009: 51-95). The framework of Nanosyntax will be of special interest for the theoretical discussion in this dissertation, for it takes multifunctionality phenomena – especially morphological syncretism – as its primary empirical domain and input for the formulation of theoretical assumptions.

We have seen above that our guiding research question – 'How can we account for the multifunctionality of d- and w-items?' – leads us immediately to the question in which kind of theoretical framework the account should be couched. This necessitates a comparison between the above-mentioned major lines of theory building with respect to how well they can accommodate multifunctionality phenomena. In order to create a common background for this comparative theoretical perspective, this introduction will be immediately followed by a short overview of the ways in which the individual frameworks of Generative Grammar conceptualize the language system and how we can account for language variation and multifunctionality within these particular systems.

1.6 Chapter Overview

Chapter 2: Multifunctionality in the Theoretical Landscape of Generative Grammar

Chapter 2 constitutes the first step in answering our first research question 'Which theoretical framework is suitable to account for multifunctionality?' The goal of Chapter 2 is to establish the theoretical background against which the account of the internal structure of d- and w-items in German and Dutch will be formulated. Chapter 2 provides an overview over the three major lines of theory building in Generative Grammar: Minimalism, Cartography and Constructivism. In addition, I will discuss the sub-frameworks Nanosyntax (Starke 2009, 2010) and the Universal Spine Model (Wiltschko 2014). For each framework, I will discuss the basic conceptualization of the language system, the way in which the framework deals with language variation and multifunctionality phenomena. Based on this discussion, in Chapter 3 I will motivate the assumptions and theoretical tools that will underlie the analysis of d- and w-items in German and Dutch. The insights of this chapter will furthermore provide the background for the conceptual discussion in Chapter 8, where I will discuss the implications of the different frameworks of Generative Grammar for a theory of the human mind.

Chapter 3: Analyzing Internal Structure

Chapter 3 constitutes the second step in answering our first research question 'Which theoretical framework is suitable to account for multifunctionality?' In this chapter I will motivate the theoretical account in which I will analyze the internal structure of d- and w-items in German and Dutch in Chapters 4 and 5. I will motivate each theoretical assumption and each theoretical tool that I will make use of. The account that will be formulated in Chapter 3 will not be part of one particular framework of Generative Grammar, but draw assumptions and tools from all of the frameworks introduced in Chapter 2. The main insights will be that the internal structure of words starts from a category-neutral root which is shaped into a category by the functional structure built on top of the root. I will argue that the internal structure of words can be captured best with a nanosyntactic phrase structure that assumes semantically motivated syntactic heads and dispenses with the projection of specifiers. I will further follow the nanosyntactic concept of phrasal Spellout and the assumption that syncretisms can only arise through the Spellout of syntactically adjacent heads. With respect the syntactic derivation as a whole, I will follow the minimalist assumption that Merge is a recursive operation of set formation and that the semantic content of a sentence is constructed compositionally from the underlying syntactic structure.

Chapter 4: The Internal Structure of D-Items
In Chapter 4 I will start the investigation of our second research question 'What is the internal structure of d- and w-items?'. This chapter will be concerned with the internal structure of German and Dutch d-items alone. The chapter will be divided in three major parts. The first part contains the descriptive discussion of the d-items of German and Dutch from a both synchronic and diachronic perspective. In the second part, I will formulate my proposal for the internal structure of the DP in German and Dutch. Based on the insights of Borer's (2005) account of the DP in English and the nanosyntactic concepts of Fseq and phrasal Spellout introduced in Chapter 3, I will propose a structure of the DP in German and Dutch from which the complete range of syncretisms in the determiner and pronominal declension paradigms of German and Dutch can be derived. In the third part of this chapter, I will analyze each individual d-item with the proposed structure. The main focus of the chapter will be on the lower part of the DP structure, which is the part in which noun are classified into distinct kinds, such as mass and count nouns. The central hypothesis that I will defend in this chapter is that grammatical gender is not a semantically empty category that serves only to instantiate agreement but a semantically meaningful category that divides nouns into different types of mass.

Chapter 5: The Internal Structure of W-Items
In Chapter 5 I will continue the investigation of our second research question 'What is the internal structure of d- and w-items?' In this chapter, I will extend the proposal made for the internal structure of d- and w-items in Chapter 4 to a proposal of the internal structure of w-items. I will show that the only difference between d- and w-items lies in the top layer of the structure. I will argue that w-items don't have a DP-layer in their internal structure. Instead, I will argue that the top layer of w-items consists of the projection of a W-head that triggers the construction of a set of alternatives in the sense of Rooth (1985, 1992). I will furthermore argue that this is the only part of the internal structure in which d- and w-items differ from each other: everything below the top layer is identical. I will then analyze each individual w-item using the proposed internal structure.

Chapter 6: The Multifunctionality of D-Items
In Chapter 6 we will turn to the multifunctional behavior of d-items in German and Dutch. In this chapter we will see that the definite article constitutes a monofunctional d-item while the d-item that functions as demonstrative pronoun also fulfills the function of the relative pronoun. I will show that the monofunctionality of the definite article and the multifunctionality of the demonstrative/relative pronoun can be straightforwardly derived from their internal structure. With respect to the demonstrative function, it can be observed

that the Dutch and the German demonstrative pronoun display some differences in their distribution in the clause structure. While German demonstrative pronouns can appear in all clausal domains, the appearance of Dutch demonstratives is degraded in the lower part of the clause, i.e., the *v*P-VP complex. I will show that this degradedness is not a deep syntactic problem but a surface matter related to case morphology. With respect to the relativizing function, I will adopt Boef's (2013) account of the internal structure of restrictive relative clauses in Dutch and show how the relativizing function arises in the particular syntactic environment.

Chapter 7: The Multifunctionality of W-Items

In Chapter 7 we will investigate the multifunctional behavior of w-items. As we can see from our introductory example (2), the German w-item *was* displays a very high degree of multifunctionality. In Chapter 7, I will formulate an analysis for the indefinite, interrogative, relativizing and quantificational function. The exclamative function will be excluded from the analysis. With respect to complementizers, I will only provide a very short discussion since w-complementizers don't seem to be a case of multifunctionality but the result of grammaticalization into a separate but homophonous element. We will see that the difference between the indefinite and the interrogative function is dependent on whether the w-item remains in the *v*P-VP complex of the clause or moves to the specifier of the CP. For the analysis of the indefinite function, I will build my analysis on previous work by Heim (1982), Diesing (1992), Postma (1994) and formulate my account against the background of the framework proposed by Cable (2007). I will follow this path for my analysis of the interrogative function as well, where I will combine my insights with Cable's (2007) analysis of *wh*-movement. I will then proceed to the relativizing function. In the discussion of the relativizing function, I will only deal with headed relative clauses such as the one in (2d). Free relatives will be excluded for the reasons given further below. I will then discuss the quantificational function shown in (2f). I will argue that we are not dealing with quantification in the sense of a quantifier such as many or some but with an amount-related interpretation that results from the makeup of the internal structure of German *was* and Dutch *wat*. The chapter will be concluded with a short note on w-complementizers.

Chapter 8: Conclusions and Outlook

In Chapter 8 I will summarize the central assumptions, claims, insights and conclusions put forth in this dissertation. I will then provide an overview over the empirical and theoretical contributions. At the end, I will point to a number of paths for future research.

1.7 Limits of the Dissertation

Before starting our investigation, a caveat is in order about a number of topics that are related to the empirical domain of this dissertation, but cannot be included in the theoretical account.

The W-items *why* and *how*

The w-items *why* and *how* will be excluded from the discussion of both the internal structure of w-items and their multifunctionality. The difference between the w-items *why* and *how* and the other w-items *who*, *what*, *when*, *where,* and *which*, is that they don't establish reference to a person, an object, an event, a point in time, or a location, but they create a relation between two entities. The w-item *why* creates a causal relation between two events and the w-item *how* creates a manner relation. These relations are fundamentally different from the referential relations established the other w-items. Manner w-items and causal w-items will therefore have to be investigated in a separate study, and only then will it be possible to assess whether the account of the internal structure of d- and w-items proposed here can be extended to account for the internal structure of manner w-items and causal w-items.

Free Relative Clauses

The appearance of w-items in free relative clauses will be excluded from the discussion. The central issue of free relative clause constructions is the dual nature that the w-item acquires in these constructions because it functions as head noun and relative pronoun simultaneously. The w-item is subject to selectional requirements both from the verb in the matrix clause and from the verb in the relative clause. The goal of all accounts of the internal structure of free relative clauses is therefore to capture this dual nature of the w-item. The literature shows an abundance of solutions to this problem. The classic proposals are Bresnan & Grimshaw (1978), who argue that the w-item is in the position of the head noun and associated with a resumptive element in the relative clause, and Groos & van Riemsdijk (1981), who propose that the w-item is located in the specifier of the relative CP, while the head noun is represented by an empty element. Rooryck (1994), among others, analyzes free relatives as embedded CPs. Caponigro (2002) analyzes free relatives as a complement of D. Van Riemsdijk (2006) proposes that the dual nature of the w-item can be captured with multidominant trees. Donati (2006) analyzes free relatives in terms of reprojection. Ojea (2011) proposes that free relatives are the result of a recategorization operation (SWITCH) in which the CP hosting the w-item in its specifier is recategorized into the head noun. Ott (2011) captures free relatives with the mechanism of relabeling within the framework of phase theory. The problem that arises from this wealth of analyses is that it is not possible to

analyze w-items in free relative clauses with respect to their external syntactic environment without going into a profound discussion of the internal structure of free relative clauses and making an informed choice between the many proposals at hand. Such a discussion would lead us too far away from the focus of this thesis and will therefore be excluded.

Exclamatives

Analyzing the appearance of a w-item, such as German *was,* in exclamative constructions is equally problematic as the analysis of such an item in free relative clauses. The investigation of exclamative constructions belongs first and foremost to the field of semantics. In order to understand the function of *was* as an exclamative marker, we would first have to create a profound understanding of the nature of exclamative constructions in general, which is beyond the scope of this thesis.

Quantifiers in the DP

With respect to the internal structure of DPs, it has become a common assumption that quantifiers, such as *many*, *all* and *some*, are situated higher in the structure than the noun, but lower in the structure than the definite determiner, i.e., they are located between the NP-layer and the DP-layer. Quantifiers are often associated with their own layer in the DP structure. Borer (2005a: 96-120), for example, proposes a quantifier phrase QP, whose specifier provides the position for quantifiers in the structure of the DP. Please note that I will not deal with quantifiers in my proposal for the internal structure of the DP. Quantifiers are a vast domain of research and integrating them into the discussion would take as very far into the field of quantification and derail us from our investigation of multifunctionality. The integration of quantifiers into the structure of the DP proposed here will therefore be left for future research.

D- and W-Complementizers

It is a well-known phenomenon that demonstrative pronouns in Germanic languages are homophonous with complementizers. A typical example is the English demonstrative pronoun *that*.

(5) a. I know **that** person.
b. I heard **that t**he train will be late.
c. This is the train **that** came in late this morning.

The complementizer function is the only case that I will not analyze as an instance of multifunctionality. Instead, I will follow the standard assumption that d-complementizers were derived from d-demonstratives at a very old stage of

Germanic as the result of a grammaticalization process. This assumption has been corroborated in a number of works in theoretical syntax, that show that the d-complementizer cannot be regarded as an atomic element, but must be regarded as a complex head in which the DP-layer of the original demonstrative pronoun constitutes a separate and still active element (cf. Roberts & Roussou 2003: 110-121 for English *that*, Boef 2013: 192-199 for Dutch *dat*, and Leu 2010 for German *dass*). These analyses are perfectly compatible with the framework proposed here and I have no further insights to add to them. I will therefore leave out the topic of d-complementizers from this dissertation and refer the reader to the literature mentioned in this paragraph.

I assume that the same holds for w-complementizers. We have seen in example (2g) above, here repeated as (6), that the German w-item *was* can function as a relative complementizer in certain German dialects.

(6) # Leite, **wos** allerwend ze spete kummn, warn nich fartch.
people what always too late come will not finish
'People who are always late never finish.'
(German: Thüringen, Jäger 2000: 8)

It is not surprising that both d-complementizers and w-complementizers are derived from the most underspecified d- and w-items, namely the ones carrying neuter singular inflection. The internal structure of d- and w-items proposed here will show that neuter singular inflection is a default inflection, which will be shown to correlate with a default semantic interpretation. This predicts the tendency of these elements to grammaticalize into a functional element that is in and of itself void of semantic content. Yet, I will not be able to offer an analysis of the internal structure of w-complementizers (if they have an internal structure at all). For an analysis of the w-complementizer in German, I would like to refer the reader to Bayer & Brandner (2008).

Adjectival Inflection

The account that I will propose for the internal structure of d- and w-items in this dissertation will be based first and foremost on empirical evidence from gender and number morphology in German and Dutch. It is a well-known fact that gender and number morphology on adjective in German and Dutch is dependent on whether the adjective is preceded by a definite article or by an indefinite article. When an adjective is preceded by a definite article, it displays weak inflection. When it is preceded a definite article, it displays strong inflection. The weak adjectival inflection makes no gender distinctions. Only the strong adjectival inflection does. This is shown in example (7).

(7) a. das schön-**e** Haus
the beautiful.SG house
'the beautiful house'

b. ein schön-**es** Haus
a beautiful.SG.N house
'a beautiful house'

We can see that there is a direct relation between the inflection of adjectives (which holds for quantifiers as well) and the kind of determiner that precedes the adjective. The topic of adjectival inflection is therefore both empirically and theoretically related to the investigation of the internal structure of d-items in Chapter 4. Yet, adjectives also constitute a vast research domain on their own and it will therefore not be possible to accommodate them within the scope of the study conducted here.

Chapter 2

Multifunctionality in the Theoretical Landscape of Generative Grammar

2.1 Introduction

In the previous chapter, I have argued that the first question we have to ask in our investigation of multifunctionality is: 'Which theoretical framework is suitable to account for multifunctionality?' The present chapter makes the first step in answering this question by comparing a number of different frameworks to our avail and taking a look at how each of these frameworks can account for multifunctionality phenomena.

What all frameworks of generative syntax have in common is that they share the fundamental generative assumptions about the innateness and uniformity of linguistic knowledge in the human mind. The innateness of language means that the mind-internal buildup and computations of the language system are innate in the human mind and therefore not a matter of learnability. Uniformity follows from innateness and means that all languages are the same in the sense that their expressions are built by the innate computations of the language system. Language variation is a surface effect.[2]

Where the three major lines of theory building differ is the *nature* of the mind-internal buildup of the language system and its computations. In this Chapter, I will show how Minimalism, Cartography and Constructivism conceptualize the language system and how we can capture multifunctionality phenomena within these conceptualizations. I will first discuss Minimalism in section 2.2. This will be followed by the discussion of Cartography in section 2.3. I will then discuss Constructivism in section 2.4. Since the goal of this chapter is to give a general overview of the different lines of theory building, I will limit the discussion to the framework of Distributed Morphology, as it constitutes the most widely received constructivist framework. Borer's (2005a,b,

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[2] Chomsky (2001: 2) defines the Uniformity Principle as follows:
"In the absence of compelling evidence to contrary, assume languages to be uniform, with variety restricted to easily detectable properties of utterances."

2013) Exo-Skeletal model will become relevant in Chapter 3, where I motivate the theoretical assumptions on which the account formulated in this dissertation will build. I will therefore introduce all necessary additional information there. The framework of Nanosyntax will be discussed in section 2.5. In section 2.6 I will discuss a new subframework of Generative Grammar that has been developed by Wiltschko (2014): the Universal Spine Model. This model combines insights from Minimalism, Cartography and Constructivism in order to arrive at a compromise between the assumption that all linguistic categories are innate, as proposed by Minimalism, Cartography and NS, and the assumption that no linguistic categories are innate, as proposed frequently in typological literature (cf. Joos 1957: 96, Dryer 1997: 117, Haspelmath 2007: 119).

This overview will give us a solid theoretical background with a spectrum of ideas and insights to draw from in the formulation of the specific theoretical account (Chapter 3) in which the internal structure of d- and w-items in German and Dutch (Chapters 4 and 5) and use this structure to derive their multifunctional behavior (Chapters 6 and 7) will be analyzed.

I would like to point out that there is one approach to multifunctionality that I will dismiss immediately: the traditional lexicalist approach, that generally treats cases of multifunctionality as cases of homonymy, i.e., the state where several linguistic elements share the same sound but have different individual meanings, as illustrated in (1).

(1) a. They went hunting with **bow** and arrow.
    b. The present was decorated with a beautiful **bow**.

Under the lexicalist approach, each homonym constitutes a separate lexical entry. With regards to our introductory example (1) in Chapter 1, here repeated as (2), this means that we have to assume one individual lexical entry for each *it*. One entry has to specify it_1 as a personal pronoun and another entry has to specify it_2 as an expletive.

(2) a. I saw **it**.
    b. **It** rains.

The basic problem with this approach is that the difference between the two instances of *it* in (2) is of a different nature than the difference between the two instances of *bow* in (1). The key property of homonyms, such as the ones in (1), is that they differ in their semantic content while surfacing in the same syntactic position, assuming the same syntactic function (in this case the function of a prepositional object). This holds also for homonyms of different categories. The

decisive difference between words, such as *coarse* and *course*, for example, is not that the former is an adjective and the latter a noun and that the two share a semantic core meaning like *beautiful* and *beauty*. The important difference lies in their semantic content. *Coarse* refers to something rough, harsh, rude or vulgar while *course* refers to a direction taken or intended to be taken, a progress or development, or a series of lectures on a certain subject (among other things). In contrast to homonymy, the key characteristic of multifunctionality is that semantic differences of this kind are absent. As the term suggests, it is not the semantic content of these elements that varies, it is the function specific to the syntactic environment in which they appear.

A further problem of the lexicalist approach is that it cannot capture cross-linguistically stable multifunctionality phenomena. As we will see in Chapters 4, 5, 6 and 7, the highly multifunctional behavior of d- and w-items in German and Dutch is almost identical across the two languages. I will also show that similar observations can be made for other Germanic languages. This demonstrates that we are not dealing with an accidental feature of German, but with a systematic phenomenon that appears across languages.

Due to this problematic consequence of the lexicalist approach, it has received substantial criticism in recent years (see, for example, Wiltschko 1998: 143-146, Leiss 2005b: 233, Boef 2013: 176f). This criticism highlights two major shortcomings of the lexicalist approach. The first is its theoretical unattractiveness resulting from increasing both the size of the lexicon and the number of construction-specific statements. This is at odds with the aim generally held in Generative Grammar and especially the Minimalist Program to reduce the postulation of construction-specific statements as much as possible. The second problem of the lexicalist approach concerns its relation to the arbitrariness of the linguistic sign. Multifunctionality patterns are found systematically across individual languages. If we capture these patterns by postulating homonymous lexical items, we are obligated to conclude that this pervasive linguistic phenomenon is a matter of mere coincidence by which different functions are accidentally linked to a number of same-sounding elements. This entails the denial of the fact that the different interpretations of multifunctional elements cannot be derived from the linguistic sign alone but are crucially related to the syntactic configuration in which it surfaces. This both theoretical and empirical inadequacy of the lexicalist approach requires that we attempt to capture multifunctionality in a way that appreciates its systematicity. Leiss (2005b: 233) and Wiltschko (2014: 93) argue that multifunctionality can only be properly understood if we start from the premise that when we see the same element in different configurations with different functions, we should assume that it *is* the same element and that it acquires these different functions due to the respective syntactic environment. This means that we have to take the

state of polysemy as the null-hypothesis behind multifunctionality phenomena. Homonymy is what needs to be motivated.

2.2 Minimalism

2.2.1 The Minimalist Model of the Language System

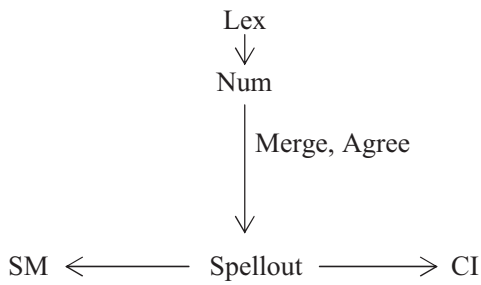
The Minimalist Program developed in Chomsky (1995, 2000 et seq.) was created as a response to the ever-growing apparatus of UG under GB theory. The Minimalist Program in and of itself does not constitute a specific theory but a research agenda that is guided by the principle of methodological economy, which essentially means that the fewer primitive assumptions or elements a theory postulates, the more desirable the theory is.

With respect to formulating a model of the language system, Chomsky (1995: 171) argues that all fundamental assumptions must be "drawn from the domain of (virtual) conceptual necessity". Chomsky (1995: 168-171, 2000: 98-112) further argues that the conceptually necessary assumptions about the language system are: a lexicon, a syntactic component that consists of one structure building operation called *Merge* as well as one agreement operation called *Agree*, and a parting point called *Spellout*, at which the derivation is split into phonological and semantic information. The phonological and semantic chunks of the derivation are then handed to two interfacing systems: the *sensorimotor system* (SM), which handles phonological information, and the *conceptual-intentional system* (CI), which handles semantic information.[3,4] This gives us the following basic model of the language system in Minimalism:

[3] The original terms for the performance systems coined in Chomsky (1995) were A-P (articulatory-perceptual system) and C-I (conceptual-intentional system). After the replacement of A-P with SM (sensorimotor system) in Chomsky (2004), the acronym A-P disappeared from the literature. I therefore use the more current acronym SM, although the discussion here refers to Chomsky (1995). For uniformity, I leave out the hyphen between C and I.

[4] The conventional terms *Logical Form (LF)* and *Phonological Form (PF)* have come to be used interchangeably with SM and CI as well as PHON and SEM.

(3) The general minimalist model of the language system



The derivation starts with an operation that selects all the lexical items to be merged into the structure and collects them in a presyntactic *numeration* (Num). The items are then successively taken from the numeration and integrated into the structure by the operation Merge. Merge takes two elements and combines them symmetrically to an unordered set {α,β}. Binary hierarchal structures emerge from one element of this set projecting to a phrase, which then yields the new ordered set {α,{α,β}}. Merge is thus an operation of recursive set formation.

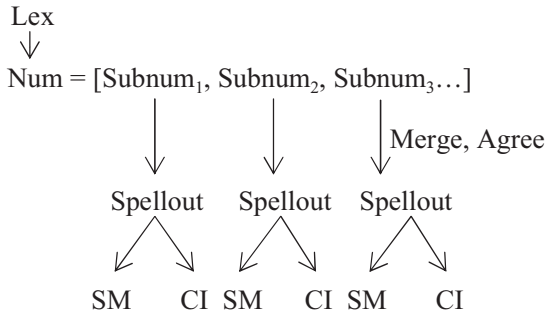
With respect to the lexicon, Merge has to obey the so-called *Inclusiveness Condition*, which states that the syntactic derivation must be built from the features provided by lexical items alone, entailing that no information may be changed or added by the syntax (cf. Chomsky 2000: 113, 118). The lexicon therefore plays an important role in minimalist theorizing. Chomsky (2000: 100f) assumes that the lexicon of a particular language is assembled from a universal set features provided by UG. The lexicon is instantiated by a one-time selection from the set of universal features. The lexicon of a particular language is therefore a subset of the universal set of features. Individual lexical items are assumed to be assemblies of features provided by the lexicon. Lexical items are assumed to carry three kinds of features: phonological features, semantic features and formal syntactic features. Merge is only sensitive to formal features (cf. Chomsky 1995: 229ff, 2000: 113, 2001: 10).[5] For reasons of economy, Merge is assumed to apply only when necessary. Consequently, there are only obligatory and no optional applications of Merge, which makes it a feature-driven operation. It applies only when a feature is present to be merged into the structure and stops upon completion of the merging process, until the following lexical item enters the derivation. Movement – carried out in early Minimalism

[5] See Chomsky (2001: 10f) for a discussion on whether a late insertion approach to phonological features, as held in DM, can be accommodated in minimalist syntax.

by the operation *Move* – has has been subsumed under Merge during later theoretical development, with the assumption that Merge doesn't differentiate between merging an external lexical item coming from the numeration or an internal lexical item that has previously been merged into the structure. To distinguish between the sources of the merged element, the terminology uses the expressions *external* and *internal Merge* (cf. Chomsky 2004: 110). The application of Merge is assumed to satisfy the *No-Tampering Condition*, which demands that structural relations formed by earlier applications of Merge must not be altered by later ones (cf. Chomsky 2000: 136). When the derivation comes to an end, it gets removed from the syntactic workspace by the operation Spellout which divides the structure into phonological and semantic information and feeds it into the respective interfaces. With respect to the interfaces, syntax has to obey the condition of *Full Interpretation*, which demands that all information sent to the interfaces must be legible to the systems that syntax is interfacing with, i.e., SM and CI. It is assumed that there are two kinds of formal syntactic features that drive the application of syntactic operations: features that can be interpreted by the external systems and features that cannot be interpreted. The uninterpretable features must be deleted from the derivation before the derivation is sent to the interfaces, otherwise the derivation will *crash* (cf. Chomsky 1995: 220). This deletion is achieved by the mechanism of *feature checking*, which in more recent terminology has come to be called *feature valuation*. In order to check (or value) and delete an uninterpretable feature, the uninterpretable feature has to get into the same syntactic position as its interpretable counterpart. They then cancel each other out (cf. Chomsky 2001: 1-10).

The general model in (3) received further development in Chomsky (2000, 2001 et seq.). Chomsky (2000: 98-111, 2001: 1-15) argues that the syntactic derivation proceeds in *phases*. Instead of constructing one large derivation, he assumes that the syntactic workspace is cleared after a certain portion of the derivation is completed. Each completed portion constitutes a phase. The lexical items available for each phase are separated from each other within the numeration. Every phase is associated with its own subnumeration of lexical items. Chomsky (2000: 103-111, 2001: 8f) identifies two phase heads in the clause structure: *v* and C. The completion of *v*P and CP, respectively, constitutes the completion of a phase, after which all material below the phase head is transferred to the interfaces. After Spellout deletes the portion from the syntactic workspace, there is nothing left to apply operations to. All material that has to remain in the syntactic workspace for further computation avoids Spellout by moving to the next phase through the specifier of the current phase head. An illustration of the phase model is given in (4).

(4) The phase model of minimalist syntax



In the past decade, Chomsky's phase model has become the commonly accepted standard model of the language system in minimalist syntax.

2.2.2 Variation and Multifunctionality in Minimalism

Minimalist theorizing about language variation is guided by two fundamental hypotheses. The first hypothesis is the so-called *Lexical Parameterization Hypothesis* initiated in Borer (1984: 3)[6] and further developed in Manzini & Wexler (1987: 424)[7], which states that crosslinguistic parametric variation is located in the idiosyncratic properties of lexical items. The second hypothesis is that syntax is a feature-driven computational apparatus as described above. Given the Lexical Parameterization Hypothesis, feature-drivenness and the uniformity of syntax, language variation must be explained in terms of the features that drive the syntactic computation.

One of the currently most widely used methods in minimalist analyses of syntactic variation is to define a matrix of morphosyntactic features and their specifications that determine the syntactic behavior of a particular element (for some recent literature, see Chomsky 2001, Rooryck 2003, Pesetsky & Torrego 2007, Schoorlemmer 2009, Barbiers 2009, 2012, Barbiers et al 2010, Adger 2010, Boef 2013, among many others).

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[6] Borer 1984: 3: "In this study we will propose a model of parameters which restricts the availability of variation to the possibilities which are offered by one single component: the inflectional component." The inflectional component here is a subcomponent of the lexicon.

[7] Manzini & Wexler 1987: 424:
Lexical Parameterization Hypothesis
Values of a parameter are associated not with particular grammars but with particular lexical items.

Morphosyntactic feature matrices consist of one or more features. The standard assumption is that features can be decomposed into a so-called *attribute-value structure*. This structure is represented as [x:y] where x is the attribute and y the value (Chomsky 2001: 4-9, Schoorlemmer 2009: 117, Adger 2010: 190, Boef 2013: 48).[8] The attribute expresses the type of the feature such as *gender* or *number* and the value expresses whether the feature is specified for its attribute, for instance, *feminine* or *plural*. A lexical item need not be specified for all the attributes it contains in its feature matrix. When a value is absent, the element is taken to be *underspecified* for this value. Underspecification causes an element to act "like a variable in the sense that it is flexible in its combinatorial possibilities with other lexical items" and triggers a *default value* "when the underspecified lexical element occurs on its own" (Boef 2013: 48). Some accounts also make use of privative features (cf. Barbiers et al 2010: 7f). These are atomic features, that cannot be further decomposed into an attribute-value structure. In a privative feature system underspecification results from the item not having the respective feature at all and receiving a default specification as a result. This means that the syntactic rigidity or flexibility of a lexical item follows from its degree of specification. Highly specified elements display low flexibility, whereas lowly specified or underspecified elements display high flexibility. Multifunctionality is therefore closely associated with underspecification.

To give an example, consider number marking in English, where plural is generally overtly morphologically marked with an *–s* while singular is morphologically unmarked. This difference in marking suggests that plural nouns have a specified number feature while singular nouns are unspecified for number.[9]

(5) Number marking in English

a. singular: [number:]
b. plural: [number: plural]

This predicts that when NPs occur on their own, they will receive a default singular interpretation when unmarked and a plural interpretation when marked. This prediction is borne out.

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[8] For detailed discussion of attribute-value structures, see Schoorlemmer (2009: 129) and Adger (2010: 190).

[9] The assumption that morphological marking corresponds to attribute specification is called *morpho-driven feature representation*. See Schoorlemmer (2009: 126-128) for detailed discussion.

(6) a. They planted the bug.
b. They planted the bug-**s**. (Wiltschko 2014: 16)

It furthermore predicts that there should be environments in which the unmarked noun displays flexibility with respect to its interpretation while the interpretation of plural is rigid. This prediction is also borne out. When a singular noun appears in a compound, it can acquire a specific kind of plural interpretation which is known as *general number* (Corbett 2000: 9-19).

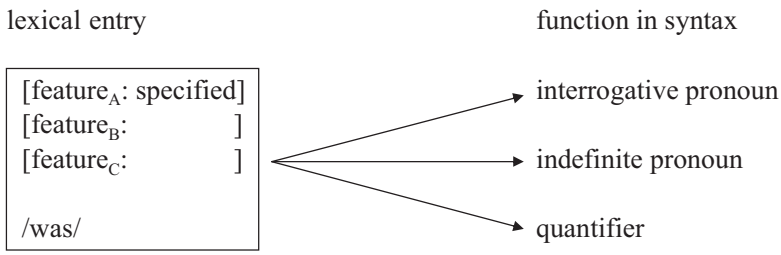
(7) **Bug spray** won't help. There are bugs everywhere. (Wiltschko 2014: 17)

In contrast, there is no environment in which a plural marked noun can acquire a singular interpretation in English. An underspecified number feature is therefore to be regarded as multifunctional between singular and general number, depending on its syntactic environment.

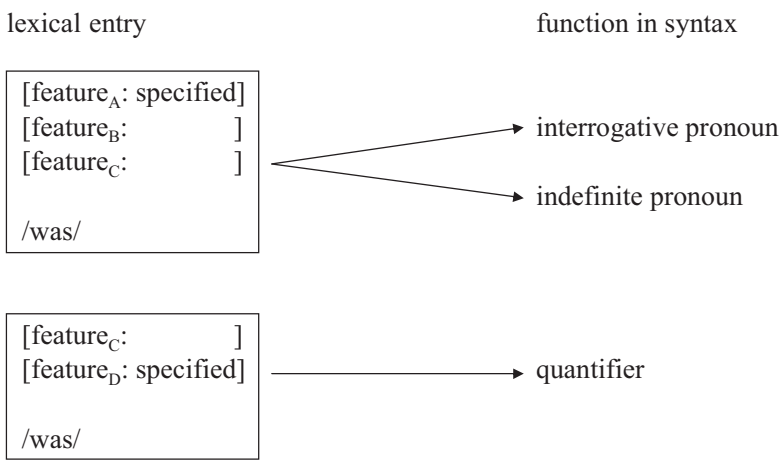
For lexical items that are made up of a feature matrix that consists of more than one feature, multifunctionality and homonymy are distinguished in the following way. If the different functions an element acquires in different syntactic environments can be shown to follow from the same feature matrix, we are dealing with a multifunctional element. If this is not possible, we have to assume that we are dealing with homonyms. This is illustrated in (8) with respect to our introductory example of German *was* from Chapter 1. The square brackets in the illustration contain the attribute-value structures that make up the feature matrix and the slashes contain the phonological string that the feature matrix is associated with. Example (8a) shows a feature matrix of *was* that in the syntax translates to the interrogative, indefinite and quantifying function. (8b) shows two feature matrices of which the first is a multifunctional one that allows *was* to function as interrogative and indefinite. The second feature matrix is monofunctional. It only captures the quantifying function of *was*. With respect to each other, the two feature matrices in (8b) are homonyms because they are associated with the same phonological string while constituting different lexical items. The relation between the two phonological strings /was/ is a relation of (accidental) homophony.

(8) Multifunctionality vs. homonymy in minimalist syntax

a. Multifunctionality



b. Homonymy



We can see from this overview that the makeup of lexical feature matrices constitutes the core of a minimalist account of language variation and multifunctionality. In Chapter 1, I have argued that an investigation of the internal structure of the d- and w-items of German and Dutch is indispensable in order to arrive at an explanation of their multifunctional behavior. If we were to formulate a minimalist account on their internal makeup, this account would primarily rely on formulating the lexical entries for these items.

This completes the overview of Minimalism and I will now proceed to the discussion of how the language system and language variation are conceptualized in Cartography. We will then take a look at how multifunctionality can be accounted for in this framework.

2.3 Cartography

2.3.1 The Language System in Cartography

The cartographic enterprise emerged in the late 1990s as a research program within the P&P framework and developed in parallel to and in interaction with the Minimalist Program. Cartography focuses first and foremost on the internal complexity of syntactic structures. The fundamental hypothesis of Cartography is that syntactic structures are organized in a large and fine-grained universal hierarchy of functional projections and "that if some language provides evidence for the existence of a particular functional head (and projection), then that head (and projection) must be present in every other language, whether the language offers overt evidence for it or not […]" (Cinque & Rizzi 2008: 45). With these assumptions, Cartography proposes the richest model of UG in current Generative Grammar, "far richer in fact than most people are used (and perhaps willing) to assume" (Cinque 2013b: 50). The main goal of Cartography is to draw representational maps of syntactic structures that are as detailed as possible.

Starting with the syntactic apparatus, Cartography shares the minimalist assumption that the basic building blocks of syntax are features. In addition, Cartography assumes that the features from which syntactic structures are built have their origin in general human cognition and enter the language system as grammatical features. Grammatical features are therefore taken to be a "subset of the properties which enter into cognition, thought or communication" (Shlonsky 2010: 424). Features are assumed to be atomic elements that cannot be bundled up into larger elements before the syntactic computation. It follows that there is no composition of features into lexical items in the lexicon. Cartography makes use of a *one-property feature system* (cf. Pretorius forthcoming). Each feature is a head in the syntax and projects a phrase. Every head present in the universal hierarchy is assumed to be overtly or covertly present in every syntactic derivation as well. This constitutes the fundamental difference between a one-property feature system and a privative feature system. One-property features are characterized by being overtly or covertly present in the structure. The overt or covert presence is determined by the feature being marked for activeness or inactiveness (cf. Shlonsky 2010: 427).[10] Privative features are characterized by being either present or absent in the structure. This entails that Cartography cannot make use of a privative feature system.

[10] This of course immediately calls into question whether we are dealing with a one-property feature after all and not with a two-property feature like the minimalist attribute-value features.

With respect to the relation between the language system and the external systems it interfaces with, Cartography follows the minimalist assumption that the language system is obligated to produce structures that are legible to the external systems CI and SM.

2.3.2 Variation and Multifunctionality in Cartography

Comparative and typological studies are crucial in the advancement of cartographic research, since every isolatable category is taken as a direct reflection of UG. The hypothesis that all functional elements are present but not necessarily visible in all languages has two important consequences for the study of comparative syntax. The first consequence is that language variation has to be reduced to the distinction between the overt and covert expression of syntactic nodes. Languages vary neither in their inventory of features nor in the syntactic structures built from these features (cf. Kayne 2005: 16). Which features are overtly expressed, which are silent, and why this is so has to be investigated for each language individually. The second consequence is that an encompassing theory of UG is dependent on discovering the complete hierarchy of functional projections. The assumption that individual languages only display a fragment of this hierarchy overtly entails that the examination of one language or a small set of languages is insufficient to determine the rich functional structure of UG. The comparison of as many different languages and dialects as possible is necessary in order to "determine the precise relative order of the different functional projections by combining the partial orders overtly manifested by different languages into what, in principle, should be a unique consistent order/hierarchy, imposed by UG" (Cinque & Rizzi 2008: 48).

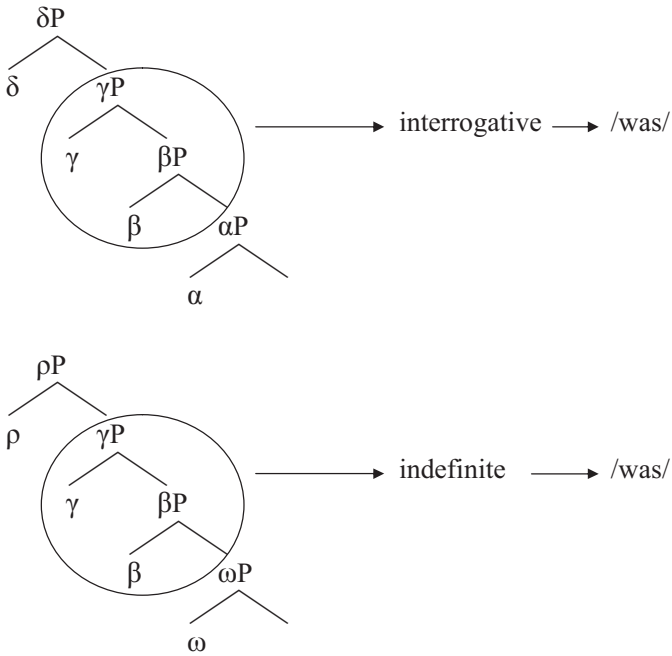
Multifunctionality phenomena don't belong to the primary empirical interests of Cartography. I therefore have to be rather speculative about how they would be treated in cartographic accounts. From the basic assumptions given above, I would conclude the following. Given that there is no presyntactic construction of lexical items that associate a collection of morphosyntactic features with a phonological string, every phonological string that we observe refers to a part of a syntactic structure that is made up of a sequence of heads. To show that we are dealing with multifunctionality, we would have to show that the same sequence of heads is present in different parts of the derivation, where, as a whole, it serves a different function in each part. We would be dealing with homonyms if different sequences of heads would be associated with the same phonological string. This is illustrated in (9). (9a) shows the same sequence of heads (γ and β) in different parts of the derivation resulting in different functions but remaining associated with the same phonological string. (9b) shows two different

sequences of heads in the two respective environments resulting in two different functions while being associated with the same phonological string. Intermediate projections are omitted for reasons of space.

(9) Multifunctionality vs. homonymy in Cartography

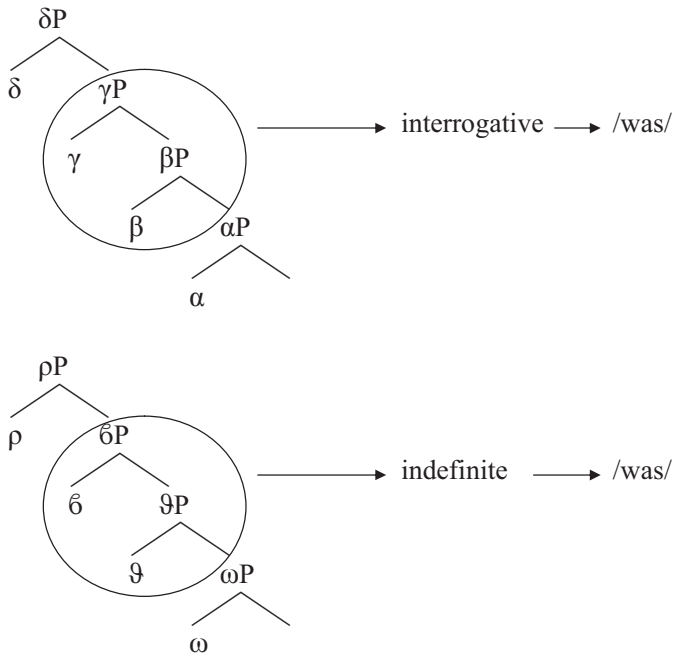
a. Multifunctionality

syntactic derivation function phonological form



b. Homonymy

syntactic derivation function phonological form



Concluding this section, I would like to point out that UG in Cartography is not 'bigger' than UG in Minimalism with respect to features provided by it. Both frameworks assume that all features that a language can have are provided by UG. The difference lies in the fact that Minimalism assumes that each language makes a one-time selection from the universal feature set to construct the lexicon. Cartography, on the other hand, assumes that individual languages make a selection which of the features provided by UG are overtly reflected and which are not. With respect to individual languages, the main difference between Minimalism and Cartography is that Minimalism assumes that the features selected from UG are contained in lexical feature matrices, while Cartography takes them to be ordered along a fixed syntactic hierarchy.

2.4 Constructivism

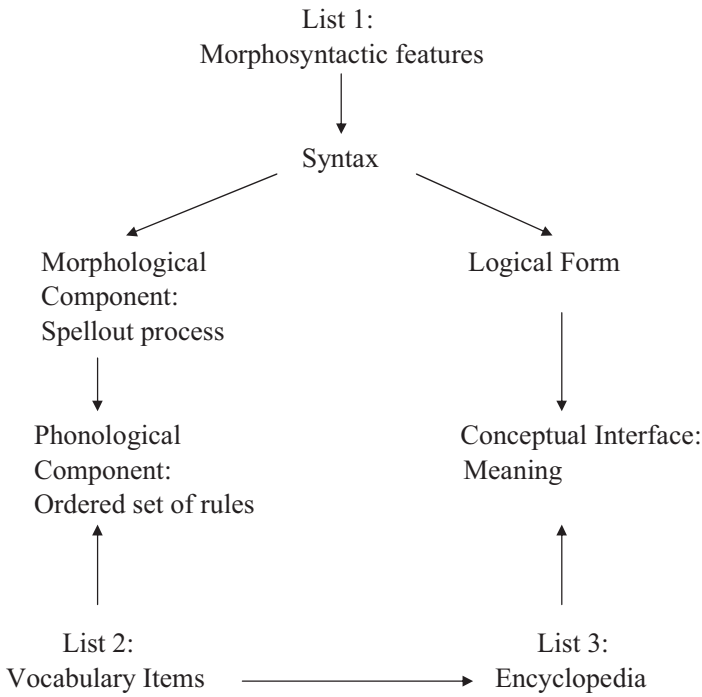
The generative research agenda that has come to be termed Constructivism (the term was coined in Ramchand 2008: 9-12) started out in the early 1990s with the introduction of the *Distributed Morphology* (DM) framework in Halle & Marantz (1993). The guiding idea behind the framework, which was initially formulated as a subcomponent of GB, was to show that "the machinery of what traditionally has been called morphology is not concentrated in a single component of the grammar, but rather is distributed among several different components" (Halle & Marantz 1993: 111f). This stood in contrast to the standard assumptions at the time that regarded the morphological component as part of the lexicon. Lexical categories were assumed to project from the lexicon into the syntax (cf. Halle 1973, Lieber 1980, Williams 1981, Selkirk 1982, Kiparsky 1982, Borer 1984, Levin & Rappaport-Hovav 1986, Williams & Di Sciullo 1987). It followed that within the DM framework it would not be possible to think of syntax as manipulating elements that constitute classical lexical items. With the decline of GB theory and the parallel development of the Minimalist Program, DM carried out a profound revision of the theory of UG, that was based on the core assumption that the lexicon as formulated both in GB and Minimalism doesn't exist as an independent module of the language system. The syntactic derivation was assumed to start with morphological primitives from which both word and clause structure are constructed. It is therefore "syntactic hierarchical structure all the way down" (cf. Harley & Noyer 1999: 3) This aspect is captured by the term Constructivism.

A second major constructivist framework that has been developed in parallel to DM is Borer's (2005a,b, 2013) *Exo-Skeletal Model*. The basic insights that DM and the Exo-Skeletal Model are based on are the same. In addition to these, Borer (2005-2013) elaborates on the conceptual motivations for a constructivist framework in a way that cannot be found in the literature on DM. While the focus in DM lies primarily on the relation between syntactic structure and morphology, Borer (2005-2013) expands this focus by adding a detailed discussion on the implications of constructivist models for the relation between language and the human mind. In this dissertation, these conceptual insights will play an important role in motivating the theoretical account in which we will analyze the internal structure of the d- and w-items of German and Dutch. Unfortunately, it is beyond the scope of this overview chapter to give a detailed comparison of DM and the Exo-Skeletal Model. I therefore restrict the discussion here to the framework of DM and introduce the relevant conceptual insights of the Exo-Skeletal Model in the course of the chapters to follow.

2.4.1 The Language System in Distributed Morphology

DM is a framework of so-called *realizational morphology*. Realizational frameworks in morphology are based on the *Separation Hypothesis*, which holds that "the derivation of the morphological representation of complex words is separate from (and prior to) the spelling out or realization of those representations" (Bobaljik 2012: 7). This means that inflectional morphology is regarded as a reflection of what has previously occurred in syntax (cf. Arregi & Nevins 2012: 8). Lexicalist approaches assume inflectional morphology to be part of the lexicon and therefore something that happens prior to the syntactic computation. The DM-model of the language system distributes the information that lexicalist approaches assume to be held in the lexicon across three lists whose content is inserted at different points in the derivational history. This is schematically illustrated in (10) and further elaborated below.

(10) The DM-model of the language system



The first list of the DM-model contains the morphosyntactic features that enter the syntactic derivation. These features are assumed to be functional features provided by the universal lexicon of UG. Examples of such features are

[Determiner], [1st], [past] and [plural]. In the syntactic component these features are represented as bundles under terminal nodes (TN). Since bundles of morphosyntactic features are not constructed by syntax, their structure is assumed to be flat (cf. Marantz 1997: 203, Bobaljik 2011: 11).

In parallel to the Minimalist model of the language system, the syntactic component in DM constructs derivational units, that are transferred to the phonological and the conceptual interface in a cyclic fashion. At the conceptual interface, the morphosyntactic features are interpreted in a compositional manner, irrespective of further operations at the phonological interface. Before the syntactic material can reach the phonological interface, it has to pass through a morphological component, in which a number of operations may apply that alter the feature bundle on the TN (cf. De Belder 2011: 25).[11] This process of successive morphological operations is what is called *Spellout* in DM (cf. Arregi & Nevins: 8). Within the Spellout process, the features on the TNs can be split (fission), fused (fusion), deleted (impoverishment), and reordered (readjustment). Even entire TNs can be deleted (obliteration) (cf. Harley & Noyer 1999: 5-7, Arregi & Nevins 2012: 3-11). One of the currently most explicitly formulated models of the postsyntactic morphological component can be found in Arregi & Nevins (2012: Chapter 1). These authors decompose the morphological component into three computational stages before linearization and one after linearization, which is followed by vocabulary insertion. Each computational stage is associated with morphological operations specific to the respective stage.

The insertion of phonological material happens after the modification of the TNs by the morphological component. At this point, the second list comes into play. This list is called *Vocabulary* and the elements stored in it are called *Vocabulary Items* (VI). A VI is an element that contains a phonological string and information about where in the structure this string can be inserted, i.e., with which combination of morphosyntactic features it can be associated. VIs are always inserted into TNs. The phonological string that gets inserted at a TN is called the *exponent* of that node. The rules that regulate the insertion of phonological material are called *rules of exponence* (cf. Bobaljik 2012: 8).

After vocabulary insertion, the logical form of the derivation is computed at the conceptual interface (further phonological operations, such as assimilation or epenthesis, are irrelevant). At this point, the third list of the DM-model becomes relevant. This list is called *Encyclopedia*. The concept of encyclopedic knowledge is of crucial importance. Constructivist frameworks make a

[11] For detailed discussions on postsyntactic morphological operations in DM, see Halle & Maranz 1993, Harley & Noyer 1999, Embick & Noyer 2001 and Arregi & Nevins 2012.

principled distinction between linguistic meaning and encyclopedic knowledge. Encyclopedic knowledge is taken to be part of general cognition (also often referred to as real-world knowledge[12]). The Encyclopedia is a learned list in which VIs are associated with encyclopedic knowledge. An example for such an association is the fact that we know that the phonological string *water* refers to some clear, drinkable liquid. In contrast to encyclopedic knowledge, linguistic meaning is the meaning that emerges compositionally from the syntactic combination of individual elements into a larger structure. The semantics of a word or sentence as a whole is thus derivative of its syntactic structure. (Borer 2005a: 10-14, Ramchand 2008: 12-15). The complete meaning of a word or sentence is then the combination of linguistic meaning and encyclopedic knowledge. The relation between the two is such that linguistic meaning cannot be overridden by encyclopedic knowledge. The compositional semantics arising from the syntactic combination of morphosyntactic features is preserved throughout (cf. de Belder 2011: 27).

2.4.2 Variation and Multifunctionality in Distributed Morphology

The assumption that syntax operates on a universal set of morphosyntactic features and that syntactic operations themselves are regarded as universal entails that in DM language variation has to arise postsyntactically. In the DM-Model, language variation starts in the morphological component. Although the organization and rules of the morphological component are universal, the application of individual rules to the morphosyntactic features in the TNs of syntactic trees is variable. This means that every computational stage of the Spellout process is a possible locus of variation, which allows for a great number of variational possibilities. This allows DM-analyses to account for variation in the ordering of exponents, differences with respect to overt and null exponents etc. We have seen that VIs are associations of phonological strings and information as to where they can be inserted as well as a chunk of encyclopedic knowledge. The rules that apply to the phonological string after vocabulary insertion are universal, yet the association of phonological material with a certain VI is arbitrary and therefore subject to variation as well.

[12] I take the term *real-world knowledge* to be highly problematic, for it implies that there can be knowledge about the real world that is independent of our specifically human interpretation of that world. Given that the real world is mediated to us by our mind, our specifically human interpretation of that world is the only knowledge of the world that is accessible to us. It is this kind of knowledge that is referred to by the term *encyclopedic knowledge*.

From what we have seen, it appears that multifunctionality phenomena can be fruitfully accommodated in DM. Yet, in order to understand how this is made possible, we have to take a quick look at some of the details of the vocabulary insertion procedure. One of the fundamental assumptions of DM is that vocabulary insertion is based on underspecification. This means that as soon as a VI is specified for one feature on a TN, it is eligible to realize the whole node. This in turn means that VIs can realize nodes that are more? specified than the VIs themselves. When several VIs with different degrees of specification compete to realize the same node, the vocabulary insertion procedure is regulated by the *Subset Principle*. The Subset Principle, reproduced in (11) determines that the most specified VI will be inserted into the TN.

(11) The Subset Principle

> The phonological exponent of a Vocabulary Item is inserted into a morpheme in the terminal string if the item matches all or a subset of the grammatical features specified in the terminal morpheme. Insertion does not take place if the Vocabulary Item contains features not present in the morpheme. Where several Vocabulary Items meet the conditions for insertion, the item matching the greatest number of features specified in the terminal morpheme must be chosen.
>
> (Halle 1997: 428)

If we want to ask the question whether we are dealing with homonyms or polysemes, the first thing we have to realize is that in DM these terms don't apply in their traditional formulation. Since there are no lexical items that constitute a collection of syntactic, semantic and phonological features, we cannot ask whether it is the same item that acquires a number of distinct functions or distinct items carrying out distinct functions. I therefore suggest that when working with DM, we take multifunctionality and homonymy as epiphenomena arising through the vocabulary insertion procedure. Following this logic, we would be dealing with homonymy when we have two or more distinct VIs that have a same-sounding phonological string but are specified for matching different morphosyntactic features. With respect to our introductory example of German *was*, we would have to assume that we are dealing with homonyms if the features of the TN where the string /was/ gets inserted to realize the interrogative function were incongruent with the features of the TN where /was/ gets inserted to realize the indefinite function. The two phonological strings /was/ and /was/ would then be accidental homophones. We would be dealing with multifunctionality, i.e., the same VI for both functions if the two TNs would share one or more features that can be realized by /was/ without

being blocked by some higher specified element. This is illustrated in the diagram in (12), where the arrow stands for insertion.

(12) Multifunctionality vs. Homonymy in DM

a. Homonymy

function in syntax		TN		VI
interrogative pronoun	→	$TN_{[A],[B]}$	←	$/was/_{[A],[B]}$
indefinite pronoun	→	$TN_{[C],[D]}$	←	$/was/_{[C],[D]}$

b. Multifunctionality

function in syntax		TN		VI
interrogative pronoun	→	$TN_{[A]}$	←	$/was/_{[A]}$
indefinite pronoun	→	$TN_{[A],[B]}$	←	

A crucial consequence of this system is that we don't need full identity between the VI and the TN in order to establish multifunctionality. It follows that observing a multifunctional element on the surface does not entail that the syntactic TN with which it is associated is identical in all instances.

2.5 Nanosyntax

2.5.1 The Language System of Nanosyntax

The framework of NS was initiated approximately ten years ago by Michael Starke, as a response to the empirical progress and theoretical progress achieved in Minimalism, Cartography and DM. NS combines insights of all of the three frameworks. The general architecture of the language system in NS begins with the assumption (formulated previously in DM) that if syntactic structure is smaller than word and morphemic structure, there cannot be a presyntactic lexicon in the traditional sense. The lexicon is therefore assumed to be a postsyntactic component that interprets syntactic structures, in the sense that it maps them onto conceptual and phonological representations (cf. Starke 2009:

2). As in Cartography, the syntactic derivation starts with semantically motivated features that are assumed to have been grammaticalized from general cognition.[13] One feature represents one head in syntax and the order of syntactic projections is determined by a universal hierarchy. The internal makeup of the syntactic apparatus follows minimalist assumptions. Like Cartography, NS assumes that features are ordered in accordance with a universal hierarchy. Yet in contrast to Cartography, NS makes use of a privative feature system, i.e., heads can be either present or absent in the syntax. Not all heads have to be merged in every derivation. When the syntactic derivation comes to an end, it gets further computed by Spellout. The Spellout procedure in NS is very different from the Spellout procedure in DM. Recall that Spellout in DM refers to the workings of the morphological component prior to vocabulary insertion. Vocabulary insertion is the phonological realization of TNs. In NS, Spellout refers to the direct phonological realization of syntactic structure without any postsyntactic morphological operations. NS explicitly states that a separate morphological component is not part of the NS-model of the language system (cf. Caha 2009: 51-63).

Spellout in NS does not target syntactic terminals, but syntactic phrases. We are therefore dealing with *phrasal Spellout*. (cf. Starke: 2009, Caha 2009: 51-95, Pantcheva 2011: 95-126). The concept of phrasal Spellout is based on the following assumptions. If the terminals of syntactic structures are smaller than words, then words must consist of a larger syntactic tree containing the terminals that make up the word. The postsyntactic lexicon therefore stores associations of phonological and conceptual information with chunks of syntactic tree structure. Spellout reads the output of syntax and every time it finds a piece of the derivation that matches a tree stored in the lexicon, this tree, including the associations with phonological and conceptual material, gets inserted. The phonological and semantic interpretation of syntactic structure is consequently constructed by Spellout. This is illustrated in (13). [14]

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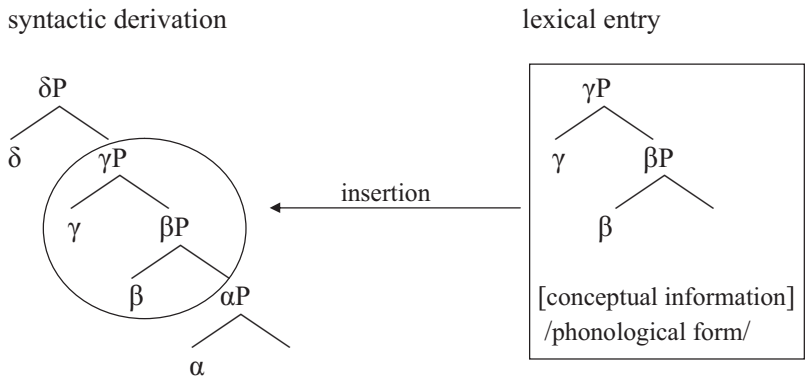
[13] So far, the question where these features are stored after grammaticalization from general cognition and how they are fed into syntax in the absence of a presyntactic lexicon has remained unanswered in the literature. I would speculate that they have to be collected in a list that separates the grammaticalized cognitive features from the ungrammaticalized ones. The difference between this list and the lexicon would be that the list carries no further information or associations.

[14] For completeness, it has to be noted that there is a second approach to Phrasal Spellout in NS called *spanning* (cf. Ramchand 2008, Dékàny 2009, Taraldsen 2010). In this approach, it is assumed that terminals can remerge (not move!) into higher positions projecting to a phrase in each position. The lexical item associated with the structure corresponds to the collection of remerged terminals not to one terminal alone (see Ramchand 2008: 59 for discussion).

(13) The Spellout procedure in Nanosyntax



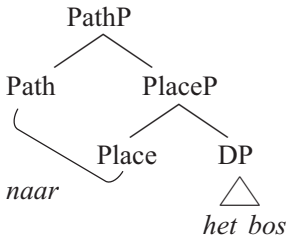
2.5.2 Variation and Multifunctionality in Nanosyntax

NS takes a strong universalist perspective on language variation. While syntactic operations and the order of projections they produce are assumed to be universal, all variation is created at the point of Spellout, i.e., in the externalization process. Starke (2010: 1) shows that language variation in NS "reduces to the size of lexically stored trees." With respect to the abstract example in (13), languages can vary in whether their (postsyntactic) lexicon holds a separate tree for each phrase, a tree that includes αP and βP, a tree that includes γP and δP and so forth up to a tree that includes all of the four phrases. I will illustrate this more precisely with an example from the decomposition of prepositions in Pantcheva (2011: 35-44). Pantcheva (2011: 36) decomposes directional prepositions into two phrases PathP and PlaceP.[15] The decomposition into two phrases yields two options for a specific language to phonologically realize a directional preposition. Either the language spells out the two phrases with one phonological string, that is then associated with a lexical tree that contains both of the phrases or it realizes the preposition with two phonological strings, each associated with one of the two phrases. Pantcheva (2011: 35-44) argues that this is precisely the difference between Dutch and Macedonian. While Dutch expresses directionality with one phonological string, the preposition *naar*, Macedonian uses a conflation of the dative preposition *na* and the general locative preposition *kaj*. This is shown in (14).

[15] In the course of her dissertation, Pantcheva (2011) further decomposes PathP into SourceP, RouteP and GoalP.

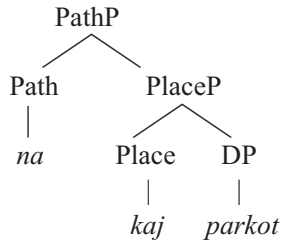
(14) Language variation in NS reduces to the size of lexically stored trees

a. Dutch



naar het bos
to the forest
'to the forest'

b. Macedonian



na-kaj parkot
to-at the park
'to the park'

(cf. Pantcheva 2011: 35-44)

NS is a framework that explicitly puts its empirical and theoretical focus on multifunctionality phenomena. The multifunctional phenomenon primarily investigated in NS in *syncretism*. The term syncretism describes the state in which one phonological string is associated with two or more grammatical oppositions in an inflectional paradigm (cf. Spencer 2003: 202; Gvozdanovic 1991: 135). A typical example of syncretism is case syncretism. One classic example of case syncretism are the noun declension paradigms in Latin. This is shown in Table 1 with a feminine noun of the A-declension, a masculine and a neuter noun from the O-declension, a feminine noun from the consonantal declension, a masculine noun from the U-declension and a feminine noun from the E-declension.

	CASE	DECLENSION CLASS					
		A-FEM	O-MASC	O-NEUT	C-FEM	U-MASC	E-FEM
SG	NOM	lingu**a**	populus	bell**um**	laus	vers**us**	r**es**
	ACC	linguam	populum	bell**um**	laudem	versum	rem
	GEN	lingu**ae**	populi	belli	Laudis	vers**us**	r**ei**
	DAT	lingu**ae**	popul**o**	bell**o**	Laudi	versui	r**ei**
	ABL	lingu**a**	popul**o**	bell**o**	Laude	versu	re
PL	NOM	lingu**ae**	populi	bell**a**	Laud**es**	vers**us**	r**es**
	ACC	linguas	populos	bell**a**	Laud**es**	vers**us**	r**es**
	GEN	linguarum	populorum	bellorum	Laudum	versuum	rerum
	DAT	lingu**is**	popul**is**	bell**is**	Laud**ibus**	vers**ibus**	re**bus**
	ABL	lingu**is**	popul**is**	bell**is**	Laud**ibus**	vers**ibus**	re**bus**

Table 1: Case syncretisms in Latin

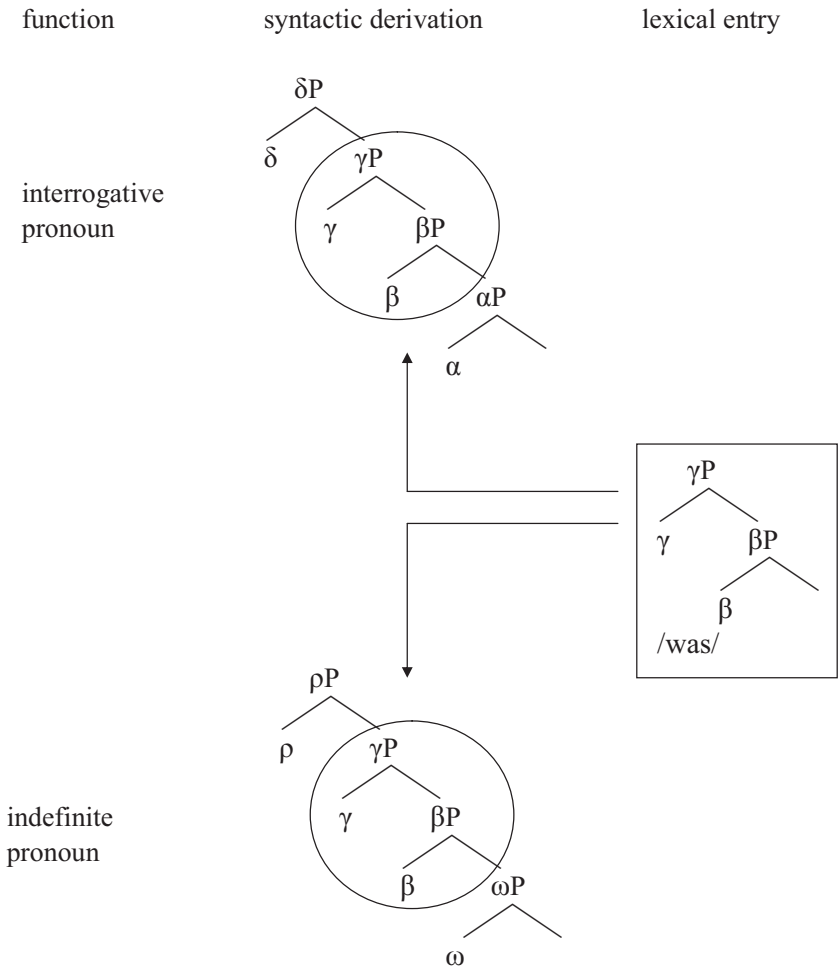
The noun declension paradigms in Table 1 show the following syncretisms. The feminine noun *lingua* (language) of the A-declension displays syncretism for nominative and ablative singular, genitive and dative singular as well as nominative plural and dative and ablative plural. *Populus* (nation, people) displays syncretism between dative and ablative in singular and plural as well as genitive singular and nominative plural. *Bellum* (war) displays syncretism between nominative and accusative singular and plural as well as dative and ablative singular and plural. *Laus* (praise) displays syncretism between nominative and accusative plural as well as dative and ablative plural. Versus (verse) displays syncretism between nominative singular, genitive singular, nominative plural and accusative plural as well as dative and ablative plural. *Res* (thing) displays syncretism genitive and dative singular, nominative and accusative plural as well as dative and ablative plural.

In nanosyntactic vocabulary we have to say that the case morpheme at the end of the word is a subtree of the whole tree that constitutes the noun. The decomposition of inflectional morphology into syntactic trees allows the assumption that the syntactic subtree that constitutes the case ending of the nouns belonging to plural dative and ablative of the C- and U-declension is spelled out by the same lexically stored tree, namely the one that is associated with the phonological string *-ibus*. Applying this logic to the German W-item *was*, we have to assume that the phonological string /was/ is associated with a certain lexically stored tree. We are dealing with multifunctionality if this tree underlies the spellout of /was/ in all different syntactic environments where we encounter it. This is illustrated in (15a). If we were dealing with homonymy, we

would have to show that there are two or more distinct lexically stored trees that are all spelled out by the same phonological string /was/. This is illustrated in (15b).

(15) Multifunctionality vs. homonymy in NS

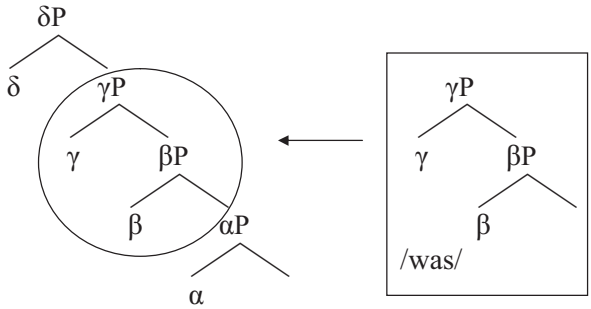
a. Multifunctionality



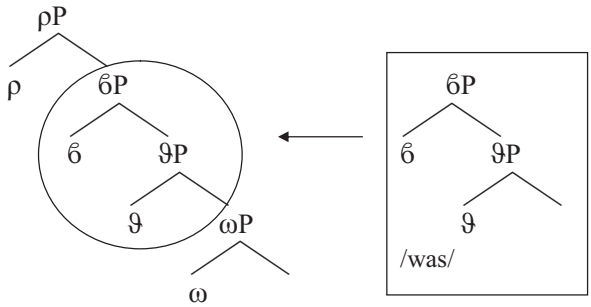
b. Homonymy

function syntactic derivation lexical entry

interrogative pronoun



indefinite pronoun



This concludes our discussion of NS. We have seen that although both DM and NS share the idea that syntactic structure holds below the word level, their model of the language system differs greatly in how this structure is built in the syntax and how it is spelled out into morphophonological form. While DM proposes Spellout as an operation of an intricate postsyntactic morphological component, NS assumes that Spellout is an operation that matches syntactic structure with phonological strings that are associated with certain chunks of syntactic structure in the postsyntactic lexicon. The major difference between NS and Minimalism is that NS rejects the assumption of a lexicon in the minimalist sense as well as the idea of a feature-driven syntax. NS and Cartography both assume a universal hierarchy of functional projections that is present in all languages. The two frameworks differ with respect to the nature of the features that make up the universal hierarchy and how these features are represented in individual syntactic derivations. Cartography assumes that all projections are always present in every derivation, but only some of them are overtly displayed while

the others are covert (one-property feature system). NS assumes that functional projections are either present or absent in individual syntactic derivations and that the full hierarchy functions as an output condition which the individual derivations are matched against (privative feature system). I will now proceed to the discussion of the Universal Spine Model.

2.6 The Universal Spine Model

The *Universal Spine Model* (USM), developed in Wiltschko (2014), is the most recent theoretical subframework of Generative Grammar. In parallel to NS, the USM takes multifunctionality phenomena as one of its core domains of empirical and theoretical investigation. In contrast to NS, the USM does not focus on syncretisms, i.e., multifunctionality below the word level, but on multifunctionality phenomena at the word level, i.e., a word that acquires different functions in different syntactic environments, as shown for German *was* in our introductory example in Chapter 1. Wiltschko's (2014) insights are therefore particularly relevant for the account to be formulated in this dissertation.

2.6.1 The Language System of the USM

The primary focus of the USM is on the crosslinguistic variation of syntactic categories. In the previous sections of this chapter, we have seen that Minimalism, DM, Cartography and NS all assume that syntactic categories are universal. In Minimalism, the universal base of syntactic categories is the set of features provided by UG, from which each particular language draws a subset. In DM, the universal categories are the functional items listed in the morphosyntactic vocabulary. In Cartography and NS all syntactic categories are assumed to be universal and present in all languages. Wiltschko (2014) calls the assumption that UG provides a universal repository of syntactic categories the *Universal Base Hypothesis* (UBH). In contrast to the UBH stands the so-called *No Base Hypothesis* (NBH) which is mostly formulated in typological and functionalist approaches to language variation. The NBH is the assumption that a universal repository of categories doesn't exist and that the very assumption harms the correct typological description of specific languages (cf. Joos 1957: 96, Dryer 1997: 117, Haspelmath 2007: 119). Wiltschko (2014) bases the fundamental motivation for her framework on the argument that both hypotheses run into problems with respect to typological description and theory building. Here I will only give a short summary of her discussion of the UBH (given that this dissertation is already set in the framework of Generative Grammar, so I don't feel the need to defend the existence of UG).

2.6.1.1 Problems of the Universal Base Hypothesis

Wiltschko (2014: 19-26) identifies three major problems of the UBH as a fundamental assumption for linguistic theory. Problem number one concerns the fact that there are categories that are hypothesized to be universal, but are not universally attested across languages. Based on cross-linguistic evidence from Blackfoot, Mandarin Chinese and Polish, she shows that categories such as COMPLEMENTIZER, TENSE, DETERMINER and NUMBER, that are standardly assumed to be universally represented, can be entirely absent in individual languages. Yet, this situation is actually predicted by accounts based on the UBH, since they assume individual languages to select (in the sense of Minimalism) or overtly realize (in the sense of Cartography) only a subset of universal categories. More severe problems arise from two further predictions made by the UBH, namely that categories of the same type will universally display the same behavior and that any language-specific category must be part of the universal inventory.

Wiltschko (2014: 23-26) shows that both of these secondary predictions are not borne out. By a comparison of English and Halkomelem past-tense marking, she shows that while the morphemes marking past tense in the two languages are associated with the same content (temporality), they display different formal behavior. While in English past-tense marking through verbal inflection is obligatory to obtain the correct interpretation, it is optional in Halkomelem. Halkomelem verbs can remain unmarked and are then compatible with both a present- and a past-tense interpretation. Consider (16).

(16) a. í-**lh** qw'eyílex tú-tl'ó.
AUX-PAST dance DET-PRN
He was dancing.

b. í qw'eyílex tú-tl'ó
AUX dance DET-PRN
He is/was dancing.

(Halkomelem, Ritter & Wiltschko 2014: 1332)

The contrast between English and Halkomelem tense marking shows that although their respective past-tense inflection is taken to belong to the same category, the inflectional morphemes are distributed differently. This calls into question whether we are actually dealing with the same category in both languages since "[d]istributional properties are the hallmark of categorial identity and if their distribution differs, then presumably their categorial identity differs as well" (Wiltschko 2014: 24).

The second prediction of the UBH is challenged by the existence of rather unexpected and rarely attested language-specific categories. One example of

such a category can be found in Squamish transitive verbal constructions. In these constructions the verb is marked by a suffix which not only expresses transitivity but also whether or not the agent is in control of the action taking place in the event. When the event is not under the control of the agent, the verb is marked for *limited control* indicated with LC in the glossing.

(17) a. chen kw'lh-**at** ta tiy.
1sg.s pour-TRANS DET tea
I poured the tea. (on purpose)

b. chen kw'élh-**nexw** ta tiy.
1sg.s spill-LC.TRANS DET tea
I spilt the tea. (accidentally) (Squamish, Jacobs P. 2011: 1)

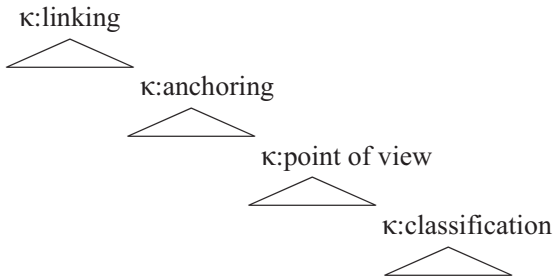
Given the assumption that all language-specific categories are drawn from a universal repository, we are obligated to assume that categories such as limited control as shown in (17b) must be part of the universal repository. The same assumption has to be made for categories that express purely cultural properties such as honorifics or nationality (see, for example, Cinque's 1994: 28f ordering of adjectives). Wiltschko (2014: 26) thus summarizes the problems encountered by the UBH as follows:

1. Some categories are missing in language L.
2. Some categories have different distributional properties in different languages.
3. Some categories of L have no correlate in the set of categories provided by UG.

2.6.1.2 The Universal Spine Hypothesis

As a reaction to these problems, Wiltschko (2014) formulates the *Universal Spine Hypothesis* (USH). The idea behind the USH is that there is a universal repository of categories but that this repository is *smaller* than the number of categories that we observe in particular languages cross-linguistically. This universal repository is represented by a hierarchically ordered syntactic spine of four universal categories from which all individual syntactic categories are assumed to be constructed. The universal spine is illustrated in (18):

(18) The Universal Spine



(Wiltschko 2014: 36)

The universal categories represented by κ constitute functions and are therefore inherently neutral with respect to distinctions, such as verbal or nominal. The hierarchy of the universal categories is based on the observations of universal ordering effects that also underlie the hierarchies of Cartography and NS. Wiltschko (2014: 34) takes the clausal hierarchy CP-TP-vP-VP as the orientation point for the universal spine. The lowest category, *κ:classification*, serves to determine whether the syntactic structure to be built will construct an event (verb) or an individual (noun), the second category, *κ:point-of-view*, introduces a viewpoint (such as aspect) relative to which the event or individual is presented. The third category, *κ:anchoring*, places the event or individual in space and/or time with respect to the utterance. The top category, *κ:linking*, establishes a relation between the proposition or referent and the ongoing discourse.

The universal categories are the basis from which language-specific categories are constructed. Wiltschko (2014: 34-36) assumes that every language-specific category consists, on the one hand, of the pairing of a phonological unit with a semantic unit and, on the other hand, of the association of this pair with a universal category. The phonological string is represented with a π and the semantic unit with a Σ, while the resulting category is represented with a *c*. This is shown in (19).

(19) Construction of a language-specific category *c*

$c = \langle \kappa, \{\pi, \Sigma\} \rangle$

A straightforward example of a language-specific category constructed in this way is the category TENSE. TENSE is a category that locates a sentence in time with respect to the utterance context. It is therefore related to κ:anchoring. I a particular language TENSE is made up of pairs of morphological strings that are

related to semantic units that express time such as present or past. Suchs pairs for English would be:

(20) English: {c:TENSE <κ,{π:s, Σ:pres }>, <κ_1,{π:ed, Σ:past}> …}

The difference between TENSE as a language-specific category and κ:anchoring as a universal category is that TENSE constitutes only one option that languages can employ to express κ:anchoring. As we have seen above, tense marking in Halkomelem doesn't serve to anchor the sentence in time with respect to the utterance. Wiltschko (2014: 119-123) shows that Halkomelem uses a LOCATION category on auxiliary verbs to express κ:anchoring.

2.6.2 Variation and Multifunctionality in the USM

Given the pairings of π and Σ as well as the association of those pairings with universal categories, the USM allows for a wide range of language variation. Languages can vary in their πs, their Σs, how they pair them and which pairs are associated with which κ. Wiltschko (2014: 11-19) takes multifunctionality phenomena as a crucial diagnostic to identify the association of a π-Σ pair with a universal category. She argues that the meaning of such a pair cannot be determined by the connection of π and Σ alone. The syntactic environment in which the pair is placed contributes equally to the interpretation as the contents of π and Σ. Consider the following patterns of multifunctionality:

(21) a. Marta **has** a car.
b. Marta **has** driven a car.

c. Marta drove **that** car.
d. I saw **that** Marta was driving.

e. I saw **it**.
f. **It** seems to be sunny outside.

These examples show that the syntactic distribution plays a determining role in the interpretational differences of the bold-faced elements in the respective sentence pairs. Depending on its distribution *have* is interpreted as a full verb or an auxiliary, *that* can surface as a demonstrative or a complementizer and *it* can serve as a 3rd-person pronoun or an expletive. Wiltschko (2014: 11-19) argues that such patterns are the result of one π-Σ pair – in the cases above, the respective pairs that make up *has*, *that*, and *it* – being associated with different κs in the universal spine and therefore being used to express different universal

functions by serving to construct different syntactic categories. We are therefore presented with a view of multifunctionality that relates multifunctionality phenomena directly to syntactic configurations.

2.7 Summary

In the present chapter, I have compared the three major lines of research in current generative theoretical syntax: Minimalism, Cartography and Constructivism. In addition, I have discussed the framework of Nanosyntax and the Universal Spine Model. We have seen that the individual frameworks differ greatly in both their conceptualization of the language system and the conceptualization of language variation. I have shown that these conceptualizations have the following consequences in accounting for multifunctionality phenomena.

Minimalism assumes that syntactic operations are driven by the features of lexical items which are arranged in a lexical feature matrix. A minimalist account of multifunctionality would therefore crucially rest on the formulation of a lexical feature matrix for the multifunctional item which would have to be such that multifunctional behavior of the item follows from the feature matrix.

Cartography assumes a universal hierarchy of functional projections, where the head of every projection corresponds to one feature that is either overtly or covertly present in the structure. Here multifunctionality would mean that the same sequence of functional projections spelled out with the same phonological string can be found in different syntactic environments.

Constructivism rejects the idea of the lexicon in the minimalist sense as well as the concept of feature drivenness. The lexicon is therefore distributed over a number of lists that become relevant at different points in the derivational history. Morphological form is constructed postsyntactically, by inserting Vocabulary Items into the terminal nodes of the structure built in syntax. In this framework we are dealing with a multifunctional element if we can show that two or more terminal nodes that share at least one morphosyntactic feature are realized by the same vocabulary item.

Nanosyntax is a framework that combines insights of both Cartography and Distributed Morphology. It assumes a universal hierarchy of projections as well as a postsyntactic lexicon. With respect to multifunctionality, Nanosyntax primarily focuses on the phenomenon of syncretism. An element is multifunctional if a certain sequence of heads spelled out with a certain phonological string can be found in different syntactic environments.

The Universal Spine Model distinguishes itself from all other frameworks of Generative Grammar by rejecting the assumption that all syntactic categories that can be found across languages are taken from a universal repository

provided by UG. The core assumption of the Universal Spine Model is that the repository of universal categories is much smaller than the number of categories observed in language typology. The model assumes precisely four universal categories from which all the language-particular categories are constructed. In this framework, we are dealing with multifunctionality if we can show that a certain pair of a chunk of meaning and a chunk of sound is associated with more than one universal category.

This concludes our comparison of the different theoretical frameworks of Generative Grammar and we will now proceed to set up the theoretical account in which I will analyze the internal structure of d- and w-items in German and Dutch in Chapters 4 and 5. From this analysis I will derive their multifunctional behavior in Chapters 6 and 7.

Chapter 3

The Theory

3.1 Introduction: The General Idea

This chapter will provide the reader with an outline of the analysis that I will formulate for the internal structure of German and Dutch d- and w- items in the two following chapters. The goal of this chapter is to motivate the theoretical assumptions and tools that I will use and give the reader an idea of what the analysis is going to look like. The approach that I will take in order to formulate my theoretical account will be fundamentally eclectic. All currently existing individual frameworks that have been developed within the mother framework of Generative Grammar have done so on the basis of thoroughly considered assumptions and solid data coverage. Together, these frameworks have developed an astonishing wealth of theoretical tools. It is my aim to make use of this remarkable richness in the pursuit of scientific progress. I will consequently not adhere to framework boundaries, but instead combine insights and tools from all frameworks introduced in the previous chapter in order to arrive at what I perceive to be the best possible account of the data. The formulation of the account will follow the general minimalist guideline of making as few axiomatic assumptions as possible.

My approach to the multifunctionality of d- and w-items in German and Dutch is based on the general insight that the internal structure of d- and w-items crucially determines their multifunctional behavior. Multifunctional behavior results from the interaction of each item with the particular syntactic environments it is placed in. The analysis therefore begins with an investigation of the word-internal structure of these items and then extends to their behavior in the clause structure. It is important to be aware that the theoretical tools that make it possible to fruitfully investigate the internal structure of words don't fare well in the investigation of clause structure, and vice versa. The theoretical tools used in Chapters 4 and 5, where I analyze the internal structure of d- and w-items in German and Dutch, will therefore be very different from the ones I will use to investigate their behavior at the clausal level.

With respect to the internal structure, the general idea that I will defend is that d- and w-items decompose into semantically motivated atomic building blocks as proposed by the framework of Nanosyntax. Over the past two decades, it has become a standard assumption that pronouns have a complex internal syntactic structure that can be anything from a bare NP to a full-fledged DP, depending on the particular item. The fact that different kinds of pronouns behave differently with respect to their distribution in the structure, cliticization, binding and their referential properties has been shown to be a consequence of the differences in their internal syntactic structure (cf. Cardinaletti 1994, Ritter 1995, Wiltschko 1998, 2002, 2009, 2014, Cardinaletti and Starke 1999, Koopman 1999, Harley & Ritter 2002, Déchaine & Wiltschko 2002, van Koppen 2005, Barbiers et al 2010, Boef 2013, Gruber 2013). With respect to d-items, previous research has largely focused on items that can be used pronominally, such as, e.g., the German d-item *der*, which can be a demonstrative pronoun and a relative pronoun. The internal structure of pronominally used w-items, such as German *was,* as well as d- and w-items such as *when* and *then,* that are traditionally grouped as adverbs, have been investigated by rather few researchers (see, e.g., Leu 2008, Boef 2013). Building on the insights, assumptions and proposals made in this large body of previous research in the internal structure of pronouns, it is my aim to show that the whole set of d-items and the whole set of w-items in German and Dutch can be built from a small number of semantically motivated syntactic primitives. I will show that all d-items share one semantic core and that all w-items share one semantic core. This makes the relation among d-items and the relation among w-items polysemic. I will argue that the nature of the semantic cores that characterize d- and w-items, respectively, is what distinguishes them from each other, while all the other building blocks that the items are constructed from are the same.

In the following sections I will provide an overview of the individual theoretical tools that I adopt from the various generative frameworks introduced in Chapter 2.

3.2 Constructivism: Linguistic Meaning vs. Encyclopedic Knowledge

The first and most crucial assumption that my analysis will build on is the principled distinction between linguistic meaning and encyclopedic knowledge made in Constructivism and featuring most prominently in Borer's (2005a,b, 2013) Exo-Skeletal Model. I follow Borer's (2005: 1-20) argument that every syntactic derivation starts with an uncategorized root. Every root is then connected to a chunk of encyclopedic knowledge and this is the mechanism by

which encyclopedic knowledge enters the language system.[16] At this point, the chunk of encyclopedic knowledge "does not have any formal properties, and [is], in this sense, tantamount to raw material, 'stuff' which is poured into the structural mould to be assigned grammatical properties" (Borer 2005: 108). From this basic insight, we can immediately see how linguistic meaning, in contrast to encyclopedic meaning, is derivative of syntactic structure. Linguistic meaning arises at the end of the derivation, where the encyclopedic chunk is interpreted in terms of the syntactic structure that has been built on top of it. The complete meaning of a word or sentence is then the combination of linguistic meaning and encyclopedic knowledge. The relation between the two is such that linguistic meaning cannot be overridden by encyclopedic knowledge. The compositional semantics arising from the syntactic buildup of the functional structure is preserved throughout (cf. De Belder 2011: 27). This conception of linguistic meaning entails that the language system creates semantic content that would not exist in the absence of the structure building mechanisms of the syntactic component. It follows that much of our human knowledge (conceptual structure, mind structure or whatever we want to call it) only comes into existence through the combinatorial mechanism of syntax and the association of encyclopedic knowledge with syntactic structure. Linguistic structures are thus not mere expressions of conceptual structures. Linguistic structures *determine* our conceptual structures to a great extent.

A theory of the language system that includes the constructivist distinction between linguistic meaning and encyclopedic knowledge conceptualizes the language faculty as a so-called *ontologically productive* system (cf. Hinzen 2009: 37), i.e., a system that produces and adds new concepts or structures to the conceptual realm of the mind instead of merely coding already existing concepts into a linguistic format. It is of crucial importance to be aware that lexicalist approaches cannot make such a distinction. Lexicalist approaches have to assume that all conceptualizations in the human mind are either pre-linguistic or non-linguistic and that lexicalization and linguistic expression follows: "the conception is given and the problem is to find a suitable linguistic expression of it" (Baker 1997: 127, en. 1). This perspective has become even stronger during the development of Minimalism where it is assumed, by virtue of the Inclusiveness Condition (Chomsky 2000: 113, 118),

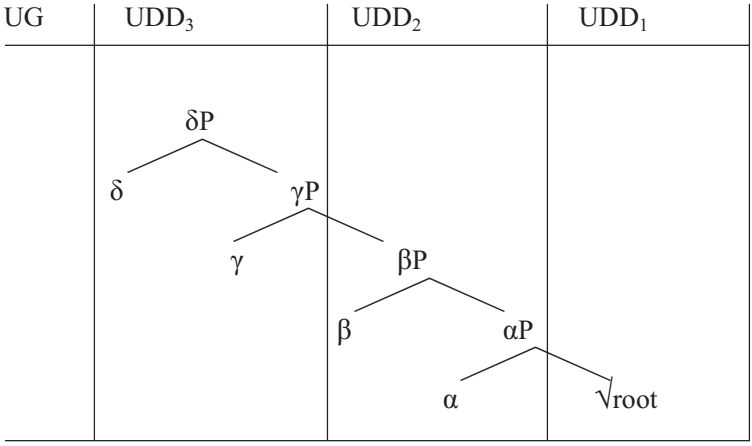
[16] Note that this constitutes an important difference between the framework of DM and the XSM. In DM encyclopedic knowledge is inserted at the end of the derivation, not the beginning of the derivation. Yet the distinction between encyclopedic knowledge and linguistic meaning holds for both frameworks. While encyclopedic knowledge is given a grammatical shape by the syntactic derivation in the XSM, it is associated with TNs at the end of the derivation, which means that it is arranged on a syntactic template whose structure determines the final interpretation of the encyclopedic chunk.

that syntax may not add any new information to the information introduced by lexical items and, by virtue of the interface conditions (Chomsky 2000: 113), that the language system tailors its linguistic expressions to the expressive needs of the conceptual system. The same holds for Cartography. Cinque (2013b: 50-52) emphasizes that one of the main goals of cartographic research is to find out which concepts of general human cognition find their way into linguistic encoding and why it is precisely these concepts that are encoded in language and not others. In both cases, the language system will not feed any concepts into general cognition that haven't been there before in a non-linguistic format. The language systems of Minimalism and Cartography are therefore not ontologically productive.

3.3 The Universal Spine Model: Universal Domains vs. Syntactic Categories

Following the arguments made in Wiltschko (2014), I will assume that the number of universal categories must be smaller than the number of the language-specific categories that we can observe cross-linguistically. Yet I will not employ the technical apparatus of the Universal Spine Model, that pairs up chunks of phonological information and chunks of semantic information and associates them with universal categories. Instead, I will represent UG as a system that operates on a small number of primitive and universal distinctions. Following the insights of Spelke (2003), Borer (2005a) and Wiltschko (2014), I will operate on the assumption that the fundamental distinctions that UG starts out with are related to (a) the classification of objects and events, i.e., distinguishing a certain entity as an object or event from the unstructured stream of sensual input, (b) distinguishing the size of quantities, (c) determining the spatial location of an object, and (d) linking a concept constructed on the basis of the distinctions in (a), (b), and (c) to the linguistic or utterance context. Based on experimental research conducted by Spelke (2003), I put forward the hypothesis that these fundamental distinctions do not originate in UG itself, but are recruited by UG from a number of core perceptual systems of human cognition. I will furthermore follow the insights of Wiltschko (2014) and assume that the universal distinctions defined above are ordered hierarchically within UG. This means that I will assume that the buildup of syntactic structure follows a general template that is given by UG, which strongly resembles the Universal Spine proposed by Wiltschko (2014). I will represent this template by dividing the syntactic tree structure into a number of *Universal Distinction Domains* (UDDs). This is illustrated in (1):

(1) Universal distinction domains and syntactic structure



Everything that is merged in a particular UDD will be interpreted in terms of the respective distinction. The hierarchical order of the UDDs is defined on the basis of the Universal Spine Model and the analysis of the DP in Borer (2005a: Chapters 3-6) with one important modification. Wiltschko (2014) and Borer (2005a) locate a domain of classification at the bottom of the hierarchy. I propose the existence of one more domain below classification: a domain of identification where encyclopedic chunks of knowledge are converted into syntactically computable roots. I will further elaborate on this domain below. The domain of classification then constitutes the second UDD. The third UDD is the domain where the size of quantities is determined. The fourth UDD is the domain of spatial anchoring and the fifth and highest UDD is the domain of linking. This is summarized in (2):

(2) The hierarchy of Universal Distinction Domains

Linking > Anchoring > Quantity > Classification > Identification

Please note that UDDs don't coincide with Chomsky's (2000, 2001) phase boundaries. Phase boundaries primarily serve as locality boundaries within the clause. It is therefore that CP and *v*P can be conceptualized as phase boundaries.[17] Yet in this study we are dealing with the internal structure of d-

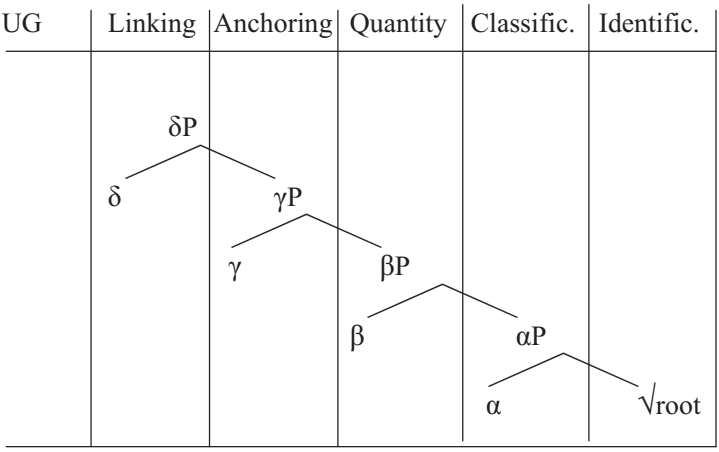
[17] In recent work, it has also been attempted to conceptualize the DP- and PP-layer as phase boundaries, see Radford 2004: 409-419 for discussion.

and w-items. The UDDs that I will propose are therefore assumed to hold at the submorphemic level.

There is no fixed number of syntactic projections per domain, except for the domain that holds the root. The root has to stand alone because it represents the yet-uncomputed chunk of encyclopedic knowledge. In order to become computable for the syntactic component, the root has to be converted into something that is legible for syntactic operations. This idea has received several technical implementations in the literature (cf., e.g., Borer 2005a: 1-60, Boeckx 2010: 28-35, Sigurðsson 2011: 373-380). Borer (2005a: 27-32), for example, assumes a separate domain called L(exical)-Domain, in which roots are converted into Ns and Vs by being merged with certain grammatical formatives from the functional lexicon. Boeckx (2010: 27-30) argues that such grammatical formatives are unnecessary. He proposes that it should be enough for an encyclopedic chunk to simply be identified as mergable. All further categorial properties will arise from the syntactic structure to be built afterwards. He technically implements this idea by associating an encyclopedic chunk with Chomsky's (2007, 2008) *edge feature*, a property that carries only the information of being a mergable item. Although I will remain neutral on the specific technical implementation that makes an encyclopedic chunk identifiable for syntactic operations, I do follow Boeckx (2010) in the assumption that the identification of a root as mergable is enough and that categorization is a result of interpreting the content carried by the root in terms of the syntactic structure it is merged into. Syntactic categories are consequently the result of syntactic derivations and not the input to syntactic derivations. This reflects Wiltschko's (2014) insight that syntactic categories are constructed. It furthermore follows that everything that is generally referred to as substantial or lexical category/content reduces to an encyclopedic chunk that has entered the grammar as a root. Based on these insights, I will call the lowest UDD the Identification Domain. To use a metaphor from biology, the Identification Domain works as a permeable membrane between the language system and general cognition. It allows chunks of knowledge to flow inside and prepares them for the syntactic computation.

The assumptions made in this section are summarized in the illustration below, which shows the hierarchy of the UDDs provided by UG and the build-up of syntactic structure within it.

(3) Universal Distinction Domains and syntactic structure



3.4 Nanosyntax: Fseq and Phrasal Spellout

Given that we are analyzing linguistic elements at the submorphemic level, we need to employ a theory of the syntactic component that works like a microscope and consequently allows us to make visible the syntactic structure that underlies each individual morpheme. Such a theory is provided by Nanosyntax (NS), which links syntactic phrases directly to the Spellout of morphemes. I will therefore follow the proposal made in Starke (2004) and assume that the syntactic buildup within the individual UDDs is regulated by a fixed functional sequence *Fseq,* that determines the order of the heads that project to syntactic phrases. I will furthermore assume the notion of phrasal Spellout that I have briefly introduced in section 2.5. I would like to point out immediately that I will diverge from the nanosyntactic assumption that Fseq is innate. The reasons will be discussed further below in section 3.4.2.

3.4.1 Fseq

The motivation for Fseq is twofold. It serves as an instrument to regulate the selection of syntactic categories during the derivation and to create syntactic structures without specifiers.[18] An important consequence of a structure without

[18] Note that this does not entail that all accounts formulated within the NS-framework or inspired by nanosyntactic theorizing dispense with the notion of specifier and the relations that come with it. The specifier-complement distinction plays an important

specifiers is that there are no intermediate projections. It follows that sisterhood relations automatically translate into head-complement relations. Starke (2004) argues that the notion of specifier yields a number of drawbacks for a minimalist theory of syntax. In Starke's (2004: 253) opinion, the basic problem of specifiers is that they are needed only in theories of syntax that don't make fine-grained distinctions between syntactic heads. When syntactic structures are represented by a small number of projections, as in the CP-TP-vP-VP structure, there is not enough space to fit all the elements of a clause. Specifiers serve first and foremost to construct space around heads in order to provide these elements with a syntactic position. Fine-grained syntactic approaches don't need this kind of space because all the features that syntax operates on are heads and therefore project their own phrase. A further problem that Starke (2004: 255f) identifies is that the specifier/complement distinction in minimalist syntax can only be retained by postulating ordering stipulations. There is no restriction that guarantees that the complement should be merged before the specifier, although this order of merging is generally assumed to be fixed. This is the point where Starke's (2004) argument for the assumption of Fseq relates to the general problem of the selection process in Minimalism: that it has no way of accounting for the fact that we are always presented with the same order of C, T, *v* and V in a clause. The result is that the main task of the elaborate checking/evaluation apparatus of minimalist syntax boils down to producing the correct hierarchy of elements in the clause. This is related to a further problem of minimalist syntax: the uninterpretable/unvalued features, that trigger the insertion of material into a specifier by activating external or internal Merge, have to be placed on the respective element already in the lexicon. This means that at the stage of constructing the lexical item from the features in the lexicon, the system already has to know when and where this item will have to trigger a certain operation later in the derivation in order to avoid a crash of this derivation at the interface. In other words, the system has to anticipate the entire course of the derivation at the point of selecting the numeration. Cartography is faced with the same problem. Although cartographic frameworks make explicit use of functional hierarchies, these hierarchies are not presyntactically fixed but the result of the fact that every head can only select for one specific head. The hierarchy therefore emerges anew with every syntactic derivation. Both Minimalism and Cartography are therefore obliged to endow each head with selectional information which makes that head select for precisely and only the head that will yield the correct order of projections. In light of these insights, it seems indeed theoretically convenient to postulate a hierarchy of functional projections.

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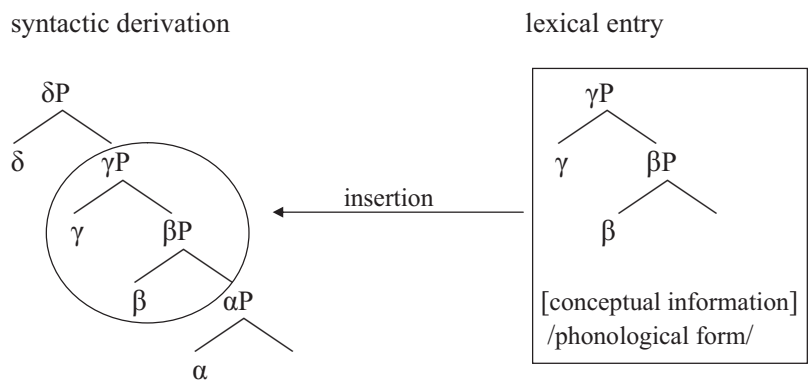
role in, e.g., Ramchand's (2008) account of verbal syntax and Pantcheva's (2011) decomposition of directional spatial expressions.

It is important to note that there is a crucial difference between the nanosyntactic Fseq and the functional hierarchy in cartographic approaches. In contrast to Cartography, NS makes use of a privative feature system, i.e., heads can be either present or absent in the syntax. Not all heads have to be merged in every derivation and it is consequently not necessary to build the entire Fseq in every derivation. Starke (2004: 256) proposes that Fseq functions as an output condition against which the derivation is matched. If the order of the projections in the derivation matches their positions in the sequence, the derivation converges. A desirable result of having Fseq determining the selection process is that NS need not make use of an extra diacritic or mechanism that determines the distinction between overtly and covertly expressed heads. Yet NS has to account for the fact that the presence and absence of heads in the syntax is not arbitrary. Not every head can be dropped. Hence NS will have to employ some mechanism that marks obligatorily present heads/features. For a proposal of such a mechanism, see Starke (2004: 260-262).

3.4.2 Phrasal Spellout

With respect to the morphophonological interface, I will assume that the relation between syntactic structure and morphophonological form is regulated by phrasal Spellout. We have already had a brief look at the nanosyntactic Spellout procedure in section 2.5. Let's take another look at the illustration in (13) of Chapter 2, repeated as (4) here.

(4) The Spellout procedure in Nanosyntax



In contrast to DM, the procedure of matching syntactic structures to lexically stored trees in NS is guided by the notion of *overspecification*. This means that a lexically stored tree can contain a larger structure than the syntactic structure it

spells out. With respect to the example above, assume that the lexically stored tree is associated with the fictional morpheme -*em* as a whole. This means that by virtue of containing βP and γP, the lexical tree can spell out either γP and βP together as /em/ or βP alone as /em/ (we will see immediately below why it cannot spell out γP alone). The procedure of matching the tree generated in syntax with lexically stored trees is regulated by the *Superset Principle* (cf. Caha 2007, 2009).

(5) The Superset Principle

> A phonological exponent is inserted into a node if its lexical entry has a (sub-)constituent which matches that node.
>
> (Caha 2009: 67)

It follows that the lexical trees eligible for spelling out a certain piece of syntactic structure must contain *all* information that is present in the structure that has to be spelled out. They furthermore are allowed to contain *additional* information. When there are several lexical trees available at Spellout, the Elsewhere Principle, given in (6), requires the tree with the least superfluous information to win.

(6) The Elsewhere Principle

> If two (incompatible) rules R_1, R_2 may apply to a given structure, and the context for application of R_2 is contained in that of R_1, then R_1 applies and R_2 does not.
>
> (adapted from Kiparsky 1973: 94)

The Spellout procedure itself is assumed to apply in a strictly cyclic fashion (cf. Caha 2010: 50-56, Pantcheva 2011: 111-118). Every application of Merge in syntax is followed by an application of Spellout, which immediately searches for a matching tree to spell out the structure present in the derivation. For our example in (4), this means that when is βP merged, Spellout will immediately look for an element to spell out βP. If in addition to the lexical tree in (4), there is an alternative tree available containing only βP, this tree will be chosen over the tree containing both γP and βP by virtue of the Elsewhere Condition. If there is no such tree available, the larger tree will spell out βP. This raises the following question: Can γP and βP ever be spelled out together by the tree containing both of them? At first sight, it seems that this should not be possible. Let's say that the lexical tree in (4) is the only one available to spell out γP and βP. There are no smaller trees containing γP and βP alone. Then the tree in (4),

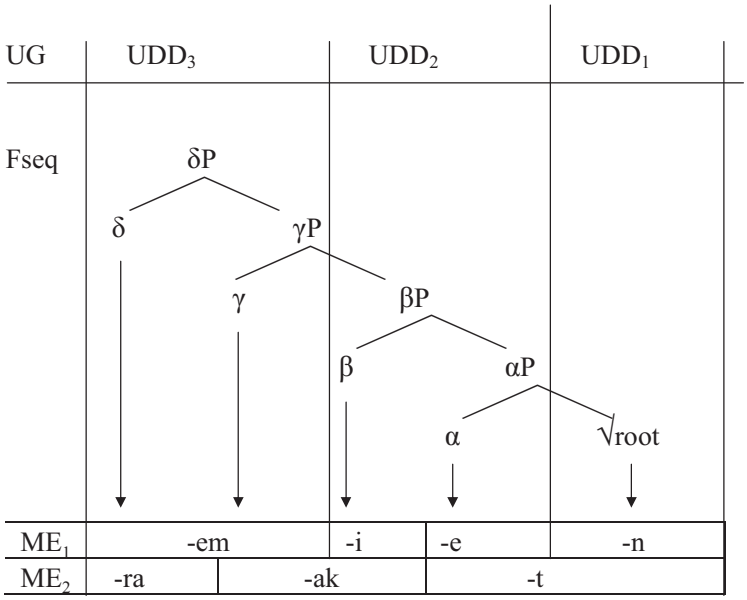
by virtue of the Superset Principle, will spell out βP as /em/ right after it is merged into the derivation and then proceed to spell out γP as /em/ right after it is merged into the derivation. This would yield the combination /emem/. There would never occur a simultaneous spelling out of γP and βP since there would always be a tree available to spell out βP before γP gets merged yielding a doubling of the phonological string which is unnecessary since the string /em/ can in principle spell out γP and βP together. In order to avoid such a situation in which the tree spells out two distinct subsets of itself in a successive manner, Pantcheva (2011: 114) proposes an overriding mechanism that detects when a part of the syntactic derivation that contains more than one phrase can be matched exhaustively by a lexical tree. In these cases, the earlier matches of individual phrases get replaced by the tree which matches all of the individual phrases at once. The Spellout procedure is furthermore assumed to be determined by Kayne's (1994) *Linear Correspondence Axiom*[19] which maps structural dominance to linear precedence (cf. Pantcheva: 131-133).

The mapping relation between syntax and morphology/phonology in NS brings us to one of the most important empirical predictions of the model: Morphological syncretisms can only emerge under structurally adjacent heads. Syncretisms therefore play an important role in determining the order of the projections in Fseq. Combining the insights and assumptions of this section with the insights and assumptions of the previous sections of this chapter, we arrive at the following relations between Universal Distinction Domains, Fseq and morphology. The shorthand ME in the illustration stands for morphological expression of the syntactic structure in a particular language, the morphemes are fictional.

[19] Kayne 1994: 5f: "To express the intuition that asymmetric c-command is closely matched to the linear order of terminals, let us, for a given phrase marker, consider the set *A* or ordered pair $<X_j, Y_j>$ such that for each j, X_j asymmetrically c-commands Y_j. Let us further take *A* to be the maximal such set; that is *A* contains all pairs of nonterminals such that the first asymmetrically c-commands the second. Then the central proposal I would like to make is the following (for a given phrase marker P, with T the set of terminals and *A* as just given):

(3) Linear Correspondence Axiom
d(*A*) is a linear ordering of *T*."

(7) Universal distinction domains, syntactic structure and morphological form



What the illustration in (7) shows is that languages can differ with respect to how many morphemes are used to spell out a certain number of syntactically adjacent heads. They can be spelled out individually, i.e., one morpheme per head or they can be spelled out together by one morpheme for two or more heads. It is therefore that in NS all variation reduces to the number of heads that are spelled out by the same morpheme. It is important to be aware that this is a highly idealized view of language variation. It cannot accommodate the mismatches between syntactic structure and morphological form that every language displays due to historical accidents. This point will be discussed further in the following subsection.

Seeing the illustration in (7), the reader might wonder why it is necessary to have both Universal Distinction Domains and a sequence of functional projections. Why should we not follow the nanosyntactic assumption that Fseq as a whole is given by UG and that we consequently don't need to divide Fseq into larger UDDs? My answer to this question is that with respect to what we regard as universal, it is important to make a distinction between what is actually there at the point of birth and what grows in the individual due to genetic determination. With respect to the language system, I think that it is more plausible to assume that the number of distinctions given by UG at the point of birth (i.e., recruited by UG from the core perceptual systems of cognition) is smaller than the number of distinctions that an individual grows to make in the course of time. I therefore hypothesize that UG takes a small set of fundamental

distinctions and provides the human mind computational operations to create new distinctions on the basis of the ones that are given. These operations are the operations of the syntactic component. New distinctions are created from the moment of birth. This makes language acquisition a process of differentiation. Differentiation stands in contrast to learning which constitutes the accumulation of information in an additive manner. Under these hypotheses, the child does not actually *acquire* language. Instead the child interprets its environment in terms of the universal distinctions recruited by UG and uses the linguistic input and the operations of the syntactic component to differentiate these universal distinctions into ever more finer grained distinctions. The distinctions created after birth are therefore entirely determined by UG and therefore as universal as UG itself. Forty years of profound investigation of system growth in System Theory have shown that differentiation is *the* universal mode of growth for all systems of all kinds, i.e., regardless whether they are biological systems, social systems, economic systems, communication systems, etc. (cf. Luhmann 1998: Chapter 4).

Proponents of Generative Grammar have argued for decades that the process of language growth is as biologically programmed as the growth of a bodily organ. If we were to regard language acquisition as a process of differentiation, then the genetic determination of UG translates into the genetic determination of language acquisition. The difference between the UDDs provided by UG and the Fseq that regulates the order of syntactic projections would then not be the difference between universal and particular, but the difference between initial and final state where both states are genetically determined. Fine-grained nanosyntactic trees are essentially a translation of semantic distinctions into a sequence of syntactic phrases. I think that the strongest evidence that the fully developed Fseq cannot be innate is the fact that young infants are simply incapable of making many of the distinctions encoded in nanosyntactic functional sequences. One example is the decomposition of prepositions in Pantcheva (2011) which we have briefly encountered in section 2.5.2. Spelke (2003: 291-297) shows that the spatial perception of young infants is limited in the sense that they can use geometrical information to find an object (such as the north-east corner of the room) but they cannot use relational information to find an object (such as left of the table). It is only after the acquisition of prepositions that children make use of relational information to locate objects. This supports the assumption that whatever the Fseq of prepositions, the distinctions made by the Fseq cannot have been there at birth. Instead they must have been created from a more basic distinction of spatial perception.

A consequence of this line of thinking is that there can be no variation in the syntactic component. Language variation has to be a matter of morphophonology alone. I therefore follow Berwick & Chomsky (2011: 37) in

the assumption that all language variation will ultimately be reduced to processes of externalization, i.e., the construction of phonological form. The problem that we are facing at the current stage of theoretical development is that the terms that our theories of syntax are based on are heavily intertwined with morphological terms. Recent developments across all frameworks in Generative Grammar show that we are only at the beginning of a long process of slowly teasing syntactic and morphological terms apart. As we have seen in section 2.6, Wiltschko (2014) has shown that TENSE which was (and still is) regarded as a core functional category of syntax has to be reformulated as one out of several morphological expressions of the more abstract notion of anchoring. Gruber (2013) has shown that the category PERSON on indexical pronouns can be derived from deictic primitives related to space and time. The consequence of this situation for the account developed here is that although I am convinced that everything in the realm of syntax is universal while all variation is restricted to the surface, I don't think that the right way is to postulate that every projection that I can motivate on the basis of my German and Dutch data should be taken for granted as a universal until someone else comes along and disproves it. Instead, I will motivate the Fseq that I will argue to underlie all German and Dutch d- and w-items only for these two languages with the goal of corroborating their status as universals in future research with larger typological samples.

3.4.3 The Relation between Syntax and Morphology

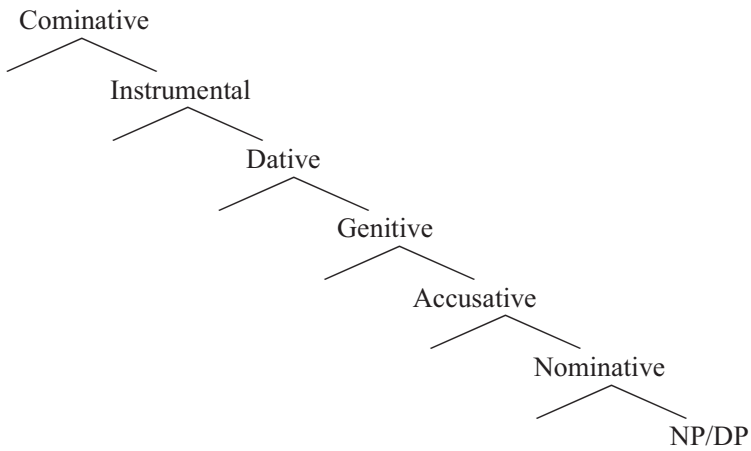
Before continuing with the theoretical set-up of my analysis, I would like to point the reader to a serious drawback of the nanosyntactic conception of Spellout. The direct translation of syntactic trees into morphological form is highly deterministic and therefore incapable of accommodating mismatches between syntactic terminals and morphological form. The same problem is faced by Minimalism and Cartography which both have equally rigid syntax-morphology mapping mechanisms (if they are mentioned at all). The problem with this highly deterministic relation between syntax and morphology is that it prompts the question why language change should ever happen. On an intuitive level, it is clear that phonological form is rather fluid with respect to syntactic structure and subject to eternally ongoing change. As we will see in the following two chapters, the breakdown of an inflectional system such as the case and gender systems in Dutch leads to the freezing of inflectional morphemes in certain places which then turn into idiomized structures. We will also see that such frozen morphemes retain certain properties in the sense that they allow the element to which they are attached to appear or not appear in certain syntactic positions. I take it to be implausible to attribute such phenomena to syntax

proper. The relation between syntax and morphological form therefore cannot be as direct as suggested by the highly idealized procedure of phrasal Spellout in NS. As trivial as it might sound, it is important not underestimate the fact that externalization of syntactic structure means to reformat it into sensory commands that instruct the muscles of the articulation apparatus to behave in a way that creates a particular modulation of the pulmonic airstream. It is clear that this kind of reformatting has to occur in a number of successive processes of which the flattening of hierarchical structure as formulated, e.g., in the Linear Correspondence Axiom is only one step. Whatever the precise nature of the externalization procedure, we must assume that mapping syntactic structure to sensory commands is strongly characterized by the inherent makeup of the sensorimotor system which is shown by the mere fact that hierarchical structures have to be flattened in order convert them into sound waves. As Berwick & Chomsky (2001: 37f) point out, in contrast to the syntactic apparatus, the externalization procedure is highly susceptible to environmental influences. We therefore expect morphophonological form to display frequently historical accidents. Morphological and phonological systems have rules of their own and they seem to move rather fluidly underneath the syntactic terminals. For the empirical investigation, this means that the examination of historical data is indispensible in order to understand synchronic data. For the theoretical investigation, it means that we should aim at developing a view of the relation between syntax and morphophonology that is much less deterministic than the ones that we observe in Minimalism, Cartography and Nanosyntax. It follows that the nanosyntactic claim that NS is a more economical framework than DM because it employs a 'direct' way of spelling out syntactic structure instead of a postsyntactic morphological component is moot. This view simply amounts to the denial of the intricateness of externalization. DM is currently the only framework that can fruitfully accommodate mismatches between syntax and morphophonological forms due to its postsyntactic morphological operations fission, fusion, impoverishment, readjustment and obliteration that alter the position of TNs. Unfortunately, the Spellout procedure of DM and NS are incompatible and I therefore will have to stick to the highly idealized and deterministic relation between syntax and morphology formulated in NS and discuss the issue of historical change in morphological form and syntax-morphology mismatches resulting from historical accidents as a separate issue.

3.4.4 The Case Hierarchy

With respect to the Spellout of case morphology, I will follow Caha (2009) in the assumption that the individual cases are ordered along a universal Case Hierarchy. On the basis of crosslinguistic observations on case syncretisms, Caha (2009) has identified a universal hierarchy to which the formation and erosion of case morphemes as well as the distribution of inflectional case and prepositional case seem to be sensitive. Caha (2009: 24) conceptualizes this hierarchy as an Fseq of case in syntax that is placed on top of either an NP or a DP. This hierarchy is reproduced in (10):

(10) The Case Hierarchy



(adapted from Caha 2009: 24)

Although I will remain neutral about the specific placement of the Case Hierarchy within the internal structure of d- and w-items that I will propose in Chapter 4, I will show that combining the Fseq of the Case Hierarchy with the Fseq of d- and w-items yields the correct syncretisms for the declension paradigms of these items.

It is important to be aware that the adoption of the Case Hierarchy does not mean that all phenomena related to case morphology are to be taken as syntactic phenomena. During the periods of Old High German and Old Dutch, both German and Dutch displayed fully intact inflectional paradigms for morphological case and grammatical gender. Both languages displayed declension paradigms for nominative, accusative, genitive and dative case as well for feminine, masculine and neuter gender. It is important to be aware that

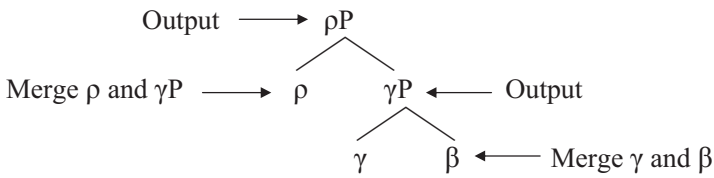
case, gender and number are all expressed on the same inflectional morpheme. At the end of the Old Dutch period, the inflectional case and gender paradigms entered a process of erosion. This erosion went on through the Middle Dutch period and resulted in a near complete loss of case inflectional morphemes and a reduction of gender distinctions on determiners from three to two in the transition from Middle to modern Dutch. In present day Dutch, case inflection on pronominally used d- and w-items is only rudimentarily retained in some idiomatically used forms or in archaic and literary language. In contrast to Dutch, the German case and gender paradigms did not go through a process of erosion. Case and gender morphology in German have only went through minor phonological changes since the Old German period. These differences in case morphology have clearly observable effects on word order arrangement in German and Dutch. German d- and w-items are syntactically more flexible than Dutch d- and w-items. This observation belongs to the general widely-observed phenomenon that languages with rich case morphology display a higher degree of flexibility in the order of nominal arguments. Scrambling in German is a classic example of this phenomenon which will play an important role in understanding the behavior of German w-items as indefinite pronouns (see Chapter 7). It is of course the main interest of the theoretical linguist to describe and explain the workings of the grammatical system, i.e., the universal human linguistic competence, yet it would be a far too deterministic stance if we tried to derive every morphological difference we observe in comparative research from syntactic differences between the respective languages. This holds even stronger for microvariation research. For two languages that are as closely related as Dutch and German, I take it to be highly unlikely that they display any differences in syntax. Furthermore, if we take the ultimate goal to formulate all language variation in terms of externalization, then the null hypothesis should be that there are no syntactic differences between particular languages. It is therefore that I will make extensive use of historical data in Chapters 4 and 5. Historical data provides a great help in detecting historical accidents that have to be attributed to performance issues such as ease of pronunciation and comprehension, language contact, social factors, convention and the forceful shaping of morphological forms by prescriptive grammarians.

3.5 Minimalism: Merge as an Operation of Set Formation

With respect to the creation of syntactic structure, I follow the general assumption shared by all frameworks that the operation Merge constitutes the fundamental syntactic operation that builds phrase structure. Merge is an operation that takes two separate elements and Merges them into one. It can then apply to its own output and merge the element it just created with another

separate element into a new element. This is shown in the illustration in (12) (possible specifiers are omitted):

(12) The Structure Building Operation Merge

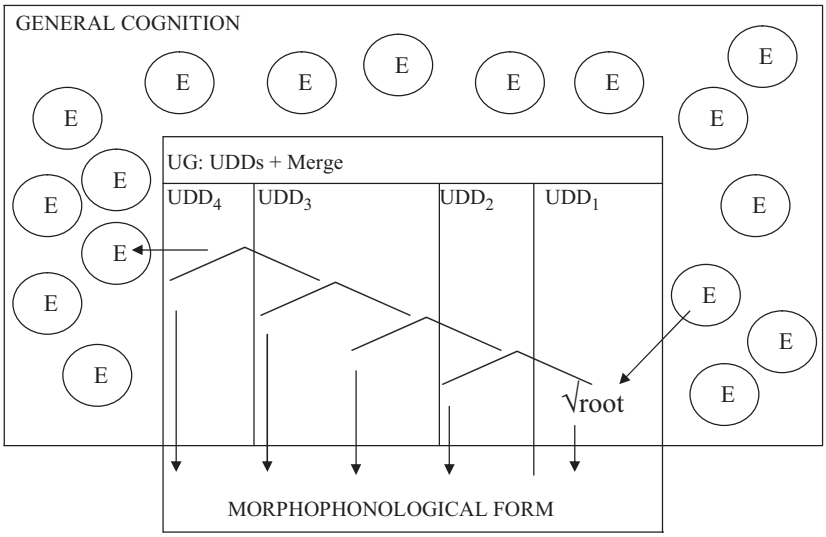


We can see from this illustration that Merge creates the well-known syntactic relations of sisterhood, dominance, containment, etc. With respect to how these relations are translated into semantic interpretation, I will follow the standard assumption that semantic relations are derivative of syntactic relations. With respect to how the mapping from syntactic to semantic relations takes place, I will adopt Chomsky's (1995, 2000, 2004) and Zwart's (2011a) proposal that Merge is an operation of recursive set formation. This means that every instance of Merge creates as a set in which the two elements that have been merged are contained as an ordered pair. Every application of Merge consequently creates a new set in which the newly merged element and everything that has been merged before constitute an ordered pair. It follows that at the point of Spellout of the interpretive systems, the syntactic hierarchy created by Merge is translated into containment relations. The information provided by a higher node automatically contains the information provided by a lower node.

3.6 The Model of the Language System

As a way of summarizing the assumptions and theoretical tools motivated in this chapter, I would like to give the reader an illustration of the language system that implied by these assumptions and tools.

(13) The Language System



This picture shows the how the language system is embedded in the human mind as a whole. The circles stand for chunks of encyclopedic knowledge that enter the language system as a root. The language system itself is characterized by UG which provides the Universal Distinction Domains and the syntactic operation Merge.[20] Together, they form the basis for the development of Fseq in the individual which is indicated by the binary branching syntactic tree structure. In the same way as the UDDs and the operation Merge are invariant since they are provided by UG, the Fseq constructed from these basic properties will be invariant as well. The UDDs are not to be confused with Chomsky's phase boundaries or any other sort locality boundaries. UDDs are primitive conceptual distinctions. They do not influence the application of computational operations. At the end of the derivation, the structure built in syntax is interpreted by the conceptual interface and the externalization interface in the following manner: The interpretation at the externalization interface follows the procedure of

[20] Since this dissertation is not concerned with syntactic agreement, I will remain neutral about the nature of operation Agree.

nanosyntactic Spellout as described in sections 2.5 and 3.4.2. The Spellout procedure applies after every application of Merge and it applies to phrases. This means that Spellout can target a syntactic phrase that contains one syntactic head or larger phrase that contains other phrases and therefore contains more than one syntactic head. At the conceptual interface, the syntactic derivation is interpreted into a new encyclopedic chunk. The interpretation follows compositionally from syntactic structure. The chunk itself turns into a new atomic concept of human cognition.

With the end of this chapter, we have arrived at a solid theoretical background that will guide us in our investigation of the internal structure of d- and w-items in German and Dutch in Chapters 4 and 5 from which we will derive the multifunctional behavior of the respective items in Chapters 6 and 7.

Chapter 4

The Internal Structure of D-Items

4.1 Introduction

This chapter is dedicated to the investigation of the internal structure of the d-items of German and Dutch. We will see in Chapter 6 that this structure has a direct impact the number and kinds of functions that a d-item can acquire in larger syntactic configurations. The discussion starts in section 4.2 with a detailed description of each individual d-item from both a synchronic and a diachronic perspective. Section 4.3 I will go through the complete buildup of the internal structure of the DP along the Universal Distinction Domain identified in section 3.2. This discussion will strongly focus on the syntactic projections contained in the Classification Domain. Section 4.3.2 therefore constitutes the main part of this chapter. The crucial hypothesis that I will put forward and defend in this section is that grammatical gender is not a semantically empty category that only serves to instantiate agreement but a semantically meaningful category that serves to classify nouns into different types of mass: unbounded mass, individuative and collective. I will argue that each mass type projects an individual phrase in the Classification Domain, and I will derive the complete range of gender and number syncretisms in the German and Dutch determiner and pronominal system from the ordering of these projections. I will furthermore take a strong stance against the assumption that grammatical gender in language is connected to biological sex. I will argue that all expressions of biological sex with grammatical gender are parasitic. As a consequence of this argument, I will propose to dispense with the terms ‘feminine’, ‘masculine’ and ‘neuter’ entirely and replace them with terms related to mass distinctions.

In the analysis of the higher layers of the DP, I will largely follow generally accepted assumptions in the literature. The only exception will be that in my discussion of the Anchoring Domain I will argue against the assumption that the distinction between proximate and distal is coded in grammar. I will defend the point of view that it is only spatial anchoring that is reflected in syntax while the distinction between proximate and distal arises as a matter of context.

In section 4.4 I will provide an interim summary which highlights the central assumptions and proposals of the analysis. In section 4.5 I will give an

analysis of the internal structure of each individual d-item. The chapter as a whole will be summarized in section 4.6, which concludes the discussion of the internal structure of d-items in German and Dutch.

4.2 The D-Items of German and Dutch

A list of simple d-items in German and Dutch with their English translations is given in Table 2. Note that articles and pronominally used d-items in German and Dutch inflect for case, number and gender in German and for number and gender in Dutch. This is not reflected in Table 2 below. The German d-item *der* is given with the singular masculine nominative inflection. Dutch *de* and *die* are given with the common gender inflection (singular and plural cannot be distinguished for these forms). The full inflectional paradigms for each pronominal d-item will be discussed individually in the course of this chapter. I would like to point out immediately that the German definite article *der* and the demonstrative pronoun *der* will be analyzed as two separate homophonous elements.

German	Dutch	English
der (definite article)	de (definite article)	the
	die (distal demonstrative)	that
der (demonstrative)		this/that
dieser (prox. demonstrative)	deze (prox. demonstrative)	this
jener (distal demonstrative)		
da (spatial adverb)		here/there
dort (distal spatial adverb)	daar (distal spatial adverb)	there
dann (temporal adverb)		then
	dan (temporal adverb)	then
	toen (temporal adverb past)	then

Table 2: The d-items of German and Dutch

I will discuss the d-items of German and Dutch in the following order. First I will discuss the German d-item *der*[21] in section 4.2.1. As mentioned above, we are dealing with two morphologically identical items: the definite article *der* and

[21] It would be more accurate to say 'the German d-item *d-*' because *der* already includes the singular masculine nominative inflection *-er*. The same goes for the Dutch d-items *de* and *die*. Both items already include the common gender inflection *-e* and *-ie,* respectively. The reason why I will use the terms *der*, *de* and *die* is to avoid confusion. With this notation it is always immediately clear which d-item in which language I am referring to.

the demonstrative and relative pronoun *der*. In section 4.2.2 I will discuss the Dutch d-item *de* (the), which functions as a definite article and the d-item *die* (that) which can function as a distal demonstrative and relative pronoun. This will be followed by the discussion of spatial and temporal adverbs in section 4.2.3. For German, I will discuss the d-adverb *da* (here/there/then), which can be ambiguous between a spatial and a temporal reading, the distal spatial adverb *dort* (there) and the temporal adverb *dann* (then). For Dutch, I will discuss the distal spatial adverb *daar* (there), the temporal adverb *dan* (then) and the temporal adverb *toen* (then), which can only refer to events in the past. I will furthermore suggest that the proximate spatial adverb *hier* (here) in German and Dutch cannot be analysed as a d-item. In sections 4.2.4 and 4.2.5 I will proceed to the discussion of the proximate demonstrative pronoun *dieser* (this one) and the distal demonstrative pronoun *jener* (that one) in German. Modern Dutch only has a correlate for the proximate demonstrative, which is *deze* (this one). The distal demonstrative *ghene* (that one), which was still present in Middle Dutch, has vanished from the language. For completeness, I will include it into the discussion as the correlate of German *jener*. It is important to be aware that these demonstrative pronouns are monofunctional. For clarity, I will distinguish between this kind of demonstrative pronouns and the demonstrative function of German *der* and Dutch *die* by referring to the monofunctional demonstrative pronouns as *complex demonstrative pronouns,* given the fact that they are morphologically more complex than German *der* and Dutch *die*. In this specific context, I will refer to *der* and *die* as *simple demonstrative pronouns*.

4.2.1 German *der*

I will now turn to the morphological declension paradigm of the German d-item *der*. German *der* inflects for four cases (nominative, accusative, dative and genitive) and three genders (masculine, feminine and neuter). The inflectional paradigm of *der* is given in Table 3. It is common to present gender paradigms with masculine gender in the first column, feminine gender in the second and neuter gender in the third. I will depart from this arrangement and order the individual genders and numbers according to their syncretisms. The cases will be ordered along Caha's (2009) Case Hierarchy (cf. section 3.4.4 for discussion). In German, the three-way gender distinction is only made in the singular. Plural forms display no gender distinctions. Instead, they display syncretism with the feminine singular forms in all cases except for the dative. Syncretisms between the feminine singular and the gender-neutral plural forms is a pervasive fact in German and Dutch morphology which I will discuss in detail in section 4.3.2.

	PL	SG.FEM	SG.MASC	SG.NEUT
NOM	die	die	der	das
ACC	die	die	den	das
GEN	der	der	des	des
DAT	den	der	dem	dem

Table 3: The declension paradigm of German *der*

The paradigm in Table 3 presents us with the following syncretisms. First, we observe syncretisms between nominative and accusative forms. These are present in singular neuter, singular feminine and plural. Second, we observe syncretisms between neuter and masculine forms. These are present in the dative and the genitive. Third, we observe syncretisms between feminine and plural forms. These hold for nominative, accusative and dative. In addition, the feminine singular dative is syncretic with the feminine singular genitive and the plural genitive. The homophony between the singular masculine nominative and the singular feminine dative, genitive and plural genitive is a case of accidental homophony, as I will show in section 4.3.2.1.

With respect to multifunctionality, German *der* functions as definite article (DA) when it is phonologically weak. When it is phonologically strong, it functions as a demonstrative pronoun (DPR) and a relative pronoun (RP). In sections 4.5.1 and 4.5.2 I will show that this phonological difference is due to a difference in the internal structure of the two items. The d-item that constitutes the DA therefore has to be regarded as a separate d-item from the one that functions as RP and DPR. The individual functions are shown below. The DA *der* precedes the noun. In its function as an RP *der* refers anaphorically to a noun in the matrix clause. As a DPR it can either precede the noun or appear in a following sentence and refer anaphorically to a noun from a previous sentence. Neither DA-*der* nor PR/DPR-*der* are sensitive to deixis. The individual functions are shown in example (1).

(1) a. German *der* functioning as definite article
Wo ist **der** Schlüssel?
where is DA.SG.M.NOM key
'Where is the key?'

b. German *der* functioning as demonstrative pronoun in determiner position
Meinst du **den** Schlüssel?
mean you DPR.SG.M.ACC key
'Do you mean this key?'

c. German *der* functioning as anaphoric demonstrative pronoun
Da ist ja der Schlüssel! **Den** habe ich gesucht.
there is PART the key DPR.SG.M.ACC have I searched
'There is the key! I was looking for that one.'

d. German *der* functioning as relative pronoun
Das ist der Schlüssel, **den** ich gesucht habe.
this is the key RP.SG.M.ACC I searched have
'This is the key I was looking for.'

I would like to re-emphasize the importance of the phonological difference between *der* in its article function and *der* in its function as a DPR and RP. This phonological distinction is very prominent in Alemannic and Austro-Bavarian dialects of German where the DA is phonologically reduced to *de* (M), *d* (F) and s (N). Only the DPR is fully pronounced as *der* (M), *die* (F) and *das* (N) (cf. Wiltschko 2013). The reason that *das* has to be reduced to the final *-s* is due to the fact that it would be indistinguishable from the masculine and feminine forms if it was reduced to *d* or *de*. The reduction of *das* to *s* is not only a property of these particular dialects but of spoken German in general.

With respect to the declension paradigm given in Table 3 and the examples in (1), I would like to point the reader to a morphological curiosity of German *der*. When *der* is in a position where it refers anaphorically to a noun as an RP or DPR, it displays an additional morpheme in the genitive forms of all numbers and genders and in the dative plural. This is shown in Table 4.

der	preceding	following
GEN.SG.M	des	dessen
GEN.SG.N	des	dessen
GEN.SG.F	der	deren
GEN.PL	der	derer/deren
DAT.PL	den	denen

Table 4: Additional morphemes on German *der*

These more complex forms of *der* arose during the transition from Middle High German (ca. 1050-1350) to Modern High German (cf. Lühr 1991: 197). For extensive discussion of the historical development of these forms, see Lühr (1991: 203-210).

4.2.2 Dutch *de* and *die*

Dutch splits the functions of DA, DPR and RP across two simple d-items: *de* and *die*. The Dutch d-item *de* functions as a DA, and the d-item *die* functions as a DPR and RP. *Die* is sensitive to deixis. It is interpreted as distal. In contrast to German determiners, which distinguish between three genders in the singular, Dutch determiners distinguish between two genders in the singular. As mentioned in the introduction, Dutch went through a process of gradually losing its morphological case system after the transition from Old Dutch (ca. 500-1150) to Middle Dutch (ca. 1150-1500). This loss of case was accompanied by an erosion of the gender system (cf. Audring 2009: 33). This erosion caused the distinction between masculine and feminine gender to collapse into a common gender.[22] Like German, Dutch makes gender distinctions only in the singular. Dutch *de* and *die* inflect for common and neuter gender in the singular. The plural forms are syncretic with the common gender singular forms. The inflectional paradigms are given in Tables 5 and 6 below. The forms are ordered according to their syncretisms.

PL	SG.COM	SG.NEUT
de	de	het

Table 5: The declension paradigm of Dutch *de*

PL	SG.COM	SG.NEUT
die	die	dat

Table 6: The declension paradigm of Dutch *die*

To avoid confusion, please be aware that the singular common gender and the plural form of Dutch *die* are homophonous with the feminine and plural nominative and accusative forms of German *der*. The appearance of the word *het* in the article paradigm will be explained further below. The proximate counterparts to Dutch *die* and *dat* are *deze* and *dit*, respectively. Although *deze* and *dit* might seem to belong to the simple DPRs from a synchronic point of view, I will show in section 4.2.4 that it is only *dit* that can be analyzed as a simple DPR, while *deze* has to be analyzed as a complex DPR. Given that *deze* and *dit* belong together as proximate DPRs, I will discuss both of them in section 4.2.4.

[22] The only elements on which a three-way gender distinction is retained are the personal pronouns *zij* (she), *hij* (he) and *het* (it). The pronouns *zij* and *hij* retain rudimentary case distinctions equivalent to English *she*/*her*/*her* and *he*/*him*/*his* which are *zij*/*haar*/*haar* and *hij*/*hem*/*zijn*, respectively.

Example (2) shows the DA *de* in both common and neuter gender singular.

(2) a. Waar is **de** sleutel?
where is DA.SG.COM key
'Where is the key?'

b. Ik heb **het** boek nog niet gevonden.
I have DA.SG.N book yet not found
'I haven't found the book yet.'

The examples in (3) shows the functions of Dutch *die* with the common gender singular form.

(3) a. Dutch *die* functioning as a demonstrative pronoun in determiner position
Bedoel je **die** sleutel?
mean you DPR.SG.COM key
'Do you mean that key?'

b. Dutch *die* functioning as a demonstrative pronoun in a following sentence
Daar is de sleutel! **Die** heb ik gezocht.
there is the key DPR.SG.COM have I searched
'There is the key! I was looking for that one.'

c. Dutch *die* functioning as a relative pronoun
Dat is de sleutel **die** ik gezocht heb.
that is the key RP.SG.COM I searched have
'That is the key I was looking for.'

It needs to be added that there are two antiquated forms of Dutch *die* that still display rudimentary case morphology. These are the forms *diens* (genitive) and *dien* (dative).[23] These forms stem from the Middle Dutch declension paradigm of

[23] The genitive *diens* can be found today in formal and literary registers in order to express possession with expressions such as *diens moeder* (his/her mother). The dative *dien* can only be found in idiomatic constructions with prepositions such as *met alle gevolgen van dien* (with all the consequences of that), *bovendien* (moreover) and *sindsdien* (since then).

die, which, in parallel to German, inflects for all four cases and three genders in the singular.[24] This is shown in Table 7.

	PL	SG.FEM	SG.MASC	SG.NEUT
NOM	die	die	die/de	dat
ACC	dien/den	dier/der	dien/den	dien/den
GEN	dier/der	dier/der	dies/des	dies/des
DAT	dien/den	dier/der	dien/den	dien/den

Table 7: The declension paradigm of Dutch *die* in Middle Dutch (adapted from Hogenhout-Mulder 1983: 28)

Today the two antiquated forms from this paradigm are highly restricted in their use. They belong to formal and literary language. Especially the use of *dien* seems to have gone through a process of idiomization. Similar findings can be made in the inventory of w-items. Given that the use of these case-inflected forms is related to special circumstances, I will not include them in discussion of the data below.

The declension paradigm of Middle Dutch *die* can help us to understand why Middle Dutch *dat* in the article function has come to be replaced with *het*. Rooryck (2003: 4) assumes for the case of *het* that the *d*-morpheme, which is characteristic for German and Dutch d-items, appears at the end of the word and has undergone final devoicing. This assumption is false, however. Before the erosion of the Dutch case and gender systems, Dutch *die* behaved in the same way as German *der* today, i.e., there was a *die* functioning as a DA, and a morphologically identical *die* functioning as a DPR and RP, and it was not sensitive to the distinction between proximate and distal deixis. What we can see from the declension paradigm above is that Middle Dutch had already developed distinctions between morphologically strong and weak forms of *die*. This is due to the spread of the -*ie* morpheme over the whole paradigm during the transition from Old Dutch to Middle Dutch (cf. Schönfeld 1970: 146). The weak forms largely correspond to the Old Dutch paradigm of *die,* where the -*ie* morpheme was restricted to masculine and feminine singular nominative and feminine singular accusative (cf. Quack & van der Horst 2002: 44). Due to the loss of morphological case, all rows of the paradigm except for the top row disappeared. As a consequence, the masculine and feminine singular nominative collapsed to what is now the common gender singular *die,* which is syncretic with the plural. The split of DA and DPR happened through the phonological reduction of *die* to

[24] Note that the Middle Dutch declension paradigm of *die* displays much more case syncretisms than the Old Dutch declension paradigm. This shows that the erosion of case morphology in Dutch was already quite advanced in the Middle Dutch period.

de (cf. Hogenhout-Mulder 1983: 33). As in Alemannic and Austro-Bavarian German dialects, a reduction of *dat* to *de* would yield the common gender and the neuter forms indistinguishable. *Dat* was therefore reduced to *t,* just like German *das* gets reduced to *s* in spoken langauge. The reduction of *dat* to *t* made it morphologically collapse with the phonologically weak form of the third person singular neuter personal pronoun *het* (it), which is also reduced to *t*. Due to this collapse, the word *het* was inserted in written works to expand the *t* of *dat*, which was unavailable by that time, to a full definite article. It was only from there that *het* as a definite article trickled down to spoken language (cf. Schönfeld 1970: 146, Hogenhout-Mulder 1983: 33).

4.2.3 Spatial and Temporal Adverbs

Every language in the world has a group of varied expressions that can be used to establish a relation between the location of the speaker and the environment. An equally varied group of expressions is used to establish a relation between the utterance time and events in the present, future and the past. D-items can be among these expressions. In German and Dutch these d-items are adverbs: German *da* (there, then), which is ambiguous between a spatial and a temporal reading, the spatial adverbs German dort (there-distal) and Dutch *daar* as well as the temporal adverbs German *dann* (then), Dutch *dan* (then) and Dutch *toen* (then-past). Spatial adverbs can, but need not distinguish between proximity and distance with respect to speaker.

For temporal adverbs, this binary distinction cannot be made as easily. The Dutch temporal adverb *toen* is usually regarded as distal because it can only refer to events in the past, while the temporal adverb *dan* is regarded as proximate because it cannot refer to past. Yet this way of distinguishing proximity and distance does not parallel the distinction of proximity and distance in space. An event is not further removed from the speaker because it happened in the past. Even if something has just happened a few seconds ago, the Dutch speaker would have to refer to it with *toen* and couldn't refer to it with *dan*.[25] Yet an event that is assumed to happen in far future would have to be referred to with *dan* and couldn't be referred to with *toen*. The events referred to by *toen* are thus not inherently further away from the utterance time than the events referred to by *dan*. I will therefore not employ the proximate/distal distinction in my descriptive overview over the German and Dutch temporal adverbs. The important characteristics of temporal adverbs will be whether they can refer to a particular point in time or whether they express a succession of events.

[25] When referring to an event that just happened, Dutch speakers typically make use of the expressions *zojuist* or *zonet* (just now).

The deictic distinctions on German and Dutch d-adverbs are not coded by specific inflectional morphemes in the way that determiners inflect for gender and number distinctions. Deictic distinctions seem to be inherent. Table 8 provides a list of the German and Dutch d-adverbs to be discussed below with their inherent deictic properties.

German			Dutch	
da	ambiguous		daar	spatial, distal
dort	spatial, distal		dan	temporal, successive
dann	temporal, successive		toen	temp., past, point in time

Table 8: The d-adverbs of German and Dutch

What distinguishes d-adverbs from other adverbs is that they parallel the behavior of DPRs and RPs in that they refer directly to a referent (spatial adverbs) or a point in time (temporal adverbs) that has been previously introduced in the linguistic contest. Reference to a previously introduced referent is shown for German *da* and *dort* as well as Dutch *daar* in example (6).[26] It is important to note that in contrast to Dutch *daar* which is inherently spatial and distal, German *da* is ambiguous between spatial and temporal deixis as well as between proximate and distal. Its interpretation with respect to deixis is entirely dependent on the context.

(4) a. Kennst du schon das neue Café? Ich will **da** hin.
know you already the new café I want there LOC-PART
'Do you already know the new the café? I want to go there.'

b. Kennst du schon das neue Café? Ich will **dort** hin.
know you already the new café I want there(DIST) LOC-PART
'Do you already know the new café? I want to go there.'

c. Ken je al het nieuwe café? Ik wil **daar** heen.
know you already the new café I want there(DIST) LOC-PART
'Do you already know the new café? I want to go there.'

While the behavior of spatial d-adverbs in example (4) is rather straightforward, the behavior of temporal d-adverbs needs a bit more scrutiny to be illustrated properly. This is because the use of temporal adverbs is not only sensitive to whether they are used to refer to a single point in time or to a succession of

[26] The examples in (4) show the respective d-adverbs in their base position. Note that just like DPRs, d-adverbs can be fronted for emphasis.

events. In order to fully understand this, I will start by discussing the behavioral properties of German *da* because it is the most flexible of all d-adverbs. This flexibility is due to a number of historical developments, that will be discussed in detail in section 4.3.4. When used as a spatial adverb, *da* can be either distal or proximate, depending on the context. For example, when *da* is contrasted with the spatial adverb *hier*[27], which is inherently proximate, it acquires a distal reading. When it is contrasted with the inherently distal spatial adverb *dort*, it acquires a proximate reading. This is shown in (5).

(5) a. **hier** und **da**
here(PROX) and there
'here and there'

b. **da** und **dort**
there and there(DIST)
'here and there'

When *da* is used in a temporal context, it can only refer to particular points in time in the past, but not to a succession of events. When a succession of events is to be constructed, the temporal adverb *dann*[28] has to be used. This is shown in (6).

(6) a. Auf einmal klingelte der Wecker. **Da** war mir klar, dass
at once rang the alarm-clock then was me clear that

alles nur ein Traum war.
everything only a dream was

'All of a sudden the alarm clock went off. At that point it was clear to me that it was all only a dream.'

[27] We will see further below why *hier* cannot be grouped with the d-adverbs.

[28] It has to be added that the temporal adverb *dann* can be made to refer to particular points in time when an adverb like *genau* (precisely) is added. The expression *genau dann* (precisely then) then refers to a particular point in time. If the same adverb is added to *da* to form the expression *genau da*, then *da* cannot be interpreted as temporal. It must be interpreted as spatial and the expression has to be translated as *precisely there*.

b. Zuerst gingen wir Essen. ***Da** gingen wir zur Party.
first went we eating then went we to-the.CL party
'First we went out to eat. Then we went to the party.'

c. Zuerst gingen wir Essen. **Dann** gingen wir zur Party.
first went we eating then went we to-the.CL party
'First we went out to eat. Then we went to the party.'

In contrast to *da*, which is restricted to a past reference when used as a temporal adverb, *dann* can be used in both past and future contexts. This flexible use of *dann* is due to the fact that is has no inherent interpretation with respect to future and past. *Dann* merely implies a succession of events. Whether this succession happens in the future or the past depends on the tense of the verb in the sentence.

(7) a. Ich muss erst zur Bibliothek. **Dann** fahre ich ins
I must first to-the.CL library then drive I in-the.CL

Büro.
office

'First I have to go to the library. Then I'll drive to the office.

b. Ich musste erst zur Bibliothek. **Dann** bin ich ins
I must.PAST first to-the.CL library then am I in-the.CL

Büro gefahren.
office driven

'First I had to go to the library. Then I drove to the office.

Due to this successive interpretation of *dann*, it is not possible for *dann* to refer to a certain point in the past as we have seen for *da* in (6a). Using *dann* in this context would yield the interpretation that the alarm clock went off and that afterwards the speaker realized that it was all only a dream. It is not possible to express the simultaneousness of the alarm clock ringing and the realization that the speaker was dreaming with *dann*. *Dann* can also not refer to periods of time in the past like the English expression *back then*. For these cases, the primarily used expression is *damals*, a compound consisting of *da* and the temporal particle *mal,* which also exists as the noun *Mal* corresponding to English *time* in constructions such as *one time*, *two times*, *many times* etc. This is shown in (8).

Please note that the use of *da* is equally grammatical in (10a), *damals* merely emphasizes the temporal distance.

(8) a. **Damals** gab es noch Dinosaurier.
then-time gave it still dinosaurs
'Back then there were still dinosaurs.'

b. **Dann** gab es noch Dinosaurier.
then gave it still dinosaurs
By way of concluding an enumeration of things that existed in this period of time: 'Then there were also dinosaurs.'

In addition to being a highly flexible deictic adverb, German *da* can also be used as a causal conjunction corresponding to English *because*.

(9) Ich war zu spät, **da** ich den Bus verpasst hatte.
I was too late because I the bus missed had
'I was too late because I had missed the bus.'

I would like to point out that I take this causal use of *da* not as an instance of multifunctionality but as an instance of grammaticalization from the temporal adverb *da* to the causal concuntion *da*. It is a well-known fact that temporality and causality are closely conceptually linked and that temporal elements tend to grammaticalize into causal elements. An important consequence of the use of *da* as a causal conjunction is that it cannot be used as a temporal conjunction for past events because it always imposes the causal reading.

(10) **Da** der Wecker klingelte, wusste ich, dass es ein Traum war.
because the alarm-clock rang knew I that it a dream was
'Because the alarm clock went off, I knew that it was a dream.'

The function of the temporal conjunction with respect to past events is performed by the element *als* that also functions as an equative and comparative element for unequal comparisons.[29]

[29] Equal comparisons in German have to be formulated with the equative element *so* (so, as) and the manner w-item *wie* (how).

(i) Ich bin so groß **wie** du.
I am so tall how you
'I am as tall as you.'

(11) a. German *als* as equative element
Die Knochen wurden **als** Hämmer verwendet.
the bones were as hammers used
'The bones were used as hammers.'

b. German *als* as comparative element
Ein Wal ist größer **als** ein Tiger.
a whale is bigger than a tiger
'A whale is bigger than a tiger.'

c. German *als* as temporal conjunction
Als der Wecker klingelte, wusste ich, dass es ein Traum war.
as the alarm-clock rang knew I that it a dream was
'When the alarm clock went off, I knew that it was a dream.'

The temporal conjunction for future events is *wenn*, which is ambiguous between when and if. Whether the sentence is to be interpreted as a temporal or conditional depends on the context and the use of indicative and subjunctive. I will only give an example of the temporal reading here:

(12) **Wenn** ich in der Bibliothek fertig bin, fahre ich ins Büro.
when I in the library finished am drive I in-the.CL office
'When I'm finished at the library, I'll drive to the office.'

With all these different functions in mind, we can now take a look at the behavior of Dutch *toen* and *dan*. Dutch *toen* has the function of German *da* in that it refers to particular points in time in the past (example 6), the function of German *dann* (example 8b) in that it constructs a succession of events in the past and the function German *als* as a temporal conjunction (example 11c). This is shown in (13a), (13b) and (13c), respectively.

(13) a. Dutch *toen* referring to a particular point in the past
Ineens ging de wekker. **Toen** merkte ik dat het allemaal een
at-once went the alarm-clock then noticed I that it all a

droom was.
dream was

'All of a sudden the alarm clock went off. At this point I noticed that it was all a dream.'

b. Dutch *toen* referring to a succession of events in the past
Eerst gingen we uit eten en[30] **toen** gingen we naar het feest.
first went we out eating and then went we to the party
'First we went out for dinner, and then we went to the party.'

c. Dutch *toen* functioning as temporal conjunction of events in the past
Toen de wekker ging, wist ik dat het een droom was.
when the alarm-clock went knew I that it a dream was
'When the alarm clock went off, I knew that it was a dream.'

Dutch *dan* (then) has the same function as German *dann* in that it constructs successions of events in the future (example 7a). Unlike German *dann*, Dutch *dan* cannot refer to a succession of events in the past.[31] This is only possible with *toen,* as we have seen above. The behavior of *dan* is shown in (14).

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[30] I inserted the conjunction *en* in order to make the sentence sound more natural after one of my Dutch informants pointed out to me that if I don't put the *en* he would always insert it in order to distinguish the point-in-time reference from the succession-of-events reference. Dividing the two clauses into two separate sentences, as I have done in the example with German *dann*, would still be grammatical but yield the construction slightly degraded.

[31] Norbert Corver (p.c.) points out to me that there are certain constructions where *dan* can be used in combination with past tense. Consider example (i).

(i) Normaal gingen we eerst uit eten en dan pas gingen we naar het feestje.
usually went we first out eat and then only went we to the party.
Maar deze keer deden we het anders.
but this time did we it differently
'Usually we would go out for dinner first, and only after that we would go to the party. But this time, we did it differently.'

Please note that the difference between this example and the examples above is that we are dealing with a habitual expression, i.e., a state of affairs that is taken to hold in general and not only at a particular point in the past. The first sentence in example (i) does not actually refer to something that happened, but to something that should have happened given the habits of this particular group of people who goes out for dinner first and then to a party. It would not make sense to use the adverb *toen* in this context since the hypothetical event cannot be anchored in the past.

(14) a. Dutch *dan* referring to the present
Zullen we **dan** nu gaan?
shall we then now go
'Shall we go then?'

b. Dutch *dan* referring to an event in the future
Ik moet eerst naar de bibliotheek. **Dan** ga ik naar mijn werk.
I must first to the library then go I to my work
'First I have to go to the library. Then I'll go to work.'

c. Dutch *dan* cannot refer to a succession of events in the past.
*Eerst gingen we uit eten en[32] **dan** gingen we naar het feestje.
first went we out eating and then went we to the party
'First we went out for dinner and then we went to the party.'

In closing this section, I would like to explain why I did not group the German and Dutch spatial adverb *hier* with the d-adverbs (aside from the fact that there is no *d*-morpheme). In German, the difference between *hier* and the d-adverbs *da* and *dort* is that the proximity expressed by *hier* when contrasted with *dort* is different from the proximity expressed by *da* when contrasted with *dort*. The location denoted by *hier* is in my impression always the location of the speaker. The spatial adverb *hier* therefore seems to me to belong to the group of indexical expressions such as *ich* (I), which denotes a conflation of the expression with the speaker and *jetzt* (now), which denotes the point in time at which the speaker makes the utterance. I would like to illustrate this with two examples in which the use of *da* with a proximate reading is degraded in comparison to the use of *hier*. Imagine a situation where you are at your house and you're saying to someone: 'This is my home. This is where I want to stay.' The translation of this expression into German is fine when the second sentence is introduced with *hier*, but it doesn't make sense when it is introduced with *da,* although from a purely grammatical point of view, both are fine. The sentence with *da* is only fine when you are somewhere else, showing someone a picture of your home and telling them that this is where you want to stay.

[32] The conjunction with *en* (and) is necessary. Otherwise the point-in-time reference cannot be distinguished from the succession-of-events reference. Dividing the two clauses in two separate sentences as I have done in the example with German *dann*, would still be grammatical but make the construction slightly degraded.

(15) a. **Das** ist mein zu Hause. **Hier** will ich bleiben.
DPR.SG.N is my to home here want I stay
'This is my home. Here I want to stay.'

Reading: You are at your home at the moment of uttering this sentence. Due to the use of *hier*, the DPR in the previous sentence, which has no inherent specification for location, acquires a proximate reading.

b. **Das** ist mein zu Hause. **Da** will ich bleiben.
DPR.SG.N is my to home there want I stay
'This is my home. There I want to stay.'

Reading: You are not at your home at the moment of uttering the sentence. Due to use of *da*, the DPR in the previous sentence acquires a proximate reading.

Let's now take a look at the following situation: You are visiting a friend. You stand in front of the door and you ring the bell. At the moment they answer, you tell them that you are standing outside. In this case it is appropriate to use the adverb *da*, but it doesn't make sense to use the adverb *hier*. Using the adverb *da* in this case expresses the fact that your location and the location of your friend is the same, namely your friend's house. If you used the adverb *hier*, you would communicate to your friend that you are at a different place than them. You are outside and they are inside. You could not establish your friend's house as a common location (please note that the opposition of *here* and *there* in English is different from German because English has no distance-neutral equivalent to German *da*).

(16) a. Hi! Ich bin **da**.
hi I am there
Hi! I'm here.

Reading: Your location is the same location as the hearer's location.

b. Hi! Ich bin **hier**.
hi I am here
Hi! I'm here.

Reading: Your location is not the same location as the hearer's location.

What we can see from these examples is that although both *hier* and *da* can express proximity, the radius of what counts as proximate is wider when *da* is used. On the other hand, what couns as proximate is reduced to the location of the speaker when *hier* is used. It is my impression that it is therefore not possible to attribute the referential properties that are typical for d-items to the spatial adverb *hier*. Consider again example (16a). It might seem at first that *hier* refers to the expression *zu Hause* (home) in the same way as *da* in (16b). Yet this reference need not be established in the same way. Given that the possessive *mein* (my) and *hier* are both indexical, in the sense that they express the possession and the location of the speaker, respectively, the coreference between the location denoted by *hier* and the expression *zu Hause* could be the result of inference. An extra DP-layer would not be necessary to establish reference. It is my impression that this observation holds for Dutch as well: Dutch makes use of the distance-neutral *er* (here/there) in cases corresponding to (16a). The internal structure of *hier* and the precise contrasts between d-adverbs and non-d-adverbs have therefore to be left for future research.

4.2.4 German *dieser*, Dutch *deze* and Dutch *dit*

In this section I will discuss the German complex DPRs *dieser* (this one), the Dutch complex DPR *deze* (this one.COM) and the simple Dutch DPR *dit* (this.N). In German the complex DPRs *dieser* and *jener* (that one) are the only DPRs that can distinguish between proximity and distance. *Dieser* is the proximate and *jener* the distal demonstrative. It should be mentioned hat this distinction is in a process of decay. The DPR *jener* has vanished from spoken language and become restricted to formal and literary registers. Given the loss of its distal counterpart, the DPR *dieser* has become insensitive to the proximate/distal distinction in spoken language. The distinction only arises in direct contrast. This is shown in example (17).[33]

[33] This example can have to interpretations, depending on the pronunciation of *hier*. When *hier* is unstressed, we get the interpretation given in the example, where *hier* refers to the location of the book which is simultaneously the location of the speaker (see the discussion at the end of section 4.2.3). When the adverb *hier* is stressed, it acquires a contrastive focus reading, where the location of the speaker is contrasted with another location in the sense of 'I want to read this book *here* and not *over there*.' The same stress-related readings are available for *dort* in (17b).

(17) Decay of the proximate/distal distinction on German complex DPRs

a. *dieser* with proximate reading
Ich möchte **dieses** Buch **hier** lesen.
I want(polite) this.SG.N book here read
'I would like to read this book.'

b. *dieser* with distal reading
Ich möchte **dieses** Buch **dort** lesen.
I want(polite) this.SG.N book there read
'I would like to read that book.'

c. *dieser* in contrast with jener
Ich möchte **dieses** und nicht **jenes** Buch lesen.
I want(polite) this.SG.N and not that.SG.N book read
'I want to read this and not that book.'

Dieser and *jener* inflect for case, number and gender in the same way as *der*. The declension paradigm for *dieser* is given in Table 9. The declension paradigm for *jener* will be discussed in the next section because it can be better understood in direct comparison to its Middle Dutch counterpart *ghene*.

	PL	SG.FEM	SG.MASC	SG.NEUT
NOM	diese	diese	dieser	dieses
ACC	diese	diese	diesen	dieses
GEN	dieser	dieser	dieses	dieses
DAT	diesen	dieser	diesem	diesem

Table 9: The declension paradigm of German *dieser*

We can see from the table above that the morphological difference between *der* and *dieser* is the morpheme -*ies*- between *d*- and -*er*. The second observation we make is that the nominative and accusative inflection in the feminine singular form and the plural form is phonologically reduced from /i:/ to /ə/. This is a result of the fact that the long vowel /i:/ in -*ies*- bears the phonological stress. It follows that the final syllable gets phonologically weakened. The *ies*-morpheme itself is the result of a conflation of an uninflected locative particle -*s*/-*se* with the very old Germanic d-stem *þe*-/*þes*-, which brought forth the complex DPR *dese* in Old High German (OHG) (cf. Braune 2004: 249, Meisen 1968: 38). This is shown in Table 10, where I only list the singular forms because the plural forms in OHG display some rudimentary gender distinctions that are irrelevant to this discussion. Please be aware that the Table 10 does not display all of the

forms of the complex DPR that are attested for OHG. I have chosen to reproduce only the ones that are closest to the ones that we observe today. The *e*-part of the *es*-morpheme in OHG *dese* – usually represented as *ë* in the literature, with the etymological diacritic – is the short vowel /ɛ/, which was lengthened to /i:/ within the demonstrative pronoun at a later stage. The final consonant of *diz* is not an /s/, as in the other forms, but the affricate /ts/ which yields the pronunciation /dɪts/.

	SG.FEM	SG.MASC	SG.NEUT
NOM	desiu	dese/deser	diz
ACC	desa	desan	diz
GEN	desera	desses	desses
DAT	deseru	desemu/desemo	desemu/desemo

Table 10: The declension paradigm of Old High German *dese* (adapted from Braune 2004: 250)

We make two important observations in the table above. First, we witness the similarity between the OHG and the modern German forms of the complex DPR. Second, we see that the nominative and accusative forms of the neuter singular declension paradigm have a different stem-internal vowel than the other forms. It is important to note that OHG *diz* is not the same as modern German *dieses*. OHG *diz* corresponds to modern German *dies*, a separate form of the neuter singular DPR that displays no inflection and can therefore only function as a determiner for singular neuter nouns in nominative and accusative. German *dies* also has no counterpart in the *jener* paradigm. I assume that this is the reason why it is not inherently proximate in modern German. *Dies* can display a proximate reading when it is put into direct contrast with the simple DPR *das*, which acquires a distal reading in this setting. There has been much speculation on the origin of the form *diz* (cf. Braune 2004: 250f for discussion and references). My conjecture is that *diz* is the descendant of an earlier conflation of the *þ*-morpheme with the expletive *–it*, which, as in Germanic languages today, corresponds to the 3rd person singular neuter personal pronoun. This conflation is attested for Old Saxon as *thit* (cf. Meisen 1968: 38). My impression is that Old Saxon *thit* acquired a proximate reading by entering into a contrast with Old Saxon *that*, which I assume to have been constructed from *þe-* and the alternative expletive form *-et* (Alternative forms for the singular neuter personal pronoun remained preserved until Middle High German). The reasons for these assumptions will become clearer in section 4.3.2.1, where I will discuss the construction of the neuter singular paradigm in German in more detail. From this development we can derive the present-day distinctions between English *this* and *that*, German *dies* and *das* as well as Dutch *dit* and *dat*.

The historical observations made for *dese* and *diz* in OHG, *diser* and *diz*/*ditze* in MHG as well as *dieser* and *dies*/*dieses* in modern German, translate straightforwardly to the development of modern Dutch *deze* and *dit*. Let's take a look at the Middle Dutch (MiD) paradigm of the complex DPR.

	PL	SG.FEM	SG.MASC	SG.NEUT
NOM	dese	dese	dese	dit
ACC	dese	dese	desen	dit
GEN	derre	derre	des	des
DAT	desen	derre	desen	desen

Table 11: The declension paradigm of Middle Dutch *dese* (adapted from Hogenhout-Mulder 1983: 32)

In parallel to the -*es*- morpheme in OHG *dese*, the -*es*- morpheme in MiD constitutes the morpheme that results from the conflation of the locative particle -*s*/-*se* with the very old Germanic d-stem *þe*-/*þes*-. Due to the erosion of case and gender morphology after the MiD period, the declension paradigm of MiD *dese* was reduced to the top row in same way as we have observed for Dutch *die* in section 4.2.2. This reduction resulted in the collapse of the masculine singular, the feminine singular and the plural to one form, which is common gender *deze* today. As I have argued for the development of OHG *diz*, I will assume that Dutch *dit* is a descendant of an earlier conflation of the *þ*-morpheme and the expletive *it*. It is therefore that only modern Dutch *deze* can be analyzed as a complex DPR while *dit* constitutes a simple DPR on a par with *dat*. Given that the Dutch case and gender systems eroded after the MiD period while the German case and gender systems remained fully intact, it is expected that the initially inflectionless *diz* developed towards the fully inflected form *dieses,* while Dutch *dit* remained unchanged until today. The loss of the distal complex DPR *ghene* (the equivalent to German *jener*) in the transition to modern Dutch left the proximate DPRs *deze* and *dit* without a distal counterpart. It seems to me that this caused a rearrangement of the then distance-neutral simple DPRs *die* and *dat*, which adopted a fixed distal semantics in contrast to *deze* and *dit*. This development explains why modern Dutch simple DPRs are sensitive to the proximate/distal distinction while modern German simple DPRs are not.

4.2.5 German *jener* and Middle Dutch *ghene*

Before we start with the discussion, let's take a look at the declension paradigms of modern German *jene* and MiD *ghene* which are given in Tables 12 and 13, respectively.

	PL	SG.FEM	SG.MASC	SG.NEUT
NOM	jene	jene	jener	jenes
ACC	jene	jene	jenen	jenes
GEN	jener	jener	jenes	jenes
DAT	jenen	jener	jenem	jenem

Table 12: The declension paradigm of German *jener*

	PL	SG.FEM	SG.MASC	SG.NEUT
NOM	ghene	ghene	ghene/gheen	gheent/gheen
ACC	ghene	ghene	ghenen	gheent/gheen
GEN	gherre	gherre	gheens	gheens
DAT	ghenen	gherre	ghenen	ghenen

Table 13: The declension paradigm of Middle Dutch *ghene* (adapted from van Kerckvoorde 1993: 47)

The complex DPRs *jener* and *ghene* have their origin in the Gothic complex distal DPR *jains* (that) which is a conflation of the inherently distal morpheme *j-* and the cardinal number *ains* (one) (cf. Wright 1910: 117, 127). Gothic *ains* constitutes the historical origin of all Germanic indefinite articles among which German *ein* and Dutch *een*. The *j*-morpheme in *jains* is the same morpheme that contributes the initial segment of the Gothic second person plural *jus* (you), which can still be found in English *you* and Dutch *jullie* (you.PL) and *jij* (you.SG) today.[34]

[34] After the Middle Dutch (MiD, ca 1200-1500) and Middle English (ME, ca. 1150-1470) period, both Dutch and English have gone through a development where the second person singular pronoun *du* in MiD and *thou*/*thouw* in ME was replaced by the second person plural pronoun *ghi* (pronounced as /ji/) in Dutch and *ye* in English, which correspond to the present day forms *jij* and *you*, respectively, (*you* was originally the dative and accusative of *ye*). This development is due to the circumstance that both MiD and ME made a sharp distinction between *du*/*thou* as intimate forms of addressing someone, while *ghi*/*ye* served as polite forms. After the MiD and ME and overuse of *ghi* and *ye* set in, which caused *du* and *thou* to develop from intimate to derogatory forms, which ultimately resulted in their disappearance from the personal pronoun paradigm. (cf. Schönfeld 1970: 137-139, van Kerckvoorde 1993: 66, Horbin & Smith 2002: 112)

The orthographic difference between German *jener* and MiD *ghene* does not translate to a difference in pronunciation. Both *j-* and *gh-* are orthographic exponents of the consonant /j/. It is therefore important not to confuse modern Dutch *geen* (not a, no) with the DPR *ghene*. Modern Dutch *geen* is the descendant of a compound of the negation element *nech* and the indefinite article *een,* which were first conflated to *negheen* in Old Dutch and then reduced to *gheen* in MiD, which lead to modern Dutch *geen* (cf. van Kerckvoorde 1993: 47, Hoeksema 1997: 139-140).

Given the morphological history of *jener* and *ghener*, it is unclear whether it is accurate to classify them as d-items. Comparing the morphological building blocks of *dieser*/*deze* with *jener*/*ghene* we can see that only *dieser* and *deze* are built from a d-stem. The fact that *jener* and *ghene* are conflations of *j-* and the cardinal number *eins/een* (one) suggests that they are more closely related to indefinite than to definite expressions. This impression is corroborated by the existence of the complex indefinite pronoun *derjenige* (the one) in German and its Dutch correlate *degene/diegene* (the one) which constitute a compound of a simple (fully inflecting) d-item and the complex *j*-DPR.[35] If *jener* and *ghene* were themselves to be classified as d-items, then we should not expect that they can be the complement of another d-item. Furthermore, we would not expect that the combination of the two would yield indefinite semantics. I therefore have no explanation to offer as to why these items have entered the demonstrative paradigm in the first place.

A further problem with the *j*-morpheme is that the DPRs built from it seem to have no stable status in language use. The historical grammars[36] of Gothic, Old High German, Old Dutch and Middle Dutch that I consulted all mention the *j*-DPR only as a side note. We have furthermore seen that the *j*-DPR disappeared from Dutch entirely and is in the process of disappearing from German as well. Given these circumstances, I will not include the German *jener* and MiD *ghene* in the syntactic analysis of the d-items of German and Dutch.

With this paragraph, I conclude my presentation of the d-items of German and Dutch and turn to my investigation of their internal structure. This investigation will proceed by establishing the functional sequence of the DP and correlating the morphological makeup of each d-item with the syntactic structure provided by the sequence.

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[35] Note that the use of German *derjenige* and Dutch *degene* is extremely restricted. They can *only* appear as the head noun of a relative clause.

[36] For Gothic, see Wright 1910, for Old High German, see Wright 1906, Meisen 1968, and Braune 2004, for Old Dutch, see Schönfeld 1970 and Quack & van der Horst 2002, for Middle Dutch, see van Kerckvoorde 1993 and Hogenhout-Mulder 2007.

4.3 The Functional Sequence of DPs

Since the introduction of the DP-layer to the nominal domain in Abney (1987), the syntactic category D, which was initially a shorthand for the word *determiner*, has been subject to much investigation, discussion and reformulation, which has led to a number of different accounts of what kind of syntactic category D is, what elements it can host and what it contributes to the semantics of an NP. In classical X-bar Theory, determiners were regarded as performing a grammatical function in the same way that, e.g., subjects perform a grammatical function. This grammatical function was related to its position with respect to the noun. Under this treatment, anything that can precede a noun within the nominal domain (except adjectives) was regarded as a determiner (cf. Chomsky 1970: 198-207) This is shown in (18).

(18) a. a key
b. the key
c. this key
d. many keys
e. my keys

With the formulation of the DP-hypothesis in Abney (1987) and the introduction of D^0, the notion of determiner changed. Under the DP-hypothesis a determiner is an element that occupies D^0. It follows that only atomic elements can be situated in D^0. This means that definite and indefinite articles can be merged into D^0, but demonstrative pronouns, which are typically analyzed as phrasal elements (cf. Leu 2008 for discussion), cannot. Yet in the course of the past two decades, a number of researchers have argued that the syntactic position D^0 is not a position in which a distinction between definiteness and indefiniteness is made but a position that expresses only definiteness (cf., e.g., Lyons 1999: 298-303, see Epstein 1999 and Leu 2008 Chapter 2 for detailed discussion). Under this assumption, it is only the definite articles that can occupy D^0, while all other determiners have to be located higher or lower. This led to the postulation of a number of layers between D and N to accommodate the different kinds of determiners in the structure (cf. Epstein 1999, Lyons 1999: Chapter 8, Borer 2005a: Chapters 3-6, Leu 2008, among many others). The analysis proposed here follows these insights in the sense that the DP will be decomposed into a number phrasal layers. Given the arguments made in Chapter 3, I will distinguish between what I will argue to be the Universal Distinction Domains (UDDs), along which the DP is oriented and the specific Fseq that is constructed on the basis of these distinctions. Following the insights of Wiltschko (2014) and Borer (2005a), I will argue that the DP is divided into the five UDDs introduced briefly in section 3.3. The lowest UDD is the *Identification Domain*. This is the

domain where the encyclopedic chunk enters the syntactic derivation as a root. The second UDD is the *Classification Domain*, where it will be determined whether we are dealing with a mass, count or collective noun. This will be followed by the *Quantity Domain*, which is the domain where all quantifiers are hosted. In section 1.7, I have laid out that it won't be possible to go into the realm of quantification within the scope of this dissertation. I will therefore only give a short note on the Quantity Domain. The fourth UDD is the *Anchoring Domain*. This is the domain where deixis is established. The last and highest UDD of the DP is the *Linking Domain*. This is the domain where definiteness is created and the difference between d- and w-items is established.

4.3.1 The Identification Domain

The concept of the Identification Domain (ID) was briefly introduced in section 3.3, where I have put forward assumption that the ID, as the lowest Universal Distinction Domain, that serves to convert chunks of encyclopedic knowledge into mergable items. I have used a metaphor from biology and described the ID as a permeable membrane between the language system and general cognition, which allows chunks of knowledge to enter the language system and prepares them for the syntactic computation.

In the internal structure of the DP, the ID corresponds to what is standardly captured with the concept of the NP. The standard assumption is that the NP constitutes the lowest domain within the structure of DP.[37] Nouns themselves are standardly taken to belong to the so-called lexical or substantive categories, which comprise verbs, nouns and adjectives. As I have argued in section 3.3, such categories are assumed not to exist presyntactically but come into existence in the course of the syntactic derivation. I will therefore follow Borer's (2005a: Chapter 4) proposal that the internal structure of the DP does not contain an NP-layer. It follows that there can't be an NP as a separate domain that hosts information about whether a noun is mass or count, singular or plural or masculine, feminine or neuter. This argument begins with the insight introduced in section 3.2 that the traditional distinction between lexical/substantive and functional categories translates to a deeper distinction between non-linguistic chunks of encyclopedic knowledge and functional heads, provided and introduced into the structure by the linguistic system. In Borer's framework, a noun constitutes a chunk of encyclopedic knowledge that has been assigned the category N by a grammatical operation in order to become legible

[37] I will not go into the internal structure of the NP itself for it has no direct relevance to this dissertation. As announced in section 1.7, I will also not be possible to go into the topic of the positioning of adjectives in the DP nor into the phenomenon of weak and strong adjectival inflection in German and Dutch.

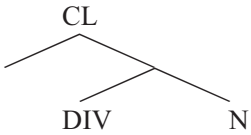
for further computations. As mentioned in section 3.3, I follow Boeckx (2010: 27-30) in the assumption that it is sufficient to mark the encyclopedic chunk as mergable. Borer (2005a: 96, 107) furthermore argues that at the point of having categorized a chunk of encyclopedic knowledge as N, we have no further information about the nature of this N. Due to this lack of information, all Ns at the stage of N in the derivation have to be interpreted as mass nouns by default. The mass interpretation of Ns at this stage is universal because it is a consequence of how the language system carves chunks of encyclopedic knowledge into syntactically computable units. In order to become a count noun, the mass noun has to be portioned out into individuals. This shaping of the mass happens in a higher domain, which Borer (2005a: 109) has termed the *Classifier Phrase*. I follow Borer (2005a) in the general assumption that there is no information about the noun whatsoever at the beginning of the derivation and that this lack of information leads to a default mass interpretation. Yet given that I assume that the only thing that happens in the ID is that an encyclopedic chunk is converted to a mergable item and given the fact that I don't make use of a classification operation that turns the chunk into the category N, I will technically implement the classification of nouns with respect to the mass/count distinction in the next higher UDD, which I will call *Classification Domain*, since it will be partly based on the insights provided in Borer's (2005a) proposal of the Classifier Phrase. Yet in contrast to Borer (2005a), I will assume that *all* mass-related shaping of the encyclopedic chunk happens in the Classification Domain.

4.3.2 The Classification Domain

The second domain of the internal structure of the DP is the Classification Domain (CD). In this section, I will argue that the CD is the domain where the encyclopedic chunk is shaped into different types of mass, which will receive a nominal interpretation in the mapping from syntax to the conceptual system. I will furthermore argue that the grammatical means that the linguistic system employs for mass shaping are grammatical gender and plural number. This argument is partly based on Borer's (2005a: 109-120) argument for the Classifier Phrase. I follow Borer (2005a: 96) in the assumption that mass shaping has to precede the construction of plural and countability. It is only after a mass has been created that it can be divided into countable individuals. It follows that plurals are not to be analyzed as the result of multiplication, but the result of division. Borer (2005a) argues that plural serves as a 'stuff divider' that separates the mass into an undefined number of individuals. Only after this division has been made, it is possible to partition a degree of individuals or to count a number of individuals by using a quantifier or a cardinal number,

respectively. The morphological means by which this division is attained can vary among particular languages. Germanic languages use plural inflection that is suffixed to the noun, other languages, such as Chinese and Japanese, for example, use number classifiers that precede the noun (cf. Borer 2005a: 87). In Borer's (2005a: 109) model, the universal syntactic structure behind plural morphology is a division head DIV that projects to a classifier phrase. This is shown in (19).

(19) Borer's (2005a) classifier phrase



(adapted from Borer 2005a: 109)

In addition to the structure proposed by Borer, I will propose that grammatical gender has to be located in CD as well. For Germanic languages, grammatical gender on nouns and determiners has frequently been described as a category that makes no contribution to the interpretation given that the entities denoted by nouns (except for humans and animals) don't have a biological sex. Its function as a grammatical category is generally assumed to be reduced to the instantiation of agreement (cf. Alexiadou et al 2007: 235-239). The distribution of masculine, feminine and neuter gender in German and the distribution of common and neuter gender in Dutch seem to be arbitrary. In the following subsections, I will argue that this is a misconception. The first hint comes from German gender morphology. Consider again the declension paradigm of the German definite article *der* introduced in section 4.2.1 and here repeated in Table 14.

	PL	SG.FEM	SG.MASC	SG.NEUT
NOM	die	die	der	das
ACC	die	die	den	das
GEN	der	der	des	des
DAT	den	der	dem	dem

Table 14: The declension paradigm of German *der*

In section 4.2.1 we have observed that the declension paradigm above displays a number of interesting syncretisms. These syncretisms hold for the declension paradigms of all determiners and personal pronouns in German. In sections 2.5.2 and 3.4.2 I have introduced the insight from Nanosyntax that such syncretisms are not to be treated as accidental and that they provide a powerful diagnostic for

the order of functional categories in Fseq. In the following three subsections I will show that grammatical gender in German and Dutch is neither arbitrary nor an empty grammatical category that does not contribute anything to the semantic interpretation. Following the work of Brugmann (1889, 1897), Lehmann (1958), Leiss (1997, 2000, 2005a), Vogel (2000), Weber (2000) and Froschauer (2003), I will argue that the gender system is inseparably related to the number system. I will make the proposal that the number system regulates the distinction between singular and plural while the gender system regulates the shaping of the encyclopedic chunk into one of three types of mass: unbounded mass, bounded mass and collective of bounded mass. Only after a mass type has been determined, it can be broken down into a plurality by DIV.

4.3.2.1 Gender as a Mass Classifier in German

The first problem that we encounter when we look at gender distinctions in German and Dutch today is that they don't seem to provide the speaker with a paradigm to choose from, unlike other grammatical categories such as tense or number. With respect to tense, we can choose between present and past, among others, in order to properly locate an event in time. With respect to number, we can choose between singular and plural to distinguish between one individual and a plurality of individuals. Gender does not offer such a choice. We cannot choose between a masculine, feminine and neuter article in order to classify a noun in the way we would with singular and plural inflection. This picture changes greatly when we adopt a diachronic perspective.

One of the first linguists in the 20th century who described gender as a grammatical category that offers a choice between different options was Lehmann (1958). Building on the work of Brugmann (1889, 1897) and Schmidt (1889), he showed that Indo-European nouns inflect regularly for three different gender suffixes: *-h*, *-s* and *–m*. These suffixes are the origin of what has come to be called 'feminine', 'masculine' and 'neuter' (cf. Leiss 2000: 239-243). An example from Lehmann's work is given in (26).

(20)	a.	hima - h[38]	FEM	'winter'
	b.	himá - s	MASC	'cold, frost'
	c.	hima - m	NEUT	'snow'

(adapted from Lehmann: 1958: 192)

[38] Due to phonological processes the *-h* suffix collapses with the final vowel to a long *ā* forming the word *hímā*.

He further showed that these suffixes are associated with a specific semantic interpretation. The feminine suffix provided a collective meaning of the noun. A collective noun differs from a countable plural noun in that it refers to a group or cohesive whole, which implies a multiplicity of members but does not separate them from each other (cf. Corbett 2000: 119). An example of this contrast is the countable plural *humans* versus the collective noun *humanity*. The former refers to a plurality of individuals, the latter to the group as a whole. Masculine gender provided a singulative meaning, which yielded the interpretation of a count noun. Neuter provided a resultative meaning. With respect to the example above, *himā* is the season or time of cold (collective), *himás* is one cold/frost within a succession of individual colds/frosts (count) and *himam* is the result of cold. It has to be added that the assessment of neuter as providing a resultative meaning was later reanalyzed by Leiss (2000: 250) as neuter providing the meaning of substance, i.e., the meaning of a mass noun. *Himam* (snow) has therefore to be analyzed not as the result of cold but as a cold substance.

Lehmann's (1958) hypothesis of gender as a number-related classifier was investigated for Old High German and proved correct in the research project 'Gender in Old High German' which was conducted over the course of three years at the University of Bamberg (Germany). The results were published in Unterbeck & Rissanen eds. (2000) and Leiss (2005a). The results were independently tested in a corpus study of OHG by Froschauer (2003). Froschauer (2003) investigated a total of 271 nouns with a total of 6694 occurrences in OHG text documents and dictionaries as well as the attachment of gendered suffixes to 463 noun stems, resulting in approximately 1800 noun derivations. The results showed unequivocally that multiple gender assignment on nouns (i.e., one noun occurring with two or three different genders) was systematic in OHG and associated with the semantic contrasts abstract/concrete and singulative/collective, which systematically co-occurred with singular and plural number. Gender assignment in OHG generally patterns in the same way as gender assignment in Indo-European. Feminine gender provided primarily an abstract and collective meaning. Masculine gender provided primarily a concrete and singulative meaning. Neuter gender primarily provided the meaning of mass noun (cf. Leiss 2000: 250, 2005a: 15, Froschauer 2003: 376-378). The Old German word *buoh*, for example, can be assigned all three genders. In masculine gender it is the count noun *book*, in feminine gender it stands for the collection of all the books of the New Testament and in the neuter it means 'several chapters' (cf. Froschauer 2003: 118f, Leiss 2005a: 16f). This makes the gender and number systems of OHG inseparable, which gives us strong evidence that gender has to be located in Classification Domain together with number. Similar

observations for multiple gender assignment have been made for Old Norse (ca. 800-1300) (Baetke 1965-1968).[39]

Some of the most interesting examples of multiple gender assignment can be found in Jones (1988: 1-15), who provides strong evidence for the dissociation of grammatical gender and biological sex and for the association of gender and number. In his investigation of classical West Saxon, he compares words where biological sex and grammatical gender are aligned to words that clearly denoted female humans but appeared in neuter or masculine. The word *wif* (woman), for example, has neuter gender and so do all compounds built with *wif*. *Wif* can furthermore combine with the masculine inflectional morpheme -*mon*/-*mann* which denotes the meaning of 'person' independently of biological sex (thus not the meaning of 'man'). Although Jones (1988) does not make a connection between grammatical gender and number/mass semantics, we can see from his noun lists that the striking property about the neuter compounds is that they don't denote female individuals, but a particular kind of woman.

(21)	a. wif	NEUT	'woman'
	b. freowif	NEUT	'free woman'
	c. sigewif	NEUT	'victorious woman'
	d. siþwif	NEUT	'noble lady'

(adapted from Jones 1988: 7)

When we look at the listings where the masculine inflection -*mon*/-*mann* is added, we can see that we are dealing with individuals.

(22)	a. wif-mon	MASC	'woman' (individual)
	b. hiredwif-mon	MASC	'female member of the household'

(adapted from Jones 1988: 7)

(Brugmann (1889, 1897) argues that the possibility of using grammatical gender to express biological sex only became available as a parasitic function after the Indo-European gender system had entered the process of erosion. The situation

[39] It is important to be aware that the Indo-European gender system had already entered the process of erosion at this point in history. The consequence of this erosion is that the semantic contrasts that were held in place by the Indo-European gender system were in the process of breaking down in the Old Germanic languages. This means that while the general semantic oppositions can still clearly be found for feminine, masculine and neuter nouns as groups, they cannot always be found anymore on one and the same noun that displays double or triple gender (cf. Leiss 2000: 250f).

in classical West Saxon can thus be seen as a snapshot of an instable system being recruited to express something other than its original function.

From these historical insights, we gain a new perspective on the analysis of gender in German and Dutch (and probably other Germanic languages) today. With respect to German, we can see that multiple gender assignment has largely vanished from the grammar (we will see some remnants below). At the same time, no deterioration of the gender system can be observed. The gender system of German is stable. Given this stability, it doesn't seem plausible to assume that gender in German is some unintelligible category that has no function beyond creating agreement. Instead, I will follow Weber (2000) and Leiss (2005a: 18-27) in the assumption that the German gender system is in a process of *regrammaticalization*, more specifically in a process of renewal that reestablishes the Old German distinctions of multiple gender assignment. The terms *grammaticalization*, *degrammaticialization* and *regrammatcialization* are all highly controversial in typological literature (see Norde 2009 for an extensive overview and profound discussion). The primary definition of *regrammaticalization* is the process in which certain functional elements lose their original grammatical function and acquire a new function. For the discussion below, I will not make use of this definition. With respect to the gender system of German as a whole I will follow Leiss (2005a: 18-27) and refer to *regrammaticalization* as the historical process in which certain functional elements lose their grammatical function and in which this grammatical function is then shifted to be expressed by other functional elements. For the grammatical gender system of German, this means that the loss of multiple gender assignment by gender morphology on determiners is being shifted to multiple gender assignment by other functional elements. In the discussion below I will show that these elements are nominal derivational suffixes, which supply a gender-neutral noun stem with both grammatical gender morphology and a specific gender-related meaning related to kinds of mass and the distinction between abstract and concrete. It is important to be aware that regrammaticalization processes happen in super slow motion, and speakers are not aware of them in their initial phases. Article systems, for example, can take more than a thousand years before they start to display a systematicity that is visible to the grammarian. We therefore have to look for symptoms of regrammaticalization. In what follows we will discuss four such symptoms.

The first symptom we have already observed is that the gender system remains stable despite the disappearance of multiple gender assignment. Given the slow speed of regrammaticalization, we should expect to still find some remnants of multiple gender assignment, including the respective semantic oppositions. This expectation is borne out, as shown in example (23).

(23) Multiple gender assignment in Modern German

a.	**die** See	FEM	'sea':	collective: unrestricted, uncountable unit of water (the high/rough sea)
	der See	MASC	'lake':	count noun: restricted, countable unit of water (one lake, two lakes etc.)
b.	**das** Erbe	NEUT	'heritage':	mass noun: inherited property
	der Erbe	MASC	'heir':	count noun: person that gets the heritage

The second symptom is the inertness of multiple gender assignment in German today. Given that the semantic distinctions expressed by multiple gender assignment have largely collapsed with the loss of this formal system, we expect that many of the nouns that we observe do not display the Old High German triplet of collective, count and mass connected to their grammatical gender. This is obviously the case, which is also the reason why grammatical gender is generally regarded as a category without function.

The third symptom we should find is that a substantial number of nouns do show an alignment of gender and semantic oppositions and – if we are indeed dealing with a renewal of the OHG gender distinctions – these semantic oppositions should be related to collective/abstract, count and mass semantics. Furthermore, we expect these nouns to make use of different grammatical means than multiple gender assignment. This expectation is borne out. It is exactly such an alignment that we find within the group of nominal derivational suffixes[40] in German. While noun stems are gender-neutral, nominal derivational suffixes are all equipped with a fixed gender. When we attach these suffixes to noun stems, we receive precisely the same semantic oppositions as those made by multiple gender assignment in OHG. Feminine derivational nominal suffixes denote collectives and/or abstracts, masculine suffixes denote individuatives, and neuter suffixes denote masses. The table below shows a number of verbal, adjectival and nominal stems that receive an unambiguous interpretation of collective/abstract, individuative and mass depending on the gender of the derivational suffix attached to them. The verbal stems are *lauf-* (move), *ras-* (speed), *arbeit-* (work), *lehr-* (teach), *verein-* (unite), and *eigen-* (own). The

[40] Note that it is not always clear whether a verb is derived from a noun or a noun from a verb. It is furthermore not always clear whether we are dealing with derivation, conversion or composition. In the table below, I will abstract away from this discussion because for the outcome, it doesn't matter which morphological process we are dealing with precisely.

adjectival stems are *frei-* (free), *schön-* (beautiful), and *wichtig-* (important). The nominal stems are *mensch-* (human) and *gott-* (god). For extensive discussion of the connection between gender, noun derivation and the oppositions of collective/count/mass and concrete/abstract, including numerous examples from present-day German, see Vogel (2000), Weber (2000) and Leiss (2005a).

Stem	Gen	Noun	Meaning
lauf-	M F N	der Lauf die Lauf-er[41]-ei das Lauf-en	individual instance of a run running around as an abstract notion process of running
ras-	M F N	der Ras-er die Ras-er-ei das Ras-en	person who speeds speeding as an abstract notion process of speeding
arbeit-	M F F N	der Arbeit-er die Arbeit-er-schaft die Arbeit das Arbeit-en	worker the collection of all people who work abstract notion of work process of working
lehr-	M M F N	der Lehr-er der Lehr-ling die Lehr-e das Lehr-en	teacher student, person who learns teaching as an abstract notion process of teaching
verein-	M F N	der Verein die Verein-ig[42]-ung das Verein-en	individual club such as, e.g., a soccer club union process of uniting
eigen-	M N M	der Eig-ner das Eigen-tum der Eigen-tüm-er	owner property owner

[41] This morpheme is a linking element. It appears for phonological reasons.
[42] This morpheme is an adjectival derivational suffix.

frei- schön- wichtig-	F F F	die Frei-heit die Schön-heit die Wichtig-heit	freedom beauty importance
mensch gott	F F	die Mensch-heit die Gott-heit	humanity deity, the quality of being a godly entity (not goddess!)

Table 15: Nominal derivational suffixes and gender-related interpretation in German

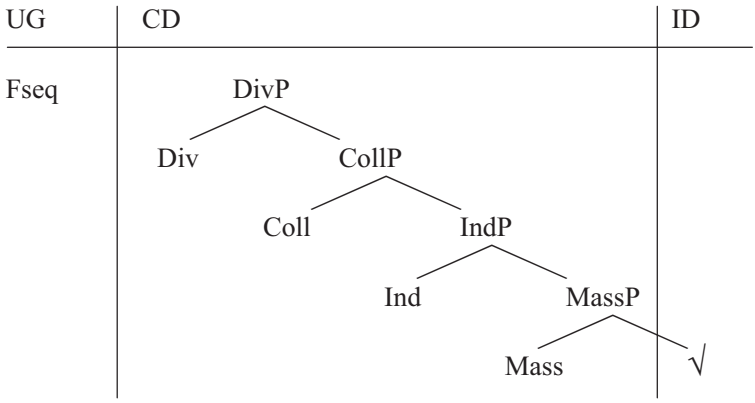
If derivational suffixes are the grammatical tool by which the German gender system rearranges itself, then the fourth symptom we should find is that derivational suffixes that are associated with multiple genders are undergoing a development of being reduced to carrying only one gender. This expectation is also borne out and extensively discussed in Leiss (2005a: 22-27). I will only give two examples here. The feminine derivational suffix -*heit* existed as independent noun in OHG and was associated with both feminine and masculine gender (cf. Froschauer 2003: 170). As a masculine noun it had the meaning of 'person', i.e., individual human being (like *man*/*mann* in OE). As feminine it had the abstract meaning of personality. Yet it was also used as derivational suffix. When used as a suffix, it was only feminine; consequently, the abstract and collective meaning got recruited. Today it is only the suffix -*heit* that is still present in German. The noun *heit* has disappeared from the language and, as we can see from the examples in Table 15, the suffix -*heit* imposes both feminine gender and abstract/collective semantics on the stem it attaches to. Another example of such a development is the derivational suffix -*nis* which can derive both feminine and neuter nouns such as *Ärger-nis* (N, nuisance) and *Finster-nis* (F, darkness). In Early Modern German (ca. 1350-1650), the distribution of feminine and neuter in the nouns derived with -*nis* was equal. Today more than 75 percent of the nouns derived with -*nis* are neuter (cf. Müller 1993: 319).

The evidence discussed in this section has shown that gender is not a meaningless category that has no use beyond establishing agreement. Gender in Indo-European and the Old Germanic languages developed from it is clearly associated with semantic oppositions related to the number system and, more specifically, to the distinctions between mass, count and collective. Especially the close connection between feminine gender and collective semantics in Old Germanic languages makes it a lot less surprising that plural morphology today is syncretic with the feminine singular in German and with common gender in Dutch. The fact that we can so clearly relate the gender system with number-related semantics provides empirical support for Borer's (2005a) claim that the

mass/count distinction cannot be a matter of the lexicon, but must be a matter of the grammar. What has to be added to Borer's (2005a) analysis is that grammatical classification of encyclopedic knowledge goes beyond the mass/count distinction. The distinctions that we are dealing with are mass, individuative and collective. Conceptually, the function of gender is to shape the encyclopedic chunk into a certain type of mass. This idea goes back to Hjelmslev (1956: 167-190), who, in his treatment of the Danish gender system, describes the function of gender as one of mass expansion and mass concentration, where the neuter is related to expansion/unboundedness/mass and the common gender to concentration/boundedness. This is in line with Borer's (2005a) motivation of the classifier phrase as a domain where the encyclopedic chunk is molded into a type of shape before it gets broken down into a plurality by DIV. Gender has therefore to be regarded as a grammatical device that creates mass distinctions. For the three-way gender system of German, I will make the following assumptions. Neuter is connected to expansion/unboundedness/mass, and the referents of this type are conceptually unbounded, i.e., "homogenous undifferentiated stuff without any certain shape or precise limits" (Koptjevskaja-Tamm 2004: 1067). Masculine is connected to concentration/boundedness/individuative, where I follow the definition of Audring (2009: 69) that the bounded type "includes referents that have clear conceptual boundaries, such as natural objects, artefact, or body parts." The same author states that "boundedness can also be displayed by abstract entities." Such entities are "a name, a piece of music, or an argument." Feminine is connected to concentration/boundedness/collective, i.e., a collection of bounded stuff. In languages such as Dutch, where the masculine and the feminine have collapsed into common gender, both individuative and collective are expressed by common gender.

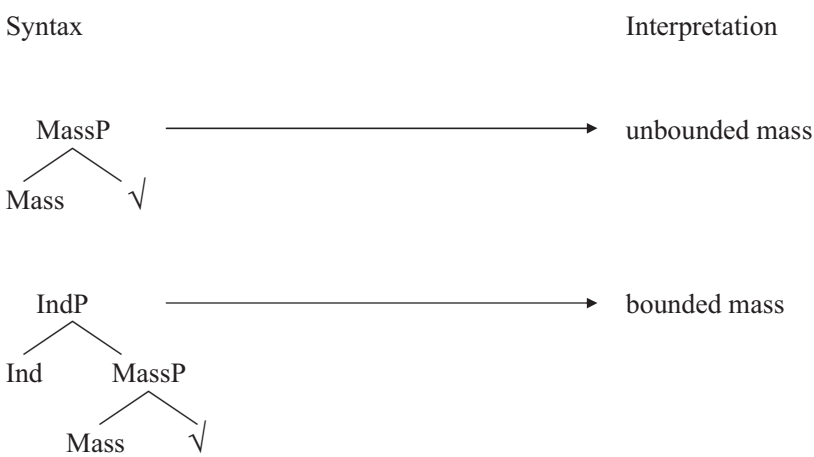
Based on these arguments, I expand Borer's (2005a) classifier phrase, which so far only contains plural classification, to a Universal Distinction Domain of classification that differentiates into the finer-grained distinctions mass (neuter), individuative (masculine), collective (feminine) and plural (division). What is commonly referred to with grammatical gender is the morphological expression of these underlying distinctions. The expression of biological sex is parasitic, as we have seen above. Given that the gender system is currently in a process of regrammaticalization, it is natural that we are observing both a dissociation of underlying structure and surface morphology (e.g., count nouns in neuter gender) and a development of alignment of underlying structure and surface morphology (nominal derivational suffixes). The internal structure of the Classification Domain assumed here is illustrated in (24).

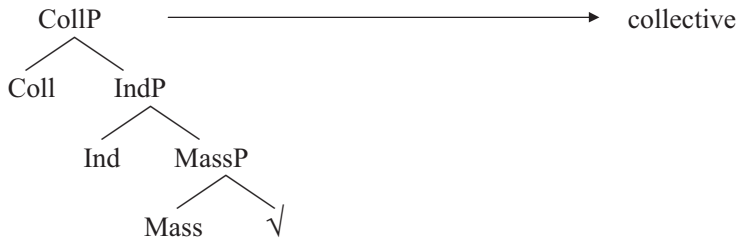
(24) The internal structure of the Classification Domain

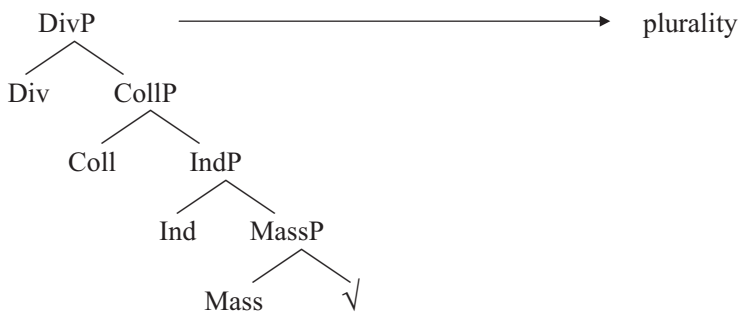


This structure has the following advantage. Following Chomsky's (2000) claim that Merge creates set relations in which the set denoted by a lower phrase in the structure is contained by a set denoted in a higher phrase in the structure, we get neat containment relations. Every plural is the division of a collective, every collective contains individuals and every individual is made up of mass. Yet this, of course, does not mean that all projections have to present in every derivation. If this was the case, then all nouns would end up being plural. I will therefore propose the following mapping relations from syntactic structure to the conceptual interface.

(25) Mapping of the Classification Domain to the conceptual interface







I would like to point out that the mapping relations shown above have one important implication: The presence of every higher phrase projected in the CD presumes the presence of every phrase below it. It is not possible to drop any intermediate phrases and, e.g., project IndP or CollP directly on top of the root. This stipulation relates to the greater question in Nanosyntax about which heads of the Fseq can be dropped and which heads must be projected (cf. section 3.4). Given that the development of a mechanism that regulates the presence and absence of certain projections is beyond the scope of this thesis, we have to accept the non-optional presence of all lower projections underneath a higher projection as a matter of stipulation. From a conceptual point of view, it is my impression that carving out a certain type of mass proceeds along the steps defined by the Fseq of the CD. It seems that some unbounded mass has to be created first before we can shape it into an individual, from which we create a collective, which is then broken down into a plurality. From this perspective, we could speculate that leaving out an intermediate projection leads to a concept that cannot be computed by the core perceptual system responsible for object perception. This would not necessarily entail that syntax wouldn't produce such a structure, but only that it wouldn't be recognized.

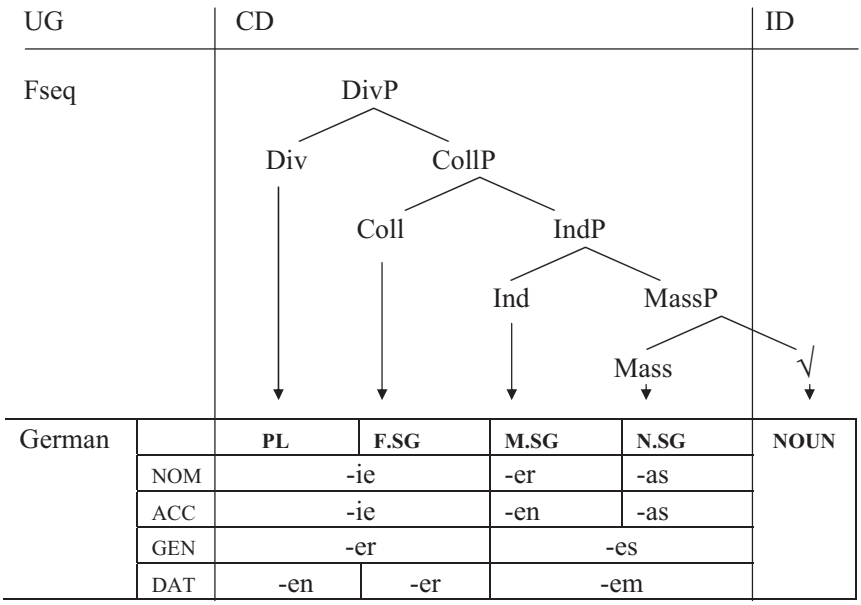
Moving on from the mapping to the conceptual interface to the mapping from syntax to morphology, we have to take a closer look at the syncretisms in the declension paradigms of the German determiners and pronouns. Consider again the declension paradigm of German *der*.

	PL	SG.F	SG.M	SG.N
NOM	die	die	der	das
ACC	die	die	den	das
GEN	der	der	des	des
DAT	den	der	dem	dem

Table 16: The declension paradigm of German *der*

Given the insight from Nanosyntax that only adjacent phrases can create morphological syncretisms, we can derive the declension paradigm in Table 16 directly from the structure in (24). This is shown in the following illustration where the internal structure of the CD proposed in (24) is combined with the inflectional morphemes of German *der* in Table 16.

(26) Mapping of the Classification Domain to number and gender morphemes in German



Before I discuss the individual morphemes of the declension paradigm above, one comment is in order. Earlier in this section, I have argued that the presence of a higher phrase in the CD always implies the presence of all other phrases below it. In principle, this allows for the successive individual Spellout of all phrases, i.e., forms such as **dieras* can be constructed with the functional sequence above. Yet we never witness them in German or Dutch. I therefore stipulate that the association of functional projections in the CD with

morphophonological strings in the postsyntactic lexicon of German and Dutch targets the whole chunk of projections. This means that the morphemes that spell out MassP are only associated with MassP, while the morphemes at the IndP level are associated with a lexically stored tree that contains IndP and MassP. When both phrases are projected, the morpheme matching only MassP gets overridden by the morpheme matching the larger tree of IndP and MassP together. This happens by virtue of Pantcheva's (2011:114) overriding mechanism, which states that morphemes spelling out larger chunks of structure override morphemes that spell out smaller chunks which are contained in the larger chunks (cf. section 3.4.2 for discussion).

I will now discuss the declension paradigm that spells out the German CD in detail. The first thing we can understand from the structure in (26) is why it is only the feminine gender inflection that displays syncretism with the plural inflection and never the masculine or the neuter inflection. The reason is the structural adjacency of Div and Coll. To fully understand the paradigm illustrated above, we have to compare it to the declension paradigm of German personal pronouns. The declension paradigm is given in Table 17.

	PL	SG.F	SG.M	SG.N
NOM	sie	sie	er	es
ACC	sie	sie	ihn	es
GEN	ihr	ihr	sein	sein
DAT	ihnen	ihr	ihm	ihm

Table 17: The declension paradigm of German personal pronouns

The first observation that we make is that we observe the same syncretisms as for German *der*. The second observation is that the forms of the personal pronouns correspond to the inflectional morphemes of *der* (and German determiners in general), the only difference being the vowel quality and the morpheme *-s* at the left edge of the singular feminine and the plural in nominative an accusative case. Given the structure of the CD above, we arrive at a straightforward explanation why there are no gender distinctions in the plural: the phrases that instantiate gender distinctions are located below the phrase that instantiates plural. The syncretism of the third person singular feminine personal pronoun *sie* (she) and the third person plural personal pronoun *sie* (they) arises from adjacency of Div and Coll. A further important fact concerns the syncretism between the genitive and dative forms of the masculine and the neuter personal pronoun. It is important to be aware that when these forms are used to refer to a noun previously introduced in the linguistic context, the

referent denoted by this noun has to be animate. This is shown for the dative form in (27).

(27) a. A: Ist das dein **Kaninchen**?
is that your rabbit(N)
'Is this your rabbit?'

B: Ja, ich habe den ganzen Tag mit **ihm** gespielt.
yes I have the whole day with SG.M/N played
'Yes, I played the whole day with it.'

b. A: Ist das dein **Schlagzeug**?
is that your drum set(N)
'Is this your drum set?'

B: Ja, ich habe den ganzen Tag auf ***ihm** gespielt.
yes I have the whole day on SG.M/N played
'Yes, I played the whole day on it.'

In event structure, experiencers and undergoers are typically denoted by datives, while possessors are typically denoted by genitives. Unbounded masses can't be conceptualized as experiencers, undergoers or possessors. Individuals, in contrast, can. It is therefore not surprising that the neuter singular paradigm has not developed its own morphological forms to refer to such entities. Instead, they are being recruited from the masculine paradigm in situations such as (27a). This leads us to an understanding of how the neuter singular declension paradigm comes together: as a case of default inflection. The neuter nominative pronoun is recruited from the expletive *es*. Given the hierarchical adjacency of nominative and accusative observed by Caha (2009) and the resulting syncretism between the two cases in German, the nominative form created with the expletive *es* can be used to spell out the accusative as well. The genitive and dative forms are recruited from the masculine paradigm whenever a personal pronoun has to refer to a neuter antecedent that denotes an experiencer, undergoer or possessor. This development is shown in Table 18.

	SG.MASC	SG.NEUT
NOM	er	**es**
ACC	ihn	**es**
GEN	**sein** →	**sein**
DAT	**ihm** →	**ihm**

Table 18: The construction of the neuter singular personal pronoun in German

Following this logic, we can straightforwardly derive the neuter singular paradigm of the German d-item *der*. The neuter inflection in nominative is a combination of the *d*-morpheme and the expletive *es* (it). The difference between *es* and -*as* is first and foremost orthographical. In spoken language, the vowel is /ə/ is used in both cases. They are only distinguishable as /a/ and /e/ under emphasis and even then many speakers pronounce *das* as /des/. I would like to point out that the -*es* in the masculine singular genitive form is not related to the expletive *es* (the origin of the genitive -*es* will be discussed further below). The expletive/singular neuter *es* is a descendent of the older form -*et*/-*it* (cf. Meisen 1968: 35), which is still present in English as *it,* which, in parallel to German *es*, forms both the expletive and the third person singular neuter personal pronoun. This form is also present as -*at* in the demonstrative pronoun *that*, and as -*as* in German. In Dutch it is retained in *het* and *dat*. The development from -*et* to -*es* in German is a result of the Second Germanic Consonant Shift, that brought forth the phonological system of Old High German, but left Old English (ca. 450-1150) and Old Dutch unaffected. During the second consonant shift, word final voiceless plosives turned into fricatives, causing /p/ to shift to /f/, /k/ to shift to /x/ and /t/ to shift to /s/ (cf. Grimm 1822, Campbell 2007: 179). The construction of the neuter singular paradigm of German *der* is shown in Table 19.

	SG.MASC	SG.NEUT
NOM	der	d**as**
ACC	den	d**as**
GEN	d**es** →	d**es**
DAT	d**em** →	d**em**

Table 19: The construction of the neuter singular forms of German *der*

A similar pattern can be observed for the indefinite article *ein*. In section 4.2.5 I have mentioned that the indefinite article in Germanic languages is a descendant of the Gothic cardinal number *ains* (*one*). This holds until today. The indefinite articles *ein* in German and *een* in Dutch correspond to the cardinal number *one*, with the difference that the indefinite article is phonologically weaker than the cardinal number. Given that the cardinal number *one* and the indefinite article can only refer to countable individuals, it is not surprising that there is no neuter form of the indefinite article comparable to *es*. Instead, the neuter forms of the indefinite article are recruited entirely from the masculine paradigm. This is shown in Table 20:

	SG.MASC	SG.NEUT
NOM	**ein** →	**ein**
ACC	einen	**ein**
GEN	ein**es** →	ein**es**
DAT	ein**em** →	ein**em**

Table 20: The construction of the neuter singular forms of the indefinite article in German

Let's now take a look at the origin of the genitive morpheme -*es*. It is a characteristic feature of Germanic languages to construct the element that functions as a definite article and a demonstrative pronoun by conflating the *d*-morpheme with the forms of the 3rd person personal pronoun. We have seen this above already for the German d-item *der*, and it is repeated in Table 21 below. The paradigm shows that the exception to this rule seems to be the singular masculine and neuter genitive.

	PL	SG.F	SG.M	SG.N
NOM	sie → die	sie → die	er → der	es → das
ACC	sie → die	sie → die	ihn → den	es → das
GEN	ihr → der	ihr → der	sein des	sein des
DAT	ihnen → den	ihr → der	ihm → dem	ihm → dem

Table 21: The construction of German *der*

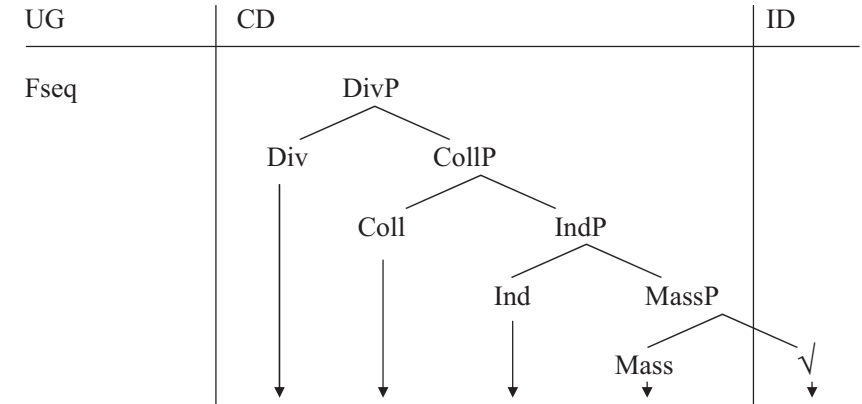
The genitive -*es* that we observe on modern German *der* is a descendant of the Gothic genitive singular masculine personal pronoun *is* (cf. Braune 2004: 243) In Gothic, the form *seina*, the precursor of the modern German *sein* and Dutch *zijn*, constituted the genitive form of the reflexive *sik*, which corresponds to German *sich* and Dutch *zich* (cf. Wright 1910: 120-122). This genitive form of the reflexive was independent from the genitive form of the singular masculine personal pronoun *is*, which was also used to construct the genitive of the singular neuter personal pronoun. In the construction of the definite article/demonstrative pronoun in Gothic (which we will see in full further below), *is* was conflated with the *d*-morpheme *þ*- yielding the form *þis*, from which modern German and Middle Dutch *des* descended. The spread from the genitive reflexive to the personal pronoun paradigm can be observed first in Old High German, starting with singular masculine and proceeding to the singular neuter after the Middle High German period (cf. Braune 2004: 243).

Equipped with these observations, the structure illustrated above and the insights from Borer (2005a), we can now arrive at an explanation as to why neuter gender consistently displays default morphology throughout the Germanic

languages. Borer (2005a) argues that the default semantics of nouns at the moment where the encyclopedic chunk gets turned into N is universally mass. I have argued that the category N is a category that arises through the interpretation of having defined a mass type for a mergable encyclopedic chunk in the classification phrase. Given that unbounded mass underlies every other mass type, I arrive at the same conclusion as Borer (2005a), namely that unbounded mass is a default interpretation. Neuter gender constitutes the morphological expression of this default state. This gives us a direct connection between default semantics and default morphology.

Let's take another look at the Spellout of the Classifiaction Domain of German *der*.

(28) Mapping of the CD to number and gender morphemes German



German		PL	F.SG	M.SG	N.SG	NOUN
	NOM	-ie		-er	-as	
	ACC	-ie		-en	-as	
	GEN	-er		-es		
	DAT	-en	-er	-em		

The distribution of the morphemes we are observing in this illustration can now explained as follows. There are no gender distinctions in the plural because the number semantics of plural, namely the dividing of mass or collective into individuals, is of a different sort than the number semantics expressed by grammatical gender. The reason that grammatical gender is associated with grammatical singular is that it is a default that results from the fact that a plurality has not been created yet. The syncretism between plural and feminine singular in nominative and accusative (*-ie*) results from the hierarchical adjacency of Div and Coll as well as nominative and accusative. The syncretism

between singular masculine and singular neuter in dative (-*em*) and genitive (-*es*) results from the hierarchical adjacency of Ind and Mass as well as dative and genitive. The syncretism of feminine singular in dative and genitive as well as genitive plural (-*er*) results from the hierarchical adjacency of dative and genitive as well as Div and Coll. The syncretism between nominative and accusative in neuter singular is due to the hierarchical adjacency of nominative and accusative.

This leaves three observations to be explained: First, there seems to be a further syncretism between singular masculine nominative (-*er*) and the feminine singular genitive/dative as well as the plural genitive. Second, it is noticeable that the plural and the feminine singular are not syncretic in the dative. Third, the dative plural seems to be syncretic with masculine singular accusative.

As for the first observation, this is the one case that seems to be an accidental syncretism, i.e., the result of a phonological process unrelated to syntax. Old English (cf. Mitchell & Robinson 2007: 18f), Old Dutch (Quak & van der Horst 2002: 43-45) and Old Saxon (Sweet: 1886), all of which date to approximately the same period, all display the vowels /e/ and /i:/ in the nominative singular for both the definite determiner and the personal pronoun. This vowel can still be found in English *the* and *he* and Dutch *de*, *die* and *hij*. The only other place where I could find the -*er* morpheme in the nominative is the Old Norse paradigm of interrogative pronouns which are all based on the stem *hver*, which also constitutes the singular masculine nominative. Old Norse *hver* corresponds to the modern German w-item *wer* and modern Icelandic *hvert*. It thus seems that there is some rather accidental difference with respect to the nominative morpheme between Old Dutch, Old English and Old Saxon on the one hand and Old High German and Old Norse on the other. Yet German remains the only language where the -*er* morpheme is systematically appears in the masculine singular nominative the pronominal declension paradigms.

Let's now turn to our second observation: the fact that we have a syncretism (-*er*) for feminine singular genitive, feminine singular dative and the plural genitive, while the plural dative displays no syncretism. This phenomenon cannot be attributed to an accident because it shows up consistently in Old Saxon, Old High German, Old Dutch and Old English. This morphological curiosity can be better understood if we take another look at Gothic. In Gothic, gender distinctions were not only made in the singular but also in the plural. These distinctions can still be found in a reduced form in Old Saxon, Old High German and Old Dutch. Old English does not display any gender distinctions in the plural (cf. Mitchell & Robinson 2007: 18), and from German and Dutch they disappeared in the transition from Old High German and Old Dutch to Middle High German and Middle Dutch. The table below shows the declension

paradigm of the simple d-item *sa* in Gothic, which corresponds to modern German *der*. Like German *der*, *sa* functioned both as a definite article and as a demonstrative pronoun (cf. Wright 1910: 124). As I have mentioned above, the declension paradigm of *sa* constitutes a conflation of the forms of the 3rd person personal pronoun and the *d*-morpheme (except for the plural neuter, as we will see below), which at the time was expressed by *s*- in the feminine and masculine nominative singular and by *þ*- in all other cases. In Table 22 I will only color-code the syncretisms that are relevant for the discussion below.

	PL.F	PL.M	PL.N	SG.F	SG.M	SG.N
NOM	þōs	þái	þō	sō	sa	þata
ACC	þōs	þans	þō	þō	þana	þata
GEN	þizō	þizē	þizē	þizōs	þis	þis
DAT	þáim	þáim	þáim	þizái	þamma	þamma

Table 22: The declension paradigm of Gothic *sa* (adapted from Wright 1910: 124)

If we now look at the dative forms in both singular and plural, we can see that the *–m*, which is characteristic for the dative in Germanic until today, and even retained in languages that have lost the morphological case system (consider English *him*, *them* and *whom*), appears in all forms except for the feminine singular. If the structure that I have proposed to underlie the singular forms of grammatical gender in German is correct, then we should expect that this structure is mirrored by the plural forms. With this I don't mean to say that there are three Div-heads that are hierarchically ordered corresponding to the three genders/mass distinctions. What I mean to say is that the construction of any morphological paradigm that makes gender distinctions follows the hierarchy of Mass, Ind and Coll in the syntax. I therefore assume that the morphological construction of the plural paradigm is based on the presence of Div and simultaneously determined by the hierarchy of Mass, Ind and Coll. I think that what we are observing in the construction of a plural paradigm with gender distinctions is precisely the point where we can observe both the intimate connectedness of syntax and morphology and the development of morphological forms that are not the direct spellout of syntactic structure but constructed with respect to syntactic structure. The consequence of this logic is that the neuter plural constitutes the lowest hierarchical position among the plural forms, whereas the feminine plural the highest hierarchical position. With this assumption, we make the following predictions. Only the neuter plural can display syncretism with the feminine singular. It follows that the forms of the feminine plural and the masculine plural cannot display syncretism with the feminine singular and therefore must have an independent plural inflection. This

is exactly what we observe in the paradigm above as well as in the paradigm of Gothic personal pronouns. Let's include the declension paradigm of the third-person personal pronoun in order to get a better understanding of the Gothic d-item *sa* (a * in front of a form means that this form has not been attested but reconstructed).

	PL.F	PL.M	PL.N	SG.F	SG.M	SG.N
NOM	*ijōs	eis	ija	si	is	ita
ACC	ijōs	ins	*ija	ija	ina	ita
GEN	izō	izē	*izē	izōs	is	it
DAT	im	im	im	izái	imma	imma

Table 23: The declension paradigm of the 3rd person personal pronoun in Gothic (adapted from Wright 1910: 120).

The striking observation about this paradigm lies in the morphological forms of the neuter plural. As discussed above, the neuter declension paradigm of any element constitutes a default paradigm that draws its forms from independently existing forms, i.e., forms that originate elsewhere. For the German neuter singular, we have seen that neuter paradigm for both personal pronouns and the demonstrative pronoun is constructed from the expletive *es* in nominative and accusative and from the forms of the singular masculine paradigm for genitive and dative. Looking at Tables 22 and 23, we can make exactly the same observation for the singular neuter form of the Gothic personal pronoun. If we move on to the forms of the neuter plural, we observe something fascinating: the forms of the nominative and accusative are recruited from the feminine singular, while the forms of the genitive and dative are recruited from the masculine plural. The explanation for this phenomenon is rather functionalist: there is no plural of the expletive, so the neuter nominative and accusative plural have to be recruited from somewhere else. They can't be recruited from the masculine paradigm because it already provides the genitive and dative forms. Recruiting the nominative and accusative forms as well would have rendered masculine and neuter plural indistinguishable. Therefore the forms are taken from the other adjacent paradigm, the feminine singular. This is shown for the personal pronoun in Table 24 and for the demonstrative pronoun (DPR) in table 25. Note that the same pattern is fully visible for the declension paradigms of the simple DPR, the distal DPR, the complex proximate DPR, the indefinite pronoun, the negative pronoun, and the interrogative pronoun of Old Norse (cf. Barnes 2008: 63-67).

	PL.M	PL.N	SG.F
NOM	eis	ija	si
ACC	ins	*ija	ija
GEN	izē	*izē	izōs
DAT	im	im	izái

Table 24: The construction of the neuter plural personal pronoun in Gothic

	PL.M	PL.N	SG.F
NOM	þái	Þō	sō
ACC	þans	þō	þō
GEN	þizē	Þizē	þizōs
DAT	þaim	Þaim	þizái

Table 25: The construction of the neuter plural demonstrative pronoun in Gothic

In the light of these insights, it is not surprising anymore that that we don't observe a syncretism between the dative plural and the dative feminine singular in the declension paradigms of personal pronouns and DPRs in any of the Germanic languages that emerged after the period of Gothic. The plural morphology that we observe in German today is the result of the breakdown of a morphological paradigm that has reduced to its most unmarked form, a typical process for a dissolving paradigm. I assume that the weakening of the characteristic dative *-m* to *-n* occurred as a consequence of the erosion of the paradigm. Parallel dative forms with *-m* and *-n* endings are attested for Old Saxon and Old High German but not anymore for Middle High German, which only displays *-n* as final morpheme for the dative plural forms. This leaves one last question: how it came about that the genitive plural became syncretic with the female singular, but the dative plural didn't. I have no conclusive answer to this question. I can only offer a tentative observation-based answer to this. It is my impression that this phenomenon is related to a general morphological resistance of the dative case. We can see in the Gothic paradigm that the singular feminine, which is the only form without an *-m*, resists syncretism with any other form, in contrast to the other dative forms. As briefly mentioned above, in the Germanic languages that have lost their case systems, such as English and Dutch, it is most commonly the dative case whose morphology remains retained in a number of forms. It follows that there must be something particular about the dative that makes it morphologically stronger than other cases. Whatever this particular property is, it has, at this point, to be left for future research.

4.3.2.2 Gender as a Mass Classifier in Dutch

In this section I will argue that syntactic structure that I have motivated for the Classification Domain on the basis of German can derive the morphological forms of Dutch determiners as well. My argument starts with the fact that the declension paradigm of the Middle Dutch *die* is identical to the declension paradigm of Middle German and modern German *der*, besides some minor phonological differences. The fact that we can see that the dative *-m* has already given way to the accusative *-n* in the masculine and neuter singular inflection can be seen as a sign of the strong force of the erosion of the case system. The declension paradigm of Middle Dutch *die* is presented in Table 26.

	PL	SG.FEM	SG.MASC	SG.NEUT
NOM	die	die	die/de	dat
ACC	dien/den	die	dien/den	dat
GEN	dier/der	dier/der	dies/des	dies/des
DAT	dien/den	dier/der	dien/den	dien/den

Table 26: The declension paradigm of Middle Dutch *die* (adapted from Hogenhout-Mulder 1983: 28).

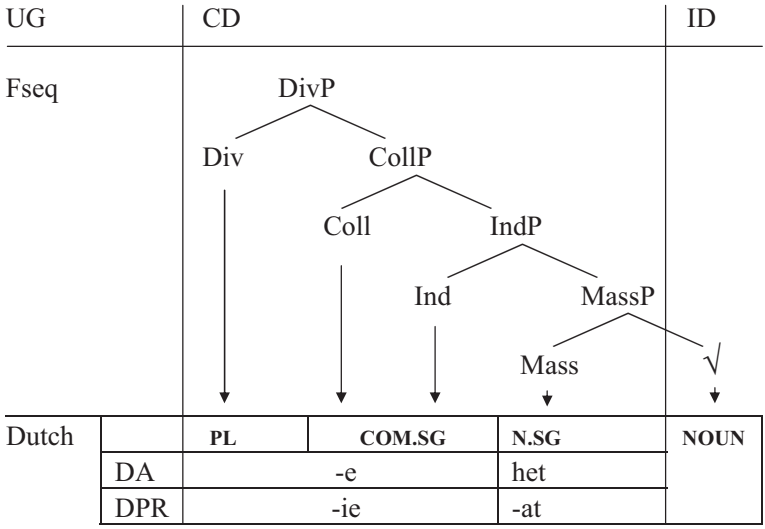
The alternative forms that we are observing in this table show the process of separation of the definite article from the demonstrative/relative pronoun in the development from Old Dutch to Middle Dutch. The morphologically weak forms constitute the definite article and the strong forms constitute the demonstrative/relative pronoun. The syncretisms of this declension paradigm can be explained using the same logic as the syncretisms of the declension paradigm for German *der* above, so I will refrain from putting the reader through another verbose description. Given the data, it is clear that the structure which holds for Modern German above must hold for Middle Dutch as well. The question is whether it still holds for modern Dutch. The morphological development is straightforward. We can see from the table above that the long /i:/ vowel has already spread over the whole paradigm except for neuter nominative and accusative. Due to the continuously advancing case erosion, the final segments /n/ and /r/ were lost, resulting in a reduction of the declension paradigm to the top row of the table, where masculine singular, feminine singular and plural are syncretic. This was followed by the insertion of *het* as the singular neuter definite article, as discussed in section 4.2.2.

	PL	COM.SG	N.SG
definite article	de	de	het
dem./rel. pronoun	die	die	dat

Table 27: Syncretisms among the inflectional morphemes of the definite article and the demonstrative/relative pronoun in Dutch

With respect to the internal structure that we have identified for Classification Domain in German, we get the following distribution of morphemes when applying it to Dutch.

(29) Mapping of the Classification Domain to number and gender morphemes in Dutch.



Given this structure and the argument made for a regrammaticalization development of the German gender system in the previous subsection, we should expect that Dutch is going through the same or a very similar process. This expectation is borne out. One of the first things that every L2 learner of Dutch will notice is the use of the third person singular masculine personal pronoun *hij* (he) to refer to linguistic antecedents of both common and neuter gender. This is shown with the common singular noun *sleutel* (key) in (30a) and the neuter singular noun *boek* (book) in (30b). The personal pronoun *hij* appearing in object case *hem* is cliticized to the verb.[43]

[43] A three-way gender marking on nouns can still be found today in southern Dutch and Flemish dialects. Speakers of these dialects consequently distinguish between feminine

(30) a. Waar is mijn sleutel? Ik kan‘**m** niet vinden.
where is my key(COM) I can-him.CL not find
‘Where is my key? I can’t find it.’

b. Waar is mijn boek? Ik kan‘**m** niet vinden.
where is my book(N) I can-him.CL not find
‘Where is my book? I can’t find it.’

This and many other phenomena of gender mismatches in Dutch were systematically investigated by Audring (2009), who proposes the hypothesis that the Dutch gender system is in a process of rearranging gender differences along the distinctions of mass/unbounded and count/bounded. Audring (2009) presents a very large amount of data to support this hypothesis. I will discuss a portion of this evidence below.

The first phenomenon that links the use of Dutch personal pronouns to number semantics is the so-called *haar*-ziekte (her-disease). This term describes the proliferation of the feminine singular possessive *haar* in unexpected places in journalistic and administrative writing. Given the dominant anaphoric use of the masculine singular personal pronoun in spoken language, the use of the feminine pronoun became the target of stylized language to the point of public outrage. Audring (2009: 48) presents two examples of such constructions which are either “smiled at or frowned upon by native speakers of Dutch.”

(31) a. dat **het** **Nederlandse** **volk** **haar** soevereiniteit
that the.SG.N Dutch people(N) her sovereignty

terug krijgt
back gets

‘that the Dutch people regains its sovereignty’ (presscenter.nl)

and masculine personal pronouns when referring anaphorically to a previously introduced noun (for discussion and examples see Audring 2009: 39f).

b. **Het** **ijshockey** in Nederland probeert alles om
the.N ice-hockey(N) in Netherlands tries everything in-order

haar imago te verbeteren.
her image to improve

'The ice hockey in the Netherlands tries everything in order to improve its image.' (De Volkskrant 05.01.2004)

(adapted from Audring 2009: 48)

The striking characteristic about this very marked usage of *haar* is that it is only used to refer to collectives. Audring (2009: 48) argues that this use is linked to the fact that collective nouns in earlier stages of Dutch, especially the ones constructed with nominal derivational suffixes, overwhelmingly displayed feminine gender. The feminine singular possessive *haar* used to be syncretic with the plural possessive in earlier stages of Dutch, until the plural form was forcefully replaced with *hun* in the 17th century by the grammarian Christiaen van Heule.

Further evidence for a number-related use of anaphoric personal pronouns comes from nouns which can be referred to with all of the 3rd person singular pronouns. Such a noun is the common gender noun *muziek* (music), which in earlier stages used to be feminine.

(32) a. Ik maak **muziek** voor de mensen die **het** mooi vinden.
I make music(COM) for the people who it beautiful find
'I make music for the people who like it.'

b. Hij kent z'n **muziek**, hij kent '**m** al gauw.
he knows his music(COM) he knows him.CL already quickly
'He knows his music, he knows it by hear quickly.'

c. de klassieke moderne **muziek**, met **haar** complexe
the classical modern music(COM) with her complex

harmonieën
harmonies

'the classical modern music with its complex harmonies'

(adapted from Audring 2009: 56)

What we can see in example (32) is that the use of the gender of the 3rd person personal pronouns is aligned with the number distinctions mass, count and collective. In (32a) we encounter the noun *muziek* as an unidentified mass created by the speaker. In (32b) we have one specific piece of music that someone is learning and in (32c) we have the collective of all pieces of music that belong to a certain period of time.

Further data in relation to possession come from the Corpus of Spoken Dutch (CGN), which was searched by Audring (2009) for gender mismatches. Dutch has so-called independent possessors which constitute full NPs and which therefore can be preceded by the definite article. Audring (2009: 63) shows that when a noun is referred to by an independent possessor, we should expect that the possessor agrees with the gender of the noun such as in the construction in (33).

(33) **Welk** **koffiezetapparaat** nemen we, **het** **mijne**?
which.N coffee-machine(N) take we, the.N mine
'Which coffee machine shall we use, mine?'

Yet data from the CGN shows that gender agreement is not necessary in these cases.

(34) **'t**[44] **koffiezetapparaat** – ik vergeet **de** **mijne** vaak
the.N coffee machine(N) I forget the.COM mine often

uit te doen.
off to switch

'The coffee machine – I often forget to switch mine off.'

(CGN session 252, adapted from Audring 2009: 63)

The same situation holds for noun ellipsis. Example (35a) below shows the neuter noun *toestel* (appliance, in this context meaning telephone) being referred to by an adjective with common gender inflection. Example (35b) shows the neuter noun *koffiezetapparaat* (coffee machine) being elided from a DP introduced with *die*.

[44] What we are seeing here is the result of the reduction of Middle Dutch *dat* to *'t*, which later got expanded to *het* (cf. section 4.4.2).

(35) a. ik heb nog wel een **toestel** – een **goeie**?
I have yet AFF a appliance(N) a good.COM
'I've still got a telephone somewhere. – A good one?'

(CGN session 8192, Audring 2009: 64)

b. een **koffiezetapparaat** is dan ook niet zo duur –
a coffee machine(N) is then also not zo expensive

nee en zeker niet **die** **hele** **simpele**
no and certainly not DPR.COM really.COM simple.COM

'a coffee machine is not so expensive – No, and certainly not that simple one'

(adapted from Audring 2009: 64)

Audring (2009: 74) furthermore shows that gender mismatches are not related to linear distance, i.e., a gender mismatch is not more likely to happen when the noun and the referring demonstrative pronoun or adjective are further away from each other. Gender mismatches happen equally often under immediate adjacency. An example is given in (36).

(36) m'n **linkerbeen** **die** trilt heel erg
my left-leg(N) DPR.COM shakes really badly
'my left leg, that's shaking really badly'

(CGN session 6897, Audring 2009: 74)

Based on a large sample of evidence from the CGN, Audring (2009: 74 shows that gender mismatches such as the ones presented here are widely spread among Dutch speakers, but they are not arbitrary. As we can see from the examples above, the gender switch from neuter to common only happens with count nouns, i.e., it is related to boundedness. This leads us to expect that neuter mass nouns do not allow gender switching while common gender mass nouns do allow to be referred to with a neuter element. These expectations are borne out as can be seen from the examples in (37). (37a) shows the neuter count noun *pak* (suit) being referred to with adjectives inflecting for common gender. (37b) shows the neuter mass noun *water* (water) which cannot be referred to with adjectives inflecting for common gender. (37c) shows the common gender mass

noun *kaas* (cheese) being referred to with the 3rd person singular neuter personal pronoun *het*.[45]

(37) a. Wat voor een **pak** trek je aan? Een **zwarte** of
what for a suit(N) put you on? A black.COM or

een **grijze**?
a grey.COM

What sort of suit will you be wearing? A black one or a grey one?

b. *Wat voor **water** wil je? **Warme** of **koude**?
what for water(N) want you? warm.COM or cold.COM?
'What sort of water would you like? Warm or cold?

c. Wat voor **water** wil je? **Warm** of **koud**?
what for water(N) want you? warm.N or cold.N?
'What sort of water would you like? Warm or cold?

(Audring 2009: 65)

d. ik heb nog **kaas** gevonden. dus dat ik heb **'t** niet
I have yet cheese(COM) found so that I have it not

nodig.
need

'I've found some cheese. So that, I don't need it.'

(CGN session 7922, adapted from Audring 2009: 67)

[45] It is important to note that the element *het* which can function as a personal pronoun and an expletive has a different internal structure than the element *het* that functions as the definite article. For discussion, see section 6.2.

From the evaluation of her extensive corpus data, Audring (2009: 92-116) arrives at the following generalizations:

1. The neuter third person singular personal pronoun *het*/'*t* is overwhelmingly used to refer to unbounded/uncountable masses, but it can also be used for specific masses in some cases (such as 'your wine' instead of 'wine').
2. The masculine third person singular personal pronoun *hij*/'*ie* is overwhelmingly used to refer to bounded objects/abstracts.
3. The feminine third person singular personal pronoun *zij*/*ze* is almost exclusively used to refer to female humans (except for the *haar*-disease, where *haar* almost exclusively refers to collectives).
4. When it comes to collections, the overwhelmingly used pronoun is the third person plural pronoun *zij*/*ze*, which is syncretic with the feminine third person singular.
5. The common gender demonstrative pronouns *die* (proximate) and *deze* (distal) can in principle be used with any noun. In gender switch situations, the demonstrative pronoun refers almost exclusively to bounded objects/abstracts.
6. The neuter gender demonstrative pronoun *dat* (distal) is used in a number of different ways. Yet in gender switch situations, it is used exclusively to refer to mass nouns.

For completeness, it has to be added that Audring (2009) includes biological sex and animacy as relevant factors in her research with respect to examples where a common gender noun such as *muis* (mouse) is referred to with the feminine third person singular personal pronoun *zij* (she) when the mouse is perceived as female by the speaker. Given that we have established that the expression of sex is making parasitic use of the distinctions offered by grammatical gender, I will not take such examples into consideration. In my opinion, it is not a gender switch that we are dealing here. The collapse of masculine and feminine into common gender in Dutch resulted in common gender expressing both individuative and collective. This makes it possible for a pronoun that is parasitically associated with female sex to refer to a noun that is introduced by a common gender determiner. It follows then (at least for German and Dutch) that the expression of animacy is equally parasitic as the expression of biological sex and consequently not a part of the grammatical system or relevant to it. I follow Ramchand (2008: 54) in the opinion that while animacy hierarchies and mental states do have cross-linguistically observable effects, they should not be attributed to the workings of grammar. Notions such as animacy, humanness, sentience and volition reflect highly complex and from a linguistic point of view

largely intangible concepts that presume a substantial amount of reasoning about our perceived reality. Grammar is a formal-logical combinatorial apparatus. I take it to be extremely unlikely that such highly structured concepts should be the primitives it operates on.

I will therefore not adopt Audring's (2009) Individuation Hierarchy, which is a variation of Silverstein's (1976) Animacy Hierarchy, in order to explain the distribution of gender on pronouns in Dutch. The idea behind such hierarchies is to correlate the use of certain linguistic elements on the basis of how humans perceive entities. Audring (2009: 127) offers the following correlations.

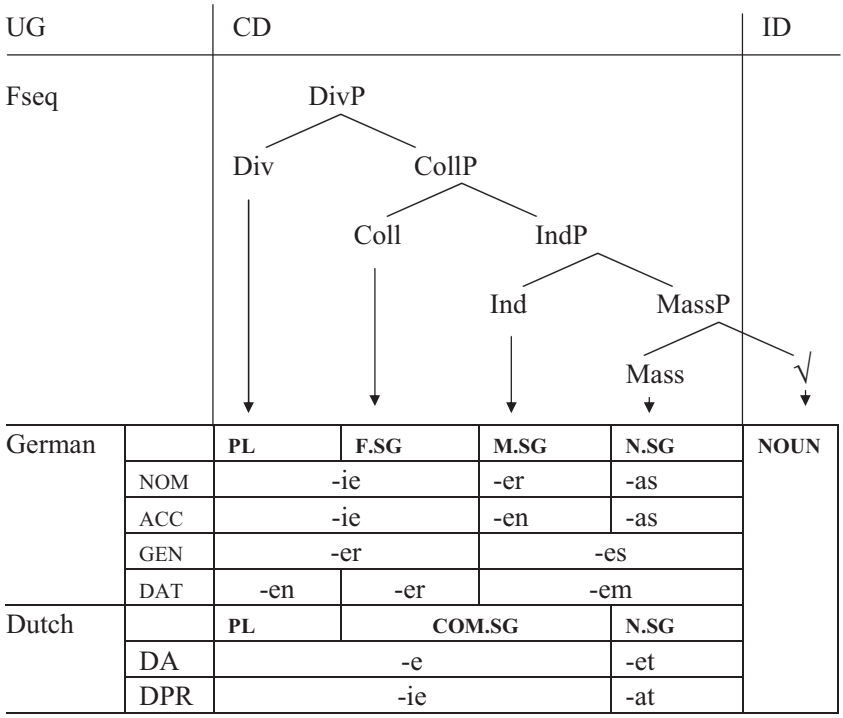
<table>
<tr><td>Semantic Class</td><td>female human > male human</td><td>animal ></td><td>bounded object/ abstract ></td><td>specific > mass</td><td>unspecific mass/ abstract</td></tr>
<tr><td>Personal Pronoun</td><td>feminine masculine</td><td colspan="3">masculine</td><td>neuter</td></tr>
<tr><td>Dem. Pronoun</td><td>common common</td><td colspan="3">common</td><td>neuter</td></tr>
</table>

Table 28: Audring's (2009) Individuation Hierarchy

The fundamental problem of such hierarchies is that they assume that humans can distinguish between unbounded, bounded and collective entities independently of the linguistic system and only use the linguistic system to encode them. In Chapter 3 I have argued that if we want to conceptualize the linguistic system not as a thought encoder but as a thought producer, we have to distinguish between encyclopedic knowledge and linguistic meaning, i.e., (in Borer's words) the molding of encyclopedic chunks into grammatical structure. It follows that there is no mass/bounded/collective distinction in the human mind independently of the linguistic system. It is only after syntax has molded the encyclopedic chunk into the respective phrase structure that this distinction becomes available to us in the first place and that we can use it to interpret our sensual input. Only then will we perceive masses/objects as bounded, unbounded or collective and/or as concrete or abstract. Additional distinctions, such as animacy and biological sex, are to be regarded as an exploitation of the distinctions that arise through the mechanisms of the language faculty.

With respect to grammar, it is sufficient to restrict the internal structure of the Classification Domain (CD) to the projections MassP, IndivP, CollP and DivP. The close historical relatedness of German and Dutch, the diachronic evidence from Dutch, the evidence of morphological syncretisms in the determiner and pronominal system of modern Dutch, and the gender mismatches in the use of personal and demonstrative pronouns reviewed in this section all support the assumption that the CD of Dutch is structured in the same way as the CD of German. Comparing both languages directly, we can summarize our discussion on the internal structure of the CD with the following illustration.

(38) Mapping the Classification Domain to number and gender morphemes in German and Dutch



The structure in (38) presents us with another advantage in understanding the relation between gender and number. The intimate relation between gender and number has been observed widely in the linguistic literature, and it was described most pointedly by Greenberg's (1963: 90) universal 36, which states that "[i]f a language has the category of gender, it always has the category of number", yet not necessarily the other way round. Gender therefore implies number. With this insight we can get to an explanation why gender and number

are always expressed on the same morpheme in German and Dutch and why singular constitutes a default value in these two languages (and probably other languages). All of the three gender classes conceptually imply singularity. Although a mass is unbounded, it constitutes one whole that is not split up into smaller individuals. The individuative constitutes a bounded mass and is therefore also a whole in itself. A collective that contains individuals also constitutes a whole in itself. The English word *human* serves as a helpful example to understand these conceptual differences. Its initial state in the derivation is the undefined stuff that makes up whatever it is that qualifies as human. This stuff then gets bounded to form an individual. This is the object that qualifies as human. From this a collective is created that contains all of the human objects, i.e., humanity. This raises the question as to how one particular of these human objects can be picked out to create the expressions 'a human', 'one human' or 'many humans'. Here I follow Borer's (2005a) assumption that in order for this to happen, the collective has to be broken down by Div into a plurality of countable individuals. The grammatical plural therefore does not result from multiplying an individual. Only after the creation of the plurality through division is it possible to pick out a quantity of one, two, some or all of the individuals. This picking out of a quantity happens in the next higher Universal Distinction Domain, which, adhering to Borer's (2005a) terminology, I will refer to as Quantity Domain in the next subsection. These insights allow us to view the singular on the morphemes that express gender as a default value that results from gender classifications. It is therefore a natural consequence of the underlying syntactic structure that gender and singular number are expressed on the same morpheme in German and Dutch articles and that plural number makes no gender distinctions. It will therefore not be necessary anymore to list SG as extra property next to F, M, and N as I have done so far.

Given the structure in (38) and the distribution of morphemes associated with it, the reader might wonder how we are supposed to deal with the Spellout of all the articles that in relation to the noun that they appear with don't exhibit the proper relation between a mass type and grammatical gender. Consider the following nouns in German and Dutch.

(39)		Dutch	German		
	a.	het huis	das Haus	N	'the house'
	b.	het raam	das Fenster	N	'the window'
	c.	het mes	das Messer	N	'the knife'
	d.	het boek	das Buch	N	'the book'

All of these nouns are count nouns and it is impossible to manipulate them in a way that would induce a mass noun reading. The first thing that I would like to draw the reader's attention to is the presence of the article. The standard assumption about article inflection in languages that have grammatical gender is that the gender of the noun is inherent to the noun and that the article inflects in accordance with this inherent gender. It is my opinion that this assumption is misguided. To put it in rather informal terms: if the gender of the noun is inherent, then why do children painstakingly have to learn the correct associations of article and noun. Why, in fact, do we never see the gender of the noun without the article revealing it to us? If we now take our insights about multiple gender assignment in Indo-European and Old Germanic languages into consideration, we can see that originally, there was no inherent gender of the noun. Gender was assigned to the noun by the article or a suffix. Consequently there could not be any inherent grammatical gender in the nouns of German and Dutch. Rigid article-noun pairs only started to arise after the erosion of the Indo-European gender system. I therefore conclude that the article inflection that we are observing in German and Dutch today is not the result of agreement of the article with the inherent gender value of a noun. What we are dealing with are morphemes that went through a freezing process after the breakdown a morphological system. In other words, with respect to gender inflection, the article-noun pairs that we encounter in German and Dutch are idioms, i.e., fixed expressions that have to be learned. The only exceptions are the few nouns that still display multiple gender assignment by the article which were discussed in the beginning of section 4.3.2.1 (see example 23). Given their idiomatic status, they don't adhere morphologically to the syntactic phrases they are spelling out. It is therefore that the neuter morpheme on the article in the examples in (39) has to be regarded as the idiomized spellout of IndP.

This line of argumentation points us to a promising path for future research. If article-noun pairs in modern German and Dutch are idiomatic, then we will have to ask the question whether there was a systematic process that brought about precisely the pairs that we are witnessing today and not others. Given the argument that the gender systems of German and Dutch are in a process of regrammaticalization, we should expect systematic patterns to arise in a diachronic investigation of a large sample of article-noun pairs. I will present two examples in support of this perspective. The first example is straightforward. The Old High German noun *lîb* could be paired with either a masculine or a neuter article. With a masculine article it would acquire the singulative meaning of 'body'. With a neuter article it would acquire the abstract and unbounded meaning of 'life' (cf. Leiss 2005a: 16). Today we find this distinction fixed in two separate article noun pairs: *der Leib* (the.M body) and *das Leben* (the.N life). The second example is a little more obscure. The modern

German noun *Buch* (book) is paired with a neuter article, but it carries a singulative interpretation in same way as its English correlate *book*. Given our previous example, we should expect that *Buch* would have come to be paired with a masculine and not with a neuter article. The Old High German noun *buoh* (book) is one of the most frequently attested nouns with triple gender assignment. When paired with a masculine article it acquires a singulative meaning. When paired with a feminine article, it acquires the meaning of 'collection of the books of the New Testament'. When paired with a neuter plural article it acquired a meaning of distributive plural in the sense of 'multiple individual chapters' (cf. Leiss 2005a: 16f, Forschauer 2003: 118f). It is important that Old High German and Middle German display gender distinctions on plural articles as well, with largely the same syncretism patterns that we have observed for the Gothic demonstrative pronoun *sa* in Table 22 (cf. Braune 2004: 247, Weddige 2007: 65). Gender distinctions in the plural declension paradigm disappeared in the transition from Middle to modern German. It follows that if we want to trace the development from triple gender assignment of Old High German *buoh* (book) to neuter gender on modern German *das Buch* (the.N book), we have to take into consideration the effects of the loss of gender morphology on plural articles. It might have happened that the erosion of plural gender morphology led to a gradual replacement with singular gender morphology.

We can see from this short discussion that further diachronic research into the development of the German and Dutch gender systems from multiple gender assignment to fixed article-noun pairs has great potential for a deeper understanding of the semantic dimension of gender and the interaction between gender and number.

With these remarks, I conclude the discussion of grammatical gender as a mass classifier and will now proceed to a very brief discussion of how it happened that biological sex came to play such a central role in the linguistic investigation of grammatical gender. I will show that this perspective is strongly linked to European colonialism in the 18th century and propose to erase the terms 'feminine', 'masculine' and 'neuter' from the technical vocabulary altogether.

4.3.2.3 Misleading Gender Terminology – How Did We Get There?

The linguistic terms 'grammatical gender' and the respective 'feminine', 'masculine' and 'neuter' are a result of the sexualistic theory of grammatical gender that came up in the 18th century and still finds its way sometimes into linguistic accounts of gender today. The most prominent and influential proponent of this theory was the German philologist Jacob Grimm. In the third

volume (1831) of his monumental work *Deutsche Grammatik* – a massive compendium of the grammars of the Germanic languages in all their individual historical stages – he establishes the theory that grammatical gender is a result of the 'fact' that our 'primitive' ancestors were equipped with an extraordinary power of sexual imagination based on which they assigned some sort of sexual meaning to every object they encountered. He formulates the following rule for sex-object-gender assignment: "the masculine presents the earlier, bigger, firmer, rougher, quicker, the active, agile, begetting; the feminine the later, smaller, softer, more silent, the suffering, receiving; the neuter the produced, the material, general, undeveloped, collective" (Grimm 1931: 359).[46] He assumes that it follows from this rule that *die Hand* (hand.F) is feminine and *der Fuß* (foot.M) is masculine since the hand is rather passive and smaller than the foot, while the foot is rather active and bigger than the hand (one immediately wonders, of course, how this reasoning is supposed to correlate with *die Faust*, the fist.F). This sexualistic theory of gender assignment to nouns was accompanied by the misuse of Latin *genus* (kind, species) which was translated into German *Geschlecht* (kind, species) in the 17th century, but came to adopt the meaning of biological sex in the 18th century. This led to a misinterpretation of the terms *masculinum*, *femininum,* and *neutrum*, which were now regarded as a link between grammatical gender and biological sex.[47] The fact that this view came to be formulated in the 19th century must not be regarded as accidental, for it rests on two fundamental beliefs that lay at the heart of 18th century Enlightenment philosophy. The first was the conviction of enlightenment philosophers that the development of humanity is telic, directed towards the goal of perfection. In this development the 'primitive' ancestors encountered by European colonists were regarded as the just-after-the-animal stage of this process, which they saw reflected in their alleged heightened sexuality. The second was the belief that the natural state of humanity can only be reflected in a patriarchal society in which women constituted the lifeless material out of which man repeatedly recreates himself until perfection is achieved.[48] It is therefore not surprising that someone like Jakob Grimm, who spent his life in an intellectual environment of this sort, would come up with a sexualistic theory about

[46] "das masculinum scheint das frühere, größere, festere, sprödere, raschere, das thätige, bewegliche, zeugende; das femininum das spätere, kleinere, weichere, stillere, das leidende, empfangende; das neutrum das erzeugte, stoffartige, generelle, unentwickelte, collective." (Grimm 1981: 359)

[47] For extensive discussion on the development of the sexualization of grammar, see Leiss (1994).

[48] For extensive discussion on societal power distribution during the Enlightenment period with respect to colonialism, education and medical treatment, see Hachem (2009).

grammatical gender, where masculine gender reflects activity, feminine gender reflect passivity and neuter gender reflects inanimateness. It is surprising, however, that this theory still finds its way into linguistic literature today and it sounds just as bad in 2006 as it did in 1831. Consider the gender assignment rules for Old Norse formulated in Trosterud (2006: 1445).

> There is a set of rules based on the extensions of biological sex, where prototypical male and female properties are extended to words with referents not connected to sex. When (*sic!*) longish objects and peaks are perceived as masculine, whereas round objects and holes are perceived as feminine, on a par with the difference between the male and the female body (men having straighter and women more roundish hips) and the male and the female sexual organs. (Trosterud 2006: 1445)

In the context of such formulations it is helpful to mark the words of Grimm's adversary Karl Brugmann (1989) who reminds us that if the sexual imagination of our ancestors was such that they could not help projecting sexual imagery on every object they encountered and coding that imagery in grammar, then

> "the state of mind of our prehistorical foreparents must have been fundamentally different from the state of mind of their offspring" in the sense that it would have to be classified as a "pathological state of the historical human soul" (Brugmann 1989: 101).[49]

It is a great misfortune, that the misleading terms of the sexualistic theory of grammatical gender have remained with us until today, perpetuating the implicit and largely unquestioned assumption that the Germanic gender system is primordially sex-based and obscuring the much more likely situation that gender is the morphological expression of a remarkable linguistic mechanism that allows the human mind to put undefined stuff into computable shape. The empirical inadequacy and the racist and sexist history of terms 'feminine', 'masculine', and 'neuter' make the term 'gender' the greatest and most wrongful misnomer in the history of our field.

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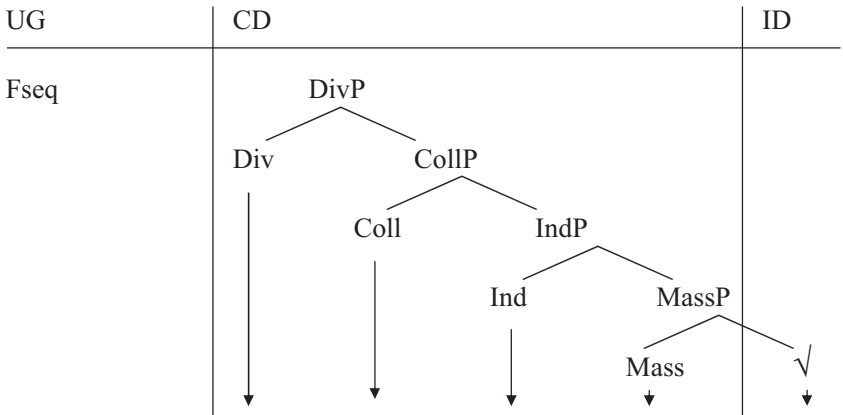
[49] „Da müsste die Geistesverfassung unsrer vorgeschichtlichen Ureltern von der ihrer Nachkommen wesentlich verschieden gewesen sein: sie fände höchstens in einem gewissen pathologischen Zustande der geschichtlichen Menschenseele etwas vergleichbares." (Brugmann 1989: 101)

As a consequence, I choose not to adhere to this established terminology anymore when referring to my own work (not the work of others). I will therefore rename the morphological expression of MassP, IndP and CollP with the terms ‘mass type 1’ (=former neuter), ‘mass type 2’ (=former masculine) and ‘mass type 3’ (=former feminine). The respective abbreviations are MT1, MT2 and MT3. This gives us the following revised illustration of the Classification Domain in German and Dutch. (Note that in line with the insights at the end of the previous subjection, I will not list singular as a property separate from mass type.)

(40) Mapping the Classification Domain to mass type morphemes in German and Dutch



German		**PL**	**MT3**	**MT2**	**MT1**	**NOUN**
	NOM	-ie		-er	-as	
	ACC	-ie		-en	-as	
	GEN	-er		-es		
	DAT	-en	-er	-em		
Dutch		**PL**	**MT3**	**MT2**	**MT1**	
	DA	-e			-et	
	DPR	-ie			-at	

This new way of categorizing gender gives us the advantage of getting a clearer picture of ‘gender’ in Dutch. Now, we don’t have to deal with the confusing difference between common vs. neuter gender on determiners and a three-way gender distinction on pronouns anymore. We can see now that what we have called common gender until recently is really a morphological syncretism between PL, MT3 and MT2 that only holds for Dutch determiners and not for

personal pronouns and possessives because those have been reanalyzed into expressing also biological sex before the erosion of the Dutch gender system.

4.3.3 The Quantity Domain

It is a standard assumption in the literature that quantificational determiners, among which determiners such as *all*, *every,* and *some*, as well as the cardinal numbers and the indefinite article have to be situated below the DP-layer because they cannot produce a definite expression. The standard analysis is that the structural position of these determiners is the quantity-denoting phrase NumP, which is generally assumed to be located between DP and NP (cf. Ritter 1991, Lyons 1999: 298-303, Epstein 1999: 64, Borer 2005a: 96-120, among others). On the basis of this standard view of quantificational determiners, it was my initial goal to write this section about what I would call the Quantity Domain (QD) of the DP. Yet, as I was advancing in my research, it turned out that a proper treatment of quantificational determiners in the theoretical account proposed here would take us too far away from the data at hand. This problem results from the fact that it is not possible to propose one phrase comparable to NumP into which all quantifiers can be merged in a nanosyntactic sequence of functional projections. Every head in the Fseq has to be endowed with invariable atomic semantic content. This means that an extra phrase has to be motivated for each degree of quantity that can be denoted by a quantificational determiner. In addition, there has to be a profound discussion about the difference between quantifiers that denote degrees (‘some apples’), quantifiers that count (‘several apples’), and counting by cardinal numbers (‘three apples’) as well as the difference between quantifiers that denote groups as a whole (‘all apples’) and each individual of a group separately (‘every/each apple’). While all of these quantifiers are located in the same phrase in Borer (2005a: 96f), for example, Zimmermann (2002: 9-13), among others, argues that cardinal numbers should be regarded as adjectives that are adjoined to NP.

This short discussion shows that the investigation of quantifiers with the theoretical tools used in the account here would lead us into a vast area of research that cannot be accommodated within the scope of the present study. I will therefore have to leave all questions concerning quantification for future research.

4.3.4 The Anchoring Domain

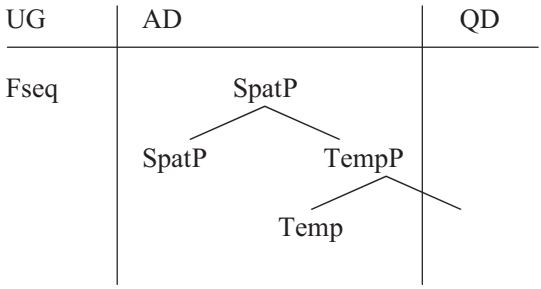
Following the conceptualization of the universal spine in Wiltschko (2014), I will assume that the next higher Universal Distinction Domain is the *Anchoring Domain* (AD), which constitutes the domain where deixis, i.e., anchoring in space and time is established. Deixis is a typical but not a necessary property of d-items. While English *this* and *that*, for example, distinguish between proximate and distal, English *the* does not locate the noun that follows it in space or time. It is also possible for a d-item to make a spatial or temporal reference without giving further information about proximity/distance or past/future. The only d-item in present-day German that clearly expresses distance in addition to location is *dort* (there). Dutch d-items display the proximate/distal distinction much more prominently than German d-items. As I have shown in section 4.2, all Dutch demonstrative pronouns, spatial adverbs and temporal adverbs make distinctions between distal and proximate.

The intimate relation between the DP-layer and deixis has been observed for many languages and discussed widely in the literature (cf. Gillon 2006, 2009, Leu 2008, Boef 2013, Wiltschko 2003, 2014, among others). Many proposals have been formulated with the goal of associating the DP-layer with deixis without conflating the two. In my analysis I will propose that the close relation between the DP-layer and deixis results from structural adjacency. The AD constitutes the domain immediately below the UDD in which the DP-layer is located.

With respect to the internal structure of the AD, I will assume that the Fseq of the AD contains only two phrases: a Spatial Phrase (SpatP) and a Temporal Phrase (TempP). With respect to spatial anchoring, it is a frequently formulated assumption in the study of the internal structure of pronouns and determiners that deixis is an inherent lexical property of these items (cf. Rooryck 2003, Boef 2013: 185-189, Wiltschko 2009: 30, Barbiers 2013). This assumption is based on the use of the respective pronouns. A Dutch speaker, for example, uses the demonstrative *dit* to refer to something that is close and *dat* to refer to something that is distant. A typical technical implementation of this observation is to postulate a location feature in the lexical feature matrix of the respective item and assigning a proximate or distal value to this feature. In contrast to this standard assumption, I defend the hypothesis that the distinction between proximity and distance is not created by the linguistic system, but grounded in visual perception and parasitically expressed with linguistic means. Following the discussion in Lyons (1998: 17-21), I will argue that the contrast between proximity and distance, that we can observe most prominently on Dutch d-items, is held in place by convention and not by grammar. In the same way that mass type morphology has come to be used parasitically to express biological sex, the morphemes that spell out the AD are used to express our perception that some

things are close to us while others are further or far away. I will therefore not include something like a Proximate or Distal Phrase into the Fseq of the AD. The internal structure of the AD that I will defend is illustrated in (41).

(41) The Fseq Anchoring Domain of German



Let's now review the linguistic evidence against the claim that the contrast between proximate and distal is not a linguistic distinction. As mentioned above, the hypothesis that I will defend is that the proximate/distal distinction is not a property that is inherent to d-adverbs and demonstratives but one that is kept in place by convention, which conserves contrastive pairs of proximate and distal d-items.

In his investigation into the anaphoric use of the Dutch demonstrative pronouns *die* (distal) and *deze* (proximate), Comrie (1997: 52f) shows that the proximate/distal distinction has no impact on the ability of these demonstratives to pick out a linguistic antecedent. The difference between the use of *die* and *deze* as anaphoric demonstratives is a matter of register. *Die* is used in spoken language, while the use of *deze* is almost exclusive to written language. Consider the following example.

(42) a. Er is een nieuwe film in de bioscoop. **Die** wil ik zien.
There is a new film in the cinema DPR want I see.
'There is a new film in the cinema. I want to see it.'

b. Er is een nieuwe film in de bioscoop. **Deze** wil ik zien.
There is a new film in the cinema DPR want I see.
'There is a new film in the cinema. I want to see it.'

The example shows that there is no possibility for the film to which the demonstrative refers to be further away from the speaker in example (42a) and further away from the speaker in example (42b). The proximate/distal distinction seems to become relevant only when the objects referred to by the speaker can

clearly be located in the utterance context with respect to the speaker, which suggests that it is a matter of convention and not of grammar. If proximate and distal were inherent properties of Dutch demonstratives, they would arise independently from possible pointing gestures.

Further evidence that the proximate and distal are coded in the internal structure of Dutch d-items comes from the diachronic development of these properties. In the discussion about the regrammaticalization of the mass type system in German and Dutch in section 4.3.2, we observed that linguistic distinctions and their expression in morphology are highly stable and that the regrammaticalization of a linguistic distinction within a certain morphological system can take way more than a thousand years to complete. Most importantly, the process of regrammaticalization shows that the linguistic distinction itself is not getting lost, but that a language is going through a process of rearrangement, in which the distinction gets expressed in a new way. If the proximate/distal distinction were a linguistic distinction, we would expect a similar degree of rigidity towards change as well as symptoms of regrammaticalization when certain elements are no longer able to express the distinction. Both predictions are not borne out.

The first piece of evidence comes from the simple and complex demonstrative pronouns (DPR), discussed in section 4.2. I have shown that the simple DPR *die* in Dutch displayed no sensitivity to the proximate/distal distinction until the Middle Dutch period. *Die* only came to inhabit the place of the distal DPR as a consequence of two simultaneous processes. The first process was the breakdown of the case system, that caused a clearly visible split between the phonologically weak definite article *de* and the phonologically strong DPR *die* after the Middle Dutch period. The second process was the loss of the Middle Dutch distal DPR *ghene* from the paradigm of complex DPRs. The loss of *ghene* left the slot of the distal DPR empty, which could only be filled in by the simple DPR *die* because *die* was no longer homophonous with the definite article, as it was before the split, and as the German simple DPR *der* still is today. While this might seem like a (surprisingly fast) process of regrammaticalization, we can see from the development of the complex German DPR *dieser* (formerly proximate) next to German *jener* (distal) that the loss of the contrast between a proximate and a distal DPR need not necessarily cause another element to fill the empty slot. It is just as possible that the contrast simply gets lost. This is precisely what we see for the use of German *dieser* in spoken language today. *Dieser* is insensitive to the proximate/distal distinction and expresses one or the other depending on context (cf. section 4.2.4).

Further evidence in this direction is provided by the flexibility of the German d-adverb *da*. In section 4.2.3, we have seen that *da* is not only ambiguous between spatial and temporal deixis but also insensitive to the

proximate/distal distinction when used in a spatial sense and restricted to past events when used in a temporal sense. In this discussion, we have also seen that Dutch has no d-adverb of comparable flexibility. In order to understand this difference, we have to take a look at the historical development of German *da*. The historical precursor of modern German *da* (there) and Dutch *daar* (there) is the Old Germanic *thar*, which is identical in Old High German (OHG) and Old Dutch (OD) (cf. Miller 2004: 16, DWB: da, DWDS: da). In OHG the spatial expressions corresponding to modern German *wo* (where), *da* (there) and *hier* (here) inflected for both accusative and dative case, yielding the accusative forms *thara*, *wara*, and *hera* and the dative forms *thar*, *war*, and *hier*. In the transition from OHG to Middle High German (MHG), these spatial expressions went through a process of case erosion, which caused the accusative forms to lose the *–a*, resulting in a collapse of accusative and dative to *dar*, *war*, and *hier*. This reduction affected both German and Dutch, where the OD *thar* developed to Middle Dutch *daer*. Yet, in contrast to Dutch, the German spatial expressions *dar* and *war* went through a second process of phonological reduction in the MHG period, which the loss of the *–r,* resulting in what we know as German *da* today (cf. Miller 2004: 16f, DWDS: da). The final -*r* is only retained as a linking element on pronominal adverbs that contain a preposition beginning in a vowel, such as *darüber* (lit. there-over).

In parallel to the distinction between spatial *daar* (there) and temporal *toen* (then) in modern Dutch, both OD and OHG made a distinction between spatial *thar* (there) and temporal *tho* (then), which constitutes the historical precursor of modern Dutch *toen*.[50] Like Dutch *toen* today, OHG/OD *tho* could only refer to events in the past. While *thar* and *tho* remained clearly distinguishable as *daer* and *doe* in Middle Dutch, the loss of the final -*r* on *dar* in MHG yielded the phonologically weaker contrast *da* and *do*. This led ultimately to a phonological merger of spatial -*a* and temporal -*o*, resulting in the form *da* that we know today. With respect to the structure presented in (41) above, I will interpret the historical development of OHG *thar* and *tho* to modern German *da* as a process in which the two morphemes, -*ar* and -*o*, that used to spell out SpatP and TempP, respectively, merged to one morpheme, -*a*, that spells out both phrases. While this fluidity between a spatial and a temporal interpretation is expected, it is unclear why *da* also should become insensitive to the proximate/distal distinction as a result of this process. As we have seen in section 4.2.3, its interpretation with respect to spatial deixis is entirely dependent on the context. When contrasted with *hier* (here), it acquires a distal reading.

[50] The addition of the -*n* morpheme in Dutch *toen* only occurred in the 14th century, presumably due to phonological adjustment to *dan*. It was only in the 17th century that *toen* spread into the standard variety of Dutch (cf. EB: toen).

When contrasted with *dort* (there), it acquires a proximate reading. There seems to be no link between the historical development that led to the ambiguity of *da* between spatial and temporal deixis and the loss of the distal interpretation. In section 4.3.2 we have seen that the same observation holds for the contrast between the simple German DPRs *dies* and *das,* where *dies* is the inflectionless neuter form of *dieser* and *das* is the singular neuter form of *der*. On their own, they display no inherent interpretation of proximity and distance, yet when contrasted directly, *dies* acquires a proximate and *das* a distant reading. The fact that German d-adverbs and DPRs show a wide-spread insensitivity to the proximate/distal distinction suggests that we are not dealing with a truly linguistic problem, but with a dissolving convention which makes use of linguistic means to express a non-linguistic distinction. The fact that we are not observing the same insensitivity for DPRs and d-adverbs in Dutch suggests that the same convention has remained firmly in place there.

A further problem for the assumption that the proximate/distal distinction in German and Dutch is a linguistic distinction is that there is no morphological evidence to support it. We do not find any morphological cues that point to a grammatical coding of proximity and distance. While it is possible to trace the -*ies*-/-*es*- morpheme of German *dieser* and Dutch *deze* back to the locative particle -*s*/-*se* and the -*ann*/-*an* morpheme of German *dann* and Dutch *dan* to the locative particle -*n*, there is no evidence to support the assumption that these particles were or are related to expressing closeness. The only d-adverb that might be argued to have an inherent distal semantics is the German spatial adverb *dort*.[51] *Dort* is a descendant of the OHG *tharot,* which was originally a pronominal adverb consisting of *thar* and the morpheme -*ot* (the origin is unclear, presumably a locative particle or a preposition) with the literal meaning of 'there-to' (cf. DWB: DORT, DWDS: dort). It has no correlates in other Germanic languages except for Old Saxon *tharod*. In the MHG period, *tharot* was shortened to *dort* and reduced to a spatial adverb. Given that the origin of -*ot* is unclear, we cannot know whether it was interpreted as distal due to its conflation with *thar* or whether it carried distal semantics on its own. Yet, even if -*ot* did add its own distal semantics to the compound, then the distal interpretation of *dort* today would be the result of a preposition/locative particle

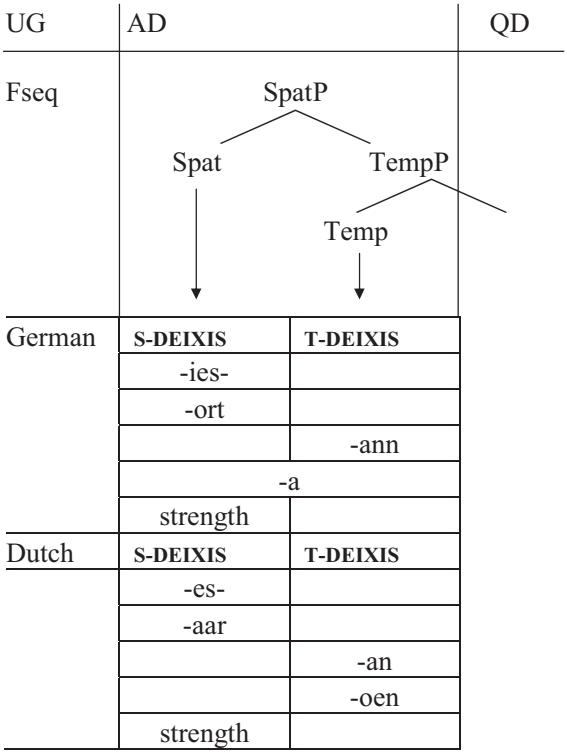
[51] Synchronically, it might seem that *dort* should be decomposed in to *d*- and -*ort*, which is homophonous with the German noun *Ort* which has the meaning of place/location. It is unfortunately not possible to establish whether the morpheme -*ort* and the noun *Ort* are of the same origin. The noun *Ort* stems from OHG *ort*, which referred to the outermost point in space or time, such as the point of a sword or the end of an event. The morpheme -*ort* seems to stem from a locative particle or preposition -*ot*. It is not clear, however, whether this particle had an inherent distal semantics in the same way as OHG *ort*.

that imported its own semantics into the compound, which has become structurally opaque due to morphological reduction. It follows that even under these circumstances the distal meaning would not be the spellout of a phrase in the anchoring domain.
This line of argumentation is supported, on a more general level, by the discussion of the relation between demonstratives and deixis in Lyons (1999: 17-21). Lyons argues that the view that demonstratives are inherently specified for deictic distinctions should be rejected because deictic distinctions cannot be shown to hold as fixed properties of demonstratives cross-linguistically. He shows, for example, that Egyptian Arabic only has one demonstrative pronoun *da* (not be confused with the German *da*) which is clearly distinct from the definite article *ʔil*, but makes no distinction between proximity and distance. The same holds or the French demonstrative *ce*. In French, proximity and distance can be expressed by adding either the proximate deictic suffix *-ci* or the distal deictic *-là* to a noun. While these deictic suffixes can only appear in combination with the demonstrative *ce*, the demonstrative *ce* itself need not to appear in combination with the deictic suffixes. *Ce* can be used independently and consequently contain no information about the location of the referent. From these observations Lyons (1999: 21) draws the conclusion that the proximate/distal distinction arises inferentially from the location of the objects in the utterance context. This supports my hypothesis that the expression of proximity and distance with linguistic means constitutes a parasitic use of the language system to express a non-linguistic distinction based in visual perception and conserved in certain particular languages by convention.

Given these arguments, I propose the following syntax-morphology relations for the anchoring domain. The German and Dutch morphemes *-ies-* and *-ez-* of *dieser* and *deze* spell out SpatP. The Dutch morpheme *-aar* of *daar* and the German morpheme *-ort* of *dort* spell out SpatP as well. The German and Dutch morphemes *-ann-* and *-an* of *dann* and *dan* as well as the Dutch morpheme *-oen* of *toen* spell out TempP. The German morpheme *-a* of *da* spells out SpatP and TempP together. For the simple DPRs German *der* and Dutch *die*, i.e., the d-items that are capable of spatial anchoring but don't display an anchoring-specific morpheme, I will assume that SpatP is spelled out by phonological strength. As Leu (2008: 17) has noted, German *der* can only be interpreted as a DPR when it is phonologically strong. When it is weak, it is interpreted as a definite article. In section 4.2.2 we have seen that this difference in phonological strength caused the split between Dutch *de* as a definite article and *die* as a simple DPR. Leu (2008: 20-33) argues that the phonological strength on the simple DPR in German is the realization of a silent locative adjective that endows the DPR with a space-related interpretation. My take on the difference

between the simple DPR and the definite article in German and Dutch is very similar. Based on the Fseq defined for the AD in (41) above, I assume that the difference in phonological strength between the definite article and the DPR is a reflection of a difference in their internal structure. While the definite article does not project an anchoring phrase, the DPR does. This phrase is SpatP. This analysis extends to the internal structure of the simple DPR *dit* in Dutch, which I have argued to consist morphologically of a *d*-morpheme and an expletive. *Dit* only occurs as a phonologically strong element, which I take to reflect the Spellout of SpatP. Although German inflectionless *dies* has the same historical origin as Dutch *dit*, I will assume that the lengthening of the vowel from OHG *thiz* to modern German *dies* is a reflection of the morphological adjustment of *thiz* to the declension paradigm of *dieser* based on the locative morpheme -*ies*-. I will therefore take the -*ies*- morpheme in *dies* to spell out SpatP as well. The distribution of German and Dutch morphemes in the anchoring domain of d-items is visualized in the following illustration.

(42) Mapping the Anchoring Domain to deictic morphemes in German and Dutch

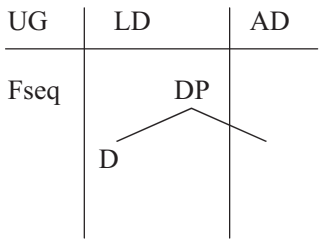


A short comment on the internal structure of d-adverbs is in order. It is of course not possible for d-adverbs to project any phrases below the AD. D-adverbs don't take complements. TempP is therefore the lowest phrase in their internal structure and the branch between TempP and Temp has to be unary. The binary branch that connects the AD and the QD is only projected when a quantifier appears between the determiner and the Classification Domain.

4.3.5 The Linking Domain

Following the insight of Wiltschko (2014) that the relation between a referent and the linguistic context is established in the highest domain of the structure, I will assume that the highest and therefore final Universal Distinction Domain of the DP is the *Linking Domain* (LD). The task of the linking domain is to connect any given d-item to the linguistic context. The LD is the place where a d-item gets connected to a referent that is present either in the linguistic or in the utterance context, i.e., a definite expression is created. I will assume that the LD of the DP consists of one phrase, the DP itself, and that it is the D-head that is responsible for establishing definiteness. I therefore propose the following internal structure for the LD of d-items in German and Dutch.

(43) The Linking Domain



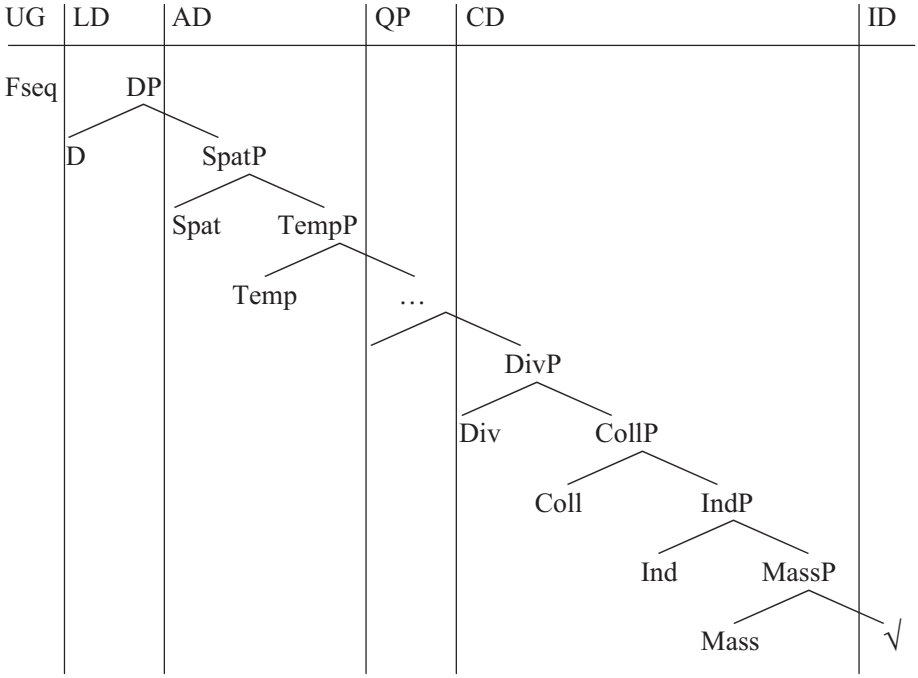
The creation of definite reference is a long-standing topic in the linguistic literature and has received many different implementations. A classic implementation (cf. Borer 1989, 1999, Siloni 1997) is to conceive of definiteness as a feature of D^0. In order to receive a definite interpretation, a noun has to be marked with a [+def] feature which is then checked against the feature on D^0. Lyons (1999: 298-303) proposes that D^0 itself carries the meaning of definiteness. Leu (2008: 15) conceives of the *d*-morpheme as a definiteness marker. Gillon (2009: 181-188), Wiltschko (2009: 31) and Heim (2011) argue that definiteness cannot be an inherent property of D^0 but that it is a form of interpretation that arises through the nature of the linking relation that D establishes with the context. Gillon (2009: 188-209) implements this linking

relation with the mechanism of domain restriction. Boef (2013: 48f) argues that D^0 can be either definite or indefinite by assuming a referentiality feature in the feature matrix of every pronoun that projects to a DP.

Given the number and diversity of proposals to create definite reference, it will not be possible to go through the individual proposals and evaluate them within the scope of this dissertation. It is important to be aware that the only necessary assumption for my proposal of the internal structure of DP and is that definiteness can be established in the LD, i.e., when D^0 is merged into the structure. The precise mechanism by which this is implemented has no consequence for any of the assumptions made in this chapter or for the analysis of the multifunctional behavior of d-items. I will therefore remain neutral about the technical implementation.

Having reached the Linking Domain, we arrive at the full functional sequence of syntactic phrases within the DP.

(44) The Fseq of the DP



4.4 Interim Summary

Before I proceed to the analysis of the internal structure of each individual d-item discussed in this chapter, I would like to give a short summary of the main insights of this chapter which underlie the analysis of the internal structure.

The groundwork for the analysis was laid in section 4.2, where I gave a detailed description of the morphological makeup and the historical development of the d-items of German and Dutch. The first observation that we made in this section is that the inflectional paradigm of German determiners displays noticeable syncretisms between plural and feminine singular as well as between masculine and neuter singular. We also saw that the same syncretisms are present in Dutch, although they are much less visible today due to the erosion of the case and gender declension paradigms. With respect to the individual d-items of German and Dutch, I showed that the definite article in German (*der*) and Dutch (*de*) is phonologically weaker than the simple demonstrative pronoun (*der*/*die*), that complex demonstrative pronouns in German (*dieser*) and Dutch (*deze*) contain a locative morpheme (-*ie*s-/-*ez*-) and that German demonstrative pronouns and d-adverbs are much less sensitive to the proximate/distal distinction than Dutch ones.

Based on the observations made in section 4.2, in section 4.3 I motivated a functional sequence for the internal structure of d-items in German and Dutch. This sequence started out in section 4.3.1 with the idea that what is traditionally regarded as an NP arises at the end of the derivation through the functional structure that is built on top of a chunk of encyclopedic knowledge. That chunk enters the language system as a root through the Identification Domain. In section 4.3.2 I argued that this root needs to be classified into a certain kind of computable object by defining its mass type as mass, individuative or collective. Based on the results of historical investigations into the gender system of Indo-European and Old High German as well as other old Germanic languages, I argued that grammatical gender on a noun is not an inherent property of that noun but a property assigned to the noun in order to produce one of the three mass types. Based on this argument, I proposed a Classification Domain which decomposes into the functional heads Mass, Ind, Coll and Div where the first three are responsible of instantiating one of the respective mass types while Div serves to create a plurality by breaking down a collective into its individual members. From this structure I derived the declension paradigm of German and Dutch determiners and German 3rd person personal pronouns. I furthermore showed that the structure correctly predicts the syncretisms found in the declension paradigm of Gothic demonstrative pronouns and personal pronouns which inflect for three genders in the plural as well. Following this discussion I proposed to dispense with the notion of ‘grammatical gender’ in linguistics altogether due to the sexist and racist history of the term and the fact it has led

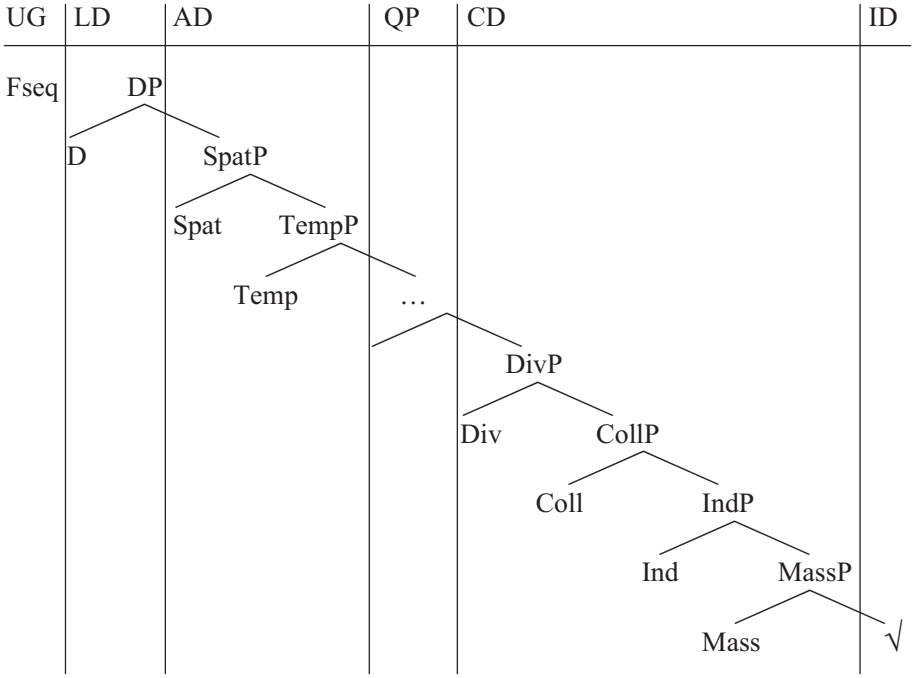
linguists until today to propose sex-based theories of grammatical gender. I consequently introduced the term 'mass type' to replace the term 'grammatical gender'.

Following the discussion of the Classification Domain, I proposed in section 4.3.3 that the next higher domain of the DP is the domain where the quantity of the object carved out in the classification domain is defined. I followed prominent proposals in the literature in the assumption that quantifiers must be located between the DP-layer and what is traditionally regarded as the NP-layer. An in-depth discussion of the positioning of quantifiers in a functional sequence of the Quantity domain had to be left for future research.

In section 4.3.4 I argued that the next layer of the internal structure of the DP is the layer where spatial and temporal deixis is established. I called this domain of the DP the Anchoring Domain. One of the main arguments of the discussion was that the proximate/distal distinction is not encoded in grammar but held in place by convention. I then took the locative morpheme -*ies*-/-*ez*- of the complex demonstrative pronoun in German and Dutch and the locative morpheme -*ann*/-*an* on the temporal adverb *dann*/*dan* as evidence for the existence of the Anchoring Domain as such and, more specifically, of a Spatial Phrase (SpatP) that spells out local deixis and a Temporal Phrase (TempP) that spells out temporal deixis. I furthermore argued that simple demonstratives (*der*/*die*), which contain no location-related morpheme, spell out SpatP through phonological strength. It is the presence of SpatP that makes the simple demonstrative pronouns of German and Dutch deictic, while the definite article, which has no projections in the Anchoring Domain, is non-deictic.

In section 4.3.5 I have proposed that the highest Universal Distinction Domain of the internal structure DP is the Linking Domain, which contains only one phrase: the DP. I followed the standard assumption in the literature that the DP-layer is the place where definite reference is established. Yet I remained neutral about the specific implementation of definiteness. Summarizing all the proposals and assumptions made in this chapter, I presented the full functional sequence of the DP which is repeated below.

(45) The Fseq of the DP



Before proceeding to the analysis of each individual d-item discussed in this chapter, I would like to give a short comment on an issue that has come up a number of times in the reviewing process of this dissertation. This issue concerns the selection problem. It was pointed out to me that there seems to be no definitive reason why TempP should select for the highest phrase of the Quantity Domain. This is indeed true. The lack of motivation for certain instances of selection is connected to the more general fact that no framework in Generative Grammar has ever managed to solve the selection problem. While there have been established elaborate mechanisms, such as feature checking, in order to make selection happen, none of these mechanisms provides a reason why the order of phrases is the way it is. If I propose an uninterpretable N-feature on V in order to trigger the merging of arguments into the VP (cf. Adger 2003: 91), then I have not given a reason for why that should happen. I have simply restated the problem since the next question would be 'Why does V have an uninterpretable N-feature?' and the answer would be 'Because otherwise we don't get the arguments to merge into VP'. This pertains to all category-selection features proposed in minimalist syntax. It is equally unhelpful to attribute the ordering to the expressive needs of the interfacing systems and propose that a

certain order of phrases arises in syntax because this is how the conceptual system would like to have it (cf. Chomsky 2004: 110, 2007: 11). It follows that, in the same way that we can ask why TempP should select a quantity-related phrase or a phrase from the Classification Domain (when no QD is projected in the internal structure of an individual d-item), we can ask why T should ever select for *v*P and why C should ever select for T and why it has to happen in that order. The fact is: nobody knows. It is therefore that at the current point of development in syntactic theory, selection has to be stated by stipulation.

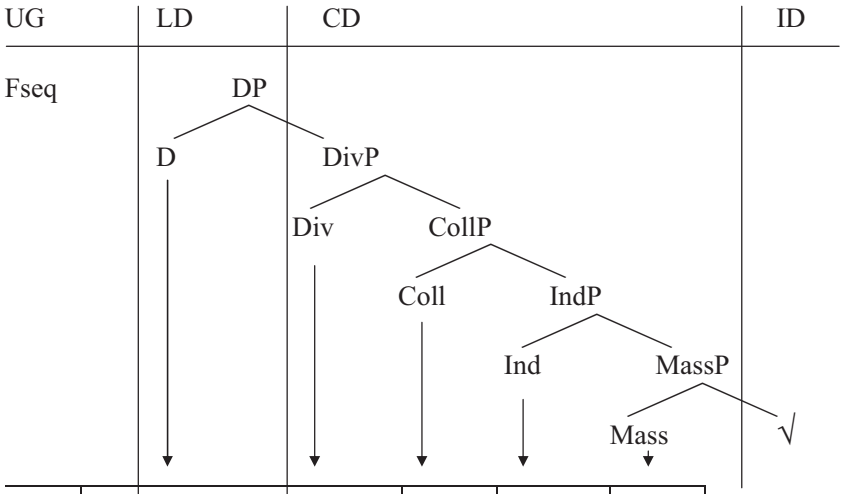
4.5 The Internal Structure of German and Dutch D-Items

Based on the insights, arguments and conclusions formulated in this Chapter, I will now provide the illustrations of the internal structure of each individual d-item discussed in section 4.2.

4.5.1 Definite Articles: German *der* and Dutch *de*

The analysis in the previous sections of this chapter has shown that the definite articles German *der* and Dutch *de* consist of the *d*-morpheme and a morpheme that expresses number and mass type. This yields the following structures.

(46) The internal structure of German *der* and Dutch *de*

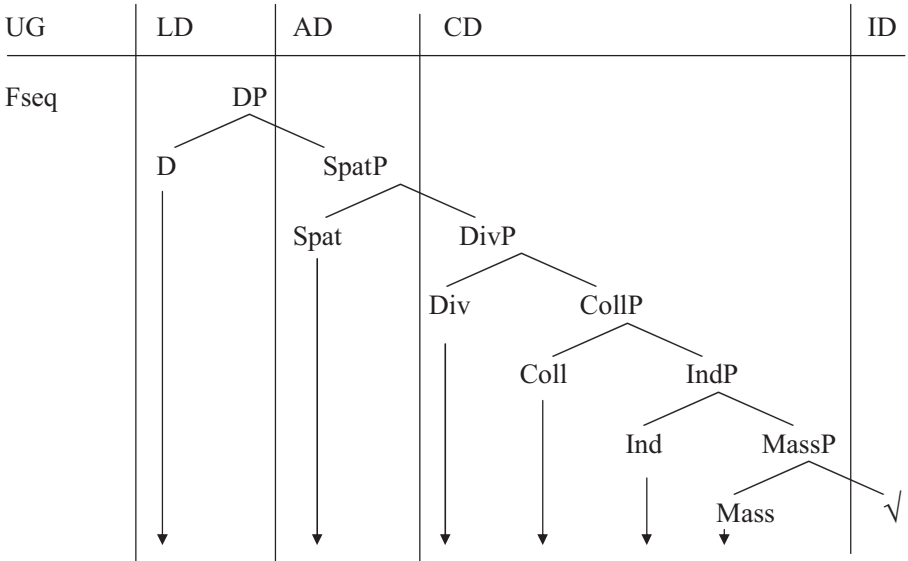


Ger		**D**	**PL**	**MT3**	**MT2**	**MT1**
	N	d-	-ie		-er	-as
	A	d-	-ie		-en	-as
	D	d-	-en	-er	-em	
	G	d-	-er		-es	
Du		**D**	**PL**	**MT3**	**MT2**	**MT1**
		d-/h-	-e			-et

4.5.2 Demonstrative Pronouns: German *der*, Dutch *die* and Dutch *dit*

For the internal structure of simple DPRs German *der*, Dutch *die* and Dutch *dit*, I have argued that they consist of a *d*-morpheme, which spells out both DP and SpatP and a mass type morpheme. The structures are given in (47).

(47) The internal structure of German *der*, Dutch *die*, and Dutch *dit*

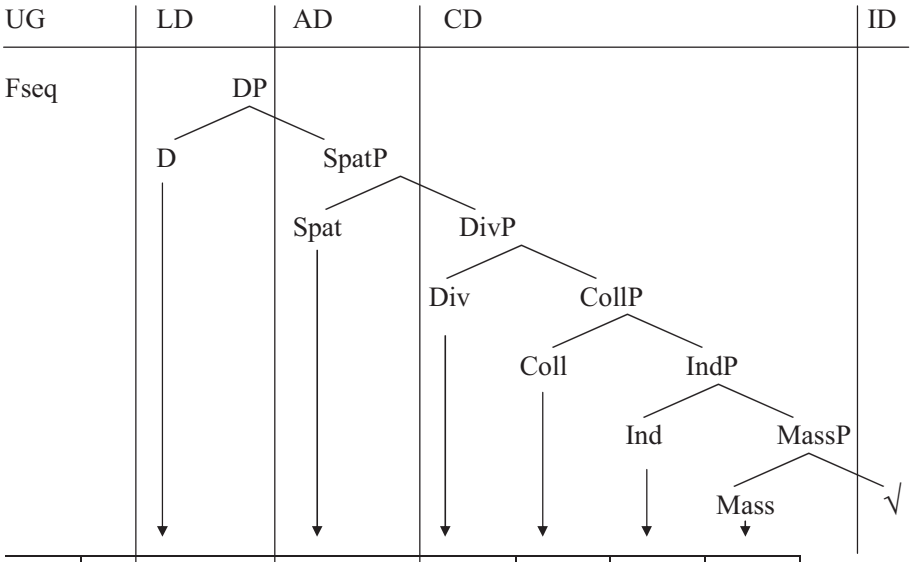


Ger		**D**	**S-DEIXIS**	**PL**	**MT3**	**MT2**	**MT1**
	N	d-	strength	-ie		-er	-as
	A	d-	strength	-ie		-en	-as
	G	d-	strength	-er		-es	
	D	d-	strength	-en	-er	-em	
Du		**D**	**S-DEIXIS**	**PL**	**MT3**	**MT2**	**MT1**
		d-	strength	-ie			-at
		d-	strength				-it

4.5.3 Demonstrative Pronouns: German *dieser* and Dutch *deze*

I have argued that the complex DPRs German *dieser* and Dutch *deze* are built from a *d*-morpheme, that spells out DP, a *-ies-*/*-ez-* morpheme, that spells out SpatP, and a mass type morpheme, that spells out classification. This gives us the following structures.

(48) The internal structure of German *dieser* and Dutch *deze*

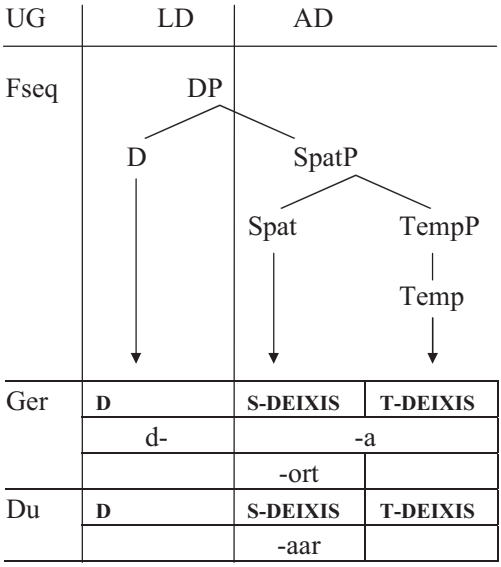


Ger		**D**	**S-DEIXIS**	**PL**	**MT3**	**MT2**	**MT1**
	N	d-	-ies-	-e		-er	-es
	A	d-	-ies-	-e		-en	-es
	G	d-	-ies-	-er		-es	
	D	d-	-ies-	-en	-er	-em	
Du		**D**	**S-DEIXIS**	**PL**	**MT3**	**MT2**	**MT1**
		d-	-ez-	-e			

4.5.4 Spatial Adverbs: German *da*, German *dort* and Dutch *daar*

In discussion of the anchoring domain, I have argued that the spatial d-adverbs German *dort* and Dutch *daar* consist of a *d*-morpheme, that spells out the DP-layer, and a morpheme that spells out SpatP of AD. I have furthermore defended the hyptothesis that here is no coding of the proximate/distal distinction in syntax. The spatial and temporal adverb *da* can spell out both SpatP and TempP of the AD depending on whether it is used with a spatial or a temporal reading. This yields the structures in (49).

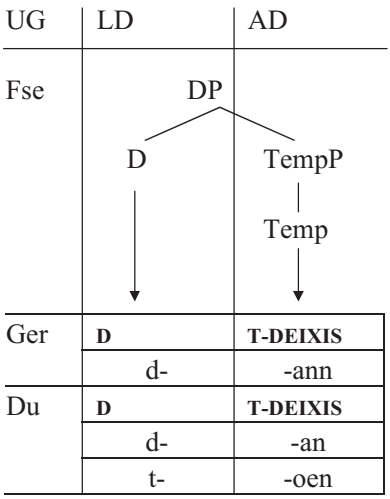
(49) The internal structure of German *da*, German *dort*, and Dutch *daar*



4.5.5 Temporal Adverbs: German *dann*, Dutch *dan* and Dutch *toen*

The temporal adverbs German *dann*, Dutch *dan* and Dutch *toen* are constructed from a *d*-morpheme and a morpheme that spells out TempP of the AD. The internal structures of the temporal adverbs are given in (50).

(50) The Structure of German *dann* Dutch *dan* and Dutch *toen*



4.6 Summary

In this chapter I have analyzed the internal structure of d-items in German and Dutch. The analysis started with empirical observations of the morphological makeup and the historical development of the d-items of German and Dutch. Combining the theoretical insights of Chapters 2 and 3 with the data presented in section 4.2, in section 4.3 I motivated the functional sequence of the DP starting with a root in the Identification Domain, followed by functional projections related to mass distinctions and number in the Classification Domain, functional projections for the expression of spatial and temporal deixis in the Anchoring Domain and one functional projection for the creation of definite reference in the Linking Domain.

The main claim that I defended in this chapter is that grammatical gender does not constitute a semantically empty category with the sole purpose to instantiate agreement but a semantically meaningful category that classifies nouns into different types of mass: unbounded mass, individuative and collective. I argued that each mass type corresponds to a functional projection in the Classification Domain. From the resulting functional sequence I derived the

complete range of gender and number syncretisms for German and Dutch determiners and personal pronouns. I strongly argued against the assumption that grammatical gender is connected to biological sex. Consequently, I proposed to dispense with the terms ‘feminine’, ‘masculine’ and ‘neuter’ and replace them with terms related to mass distinctions.

I completed this chapter by providing illustrations for the construction of each individual d-item of German and Dutch with the previously motivated structure. With the internal structure of German and Dutch d-item in place, we can now proceed to the analysis of the internal structure of the w-items of German and Dutch.

Chapter 5

The Internal Structure of W-Items

5.1 Introduction

In this chapter I will investigate the internal structure of German and Dutch w-items. The w-items to be analyzed are listed in the table below.

German	Dutch	English
was	Wat	what
wer	Wie	who
Wo	Waar	where
Wann	Waneer	when
welch-	welk-	which

Table 29: The w-items of German and Dutch

The crucial observation about w-items is that the referent they denote remains unknown. Consider the German w-item *wer* (who) in its functions as an interrogative pronoun, an indefinite pronoun and a relative pronoun in a free relative clause.

(1) German *wer* as interrogative, indefinite and relative pronoun

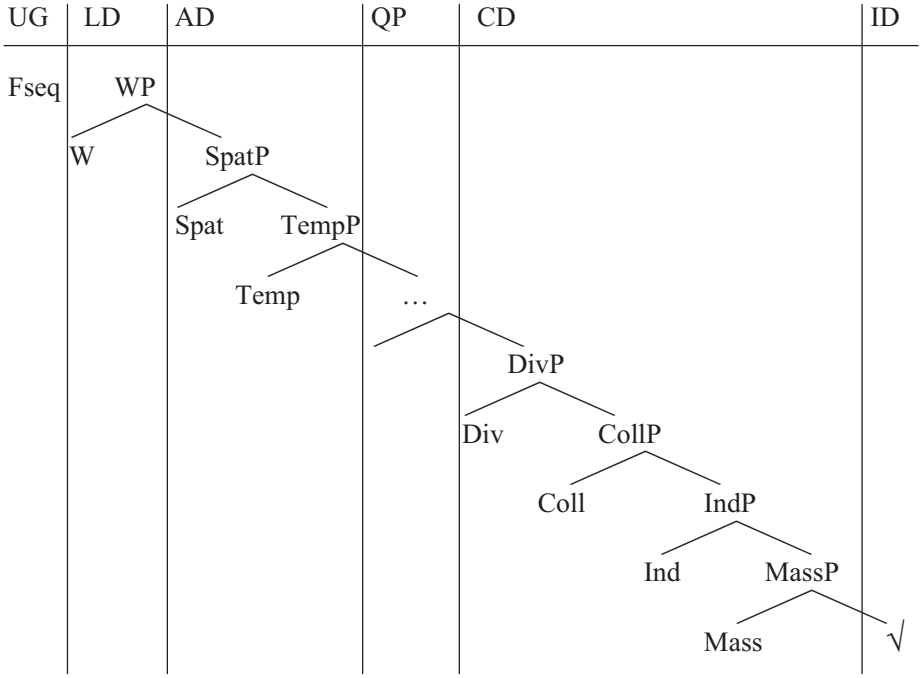
a. interrogative pronoun
Wer ist schön?
who.NOM is beautiful?
'Who is beautiful?'

b. indefinite pronoun
Ich habe **wen** Interessantes getroffen.
I have who.ACC interesting met
'I met someone intersting.'

c. relative pronoun in free relative clauses
Ich vertraue, **wem** du vertraust.
I trust who.DAT you trust
'I trust who you trust.'

It is not possible to identify a referent for any of the examples above. Descriptively spoken, w-items reflect a lack of information. This brings out the crucial contrast to d-items, which can pick out a specific referent by virtue of definiteness. In section 3.1 I announced that I will formulate an analysis of the internal structure of d- and w-items in German and Dutch that will result in all d-items sharing one common core and all w-items sharing one common core while all other buildings blocks will be identical. The previous chapter has shown that the common core of all d-items is the D-head, which establishes definite reference. In this chapter I will show that the common core of w-items is what causes the lack of information in the interpretation of w-items. I will furthermore argue that this common core is situated in the Linking Domain in the same way as the D-head of d-items is situated in the Linking Domain. The building blocks below the Linking Domain can vary in their composition in order to construct the individual w-items in the same way as we have seen for the d-items in the previous chapter. D- and w-items display the same morphological building blocks below the Linking Domain. They consequently correspond to the same projections in the functional sequence. Given that the morphological contrast between d- and w-items in German and Dutch reduces to the difference between the d- and the w-morpheme, I will call the highest head in the internal structure of w-items W and the phrase projected from it WP. This yields the following functional sequence for w-items.

(2) The Fseq of the WP



With respect to the nature of D, I have argued that the precise mechanism by which definite reference is established is irrelevant for our investigation of the multifunctional behavior of d-items. This is not the case for W. The semantic nature of the W-head is the key to understanding every function that w-items can adopt in a particular syntactic environment. The analysis of the W-head will therefore be the theoretical focus of this chapter. The main hypothesis that I will defend is that the W-head denotes a so-called *set of alternatives* in the sense of Rooth (1985, 1992). This means that the resulting w-item does not make reference to a particular individual but to a set of individuals all of which constitute a suitable referent for the w-item. The idea that w-items denote sets of individuals goes back to Hamblin (1973: 48) and his observations about interrogative constructions.

> [A]lthough we are inclined to class 'who' and 'what' with proper names we cannot by any stretch regard them as denoting individuals. But there is a simple alternative: they can be regarded as denoting sets of individuals, namely the set of humans and the set of non-humans, respectively. This does not mean, of course, that the formula 'who walks' asserts that the set

> of human individuals walks: we must modify other stipulations in sympathy. We shall need to regard 'who walks' as itself denoting a set, namely, the set whose members are the propositions denoted by 'Mary walks', 'John walks', … and so on for all individuals. Pragmatically speaking a question sets up a choice-situation between a set of propositions, namely, those propositions that count as answers to it. (Hamblin 1973: 48)

The crucial contribution to this idea that I will make in this chapter is that I will locate both the element that denotes the set of alternatives and the restriction of this set to a certain kind of individuals within in the internal structure of the w-item. I will consequently derive the specific meaning of each w-item from their internal syntactic makeup in a compositional manner. In Chapter 7 we will see that the specific manner in which Rooth (1985, 1992) defines the concept of set of alternatives is crucial to capture their multifunctional behavior.[52]

The setup of this chapter will be different from the setup of the previous chapter. Given that the functional sequence below the WP-layer is already established, it is not necessary go through these steps again. I will therefore discuss the morphological makeup and the syntactic analysis of the German and Dutch w-items simultaneously. Each w-item will be discussed individually in section 5.2. Following my proposal in section 4.3.2 to abandon the idea that grammatical gender is connected to biological sex or animacy, I will show that the nature of the w-items corresponding to English *who* and *what* can only be properly understood f we analyze their morphology in terms of mass type distinctions and that it will be fundamentally misunderstood if we analyze their morphology in terms of animacy-related gender distinctions. After the discussion of the individual w-items, I proceed to the analysis of the W-head, which is shared by

[52] For completeness, I would like add that the idea to use Rooth's (1985, 1992) framework in order to explain the multifunctionality of w-items is not my own, but originates in Ramchand (1997), who successfully unifies the multifunctionality of Bengali w-items, which can function as interrogative pronouns, indefinite pronouns, negative polarity items and free choice items. A further proposal that makes use of Rooth's (1985, 1992) theory in order to capture the semantics of w-items can be found in Cable (2007: 130-139). Cable's (2007) framework will play an important role in sections 7.2 and 7.3, where I will investigate w-items that can function as indefinite and interrogative pronouns. The crucial difference between Cable's (2007) work and mine is that his analysis is focused on the syntactic configurations in which w-items appear, while my analysis in this chapter is focused on their internal structure.

all w-items. The discussion will be divided in three parts. I will start in section 5.3.1 with a general overview of Rooth's (1985, 1992) framework, which is based on observations related to focus intonation. In section 5.3.2 I will show how Rooth (1992) extends the theory of alternative semantics to interrogative constructions. In section 5.3.3 I will show how this concept can be applied to capture the nature of the W-head. This analysis will allow us to derive the semantics of each w-item compositionally from its internal syntactic structure.

5.2 The W-Items of German and Dutch

In this section I will discuss and analyze the individual w-items of German and Dutch. The w-items of German and Dutch that I will analyze in this section are the w-items which correspond to English *what*, *who*, *where*, *when* and *which*. The analysis will be focused on the buildup of the w-items below the Linking Domain in the same way as the analysis of the d-items in the previous chapter. Since I will discuss the nature of the W-head separately in section 5.3, it will be enough for now to stick to the general insight that the interpretation of W reflects a lack of information and that w-items denote sets of individuals and not particular referents. The list of German and Dutch w-items that will be discussed in this chapter is repeated in Table 30.

German	Dutch	English
was	wat	what
wer	wie	who
wo	waar	where
wann	waneer	when
welch-	welk-	which

Table 30: The w-items of German and Dutch

The w-items corresponding to *which* – German *welch*- and Dutch *welk*- – contain the morpheme *elch*/*elk*, which is associated with quantification. This means that parts of the internal structure of German *welch*- and Dutch *welk*- will be associated with a functional projection in the Quantity Domain. As it was not possible to conduct and in-depth investigation of the Quantity Domain in Chapter 4, I will provide an analysis of these w-items, leaving the precise nature of this functional projection undefined.

5.2.1 German *wer* and *was*

The German w-item *wer* corresponds to the English w-item *who* and thus constitutes the w-item that is used to refer to persons/humans. The declension paradigm of German *wer* is constructed with mass type 2 morphemes (individuative, former masculine) in the same way as German *der*. The w-item *was* is the German correlate of English *what* and therefore used to refer to things and situations when used in its interrogative function. Its declension paradigm is constructed with mass type 1 morphemes (unbounded mass, former neuter) in the same way as German *das*. We will see immediately below that mass type distinctions will provide us with a much better understanding of the nature of w-items than gender distinctions. The declension paradigms of German *wer* and *was* are given in Table 31.

	MT2	MT1
NOM	wer	was
ACC	wen	was
DAT	wem	
GEN	wessen[53]	

Table 31: The declension paradigms of German *wer* and *was*

The first observation that catches the eye in Table 31 is that there are no dative and genitive forms of *was*. In contrast to the declension paradigm of German *der*, the mass type 1 declension paradigm is not filled up with the inflectional morphemes from the mass type 2 declension paradigm.[54] As long as we capture

[53] The original form of the genitive of *wer* was *wes*, corresponding to the genitive *des* of of the d-item *der*. It later got assimilated to the alternative form of the genitive *dessen* discussed in sections 4.2.1.

[54] For further discussion on the incomplete declension paradigm of German *was*, see Jäger (2000: 14), Heidolph et al. (1981: 657) and Helbig & Buscha (1986: 253), who all argue that *was* doesn't inflect for dative. See also Eisenberg (1989: 230f, 339f) and Zifonun et al (1997: 41), who argue that *was* does inflect for dative. For further discussion on whether *was* inflects for genitive, see Jäger (2000: 17ff.). There is a very small number of verbs, such as *enthalten* (to abstain) and *entsinnen* (to recall), that only allow genitive objects. When they appear in an interrogative construction that asks for the object of the verb, the genitive form *wessen* has to be used. In these cases, *wessen* does not imply a human interpretation. Instead, it has the same interpretation as *was*.

(i) a. **Wessen** enthältst du dich?
who.GEN abstain you yourself
'What do you abstain from?'

the morphological differences between *wer* and *was* in terms of gender distinctions where *wer* constitutes the masculine singular and *was* the neuter singular, we cannot arrive at any sensible explanation for why we are witnessing the particular declension paradigm shown in Table 31. The only answer we could formulate is that a singular masculine inflection of an interrogative pronoun that refers to humans only displays such an inflection because in a patriarchal culture of male dominance men constitute the default human and therefore, in a sex-based grammatical gender system, the morpheme referring to biological sex of men is the one that instantiates a default human interpretation. For the w-item *was*, we would have to assume that its neuter status relates to a sexless and consequently inanimate status, which would be the reason why *was* primarily refers to inanimate entities (which is not true, as we will see further below). Although this reasoning is hardly ever put into words, it is the tacit assumption that underlies the standard view in the literature that takes the distinction between *wer* and *was* (and its crosslinguistic correlates) to be a distinction of animacy, more precisely, as expressed in the passage of Hamblin (1973: 48) above, the distinction between humans and non-humans.

Yet once we abandon the idea of gender distinctions and rearrange our perspective towards mass type distinctions, the inflectional paradigms of German *wer* and *was* follow automatically. In section 4.3.2 I have identified the German inflectional morphemes *-as*, *-er*, and *-ie* to relate to three different types of mass: unbounded mass (MT1), individuative (MT2) and collective (MT3), respectively. Under this perspective, it follows straightforwardly that the morpheme that expresses the mass type 2 will be used to construct the w-item that refers to individuals while the morpheme that expresses the mass type 1 will be used as an interrogative pronoun that can unrestrictedly refer to anything, because this is really what the w-item *was* (and its correlates) does. *Was* is not a w-item that is used to specifically ask for inanimate objects, as is generally assumed in the literature. It is a w-item that is used to express a general lack of information. Using the w-item *who* implies a substantial amount of previous information on which a particular question is based. Imagine a situation where someone makes a pensive impression on you that makes you wonder what this person is contemplating. Given that there is no way for you to know this person's thoughts, you would have to ask: 'What are you thinking about?' It is clear this question does not mean 'What non-human entities you are thinking about?', which is what we would expect if the difference between *who* and *what* was the difference between a w-item that denotes the set of human individuals

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b. **Wessen** entsinnst du dich?
who.GEN recall you yourself
'What do you recall?'

and a w-item that denotes the set of non-human individuals. The answer to the question 'What are you thinking about?' can be anything: a nice book, the job interview tomorrow, a lover, how this person got yelled at today by an irresponsible driver, etc. The person could also just be in a state of unidentifiable happiness and not thinking about anything in particular. It is this unboundedness of possibilities that is invoked by the w-item *was*. If you were asking this person the question 'Who are you thinking about?', you would be presuming substantial previous information about her or his thoughts. You would narrow down the possibilities to individuals, i.e., entities of bounded mass.

This raises the question why it happens that we inevitably interpret the conflation of mass type 2 with a set of individuals to denote only the individuals that are humans. Why is it not possible for us to say 'Who did this?' or 'Who are you talking to?' and expect from the hearer to give an answer that makes a choice between the dog, the horse, the bird or the hair dryer. My answer to this question is that this is an epiphenomenon of the inescapable androcentric perspective of the human mind. The human perception of individuals goes beyond the concept of bounded mass, that allows us to perceive delimited entities as separated objects. Added to this perception of boundedness comes the perception of agency, which is related to the behavior that an identified piece of bounded mass displays. This perception is based on a small number of primitive distinctions such as whether an object can move on its own or whether it can only be moved by other objects (cf. Spelke 2003: 278-299). The interaction of these perceptual primitives results in a gradual concept of the individual, i.e., a scale along which pieces of bounded mass can be ordered with respect to their level of agency. On such a scale it is the volitional agent that occupies the top position while the immobile piece of bounded mass (e.g., the hair dryer) occupies the bottom. In human perception, the only entities that qualify as volitional agents are humans themselves, for only humans have consciousness of the self and consequently the power of free will and the capability to make decisions based on reflection of the self and the environment. As a consequence, we are responsible and culpable for our actions. Animals occupy a lower position on the individuation scale, for they are perceived as reactive organisms, responding mechanically to their physical needs and the environment. We therefore can't expect animals to be responsible, have a healthy lifestyle, and not do anything they might regret later. On the basis of these considerations, I put forward the hypothesis that when confronted with an item that consists of one part that is interpreted as a lack of information and a second part that is interpreted as bounded mass, i.e., as individuative, humans will automatically resort to an interpretational default value which constitutes the highest point on the individuation scale, the volitional agent. Since only humans qualify as volitional agents, the default interpretation of *wer* and its crosslinguistic

correlates results in the set of human individuals. With respect to the morphological paradigm of *was*, it follows straightforwardly from this reasoning that there cannot be a dative or a genitive form in the paradigm. Since the dative and genitive forms of the mass type 1 paradigm are recruited from the mass type 2 paradigm, it would never be possible for these forms to be interpreted as unbounded mass because the combination of the w-morpheme with the morphemes of the mass type 2 paradigm always results in the default interpretation of volitional agent and consequently human.[55]

In connection to these considerations, I would like to give a short comment on another issue that has come up in the reviewing process of this dissertation, namely the fact that a w-item such as *who* can be used in fairy-tales to refer to non-human entities, such as cats, frogs and trees and that parents can say something to their children like 'Look who's here! Your teddy bear!' but not 'Look what's here! Your teddy bear!'. It is important to be aware that these are instances in which a non-human entity gets humanized, i.e., equipped with properties that are exclusively human. In the case of the teddy bear, we witness a form of humanization, in which the teddy bear is made out to be a friend of the child, a distinctly human quality. It is then of course possible to refer to the teddy bear with a w-item that usually refers to humans. The same goes for fairy tales. If an animal or a kitchen device are equipped with consciousness of the self, agency, decision making capacities, and emotions, we will perceive them in

[55] This phenomenon correlates with the phenomenon that the dative and genitive forms of the German simple DPR *das* are very restricted in their use as RPs and DPRs that refer back, which suggests that due to being constructed from the MT2 paradigm, they can only be properly used when they don't overlap semantically with the use of the dative and genitive forms of MT2. This problem can be illustrated with oblique relative clauses. A bare MT2 dative (*dem*) or genitive (*dessen*) always causes an animate reading of the antecedent. In the following examples we can see that while they are all grammatical, (ic) is semantically deviant because it causes the noun *Haus* (house) to be interpreted as an animate entity.

(i) a. Das ist der Mann **dem** ich geholfen habe.
that is the man RP.M.SG.DAT I helped have
'This is the man who I helped.'

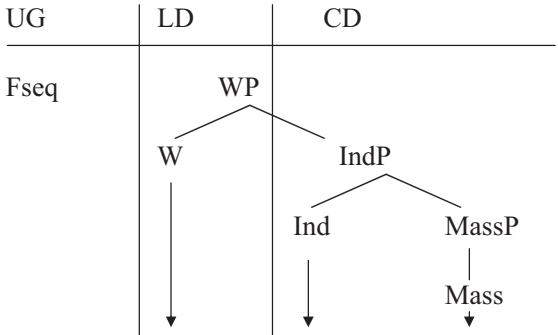
b. Das ist das Pferd **dem** ich das Futter gegeben habe.
this is the horse RP.SG.N.DAT I the food given have
'This is the horse that I gave the food to.'

c. ??Das ist das Haus **dem** ich die Tür eingeschlagen habe.
this is the house RP.SG.N.DAT I the door in-bashed have
'This is the house whose door I bashed in.'

the same way as we perceive humans. There is consequently no conceptual difference in following the brave little toaster and his friends (a radio, a lamp, a vacuum cleaner and a blanket), the town musicians of Bremen (a donkey, a dog, a cat and a rooster) or Hansel and Gretel through their adventures.

Based on the Fseq of the Classification Domain developed in section 4.3.2 and the insights formulated in this chapter so far, we arrive at the following internal structures of German *wer* and *was*.

(3) The internal structure of German *wer* and *was*



Ger		**W**	**MT2**	**MT1**
	N	w-	-er	-as
	A	w-	-en	-as
	D	w-	-em	
	G	w-	-essen	

With this structure in place, I would like to point the reader to the fact that the Spellout of the Classification Domain by particular w-items is a locus of great variability across languages. It is not necessary for a language to reduce the Spellout of the classification domain to the IndP and MassP, which yields the distinction between *wer* and *was* in German. Languages with a richer morphological system can spell out CollP and DivP, resuling in a w-item with plural morphology as well as parts of the Quantity Domain to create, e.g., a dual w-item. One example of such a language is Old Norse, which displays fascinatingly rich w-morphology, yielding highly multifunctional w-items (cf. Barnes 2008: 67). Old Norse possesses three basic w-items, *hverr*, *hvárr* and *hvat*. *Hverr* and *hvárr* inflect for four cases and three mass types in both singular and plural. From the (unfortunately rather cursory) description of the Old Norse w-paradigms in Barnes (2008: 67), it seems that *hverr* can receive the interpretation of *who*, *what*, *which*, *each* and *every* depending on the

combination of mass type and number inflection. The w-item *hvárr* can receive the interpretation of *which of the two* and *each of the two* in the singular and *which of the two groups* and *each of the two groups* in the plural. The w-item *hvat,* comes closest to its modern Germanic correlates, German *was*, Dutch *wat* and English *what* etc. It is the only w-item that is restricted to mass type 1 singular default morphology and consequently the w-item that expresses a general lack of information. This brief look at the w-items of Old Norse shows that capturing the morphology of w-items in terms of mass type and number distinctions yields a great number of combinatorial possibilities that have the potential to explain the interpretation of w-items that display much more morphological complexity than German *wer*.

5.2.2 Dutch *wie* and *wat*

The internal structures of Dutch *wie* and *wat* are constructed in the same way as the internal structures of German *wer* and *was*, with the addition that Dutch *wie* can also spell out DivP and CollP because the *-ie* morpheme is syncretic between mass type 2, mass type 3 and plural. It follows that in contrast to German *wer*, Dutch *wie* can receive a plural interpretation. This is reflected in the behavior of German *wer* and Dutch *wie* with respect to subject-verb agreement. While German *wer* is only compatible with singular agreement, Dutch *wie* is compatible with both singular and plural agreement. This is shown in examples (4) and (5).

(4) Subject-verb agreement with German *wer*

a. **Wer** sag**t** das?
who say.3rd.SG that?
Who says that?

b. ***Wer** sag**en** das?
who say.3rd.PL that
Who say that? (German)

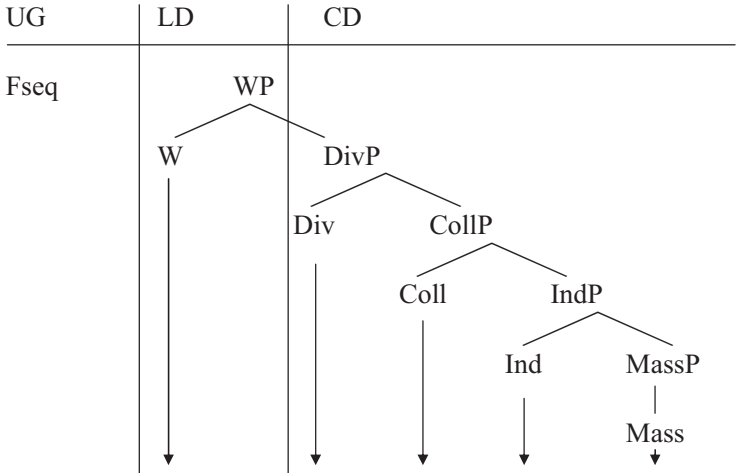
(5) Subject-verb agreement with Dutch *wie*

a. **Wie** zeg**t** dat?
who say.3rd.SG that?
Who says that?

b. **Wie** zegg**en** dat?
who say.PL that
Who say that? (Dutch)

Based on these considerations, we can formulate the following internal structures for the Dutch w-items *wie* and *wat*, which I will present in direct comparison to the German w-items *wer* and *was*.

(6) The internal structure of German *wer*, German *was*, Dutch *wie* and Dutch *wat*



Ger		**W**	**PL**	**MT3**	**MT2**	**MT1**
	N	w-			-er	-as
	A	w-			-en	-as
	D	w-			-em	
	G	w-			-es	
Du		**W**	**PL**	**MT3**	**MT2**	**MT1**
		w-	-ie			-at

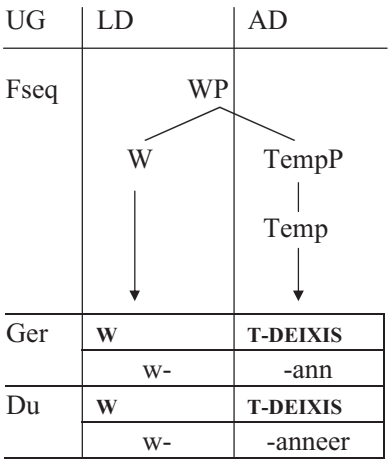
Please note that the fact that the *-ie* morpheme in Dutch *wie* is phonologically as strong as the *-ie* morpheme in *die* does not mean that the *w*-morpheme of *wie* also spells out SpatP as does the *d*-morpheme of *die*. Given that German and Dutch are w-fronting languages, the w-items must be phonologically strong, otherwise they could not be moved to the left periphery.

5.2.3 Temporal W-Items: German *wann* and Dutch *wanneer*

The temporal w-items German *wann* and Dutch *wanneer* are the w-correlates of temporal d-adverbs *dann* and *dan*, respectively, and follow the same internal setup. The morphological complexity of Dutch *wanneer* can be traced back to the periods of Old Dutch and Middle Dutch. The historical precursor of German

wann and the *wann*-part of Dutch *wanneer* is the Gothic temporal w-item *hwan,* which remained in its simple form in the eastern varieties of Old Dutch and Middle Dutch. This form came to be used in combination with the word *eer* (earlier) to form the expression 'wan eer', which has the literal meaning of 'when earlier' but the interpretation of 'when' i.e. it was not a temporal w-item that could only refer to events in the past. The combination of *wan* and *eer* was conflated into one morpheme after the Middle Dutch period. We can therefore conclude that both the *ann*-morpheme of German *wann* and the *anneer*-morpheme of Dutch *wanneer* spell out TempP in the Anchoring Domain. This gives us the following structures.

(7) The Structure of German *wann* and Dutch *wanneer*

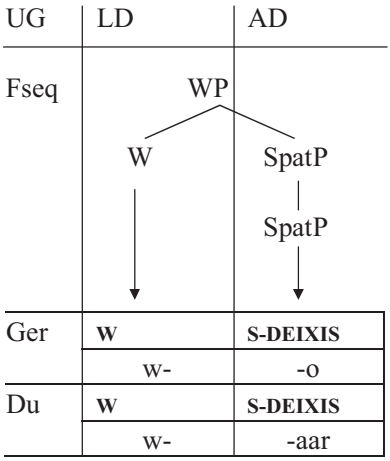


5.2.4 Spatial W-Items: German *wo* and Dutch *waar*

The spatial w-items German *wo* and Dutch *waar* are the w-correlates of the spatial d-adverbs *thar* in Old High German and Dutch *daar*. In the periods of Old High German and Old Dutch, German and Dutch both possessed the form *war*. While this form is retained in Dutch until today, it went through two stages of phonological reduction in German. The first stage was the loss of the final *-r* on the spatial elements *thar* and *war*, discussed in section 4.3.4. In addition to this phonological reduction, the remaining syllable *wa* went through a process of vowel change that generally affected monosyllabic particles that ended in the open front vowel /a:/. In the period from approximately the 11th to the 13th century, this final vowel was transformed into the rounded mid back vowel /o:/ (cf. DWDS: wo). In parallel to the structure identified for Dutch *daar* in section

4.5.4, we can formulate the following structures for modern German *wo* and Dutch *waar*.

(8) The Structure of German *wo* and Dutch *waar*



5.2.5 Restricted Choice: German *welch*- and Dutch *welk*-

The German w-item *welch*- and the Dutch w-item *welk*- correspond to the English w-item *which* and differ from all other w-items in that their denotation of a certain set of individuals does not arise from their structural makeup alone, as we have seen for the w-items German *wer* and Dutch *who*. Consider the use of English *which* in (9).

(9) Which do you prefer?

When a sentence like (9) is uttered, it is automatically presupposed that the hearer has been given or will be given a specific set of choices and is now requested to pick one of the options. This is made clearer in example (10).

(10) a. The black or the white shirt – which do you prefer?
b. Which do you prefer – the black or the white shirt?

Furthermore, in contrast to all other w-items, *welch*-, *welk*- and *which* can take nominal complements in the same way as determiners.

(11) Which shirt do you prefer?

A further characteristic of German *welch-* and Dutch *welk-* is that they display the same declension paradigm as determiners. Both elements inflect in the same way as the definite article. This is shown for German *welch-* in Table 32 and Dutch *welk-* in Table 33.

	PL	MT3	MT2	MT1
NOM	welche	welche	welcher	welches
ACC	welche	welche	welchen	welches
DAT	welchen	welcher	welchem	welchem
GEN[56]	welcher	welcher	welches/-en	welches

Table 32: The declension paradigm of German *welch-*

PL	MT3	MT2	MT1
welke	welke		welk

Table 33: The declension paradigm of Dutch *welk-*

The question that arises with respect to *welch-*, *welk-* is how it is possible that these items denote a previously or subsequently provided set of individuals. This question can be answered straightforwardly when taking a closer look at their morphology. *Welch-* and *welk-* decompose into three morphological units. This is shown in (12).

(12) Morphological decomposition of German *welch-*, Dutch *welk-*

a. welcher: w-elch-er
b. welke: w-elk-e

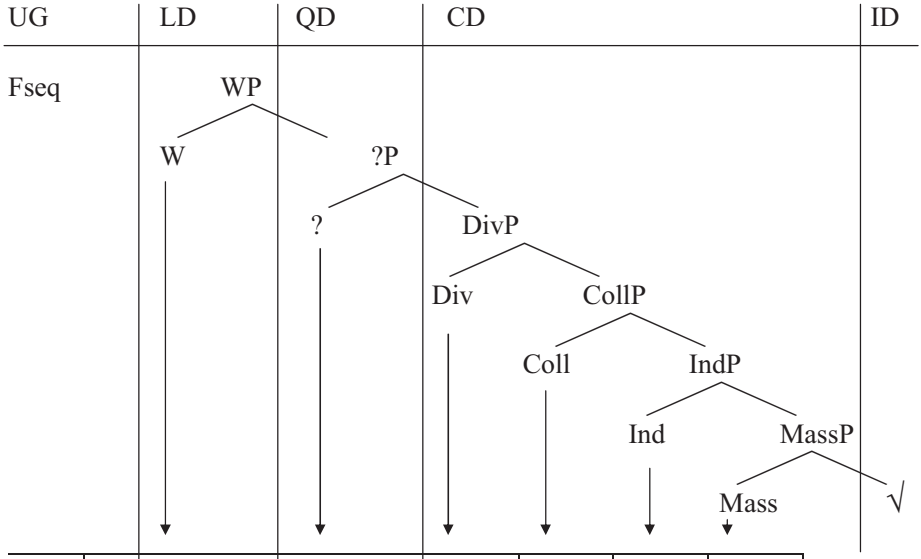
The crucial morpheme that we have to concentrate on in order to understand the behavior of these w-items is the medial morpheme *-elch-/-elk-*. This morpheme originates historically from the Proto-Germanic noun **lika*, which means 'body, figure'. It has been retained until today in the Germanic languages in many places. The Dutch word *lichaam* (body) and the German word *Leiche* (corpse) are both descendants of **lika*. We furthermore find it in German, Dutch and English in combination with the equative particle *s-*, forming German *solch*, Dutch *zulk* and English *such*, which all have the meaning of 'this kind of'. It also forms the precursor of English *like* which can be used as a verb but also as an equative element in the forms *like* and *alike*. Another important place where we find descendants of **lika* is the group of quantifiers. Here we find it in English

[56] Note that while the genitive forms of *welch-* exist formally, it is very hard or even impossible for speakers of German to produce them in a sentence.

each, Dutch *elk(e)* and German *jeg-lich(er)*, which all have a distributive meaning in contrast to English *every*, Dutch *ieder(e)* and German *je-d(er),* which have an inclusive meaning. It forms, of course, also the -*ich* part of English *which*. German *welch*-, Dutch *welk*- therefore decompose into three primitives: (a) lack of information, (b) body, and (c) mass type. They consequently request from us to make a choice among certain types of bodies i.e. a predefined set of specific individuals.

With the morphological and semantic decomposition of *welch*- and *welk*- in place, the next question we have to ask is: What part of the Fseq is spelled out by -*elch*-/-*elk*-? The -*elch*-/-*elk*- morpheme corresponds to the quantifiers *each* in English and *elk* in Dutch, which provide the meaning of distribution. It is this distributive part of the w-items *welch*- and *welk*- that endows them with the meaning of choice between (a certain number of) individuals. We are therefore dealing with a morpheme that expresses a kind of quantification. In section 4.3.3 I have pointed out that the standard assumption of the location of quantifiers in the DP is that quantifiers are situated above the NP-layer and below the DP-layer. Correspondingly, we can see from the morphological makeup of *which* that the quantificational part is situated lower in the structure than the WP-layer and higher than the Classification Domain. Since it was not possible to investigate the Quantity Domain within the scope of this dissertation, it has to be determined in the future which particular phrase it is that is spelled out by -*elch*-/-*elk*-. I will indicate this with a question mark in the internal structure of *welch*- and *welk*- illustrated in (13).

(13) The Structure of German *welcher* and Dutch *welke*



Ger		**W**	**DISTRIB.**	**PL**	**MT3**	**MT2**	**MT1**
	N	w-	-elch-	-e		-er	-es
	A	w-	-elch-	-e		-en	-es
	G	w-	-elch-	-er		-es	
	D	w-	-elch-	-en	-er	-em	
Du		**W**	**DISTRIB.**	**PL**	**MT3**	**MT2**	**MT1**
		w-	-elk-	-e			

5.3 Interim Summary

The previous section has shown that the buildup of German and Dutch w-items can be analyzed analogously to the buildup of German and Dutch d-items. The main insight of this discussion is that the w-items German *wer* (who), Dutch *wie* (who), German *was* (what) and Dutch *wat* (what) can only be properly understood if we follow the assumption that grammatical gender reflects mass type distinctions. Our short glimpse at w-items from Old Norse has shown that the combination of mass type and number distinctions has the potential to explain the interpretation of w-items that display a far greater morphological complexity than the w-items of German and Dutch. With respect to the nature of the W-head, I have so far only made use of the general idea that w-items do not denote a particular referent, but somehow denote a set of possible referents and that they differ in what kind of referents can be part of this set. Given that the

referent of the w-item remains unknown, w-items have the general interpretation of lack of information. The next section of this chapter will be dedicated to giving a precise implementation of how this interpretation arises. This implementation will be crucial for the explanation of the multifunctional behavior of w-items in Chapter 7. As announced in the introduction, I will implement the set denotation of w-items on the basis of Rooth's (1985, 1992) Theory of Alternative Semantics. I will first give an overview over the general idea behind this framework. I will then show how Rooth (1992) applies the theory to interrogative constructions, and I will argue from there that it is not the interrogative construction as a whole that has to be analyzed as denoting a set of alternatives but only the w-item present in the construction.

5.4 The Nature of W

5.4.1 Alternative Semantics: A Short Overview

The *Theory of Alternative Semantics* was developed by Rooth (1985, 1992) in order to explain the phenomenon of *association with focus* introduced in Jackendoff (1972). The term *association with focus* describes the fact that the truth conditions of certain sentences vary according to which constituent of the sentence is contrastively focused. Consider example (14):

(14) a. I only claimed that Carl likes *herring*.
b. I only claimed that *Carl* likes herring.

(Rooth 1985: 2)

(14a) is true when I only claimed that herring is something that Carl likes and I did not claim that there is anything else that Carl likes, e.g., salmon, squid or mussels. (14b) is true if I only claimed that Carl is the one who likes herring and I did not claim that anyone else likes herring, e.g., Sue, Bill or Peter.[57] We can thus see that what makes the sentences in (14) true or false is *associated* with what is focused in these sentences.

[57] Association with focus is of course not restricted to nouns. Any constituent in the sentences in (14) can be intonationally focused and have the truth conditions of the sentence associated with that focus. If I say, for example, that I *only* claimed that Carl likes herring, then the sentence is true if I didn't claim anything else. If I say that I only claimed that Carl *likes* herring, then the sentence is true if I didn't claim anything beyond Carl liking herring, e.g., Carl actually eating it.

The idea behind the concept of Alternative Semantics is to capture the phenomenon of association with focus by representing the interpretation of the sentence that is triggered by the focus intonation as an additional semantic value that is distinct from the *ordinary semantic value* (OSV) of the sentence. This additional semantic value is called *focus semantic value* (FSV) (cf. Rooth 1992: 76). The OSV is the interpretation that the sentence receives when the sentence is uttered with neutral sentence stress i.e. when no constituent is contrastively focused. Consider the sentence *Mary likes Sue* in example (15) represented with its OSV marked with a superscripted *o* after the denotation bracket.

(15) Mary likes Sue.
OSV: $[\![[_S \text{Mary likes Sue}]]\!]^o = \text{like(Mary,Sue)}$

Consider now the same sentence with contrastive focus on *Mary* in (16a) and *Sue* in (16b).

(16) a. *Mary* likes Sue.
b. Mary likes *Sue*.

(adapted from Rooth 1992: 76)

The difference between (15) and (16a) is that (15) is a mere declaration of the fact that Mary likes Sue, while (16a) states contrastively that out of all people Mary is the one who likes Sue. The FSV in (16a) therefore differs from the OSV in (15) in that it provides not only one but a set of propositions of the form *x likes Sue*, whose denotation is determined by inserting one *alternative* out of a set of alternatives for the variable x. The same principle holds for (16b). With the contrastive focus on *Sue*, the FSV of (16b) is the set of propositions of the form *Mary likes x*, whose denotation is determined by selecting *Sue* from the set of individuals to be inserted for x. This gives us the following denotation functions for the examples in (16), where S stands for sentence, F for focus, f for FSV and *E* for the domain from which the alternatives for x are drawn.

(17) a. *Mary* likes Sue.
FSV: $[\![[_S [\text{Mary}]_F \text{ likes Sue}]]\!]^f = \{\text{like(x, Sue)} | x \in E\}$
where *E* is the domain of individuals

b. Mary likes *Sue*.
FSV: $[\![[_S \text{ Mary likes } [\text{Sue}]_F]]\!]^f = \{\text{like(Mary, y)} | y \in E\}$
where *E* is the domain of individuals

(adapted from Rooth 1992: 76)

5.4.2 Alternative Semantics for Interrogative Constructions

Rooth's (1985, 1992) analysis of the focus semantic value of a sentence overlaps with Hamblin's (1973) proposal that interrogative pronouns denote a set of propositions: they share the idea that we are dealing with a number of alternatives from which a choice has to be made. Building on this conceptual overlap, Rooth (1992: 84f) proposes to extend the Theory of Alternative Semantics from contrastive focus constructions to interrogative constructions. Let's approach Rooth's (1992) proposal step by step. Consider the following example.

(18) *Mary* is beautiful.
FSV: $[\![[_S [\text{Mary}]_F \text{ is beautiful}]]\!]^f = \{\text{is beautiful}(x) | x \in E\}$
where E is the domain of individuals

Following the definition above, the FSV of (18) denotes a set of propositions of the form *x is beautiful*, for which every individual in E is a suitable alternative. (19) shows some individuals that can be inserted for x.

(19) a. *Sue* is beautiful.
b. *The sun* is beautiful.
c. *Horses* are beautiful.
d. *This dress* is beautiful.

Let's now ask the following question.

(20) **Who** is beautiful?

Comparing the question in (20) to the individuals listed in (19), we can immediately see that it is only *Sue* in (19a) who belongs to the set of propositions that constitute possible answers to (20). It follows that the set of propositions denoted by an interrogative construction is a subset of the set of propositions denoted by the FSV of a suitable answer sentence. So how do we make sure that we create the correct relation between the set denoted by the question and the set of suitable answers? Rooth (1992: 84) argues that "the right thing to do is to insist that the ordinary semantic value of a question be a subset of the focus semantic value of the corresponding answer." He proposes that the OSV is the same as the FSV with an additional restriction to a certain subset of E. Following this argumentation, the OSV for *Who is beautiful?* would be:

(21) $[\![[_S \text{ who is beautiful}]]\!]^o = \{\text{is beautiful}(x) | x \in E \wedge \text{human}(x)\}$

Looking only at the FSV and OSV of *Who is beautiful?* together, we get:

(22) a. OSV: {is beautiful(x)|x ∈ *E* ∧ human(x)}
b. FSV: {is beautiful(x)|x ∈ *E*}

Rooth (1992: 85) then argues that it is the intermediary set of OSV and FSV that "has the effect of constraining the question-answer relation." This intermediary set obviously corresponds to the set denoted by the OSV. This reasoning presents us with two assumptions about interrogative constructions. The first assumption is that the construction of a set of alternative propositions is related to the notion of interrogativity. The second assumption is that there is something about the interrogative pronoun that restricts the set of possible answers to a certain subset of the set of individuals, in the case above the set of human individuals.

These assumptions prompt us to ask two questions: (a) Is the construction of a set of alternatives in interrogative constructions a result of interrogativity or a result of the presence of a w-item? (b) What causes the set of possible answers to be restricted to a certain subset of the domain, from which the alternatives are drawn?

5.4.3 Alternative Semantics for W-Items

Although w-items are typically referred to as interrogative pronouns, it is clear that they need not be present in order to create interrogativity. Consider the interrogative constructions in example (23).

(23) a. Do you need help?
b. Would you like to go for a coffee?
c. Did you go to the concert yesterday?

The interesting contrast between questions such as the ones in (23) and questions beginning with a w-item is that the set of alternative answers is reduced to *yes* and *no* in the examples in (23), while the set of alternatives triggered by a w-item comprises all the members of the set of a certain kind of individuals. If we look at the functions that w-items can acquire outside interrogative constructions, we see that the denotation of a set of alternatives that is restricted to a certain kind of individuals is what characterizes these non-interrogative functions as well. Consider again our introductory example of the German w-item *wer* (who) in its function as an interrogative pronoun, indefinite pronoun and relative pronoun in a free relative clause.

(24) German *wer* interrogative, indefinite and relative pronoun

a. interrogative pronoun
Wer ist schön?
who.NOM is beautiful?
'Who is beautiful?'

b. indefinite pronoun
Ich habe **wen** Interessantes getroffen.
I have who.ACC interesting met
'I met someone intersting.'

c. relative pronoun in free relative clauses
Ich vertraue, **wem** du vertraust.
I trust who.DAT you trust
'I trust who you trust.'

We can see from the examples in (24) that we are dealing with the same set of alternatives in each function that the w-item *wer* (who) adopts. In each case, *wer* denotes the set of human individuals. We therefore arrive at an answer to our first question asked above: The set of alternatives denoted by an interrogative construction beginning with a w-item does not result from the notion of interrogativity, but from the presence of the w-item itself. This conclusion is in line with Ramchand (1997: 15-18, 22-26), who argues, on the basis of independent evidence, that Rooth's (1985, 1992) Theory of Alternative Semantics can only be fruitfully used for an analysis of w-items if the construction of a set of alternatives is dissociated from the concept of interrogativity and reduced to the w-item itself.

This brings us to our second question. How does it come about that the set of alternatives denoted by each w-item is restricted to a certain kind of individuals? My proposal is to conceive of this restriction as the result of one of the most basic syntactic relations: the head-complement relation. Given that the W-head constitutes the highest head in the Fseq of the WP, everything merged below the Linking Domain belongs to the complement of W. I propose that the W-head denotes an unrestricted set of alternatives i.e. a general domain of alternatives and that this domain is restricted to a certain kind of referents by what is contained in the complement of W. It is important to be aware that this way of restricting the set of alternatives to a subset which contains only a kind of suitable referents is crucially different from Rooth's (1992) proposal. Rooth (1992) argues that the restriction results from intersecting the set denoted by the

FSV of the interrogative construction with the set of the OSV of the interrogative construction. This kind of intersection does not apply if we reduce the trigger of the set of alternatives to the w-item itself, more specifically, to the W-head. The W-head as such denotes only the (unrestricted) set of alternatives. It follows that the W-head only denotes an FSV. Neither the W-head alone nor the w-item as a whole denote an OSV. It is therefore not possible to intersect the set denoted by the OSV and the set denoted by the FSV. This argument is supported by Cable (2007: 130-137), who argues on independent grounds that if the trigger of the set of alternatives is reduced to the w-item, the w-item has to be regarded as deficient in the sense that it can only denote an FSV, while the OSV has to remain undefined. In the proposal advocated here, the set of alternatives denoted by the w-item as a whole arises compositionally from the internal syntactic structure of the w-item. The phrases projected below the Linking Domain define the kind of referent that will be denoted by the w-item. The W-head adds the dimension of a domain of alternatives to the compositional interpretation of the sequence.

We can derive the meaning of each w-item discussed in section 5.2 from its internal structure. The combination of WP and MassP results in an alternative set of unbounded masses, which is the most unspecified form of reference. It is therefore that the w-items German *was* and Dutch *wat* can make reference to anything and express a general lack of information. The combination WP and IndP, which creates German *wer* and Dutch *wie*, yields a w-item referring to an alternative set of individuals, which leads to the default interpretation of human individuals. The combination of WP and SpatP results in an alternative set of locations, expressed by German *wo* and Dutch *waar*. The combination of WP and TempP receives the interpretation of an alternative set of point in time, expressed by German *wann* and Dutch *wanneer*. The w-items German *welch-* and Dutch *welk-* arise from the combination of WP, a phrase related to distributive quantification and the projections in the Classification Domain. This yields the interpretation of a choice between the members of a certain set of individuals. This set is defined by the root of the derivation, which is categorized into a noun in the complement position of *welch-* and *welk-*.

5.4 Summary

In this chapter, I have analyzed the internal structure of w-items in German and Dutch based on the analysis of d-items in German and Dutch proposed in Chapter 4. I argued that d- and w-items share the same functional sequence below the Linking Domain and that they differ only in the top layer of their internal structure. D-items project a DP-layer as their highest projection, while w-items project a WP-layer. While the D-head is responsible for establishing

definite reference, the W-head triggers the construction of a set of alternatives, which is restricted to a certain kind of referents by the building blocks that make up the complement of W. The presence of the alternative set is what yields the interpretation of an unknown referent, since all members of the set constitute a suitable referent for the W-item. This leads to an interpretation of lack of information that is characteristic for the use of w-items in various functions they can acquire in a particular syntactic environment.

In my discussion of the individual w-items of German and Dutch, I extended my proposal formulated in section 4.3.2 that grammatical gender creates mass type distinctions to the analysis of the w-items German *wer* and Dutch *wie* (who) as well as German was and Dutch *wat* (what). I showed that the nature of these w-items can be much better understood when we capture their morphology and underlying syntactic structure in terms of mass types instead of using a sex- or animacy-based perspective on grammatical gender. I furthermore showed that relating grammatical gender to mass type distinctions bears great explanatory potential with respect to w-item inventories that display greater morphological complexity than German *wer*, Dutch *wie*, German *was* and Dutch *wat*.

This chapter concludes my investigation of the internal structure of d- and w-items in German and Dutch. I will now proceed to investigating their multifunctional behavior in larger syntactic configuration. I will first discuss the multifunctionality of d-items in Chapter 6 and then the multifunctionality of w-items in Chapter 7.

Chapter 6

The Multifunctionality of D-Items

6.1 Introduction: Analyzing Multifunctionality

With the internal structure of German and Dutch d- and w-items in place, we can now move on to investigating their multifunctional behavior in larger syntactic configurations. In the present chapter I will discuss the multifunctionality of d-items in German and Dutch. In the following chapter I will discuss the multifunctionality of w-items. I have presented the German w-item *was* as a prime example of multifunctionality in Chapter 1. In Chapter 4 we have seen that the German d-item *der* (when phonologically strong) and the Dutch d-item *die* can be used as both demonstrative pronouns and relative pronouns. In Chapter 5 I have shown that German *wer* can function as an interrogative pronoun, an indefinite pronoun and a relative pronoun in free relative clauses. In Chapter 1 I have introduced the observation that the primary characteristic of multifunctional behavior is that the different functions adopted by one element are complementarily distributed, i.e. ‚one particular function can only arise in one particular syntactic environment. This means that one function is associated with one syntactic position. I exemplified this with the English item *it*, which can function both as personal pronoun and as expletive. This example is repeated in (1).

(1) a. I saw **it**.
    b. **It** seems that the sun will shine today.

The example shows that it is obligatory to interpret *it* as a personal pronoun in (1a) and as an expletive in (1b): a personal pronoun interpretation in (1a) is excluded, as is an expletive interpretation in (1b). It follows that the analysis of multifunctionality has to take both the internal structure of a multifunctional item and its positioning in larger syntactic configurations into consideration. The internal structure of German d- and w-items was the topic of the previous two chapters. In the present and the following chapter I will investigate the behavior of these items with respect to different syntactic environments. I will show how the interaction of the internal structure identified for each item and its specific

position in a larger syntactic configuration yields the individual functions that can be observed.

For the investigation of the internal structure of German d- and w-items, I have made crucial use of a fixed hierarchical sequence of functional heads where every head projects a phrase and where phrases do not have specifiers (cf. Starke 2004). I would like to point out that these nanosyntactic tools, which allowed an insightful analysis of the internal syntax of d- and w-items in German and Dutch, do not suffice to analyze their external syntax as well. In my opinion, functional sequences without specifiers cannot be put to use in larger syntactic configurations at the current state of theoretical development. The problem of such sequences for the analysis of clause structure is that is unclear how movement can be implemented without specifiers functioning as intermediate or final landing sites for moving elements. While it is possible to decompose the individual domains of the clause into semantically motivated functional sequences, these sequences still need specifiers for the technical implementation of movement (see, for example, Ramchand's 2008 decomposition of the verbal domain). Given the recent development of Nanosyntax and its strong focus on submorphemic structures (cf. Starke 2009, Caha 2009), I will not make an attempt to put the larger syntactic configurations in which the multifunctional elements can surface into a nanosyntactic functional sequence. In order to deal with the external syntax of the d- and w-items of German and Dutch, I will resort to the current minimalist model of clause structure, that divides the clause into the domains CP, TP, vP and VP (cf. Chomsky 2000, 2001). Following basic minimalist assumptions, I will assume that movement proceeds in a successive-cyclic manner, through the specifiers of the individual phrases (cf. Chomsky 2000, 2001).

As we have seen in section 4.2, not all of the d-items discussed in Chapter 4 are multifunctional. I have shown that the definite article, which will be the first d-item to be discussed in this chapter, is a monofunctional element in both German and Dutch. The discussion of the definite article will therefore be guided by the question why the definite article is monofunctional, while the d-item that functions as demonstrative and relative pronoun is multifunctional. In sections 6.2 and 6.3 I will argue that the monofunctionality of the definite article and the multifunctionality of the demonstrative/relative pronoun can be straightforwardly derived from their internal structure. The focus of section 6.2 will therefore lie again on the internal syntax of the definite article in order to show how determiner-noun pairs are constructed using the internal structure of the DP established in Chapter 4.

In section 6.3 I will discuss the demonstrative function of German *der* and Dutch *die*. In this section I will formulate a definition of the conditions that a d-

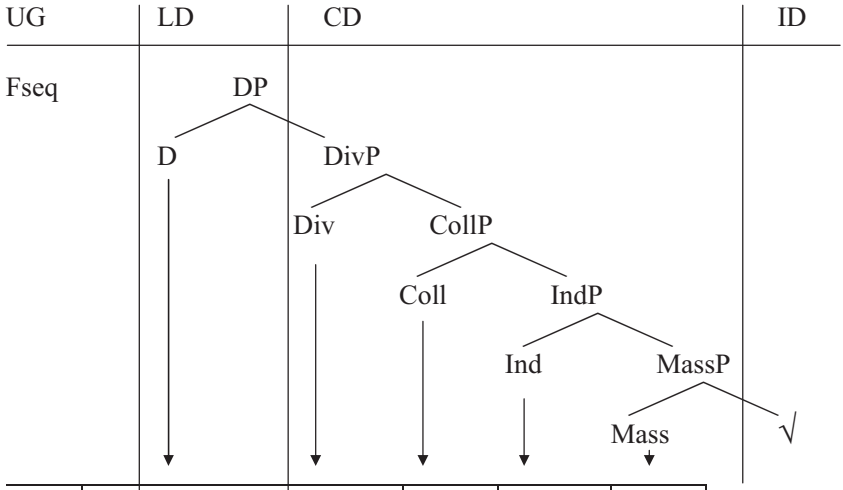
item has to meet in order to function as a demonstrative and a relative pronoun, and I will show that, in contrast to German *der* and Dutch *die*, the definite article cannot fulfill these conditions due to its internal structure.

In section 6.4 I will discuss the relativizing function of German *der* and Dutch *die*. Building on the analysis of the internal structure of Dutch restrictive relative clauses proposed in Boef (2013), I will show how the relativizing function of German *der* and Dutch *die* is determined by the position they occupy in this particular syntactic configuration. The discussion will be divided in two parts. The first part will be dealing with non-oblique relative clauses, i.e., relative clauses where the relative pronoun bears nominative or accusative case. The second part will be dealing with oblique relative clauses, i.e.,relative clauses where the relative pronoun bears dative case, genitive case or is embedded in a prepositional phrase. While German and Dutch construct non-oblique relative clauses analogously, they display striking differences in the choice of the relative pronoun in oblique relative clauses. These contrasts will be discussed and explained.

6.2 The Definite Article Function

In sections 4.2.1 and 4.2.2 I have shown that Dutch *de* and the phonologically weak form of German *der* function as definite articles. The internal structure that I have proposed for these items is repeated in (2).

(2) The internal structure of German *der* and Dutch *de*



Ger		**D**	**PL**	**MT3**	**MT2**	**MT1**
	N	d-	-ie		-er	-as
	A	d-	-ie		-en	-as
	D	d-	-en	-er	-em	
	G	d-	-er		-es	
Du		**D**	**PL**	**MT3**	**MT2**	**MT1**
		d-/h-	-e			-et

As mentioned above, the definite article is a monofunctional d-item. As I will explain further below, I take this monofunctionality to be a consequence of the internal structure given above. Yet before I start the discussion, I would like to remind the reader that Dutch *het* – the mass type 1 form of the definite article – is not the same item as the mass type 1 personal pronoun *het*. In section 4.2.2 I showed that the development of the definite article and the demonstrative/relative pronoun in Dutch in the transition from Old Dutch to Middle Dutch was characterized by the spreading of the *-ie* morpheme to the complete declension paradigm of Dutch *die*. This lead to a clearly visible split between the phonologically strong demonstrative/relative pronoun *die* and the definite article *de*. In this process, the mass type 1 form of the definite article was reduced from *dat* to *-t*. In other words, it was only the MassP part of *dat* that remained visibly spelled out. This caused the mass type 1 form of the definite article to become phonologically identical to the weak form of the mass type 1 personal pronoun *het*, which is also reduced to *-t*. The expansion of the reduced form of the definite article *-t* to the full form *het* was artificial and a response to the circumstance that *dat* had become unavailable as definite article. It follows

that we are dealing with two distinct homophonous items: personal pronoun *het*, which spells out only MassP, and definite article *het*, which spells out MassP and DP.

Let's first look at some examples to observe the definite article in German (3) and Dutch (4). The examples are ordered along the internal hierarchy of the Classification Domain (cf. section 4.3.2) shown in the illustration above, starting with mass type 1 and finishing with plural. The abbreviation DA in the glosses stands for definite article. In the glosses for the Dutch examples, I will gloss the mass type of the definite article with MT2/MT3 when it appears as *de* and refers to a singular noun. This is to show that Dutch cannot distinguish between nouns of mass type 2 (former 'masculine') and mass type 3 (former 'feminine') in the singular. While plural cannot be distinguished on the article either, it can be distinguished through plural inflection on the noun. I will therefore gloss the definite article in Dutch with PL alone when it refers to a plural noun. A similar situation holds for German. The different mass types can only be distinguished in the singular. I will therefore also gloss the definite article with PL alone when it refers to a plural noun.

(3) German *der* functioning as definite article

a. Ich habe **das** Erbe erhalten.
I have DA.MT1.ACC heritage received
'I received the heritage.'

b. Wo ist **der** Autoschlüssel?
where is DA.MT2.NOM car-key
'Where is the car key?'

c. **Die** Polizei fasste den Täter.
DA.MT3.NOM police caught the perpetrator
'The police caught the perpetrator.'

d. Ich habe **die** Bücher gekauft.
I have DA.PL.ACC books bought.
'I bought the books.' (German)

(4) Dutch *de* functioning as definite article

a. Ik heb **het** boek gekocht.
ik have DA.MT1 book bought
'I bought the book.'

b. Waar is **de** autosleutel?
where is DA.MT2/MT3 car-key
'Where is the car key?'

c. De politie pakte de dader op.
DA.MT2/MT3 police caught the perpetrator on
'The police caught the perpetrator.'

d. Ik heb **de** boeken gekocht.
ik have DA.PL books bought
'I bought the books.' (Dutch)

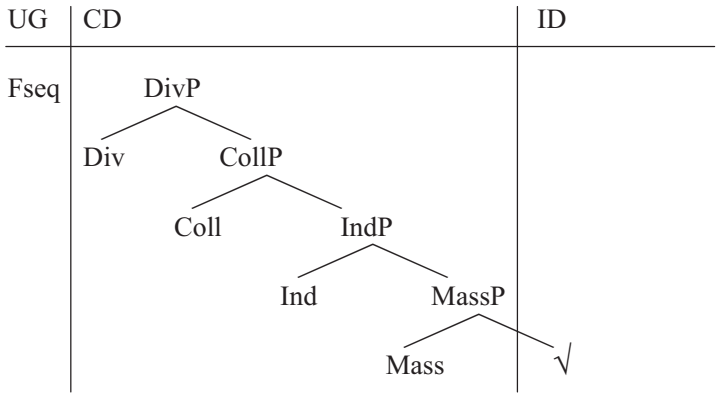
Given the monofunctionality of the definite article, there will be no point investigating the syntactic environments in which a DP projecting a definite article can appear. Yet recapitulating the buildup of the internal structure of the definite article will help us understand why the definite article in German and Dutch is monofunctional, while the d-item that can function as a demonstrative and relative pronoun is multifunctional.

In sections 3.3.2 and 4.3.2 I have argued, on the basis of Borer (2005a) and Boeckx (2011), that there are no inherent lexical categories, such as N and V, but that these categories only emerge during the syntactic derivation as a result of the functional structure that is built on top of the root, that enters the derivation through the Identification Domain. In order for a root to be categorized as a noun, the following has to happen. First, it has to be shaped into a certain kind of mass by the functional structure in the Classification Domain. This mass can be unbounded (mass noun), bounded (individuative noun) or collective (collective noun) (cf. section 4.3.2). If the mass ends up being shaped into a collective, it can be optionally divided into a plural. Leaving out the quantity domain for the reasons given in section 4.3.3, there are now two options for building the rest of the structure that leads to a d-item above the noun. Either the derivation proceeds to build the DP-layer in the Linking Domain (cf. section 4.3.5) immediately after the construction of the Classification Domain, or it proceeds to build the spatial layer in the Anchoring Domain (cf. section 4.3.4) in between the Classification and the Linking Domain. I have shown in sections 4.3.4, 4.5.1 and 4.5.2 that the projection of the Anchoring Domain creates the

distinction between the definite article and the demonstrative pronoun in German and Dutch. It is only the demonstrative pronoun that projects SpatP in the Anchoring Domain, which is spelled out by phonological strength. The definite article does not spell out any phrases in the Anchoring Domain, which is why it is phonologically weak. It follows that the demonstrative pronoun can be used to anchor the referent of a noun in space, which cannot be done with the definite article. The consequences of the absence or presence of the spatial layer with respect to mono- and multifunctionality will be discussed further below and in the following section.

In the structure given above, we can see that the definite article consists of the phrases in the Classification Domain and the DP-layer in the Linking Domain. Due to this buildup of the functional structure in the Classification Domain, it will be categorized as a noun (N). This is shown in the illustration below.

(5) Categorization of a root as N



Please note that there is no one-on-one equivalent in the structure above to what is traditionally thought of as the NP. Given that sisterhood translates to the head-complement relation in a phrase structure without specifiers (cf. section 3.4.1), we can see that the root is a complement of Mass and that it doesn't project to a phrase. The traditional NP contains the information about the mass type of the noun and the information whether the noun is singular plural. This information is distributed over a number of functional projections in the structure of the Classification Domain given above. It follows that the combination of the Identification and Classification Domain as a whole corresponds to what is traditionally thought of as the NP. Yet, depending on which phrases are projected on top of root, we get a different kind of noun. This raises important

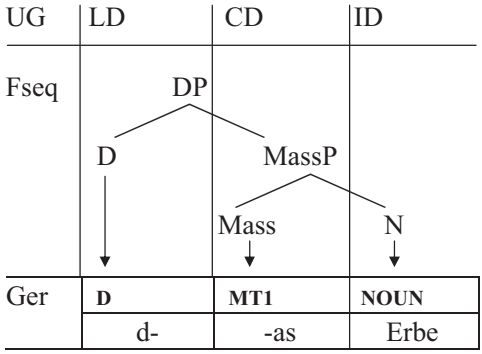
questions about the formalization of expressions such as *the red car* or *the destruction of the city* in the analysis proposed here. Just like a noun, an adjective will have to start as an unclassified root in the Identification Domain and then get classified into a property by a functional sequence in the Classification Domain which has to be crucially different from sequence that shapes a root into a noun. Only after constructing the two elements in separate derivations, it would be possible to combine them to a larger structure. The same holds for *the destruction of the city*. The two DPs will have to be constructed individually and then put together into a larger structure. The precise implementation of such processes will have to be left for future research.

Let's now take a look at how a determiner-noun pair can be formed with this structure. I will go through this process step by step for the definite article here. This process holds analogously for demonstrative pronouns.

The first observation that we can make for the examples above is that all determiner-noun pairs in the examples reflect the mass type indicated by the inflection on the determiner, with the exception of the Dutch example *het boek* (the book) in (4a). I give this example deliberately in order to include a mismatch between determiner inflection and mass type interpretation of the noun. As laid out in section 4.3.2.2, mismatches between mass type morphology and noun interpretation are a result of the breakdown of the Indo-European system of multiple mass type assignment. The determiner-noun pair *das Erbe* (the heritage) in (3a), which I have discussed in section 4.3.2.1, denotes a mass noun. The determiner-noun pairs *der Autoschlüssel* and *de autosleutel* (the car key) in (3b) and (4b) display a correct matching of mass type morphology on the article (bounded mass) and interpretation of the noun (count noun). The same holds for the pairs *die Polizei* and *de politie* in (3c) and (4c), which denote a collective noun. In contrast to singular nouns, plural interpretation and plural morphology are always correctly matched, since the morphological expression of the singular/plural distinction is fully stable in German and Dutch. It is therefore that the pairs *die Bücher* and *de boeken* in (3d) and (4d) do not display a mismatch between determiner morphology and interpretation.

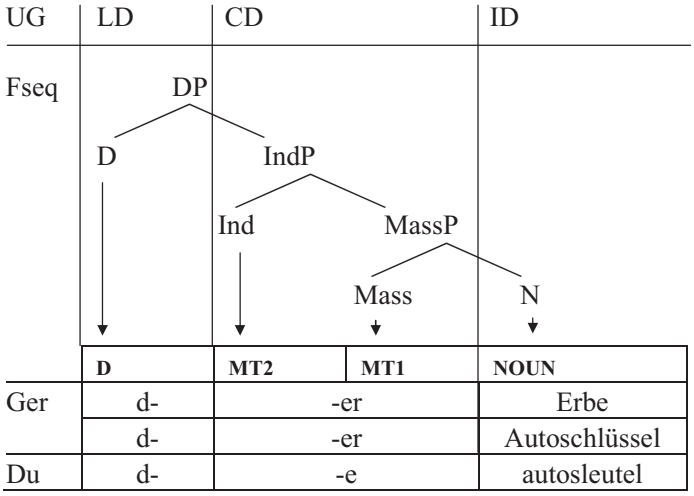
We can now turn to the construction of the individual determiner-noun pairs, starting with the German mass noun *das Erbe* (the heritage). A mass noun emerges when only MassP is projected in the Classification Domain. As mentioned above, the DP-layer of the definite article merges with the highest layer projected in this domain, i.e., MassP in this case. This is shown in the illustration in (6). All illustrations below exhibit the definite article only in nominative case.

(6) Construction of a mass noun with the definite article



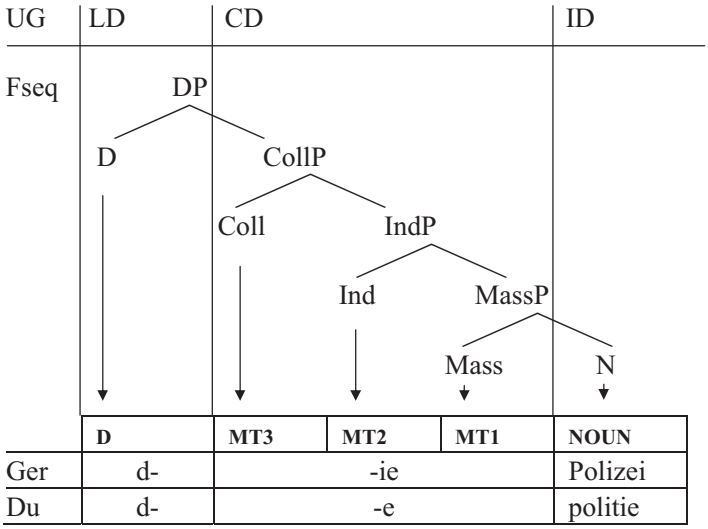
The following illustration shows the construction of the German and Dutch determiner-noun pairs *der Autoschlüssel* (the car key) and *de autosleutel* (the car key). I will furthermore include the German noun *der Erbe* (the heir) (cf. section 4.3.2.1) so that we can see the contrast between *Erbe* as mass and individuative noun. Recall that I have claimed in section 4.3.2.1 that the presence of a higher projection in the Classification Domain implies the presence of all projections below it. I have argued that the morpheme that spells out the highest projection spells out all the lower projections as well by virtue of Pantcheva's (2011: 114) overriding mechanism (cf. section 3.4.2) This mechanism states that whenever a morpheme is suitable to spell out a certain phrase and another morpheme is suitable to spell out the same phrase as well as the next higher phrase, then the morpheme suitable to spell out more structure will override the morpheme suitable to spell out less structure. It is therefore that the *-er* morpheme in German and the *-e* morpheme in Dutch spell out both IndP and MassP.

(7) Construction of a count noun with the definite article



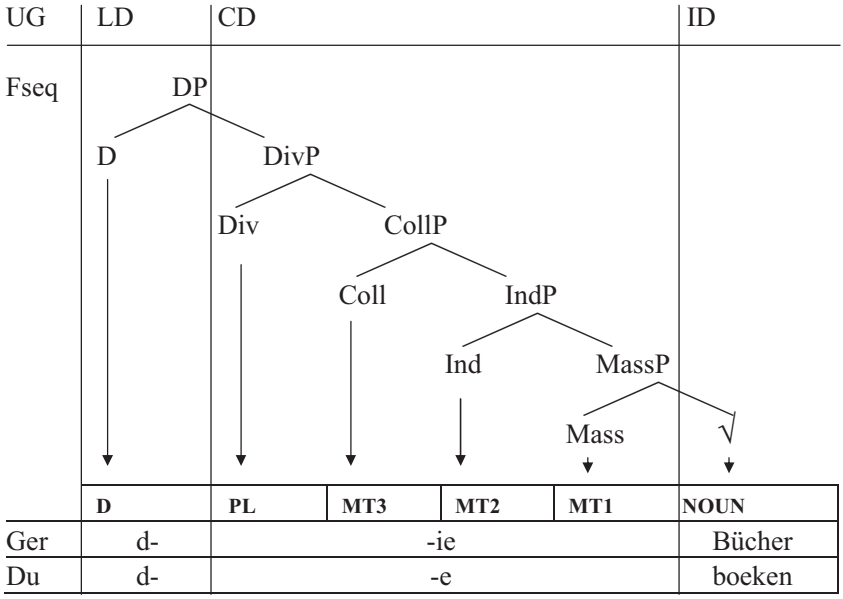
The next illustration shows the construction of the German and Dutch pairs *die Polizei* and *de politie* (the police), respectively.

(8) Construction of a collective noun with the definite article



The following illustration shows the construction of a plural noun with the German and Dutch pairs *die Bücher* and *de boeken* (the books), respectively.

(9) Construction of a plural noun with the definite article



As we can see from the column where the nouns are listed, both nouns carry a plural morpheme (*-en*, *-er*). I will remain neutral about the implementation of this kind of number agreement. Suffice it to say that it is the root classified as a noun that displays a morphological reflection of the number semantics determined by the functional structure in the CD. Traditionally, it is assumed that the determiner agrees with the gender and number values provided by the noun. Determiner morphology is therefore regarded as a reflex of the lexical makeup of the noun. In the analysis above, this traditional assumption is reversed and replaced with the assumption that the interpretation of the noun is the result of the makeup of the determiner.

With these remarks, I conclude the discussion of the definite article in German and Dutch. I will now proceed to the discussion of the demonstrative pronoun function. The goal of this discussion is to show why the d-item that functions as a demonstrative and as a relative pronoun is multifunctional, while the d-item that functions as a definite article is monofunctional.

6.3 The Demonstrative Pronoun Function

In this section, I will discuss the demonstrative function of German *der* (phonologically strong) and Dutch *die*. The goal of this section is to show that the suitability of German *der* and Dutch *die* as demonstrative pronouns arises

from their internal structure and is not determined by the external structure that these items are positioned in. It is therefore that we can find German *der* and Dutch *die* in all layers of the clause with one exception: the appearance of Dutch *die* as a demonstrative pronoun in the *v*P-VP complex is strongly degraded and can even be ungrammatical. In section 6.4.2 I will show that this degradedness is due to an externalization effect.

Let's start this discussion with some basic observations. From a purely observational point of view, the characteristic difference between a definite article and a demonstrative pronoun (DPR) in German and Dutch is that the definite article has to surface with an overt noun in its complement while the DPR can also surface alone and establish anaphoric[58] reference to an antecedent that has earlier been introduced into the linguistic context. In order to establish reference, the DPR has to match the mass type and number morphology of the antecedent in the same way as the definite article. This is shown for the DPR in German and Dutch in examples in (10) and (11), respectively. The DPR in German can appear in all layers of the clause. The distribution of the DPR in Dutch is more restricted. For reasons that will be discussed in section 6.4.2, placing the DPR in the *v*P-VP complex is either degraded or ungrammatical. I will therefore only produce examples below, in which the DPR has been moved to the left periphery. Please note that there are no direct English translations for these constructions since English doesn't have DPRs that can be moved to the left periphery in the way that German *der* and Dutch *die* can. The examples will again be ordered along the hierarchy of the Classification Domain.

(10) a. Ich habe ein neues Buch. **Das** musst du lesen.
I have a.MT1.NOM new book DPR.MT1.ACC must you read
'I have a new book. You have to read it.'
LITERALLY: 'I have a new book. That you have to read.'

[58] The term anaphoric reference is merely used here to say that an element can refer back to a previously introduced antecedent. It is not meant in the sense of a syntactically bound anaphor as in constructions like 'Marta is proud of herself.', where the anaphor *herself* is assumed to be forming a chain with the antecedent *Marta* by entering an agreement relation with it (cf. Reuland 2011 for extensive discussion).

b. Wir haben dafür einen Spezialisten. **Der** kennt
we have there-for a.MT2.ACC specialist DPR.MT2.NOM knows

sich damit aus.
REFL there-with out

'We have a specialist for that. He is familiar with that.'
LITERALLY: 'We have a specialist for that. That one is familiar with that.'

c. Ich habe gestern eine schöne Tasche gesehen.
I have yesterday a.MT3.NOM beautiful bag seen

Die will ich haben.
DPR.MT3.ACC want I have

'I saw a nice bag yesterday. I want to have it.'
LITERALLY: 'I saw a nice bag yesterday. That I want to have.'

d. Wir haben neue Nachbarn. **Die** sollten wir einladen.
we have new neighbors.PL DPR.PL.NOM should we invite
'We have new neighbors. We should invite them.'
LITERALLY: 'We have new neighbors. These we should invite.'

(German)

(11) a. Ik heb een nieuw boek. **Dat** moet je lezen.
I have a new book DPR.MT1 must you read
'I have a new book. You have to read it.'
LITERALLY: 'I have a new book. That you have to read.'

b. We hebben daar een specialist voor. **Die** is
we have there a specialist for DPR.MT2/MT3 is

daarmee bekend.
there-with familiar

'We have a specialist for that. He is familiar with this that.'
LITERALLY: 'We have a specialist for that. That one is familiar with that.'

c. We hebben nieuwe buren. **Die** moeten we uitnodigen.
we have new neighbors.PL DPR.PL must we invite
'We have new neighbors. We have to invite them.'
LITERALLY: 'We have new neighbors. These we have to invite.'

(Dutch)

Replacing the DPR in the examples in (10) and (11) with a definite article results in ungrammaticality. This is shown in (12). The ungrammaticality of the definite article surfacing alone is not related to its positioning in the left periphery. I placed it there only in order to create a minimal pair. Please note the ungrammaticality of (12a) must be gathered from the glossing since the definite article and the demonstrative pronoun are orthographically indistinguishable in German.

(12) a. Wir haben neue Nachbarn. ***Die** sollten wir einladen.
we have new neighbors.PL DA.PL.NOM should we invite
INTENDED: 'We have new neighbors. We should invite them.'
LITERALLY: 'We have new neighbors. *The we should invite.'

(German)

b. We hebben nieuwe buren. ***De** moeten we uitnodigen.
we have new neighbors.PL DA.PL must we invite
INTENDED: 'We have new neighbors. We have to invite them.'
LITERALLY: 'We have new neighbors. *The we have to invite.'

(Dutch)

In the discussion below, I will argue that the contrast between the monofunctionality of the definite article (which entails the ungrammaticality of its use in the examples above) and the multifunctionality of the demonstrative/relative pronoun is related to four properties of demonstrative pronouns. These properties are related to syntax, intonation and information structure. I will furthermore argue that it is the internal structure of German *der* and Dutch *die* that endows them with these properties. The properties are listed in (13).

(13) Necessary properties for a d-item to serve as demonstrative pronoun

1. Availability for movement to the left periphery
2. Ability to trigger focus-to-topic shift
3. Ability to bear the main sentence stress
4. Ability to bear contrastive focus

In order to see how these conditions are relevant, we have to take a brief look at the referential properties of DPRs in German and Dutch with respect to information structure and intonation.

In the introductory examples (10) and (11) we have only seen situations in which the DPR is preceded by one eligible antecedent. It is then obviously this antecedent that will be referred to by the DPR. Yet the picture gets more complex when there are two eligible antecedents. In these cases the anaphoric reference is determined by the information-structural status of the antecedent. Profound investigation into the referential properties of DPRs in German (cf. Bosch et al 2003, Bosch et al 2007, Bosch & Umbach 2007, Hinterwimmer (2015) and Dutch (Comrie 1997, Kaiser & Trueswell 2004, Bouma 2008: Chapters 2 and 4 and van Kampen 2010, 2012) has shown that there is a split between the referential properties of personal pronouns and the referential properties of DPRs. While personal pronouns refer to the aboutness topic[59] of the

[59] The general notion of *topic* is notoriously controversial in the literature on information structure, and it would be far beyond the scope of this dissertation to try to do justice to this debate here. I will therefore follow Hinterwimmer (2015) and van Kampen (2010) and adopt the definition of *aboutness topic* formulated in Reinhart (1981). For further readings on this issue I would like to point the reader to Erteschick-Shir (2007), Büring (2007), and the references therein. Reinhart (1981: 54), distinguishes between two notions of aboutness which she introduces with the following example.

(i) a. Mr. Morgan is a careful researcher and a knowledgeable semiticist, but his originality leaves something to be desired.
b. (a) is about Mr. Morgan
c. (a) is about Mr. Morgan's scholarly ability.

With respect to the example above, the first notion of aboutness is related to the sentence. If we would ask what the sentence in (ia) is about, the answer would be Mr. Morgan. Mr. Morgan therefore constitutes the *sentence topic* of (ia). In addition to this, we can also ask what the whole discourse is about in which this sentence this uttered. In

preceding sentence, which can simultaneously be the discourse topic that has been held across a number of preceding sentences, DPRs only refer to antecedents that constitute the focus of the directly preceding sentence. Comrie (1997), Kaiser & Trueswell (2004), Bouma (2008: Chapter 2), van Kampen (2010, 2012) and Hinterwimmer (2015) show that from an information-structural point of view, DPRs constitute devices that instantiate a so-called *focus-to-topic shift*.[60] The antecedent that constitutes the focus of the preceding sentence is turned into the topic of the following sentence when picked up by the DPR. In this case, the DPR appears in the left periphery of the clause. All examples in (10) and (11) are instances of focus-to-topic shift. Let me make this even clearer in example (14) below, where the English personal pronoun *I* constitutes both the discourse topic and the aboutness topic of every sentence uttered in the given mini-discourse. The DPR in the sentences below the mini-discourse shifts the topic from the pronoun *I* to the noun *the coat*. Please note again that there are no direct English translations of these examples, since English doesn't have DPRs that instantiate focus-to-topic shift in the way that German and Dutch DPRs do.

(14) Focus-to-topic shift with demonstrative pronouns in German and Dutch

Discourse background: Imagine you were in the city yesterday and you are telling a friend about it. You say: 'I was in the city yesterday. I passed the shops and I saw a beautiful coat.'

a. ... **Den** musste ich einfach kaufen.
…DPR.MT2.ACC must.PAST I simply buy
'I just had to buy it.'
LITERALLY: That I just had to buy. (German)

---

this case there are many possible answers. The discourse could, of course, be about Mr. Morgan, but it could also be about Mr. Morgans originality or about what it means to be a good scholar in general. This notion of aboutness is much wider than the notion of aboutness that relates to the sentence alone. The *discourse topic* is therefore whatever the whole discourse is about. In contrast to the *sentence*, the *discourse topic* can but need not be directly related to a constituent in the sentence. The *sentence topic* is what in current terminology is called the *aboutness topic*. While the aboutness topic is what the sentence is about, the rest of the sentence contains what is being said about the entity that constitutes the aboutness topic. This part of the sentence is called the *focus* of the sentence. The information given in the focus is new, non-derivable information about the topic.

[60] For literature on the issue of topic shift see: Gundel 1974. Reinhart 1981, Givón 1983, Jacobs J. 2001, Frey 2006 and Frascarelli & Hinterhölzl 2007 and Bouma 2008, among many others.

b. ... **Die** moest ik gewoon kopen.
…DPR.MT2/MT3 must.PAST I simply buy
'I just had to buy it.'
LITERALLY: That I just had to buy. (Dutch)

In addition to appearing in the left periphery when instantiating focus-topic-shift, DPRs in German and Dutch can also appear in the middle field and refer to an antecedent when no such shift in involved, for example, in cases where a question determines the topic of the sentence. This is shown in (15).

(15) The demonstrative pronoun in the middle field in German and Dutch

Discourse background: Imagine you and your housemate have a party planned for tonight. Your have invited Peter, but you haven't heard back from him yet. You ask your housemate: What about Peter? Your housemate answers:

a. Soweit ich weiß wollte **der** später noch vorbeikommen.
so-far I know wanted DPR.MT2.NOM later still drop-by
'As far as I know, he still wanted drop by later.'
LITERALLY: 'As far as I know, that one still wanted to drop by later.'

(German)

b. Volgens mij wilde **die** later nog langskomen.
following me wanted DPR.MT2/MT3 later still drop-by
'I think he still wanted drop by later.'
LITERALLY: 'I think that one still wanted drop by later.'

(Dutch)

In all the examples shown in (14) and (15), there are several ways in which the DPR can be stressed in the intonation of the sentence. First of all, the DPR can bear the main stress in the sentence. Depending on what is regarded as important by the speaker, different elements in the sentence can bear the main stress. With respect to example (14), if the beauty of the coat is the most important aspect, the main stress will lie on the DPR ('That I had to buy.'). If the necessity to buy the coat is the most important aspect, the main stress will lie on the modal verb ('I just had to buy it.'). With respect to example (15), if the most important aspect is that you are talking about Peter, then the DPR will bear the main stress. ('As far as I know that one still wanted to drop by later'). If the most important

aspect is that he will drop by at a later time, then the main stress will lie on the temporal adverb ('As far as I know he still wanted to drop by later.').

In contrast to DPRs, definite articles are incapable of bearing the main sentence stress under normal sentence intonation. This is shown in (16) for Dutch. This particular contrast cannot be shown for German because German *der* will always automatically be interpreted as a DPR in this situation. Main sentence stress on the definite article is indicated with underscore.

(16) a. *Ik wil **de** jas kopen.
I want the jacket buy
'I want to buy the jacket.'

b. Ik wil **die** jas kopen.
I want that jacket buy
'I want to buy that jacket.' (Dutch)

Please note for the translation in (16a) that this construction is only ungrammatical in English as well when the vowel of the English definite article the is not lengthened to an /i:/. English has the option of turning the definite article into a demonstrative-like element by lengthening the vowel under contrastive focus. This option is obviously unavailable in Dutch, since lengthening and stressing the vowel of the definite article would automatically result in uttering the DPR. There is only one particular case in which the definite article in German and Dutch can bear the main stress of the sentence, namely when it is emphasized in order to create a superlative-like interpretation. This is shown in (17).

(17) a. Das ist **der** Tag des Jahres.
this is DA.MT2.NOM day the.GEN year.GEN
'This is the day of the year.'

b. Dit is **de** dag van 't jaar.
this is DA.MT1/MT2 day of the year
'This is the day of the year.'

Given that this kind of emphasis only arises under very restricted circumstances, it doesn't pose a problem for the generalization that the definite article in German and Dutch cannot bear the main sentence stress under normal sentence intonation.

In addition to being able to bear the main sentence stress, the DPR in German and Dutch can also be contrastively focused. This can be shown with the same examples by using a slightly different kind of discourse background. Contrastive focus intonation is indicated with capital letters.

(18) Contrastive intonation on the DPR in the left periphery

Discourse background: Imagine you were in the city yesterday and you are telling a friend about it. You say: 'I was in the city yesterday. I passed so many shops with nice clothes that I would have loved to buy, but I didn't want to spend too much money. Then I came to this one shop where I saw this extremely beautiful coat.'

a. ... **DEN** musste ich einfach kaufen.
…DPR.MT2.ACC must.PAST I simply buy
'I just had to buy it.'
LITERALLY: THAT ONE I just had to buy. (German)

b. ... **DIE** moest ik gewoon kopen.
…DPR.MT2/MT3 must.PAST I simply buy
'I just had to buy it.'
LITERALLY: THAT ONE I just had to buy. (Dutch)

In this example, what you're saying is that out of all the nice things that you saw, you only bought this one specific coat. The same contrastiveness holds for the example below.

(19) Contrastive intonation on the DPR in the middle field

Discourse background: Imagine you and your housemate have a party planned for tonight. You have invited Alicia, Diane, Will, Cary and Kalinda, but you haven't heard back from Will yet. You ask your housemate: What about Will? Your housemate answers:

a. Soweit ich weiß wollte **DER** später noch vorbeikommen.
so-far I know wanted DPR.MT2.NOM later still drop-by
'As far as I know, he still wanted drop by later.'
LITERALLY: 'As far as I know, THAT ONE still wanted to drop by later.'
(German)

b. Volgens mij wilde **DIE** later nog langskomen.
following me wanted DPR.MT2/MT3 later still drop-by
'I think he still wanted drop by later.'
LITERALLY: 'I think THAT ONE still wanted to drop by later.'
(Dutch)

With this answer, your housemate tells you that out of all the people you invited, Will, is the one who is planning to drop by later.

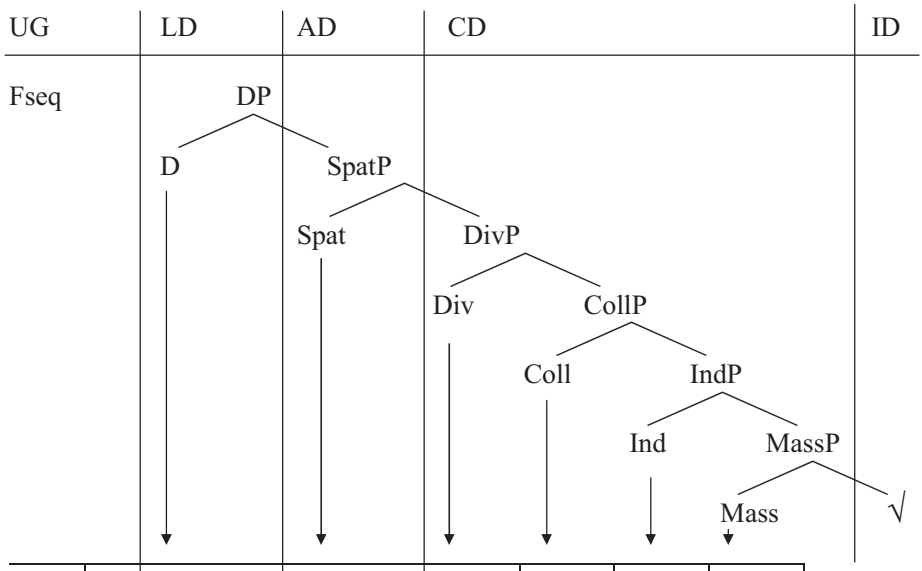
In contrast to the DPR, it is not possible for the definite article to bear contrastive focus. This can be made especially clear when contrastive focus on DPRs is used to distinguish between two (or more) individuals. This contrast can again only be shown for Dutch. Imagine a situation where someone stands in a store, looking at two jackets. Both jackets have the same distance from the speaker. The person points to one jacket and then to the other while saying:

(20) a. Ik zal **DIE** jas kopen maar niet **DIE** jas.
I will DPR.MT2/MT3 jacket buy but not DPR.MT2/MT3 jacket
'I will buy THAT jacket but not THAT jacket.'

b. *Ik zal **DE** jas kopen maar niet **DE** jas.
I will DA.MT2/MT3 jacket buy but not DA.MT2/MT3 jacket
'I will buy THE jacket but not THE jacket.'

With these considerations in mind, we can now approach the difference between the definite article and the demonstrative/relative pronoun with respect to mono- and multifunctionality. My explanation for this contrast is that an element that has to be available for movement to the left periphery, for instantiating focus-to-topic shift, for bearing the main sentence stress, and for contrastive focus intonation cannot be phonologically weak. In sections 4.2.1, 4.2.2, 4.3.4, 4.5.1 and 4.5.2, I have shown that the crucial difference between the definite article and the demonstrative/relative pronoun in German and Dutch is that the definite article is phonologically weak, while the demonstrative/relative pronoun is phonologically strong. In section 4.3.4 I have argued that this contrast in phonological strength is the result of a difference in the internal structure of the definite article and the demonstrative/relative pronoun. Specifically, I have argued that the definite article does not project the spatial layer in the Anchoring Domain, while the demonstrative/relative pronoun does. I have furthermore argued that SpatP is spelled out by phonological strength in German *der* and Dutch *die*. This is repeated in the illustration below.

(21) The internal structure of the German and Dutch demonstrative/relative pronoun



Ger		**D**	**S-DEIXIS**	**PL**	**MT3**	**MT2**	**MT1**
	N	d-	strength	-ie		-er	-as
	A	d-	strength	-ie		-en	-as
	G	d-	strength	-er		-es	
	D	d-	strength	-en	-er	-em	
Du		**D**	**S-DEIXIS**	**PL**	**MT3**	**MT2**	**MT1**
		d-	strength	-ie			-at

It is the Spellout of SpatP that endows the d-items German *der* and Dutch *die* with the phonological strength that allows them to bear the main sentence stress and contrastive focus. The reason why it can only be the demonstrative pronoun that also serves as the relative pronoun in German and Dutch follows straightforwardly from the argumentation above. Relative pronouns in German and Dutch have to be able to appear alone in the left periphery of the relative clause and establish reference with the noun that constitutes the antecedent of the relative clause. Due to the lack of SpatP, the definite article is spelled out as a phonologically weak element that cannot appear without an overt noun in its complement. Due to the presence of SpatP, the element used as a demonstrative pronoun is a phonologically strong element that can appear without an overt noun and establish reference with a previously introduced antecedent. This element therefore constitutes the ideal candidate for functioning as both a demonstrative and a relative pronoun. With these considerations in place, I

conclude this section on the demonstrative function and proceed to the discussion of the relativizing function.

6.4 The Relativizing Function

In this section, I will discuss the behavior of German *der* and Dutch *die* as relative pronouns.[61] The crucial difference between the relativizing function and the demonstrative function is that while the internal structure of German *der* and Dutch *die* makes them available to perform both functions, it is only the relativizing function that is imposed on these items by the specific structural makeup of a particular syntactic configuration, namely the relative clause. This means that the relativizing function is a matter of the external syntax in which German *der* and Dutch *die* are positioned while the demonstrative function is a matter of their internal syntax. To facilitate the discussion on relativization, I will first introduce some terminology.

Relative clauses are generally divided into two major classes: *headed relative clauses* and *free relative clauses*. Headed relative clauses are constructions in which the relative clause – or, more specifically, the relative pronoun – refers to an overt antecedent. This antecedent is called the *head noun* of the relative clause. (22) shows some examples of headed relative clauses in English, where HN stands for head noun and HRC for headed relative clause.

(22) a. This is the book$_{HN}$ [$_{HRC}$ that I bought].
b. This is the woman$_{HN}$ [$_{HRC}$ that helped me].

Free relative clauses are characterized by having no head noun to which the relative clause refers. In Germanic languages free relative clauses typically make use of w-items as relativizers. Two examples of free relative clauses in English are given in (23).

(23) a. I appreciate [$_{FRC}$ **what** you said].
b. I like [$_{FRC}$ **who** you like].

[61] I would like to point out that it is only German *der* and Dutch *die* that can function as demonstrative and relative pronouns. The demonstrative pronouns German *dieser*, Dutch *deze* and Dutch *dit* (cf. section 4.2.4) cannot function as relative pronouns. Unfortunately, I have no explanation for this contrast. For some discussion related to this issue, see Rooryck (2003) and Kayne (2010: 190-227).

In this section we will only be dealing with headed relative clauses, for these are the only kind of relative clauses in which d-items can function as relativizers.[62]

Headed relative clauses are furthermore subdivided into a number of different types. This classification, based on syntactic and/or semantic properties of the headed relative clause, plays an important role in the literature on relative clauses and is until today a frequent subject of discussion. One classical (but much debated) distinction between types of relative clauses is *restrictive* vs. *appositive*. Restrictive relative clauses are characterized by providing crucial semantic information that plays a determining role in restricting the reference of the head noun. Appositive relative clauses, in contrast, provide additional information that has no further relevance in determining reference. We will only deal with restrictive relative clauses here. For a detailed overview over the different types of relative clauses, see de Vries (2002).

The head noun of a relative clause needs to be associated with a position in the relative clause in order obtain the correct interpretation for the whole construction. For the examples in (22) this means that the noun *book* in (22a) needs to be associated with the object position of the VP of the relative clause while *woman* in (22b) needs to be associated with the subject position which has its base position in the specifier of *v*P. Since the head noun is not overtly represented in the position in the relative clause with which it is associated, this

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[62] It has been observed in the literature that German and Dutch also seem to have free relative clauses that are introduced with d-items instead of w-items (cf. Barbiers et al 2005: 90, Boef 2013: 183f, Fuß & Grewendorf 2014).

(i) a. **Die** es nicht so gut können, fliegen raus.
RP.PL it not so good can fly out
'The ones who are not very good at it will be fired.'
(German, Fuß & Grewendorf: 166)

b. % **Die** het weet, mag het zeggen.
RP.MT2/MT3 it knows may it say
'Who knows it, may say it.' (Dutch, Boef 2013: 184)

Fuß & Grewendorf (2014) show that although these constructions look like free relative clauses at first sight, they cannot be analyzed as such. Based on a large data set of German relative clauses of the kind exemplified in (i), compiled from corpus and questionnaire studies, Fuß & Grewendorf (2014) show that these relative clauses have to be analyzed as restrictive headed relative clauses in which the relative pronoun has been deleted under identity with the head noun, which in these cases is a demonstrative pronoun.

position is called the *gap* of the relative clause. This is shown in (24), where the gaps are illustrated using underscores.

(24) a. This is the book$_{HN}$ [$_{HRC}$ that I bought ___].
b. This is the woman$_{HN}$ [$_{HRC}$ that ___ helped me].

The mechanism by which the gap of the relative clause and the head noun are related has been debated for more than forty years. I will not produce a recapitulation of this debate here. Instead, I would like to refer the reader to the short summary and references in fn. 63.[63] For the discussion below, I will adopt Boef's (2013) analysis of Dutch restrictive relative clauses, which I take to translate directly to German restrictive relative clauses. What interests us in this section is how the relativizing function of German *der* and Dutch *die* is determined through the syntactic configuration of the relative clause.

A further contrast we have to be aware of in the discussion to follow is the contrast between non-oblique and oblique relative clauses. A non-oblique relative clause is one where the relative pronoun is associated with a non-oblique case, i.e., nominative and accusative. An oblique relative clause is one where the relative pronoun is associated with an oblique case, such as dative or genitive, which can be expressed either by case morphology or by embedding the relative pronoun into a prepositional phrase. Prepositional case is always an oblique case, even if the case assigned by the preposition is accusative. Example (25) shows this distinction in English.

[63] There are three main approaches to account for the relation between the gap and the HN. The oldest approach is the Head-External Analysis, which is based on the assumption that the HN is generated external to the RC and then related to the gap either directly or via the relative pronoun (RP). For this approach, see Chomsky (1977), Smits (1988), Borsley (1997) and Boef (2013). This approach was challenged by the Head-Internal Analysis, which is based on the assumption that the HN is base-generated inside the RC together with the RP (if the RP is overt) and then moved out of the RC, leaving the RP behind. For this approach, see Vergnaud (1974), Kayne (1994), Zwart (2000), Bianchi (2000), de Vries (2002), Bhatt (2002) and Donati & Cecchetto (2011). The third and newest approach is the Matching Analysis. This approach assumes that there are two representations of the HN. One is generated outside the RC and one is generated within the RC. In the course of the derivation, the internal representation moves to the left periphery of the RC, where it gets matched with the external HN under identity. For this approach, see Lees (1960, 1961), Chomsky (1965), Munn (1994), Citko (2001) and Salzmann (2006). For summaries of the different approaches, see Alexiadou et al (2000) and Boef (2013).

(25) a. non-oblique relative clause
This is the man$_{HN}$ [$_{HRC}$ **who** I saw].

b. oblique relative clause
This is the man$_{HN}$ [$_{HRC}$ [$_{PP}$ **to whom**] I talked]

The discussion of the relativizing function of German *der* and Dutch *die* will be divided in two parts. First, I will discuss the non-oblique relative clauses and then the oblique relative clauses.

6.4.1 Non-Oblique Relative Clauses

The following examples show us a number of relative clauses from both German and Dutch. We can see from these examples that the d-item in its relativizing function appears in the left periphery of the relative clause and that it has to match the mass type and number morphology of the head noun in the same way as it does when it is used as a demonstrative pronoun that refers anaphorically to a previously introduced linguistic antecedent. This is shown in (26) for German and in (27) for Dutch, where RP stands for relative pronoun. The examples are again ordered along the hierarchy of the Classification Domain.

(26) a. Das ist **das** Buch, **das** du lesen musst.
that is DA.MT1.NOM book RP.MT1.ACC you read must
'This is the book that you have to read.'

b. Das ist **der** Kollege, **der** mir geholfen hat.
this is DA.MT2.NOM colleague RP.MT2.NOM me helped has
'This is the colleague that helped me.'

c. Das ist **die** Tasche, **die** ich haben will.
this is DA.MT3.NOM bag RP.MT3.ACC I have want
'This is the bag that I want to have.'

d. Das sind **die** Nachbarn, **die** mir geholfen haben.
this are DA.PL.NOM neigbors RP.PL.NOM me helped have
'These are the neighbors that helped me.'

(German)

(27) a. Dat is **het** boek **dat** je moet lezen.
that is DA.MT1 book RP.MT1 you must read
'That is the book that you have to read.'

b. Dat is **de** collega **die** mij geholpen heeft.
that is DA.MT2/MT3 colleague RP.MT2/MT3 me helped has
'That is the colleague that helped me.'

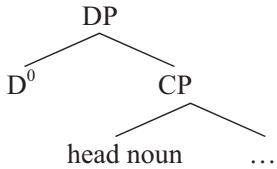
c. Dat zijn **de** buren **die** mij geholpen hebben.
that are DA.PL neigbors RP.PL me helped have
'Those are the neighbors that helped me.'

(Dutch)

In the previous section we have seen that German *der* and Dutch *die* fulfill all the conditions that make these d-items available for the demonstrative and the relativizing function. The goal of this section is to show that acquiring the relativizing function as such is a consequence of the syntactic position these d-items occupy in the internal structure of the relative clause. I will make this argument based on the analysis of the internal structure of Dutch restrictive relative clauses proposed in Boef (2013).

Boef's (2013: 131-146) proposal of the internal structure of relative clauses starts with the commonly held assumption that the relative clause is situated within the DP as a complement of D^0 and that the head noun of the relative clause is generated in the specifier of the relative CP (for discussion and references, see Boef 2013: 124-127, 138f). This is shown in the structure in (28).

(28) The D-complement hypothesis of relative clauses



In addition to the D-complement hypothesis, Boef (2013: 139) proposes to decompose the relative CP in Dutch relative clauses into two layers: one CP-layer that hosts the head noun of the relative clause and one CP-layer that hosts the relative pronoun. This proposal is an adaption of van Craenenbroeck's (2004, 2010) decomposition of the left periphery of embedded *wh*-clauses. In order to understand Boef's (2013) motivation for decomposing the left periphery of the relative clause, I will give a very brief summary of van Craenenbroeck's (2004, 2010) proposal for thr structure of embedded *wh*-clauses. Van Craenenbroeck's

decomposition of the left periphery of embedded *wh*-clauses is motivated against the background of a number of empirical phenomena of which I will pick out only two because they are directly related to German and Dutch relative clauses, as we will see further below. The first phenomenon is the so-called Doubly Filled COMP (DFC). The term DFC describes the fact that certain languages allow embedded clauses to display an overt complementizer in C^0 as well an overt element in the specifier of the CP. DFC can be observed in embedded *wh*-clauses in non-standard varieties of both German and Dutch (cf. Bennis 1997, Boef 2013: 131-137, Bayer 2004: 2ff and Bayer & Brandner 2008). This is shown in (29a) for Dutch and (29b) for German.

(29) Doubly Filled COMP in Dutch and German embedded *wh*-clauses

a. % Ik vraag me af **wie** **dat** het gedaan heeft.
I ask me PART who that it done has
'I wonder who did it.'

(non-standard Dutch, adapted from Bennis 1997: 353)

b. # I woass it **wieviel**[64] **dass** er für des Auto zahlt hät.
I know not how much that he for the car paid has
'I don't know how much he paid for the car.'

(Allemanic German, Bayer & Brandner 2008: 87)

The second phenomenon that plays an important role in van Craenenbroeck's (2004, 2010) account and that can be observed in Dutch but not in German is CP-recursion (cf. Hoeckstra J. 1993, Hoeckstra E. & Zwart 1994, 1997, Bennis

[64] Please be aware that German dialects (in contrast to Duch dialects) only allow DFC in embedded *wh*-clauses when the material situated in SpecCP is more complex than a simple *wh*-phrase like *wer* (who) or *was* (what). While (i) is grammatical in Bavarian, for example, (ii) is ungrammatical.

(i) #I woaß, wos fiar-a-Bier dass-a gern trinkt.
I know what for-a-beer that-he preferably drinks
'I know what kind of beer he likes to drink.

(ii) # ?* I woaß, wos dass-a gern trinkt.
I know what that-he preferably drinks
'I know what he likes to drink.'

(Bavarian German, adapted from Bayer 2004: 4)

1997, 2003 and Bayer 2004: 7ff). In this case, we can see two complementizers introducing an embedded clause, suggesting that there are two CP-layers, each hosting a complementizer in C^0. This is shown in (30).

(30) % Ik vraag me af **of** **dat** hij het gedaan heeft.
I ask me PART whether that he it done has
'I wonder whether he did it.'

(non-standard Dutch, adapted from Bennis 1997: 353)

Moreover, DFC and CP-recursion can appear in combination.

(31) % Ik vraag me af **wie** **of** **dat** het gedaan heeft.
I ask me PART who whether that it done has
'I wonder who did it.'

(non-standard Dutch, adapted from Bennis 1997: 353)

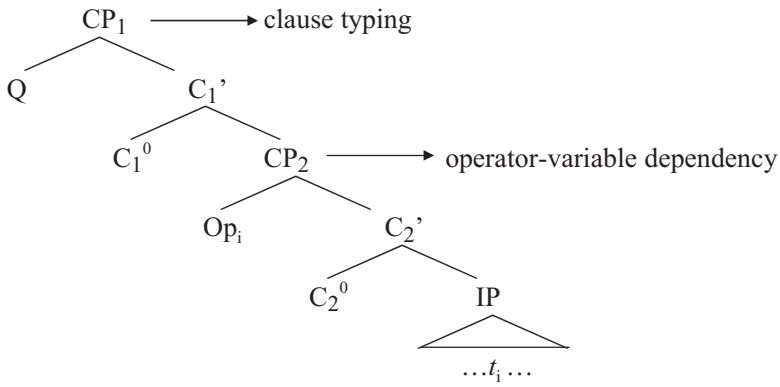
In addition to these data, van Craenenbroeck (2010: 244f) shows that some Dutch dialects allow the *wh*-phrase (the w-item in my terminology) to appear in between the two complementizers, which suggests that the *wh*-phrase has moved through the lower CP to the higher CP when it appears to the left of both complementizers.

(32) # Ik weet nie **of** **met wie** **dat** Jan oan et proate was.
I know not whether with who that Jan on it talk was
'I don't know who Jan was talking to.'

(Strijen Dutch, adapted from van Craenenbroeck 2010: 245)

Based on these data and data from other phenomena related to *wh*-constructions, van Craenenbroeck (2004, 2010: 241f) proposes to split the left periphery of embedded *wh*-clauses into two layers: a higher CP-layer, where clause typing is instantiated and a lower CP-layer, that provides a landing site for operators in order to create operator-variable dependencies. The structure is given in (33), where Op stands for operator and Q for interrogative force.

(33) Craenenbroeck's (2004, 2010) internal structure of embedded *wh*-clauses



(adapted from Craenenbroeck 2010: 241)

Van Craenenbroeck (2010: 241-245) furthermore argues that simple *wh*-phrases behave differently from complex *wh*-phrases. He argues that only simple *wh*-phrases can function as operators and therefore move to the lower CP first to create an operator-variable dependency and then to the higher CP to instantiate clause typing. Complex *wh*-phrases, in contrast, have to be base-generated in the specifier of the higher CP to instantiate clause typing, while a silent operator is moved to the specifier of the lower CP. The empirical basis for this assumption is the observation that complex *wh*-phrases can only occur to the left of the higher complementizer.

(34) a. # Ik vroag me af **welke jonge of** die maisjes gistere
I ask me PART which boy whether the girls yesterday

gezien hebben.
seen have

'I wonder which boy the girls saw yesterday.'

(Strijen Dutch, adapted from van Craenenbroeck 2010: 245)

b. # *Ik vroag me af **of** **welke** **jonge** die maisje gistere
I ask me PART whether which boy the girls yesterday

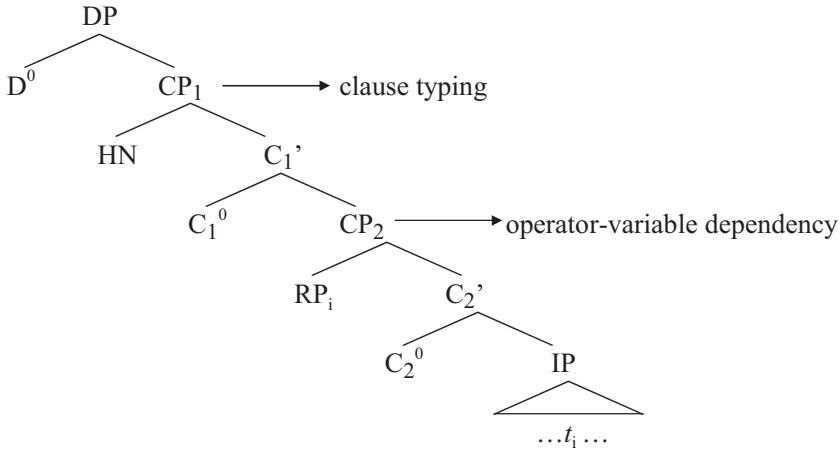
gezien hebben.
seen have

'I wonder which boy the girls saw yesterday.'

(Strijen Dutch, adapted from van Craenenbroeck 2010: 245)

Boef (2013: 139) adapts van Craenenbroeck's (2004, 2010) proposal to the internal structure of Dutch restrictive relative clauses and decomposes the left periphery of the relative clause into two CP-layers: the higher CP-layer defines the embedded clause as a relative clause (i.e., clause typing), while operator-variable dependencies are created in the lower CP-layer. Following the insights of Aoun & Li (2003), she argues that the head noun of the relative clause is base-generated in the specifier of the higher CP of the relative clause. The relative pronoun moves successively from the *v*P-VP complex to the specifier of the lower CP. This mirrors van Craenenbroeck's argument that complex *wh*-phrases (which don't have operator status) have to be base-generated in the specifier of the higher CP, while only simple *wh*-phrases (which do have operator status) can move to the specifier of the lower CP. With respect to the lower CP, Boef (2013: 139) argues that the relative pronoun functions as an operator that turns the proposition denoted by the relative clause into a predicate upon movement into the specifier position. This creates a relation of *Predicate Modification* (Heim & Kratzer 1998: 95) between the head noun and the relative clause. This relation amounts to set intersection. In order to yield the correct interpretation, the set denoted by the relative clause has to be intersected with the set denoted by head noun. With respect to the higher CP, Boef (2013: 139) argues that although there is no clause typing in the relative clause in the sense of sentential force, the left periphery of the relative clause is unique in the sense that it can host an element that can only occur in the left periphery of the relative clause and in no other syntactic configuration. This element is the head noun. She consequently assumes that the head noun is base-generated in the specifier of the higher CP. The C^0 position of the higher CP remains phonologically empty, since Dutch has no overt clause typing elements. Combining the D-complement hypothesis and the split-CP proposal, Boef (2013: 139) arrives at the following structure, where the abbreviations HN and RP stand for head noun and relative pronoun, respectively.

(35) The left periphery of Dutch restrictive relative clauses



(adapted from Boef 2013: 139)

We can now see how the relativizing function of German *der* and Dutch *die* arises from the syntactic configuration of the relative clause. The d-item gets moved to the left periphery of the lower CP in the same way as it is moved to the left periphery in its function as a demonstrative pronoun. Yet, due to the additional C-head (C_1), which defines the embedded sentence as a relative clause by virtue of the head noun base-generated its specifier, the d-item acquires the function of the relative pronoun.

This configurational analysis of the relativizing function of d-items in German and Dutch receives further empirical support from relative clause constructions in non-standard varieties of German and Dutch. Given the parallelism between Boef's (2013) and Craenenbroeck's (2004, 2010) proposals, we should expect that we find DFC phenomena in German and Dutch relative clauses as well. This prediction is borne out. In parallel to embedded *wh*-clauses, relative clauses in non-standard varieties of German and Dutch display DFC (for extensive data discussion, see Boef 2013: 131-137 and Brandner & Bräuning 2013). Example (36a) shows a relative clause from colloquial Dutch. (36b) shows a relative clause from Bavarian.

(36) Doubly Filled COMP in Dutch and German relative clauses

a. % Dat is de man **wie** **dat** het verhaal verteld heeft.
that is the man who that the story told has
'That is the man who told the story.'

(Dutch, Boef 2013: 136)

b. # …dea Mo **dea** **wo** seine Schuh verlora hot.
that man RP.MT2.NOM COMP his shoe lost has
'… that man who lost his shoe.'

(Bavarian, Brandner & Bräuning 2013: 132)

Some comments are necessary to understand these examples properly. In (36a) we see that the relative pronoun is not the Dutch d-item *die* but the Dutch w-item *wie* (who). *Wie* can alternate with *die* in the position of the relative pronoun under certain conditions. These conditions will be discussed briefly further below in section 6.4.2 and extensively in section 7.4. In (36b) we see the relative complementizer *wo* immediately after the d-item *dea* (which corresponds to standard German *der*). It is important not to confuse the complementizer *wo* with the w-item *wo* (where). The complementizer *wo* is a descendant of the equative particle *so* (as), which surfaces in Scandinavian relative clauses as *sem* or *som* (cf. Brandner & Bräuning 2013 for extensive diachronic, typological and theoretical discussion). Multifunctional behavior of *so* as an equative particle and a relative complementizer can still be found in Southern German dialects until today. This is shown in (37).

(37) # Saell Maidli **so** 's -Fahrrad gschdolle wore ischt, …
that girl COMP the-bicycle stolen was been
'The girl that the bicycle was stolen from…'

(Alemannic, Brandner & Bräuning 2013: 132)

The *wo*-form of the equative particle *so*, that has become characteristic for Southern German relative clauses, is the result of a larger phonological change, that took place after the period of Early New High German (1350-1650) (cf. Brandner & Bräuning 2013: 154-157 for discussion). These observations show that none of the elements that introduce the DFC-displaying relative clauses in the examples in (36) are elements that are only used for relativization. All of these elements are multifunctional. For Dutch, we observe the w-item *wie* (who) as a relative pronoun and the complementizer *dat* (that) as a relative complementizer (please note that I regard the demonstrative/relative pronoun *dat* and the complementizer *dat* as two distinct elements, cf. section 1.7). For German, we observe *der* as a relative pronoun and *wo* (derived from *so*) as a relative complementizer. From Boef's (2013) double-CP structure of the left periphery of the relative clause, we can see that all of these functions follow from the presence of the higher CP in the structure which defines the embedded clause as a relative clause. The individual items that introduce the relative clause appear in a position in which they appear independently in other configurations: Dutch *wie* and German *der* surface in SpecCP, while German *so* and Dutch *dat* surface in C^0.

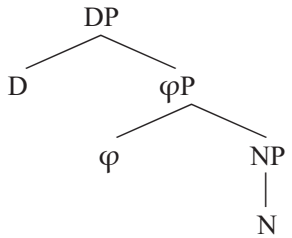
Boef's double-CP structure of the relative clause makes one more important prediction. If the specifier of the higher CP is filled by the head noun and C^0 of the higher CP remains empty due to the fact that there are no designated clause typing elements, we should expect that relative clauses in Dutch don't display a sequence of two complementizers like we have seen for embedded *wh*-clauses in (30) and (31). In the same vein, it should not be possible for the relative pronoun to appear to the left of the second complementizer (in the specifier of the higher CP), since this is the place where the head noun is base-generated. These predictions are both borne out. While Dutch relative clauses do display DFC as we have seen in (36), the presence of more than one complementizer is ungrammatical. The use of a relative pronoun to the left of the second complementizer is consequently ruled out as well.

(38) *Dat is de man **wie of** **dat** het verhaal verteld heeft.
that is the man who whether that the story told has

(Dutch, Boef 2013: 136)

In concluding this section, I would like to point the reader to a potential problem of a decompositional approach to the internal structure of the DP and the D-complement analysis of relative clauses. It seems unclear how both analyses can be combined. One of the most widely received proposals of the internal structure of the DP is the proposal made in Déchaine & Wiltschko (2002), who decompose the DP into a DP-layer, a φP-layer and an NP-layer. This is shown in the illustration below.

(39) The internal structure of the DP proposed by Déchaine & Wiltschko (2002: 410)



The crucial insight of this proposal is the dissociation of definiteness, which is associated with the DP-layer, and φ-feature agreement, which is associated with the φP-layer (in my proposal it is the phrases projected in the Classification Domain that correspond to the more traditional notion of φP). It follows that if we observe φ-feature morphology on a determiner, this determiner must contain a φP (or something equivalent to it). In such a decompositional analysis of the

DP, it is problematic to assume that the relative clause is a direct complement of D^0, since the determiner preceding the head noun clearly displays φ-feature morphology, i.e., the Spellout of φP. It therefore seems to be necessary to attach the relative clause as a complement of φ^0 and not of D^0. It is beyond my expertise to assess whether this change of attachment site causes problems for the analysis of relative clauses. I therefore leave this problem for future research. For an extensive discussion of possible attachment sites for relative clauses within the DP, see Wiltschko (2013).

6.4.2 Oblique Relative Clauses

Oblique relative clauses are constructions in which the relative pronoun carries oblique case. In general terminology, the term oblique case refers to cases other than nominative and accusative. Oblique case can either be expressed by inflectional morphology alone, such as dative and genitive in German, or it can be assigned by a preposition. Prepositional case is always regarded as oblique case, even if it is accusative case that is assigned by the preposition. Examples (40a) and (40b) show relative clauses from German. The relative pronoun in (40a) displays dative case through inflectional morphology alone. The relative pronoun (40b) displays dative case as well, but here it is assigned by a preposition preceding the relative pronoun.

(40) a. Das ist der Mann, **dem** ich das Buch gegeben habe.
that is the man RP.MT2.DAT I the book given have
'That is the man to whom I gave the book.'

b. Das ist der Mann **mit dem** ich gesprochen habe.
that is the man with RP.MT2. DAT I spoken have.
'That is the man to whom I talked.'

(German)

German and Dutch display a striking contrast in the construction of oblique relative clauses. In German, indirect object case is expressed with dative inflection, as we have seen in (40a) above. Although Dutch has lost dative morphology, the relative pronoun can be associated with a gap in the place of the indirect object. This is shown in (41a). Yet when an oblique relative clause is introduced with a prepositional phrase (PP) in Dutch, Dutch *die* is banned from appearing as a relativizer within the PP. This is shown in (41b).

(41) a. Dat is de man **die** ik het boek heb gegeven.
that is the man RP.MT2/MT3 I the book have given
'That is the man that I gave the book.'

b. Dat is de man ***met die** ik gesproken heb.
that is the man with RP.MT2/MT3 I spoken have.
'That is the man to whom I talked.'
(Dutch)

The example in (41b) is only rendered grammatical if the Dutch w-item *wie* (who) appears as relativizer in the PP.

(42) Dat is de man **met wie** ik gesproken heb.
that is the man with who I spoken have.
'That is the man to whom I talked.' (Dutch)

In contrast, this construction is ungrammatical in German.

(43) Das ist der Mann ***mit wem** ich gesprochen habe.
that is the man with who.DAT I spoken have.
'That is the man to whom I talked.' (German)

This presents us with the following pattern of the distribution of the relative pronoun in German and Dutch oblique relative clauses.

RC introduced with:	German	Dutch
bare RP	✓	✓
RP embedded in PP	✓	–

Table 34: The distribution of German *der* and Dutch *die* in oblique relative clauses

This specific contrast is related to two questions. The first question is very concrete: Why is Dutch *die* blocked as a relativizer in oblique relative clauses that are introduced with a PP? The second question is broader: Under what circumstances can a w-item take the place of a d-item in relative clause constructions in German and Dutch? In this section, I will formulate an answer to the first question. The second question will be picked up in section 7.4 where I will discuss the conditions under which w-items can function as relativizers in German and Dutch.

The first important observation in explaining this contrast is that the ungrammaticality of Dutch *die* in examples such as (41b) is not a problem specific to relative clause constructions. In contrast to German *der*, Dutch *die* is generally banned from appearing in PPs when it is not followed by an overt noun. Imagine the following discourse background. You want to set up a lab

experiment and you hear that there is one especially competent lab assistant. You tell a colleague about it and you say:

(44) a. Ich würde gerne [$_{PP}$**mit dem Assistenten]** sprechen.
I would gladly with DPR.MT2.DAT assistant.MT2.DAT speak
'I would like to talk to that assistant.'
(German)

b. Ik zou graag [$_{PP}$**met die assistent]** willen spreken.
I would gladly with DPR.MT2/MT3 assistant want speak
'I would like to talk to that assistant.'
(Dutch)

If we now drop the noun in the PP in the examples above, the German example remains fine, while the Dutch example becomes ungrammatical.

(45) a. Ich würde gerne [$_{PP}$**mit dem**] sprechen.
I would gladly with DPR.MT2.DAT speak
'I would like to talk to him.' (German)

b. Ik zou graag *[$_{PP}$**met die**] willen spreken.
I would gladly with DPR.MT2/MT3 want speak
'I would like to talk to him/her.' (Dutch)

In Dutch, the construction in (45b) is only grammatical when a personal pronoun appears instead of the demonstrative pronoun *die*.[65] This is shown in (46b). In German, both constructions are grammatical, either with the demonstrative pronoun as in (45a) or with a personal pronoun as we can see from (46a).

[65] This rule can only be circumvented by putting contrastive focus intonation on *die*. Imagine a situation where you were talking about three lab assistants with your colleague and you are discussing which one would be the best candidate for helping you with your experiment. Then your colleague could say:

(i) Pieter! [$_{PP}$ **Met DIE**] moet je spreken.
Pieter with DPR.MT2/MT3 must you speak
'Pieter! You have to talk to HIM.' (Dutch)

(46) a. Ich würde gerne [$_{PP}$**mit** **ihm**] sprechen.
I would gladly with him.DAT speak
'I would like to talk to him.' (German)

b. Ik zou graag [$_{PP}$**met** **hem**] willen spreken.
I would gladly with him want speak
'I would like to talk to him.' (Dutch)

We are thus presented with the following pattern for the distribution of demonstrative and personal pronouns in PPs in German and Dutch:[66]

Pronoun embedded in PP	German	Dutch
personal pronoun	✓	✓
demonstrative pronoun	✓	–

Table 35: The distribution of personal and demonstrative pronouns in German and Dutch PPs

It is important to note that the presence of demonstrative pronouns in PPs without an overt noun has not always been ungrammatical in Dutch. In earler stages of Dutch, where the case morphology on demonstrative pronouns was still intact, they could appear alone in PPs in the same way as German demonstrative pronouns today. This can be seen in the idiomatic use of the Middle Dutch *dien*, the dative form of *die*, which is typically connected to prepositional phrases in which it appears without an overt noun.

(47) a. met alle gevolgen van **dien**
with all consequences of DPR.MT2/MT3.DAT
'with all consequences of that'

b. sinds**dien**
since-DPR.MT2/MT3.DAT
'since then'

c. boven**dien**
above- DPR.MT2/MT3.DAT
'moreover' (Dutch)

[66] Note that the only demonstrative pronoun that is not banned from appearing alone in a PP in Dutch is the complex demonstrative pronoun *deze* (cf. section 4.2.4).

The pattern shown in Table 35 does not only hold for PPs. It can be observed for object case positions in general. The use of Dutch *die* in the position of the indirect object of the verb is perceived as either strongly degraded or ungrammatical. The use of Dutch *die* in the direct object position of the verb is at least dispreferred. This is shown for the indirect object position in (48), where (48a) shows the degraded/ungrammatical use of *die* as an indirect object, and (48b) shows the grammatical version, with a personal pronoun instead of the demonstrative pronoun. Example (49) shows the same contrast for the direct object position. Imagine you borrowed a book from a friend and you forgot to return it. Suddenly you remember and you think:

(48) a. Ah Jan! Morgen geef ik ?? **die** het boek terug.
ah Jan tomorrow give I DPR.MT2/MT3 the book back
'Ah Jan, I will give him the book back tomorrow.'

b. Ah Jan! Morgen geef ik **hem** het boek terug.
ah Jan tomorrow give I him the book back
'Ah Jan, I will give him the book back tomorrow.' (Dutch)

(49) a. Dat is Jan. Je moet ?? **die** leren kennen.
that is Jan you must DPR.MT2.MT3 learn know
'That is Jan. You have to get to know him.'

b. Dat is Jan. Je moet **hem** leren kennen.
that is Jan you must him learn know
'That is Jan. You have to get to know him.' (Dutch)

No such contrast can be observed for German. The personal and the demonstrative pronoun are freely interchangeable in both the position of the indirect and the direct object. This is shown in (50a) for the indirect object position and (49b) for the direct object position.

(50) a. Ah Jan! Morgen gebe ich **dem** / **ihm** das Buch
ah Jan tomorrow give I DPR. MT2.ACC him.DAT the book

zurück.
back

'Ah Jan, I will give him the book back tomorrow.'

b. Das ist Jan. Du musst **den** / **ihn** kennenlernen.
that is Jan you must DPR. MT2.ACC him.ACC know-learn
'That is Jan. You have to get to know him.'
(German)

We consequently arrive at a distribution of the personal and the demonstrative pronoun in the indirect and direct object position in German and Dutch that is analogous to the distribution in PPs.

Pronoun in indirect and direct object position	German	Dutch
personal pronoun	✓	✓
demonstrative pronoun	✓	–

Table 36: The distribution of the personal and demonstrative pronouns in the indirect and direct object position of the verb

Strikingly, this pattern is circumvented in Dutch when the demonstrative pronoun gets moved out of the positions in the VP, where object case is assigned, to SpecCP, where it is only indirectly associated with object case. This is shown for indirect object case in (51a) and for direct object case in (51b).

(51) a. Ah Jan! **Die** geef ik morgen het boek terug.
ah Jan DPR.MT2/MT3 give I tomorrow the book back
'Ah Jan, I will give him the book back tomorrow.'

b. Dat is Jan. **Die** moet je leren kennen.
that is Jan DPR.MT2/MT3 must you learn know
'That is Jan. You have to get to know him.'

We have already seen above that the same situation holds for relative clauses. The relative pronoun can be related to a gap in the place of an indirect object. This example is repeated in (52a). Example (52b) shows that the same holds for a gap in the place of an indirect object.

(52) a. Dat is de man **die** ik het boek heb gegeven.
that is the man RP.MT2/MT3 I the book have given
'That is the man that I gave the book.'

b. Dat is de man **die** ik gezien heb.
that is the man RP.MT2/MT3 I seen have
'That is the man that I saw.'

These observations raise the question why it is that the appearance of the demonstrative/relative pronoun is (borderline) ungrammatical in positions where object case is assigned but grammatical when placed in the left periphery, where it is only associated with an object case position. My answer to this question is that the observed patterns are not the result of a profound syntactic difference between German and Dutch but the results of differences in the construction of morphophonological form in the two languages, i.e., we are dealing with an externalization effect. In Chapter 4, I have pointed out that the demonstrative/relative pronoun in older stages of Dutch had the same distribution in the syntax as the demonstrative/relative pronoun in German today. I have extensively discussed the breakdown of the morphological case system in Dutch, that started in the transition from Old Dutch to Middle Dutch and lead to a near complete erasure of case morphology in the Dutch determiner and pronominal systems during the transition from Middle to modern Dutch. As a consequence, the demonstrative/relative pronoun has been left with no case morphology except for the antiquated genitive *diens*, which can still be found in formal and literary registers, and the idiomatically used dative *dien* shown above. The case paradigm on personal pronouns has been reduced, in the same way as in English, to a binary distinction between subject and object case, where the object case on personal persons corresponds to what was previously the dative case (cf. van der Horst 2008: 162). Since Dutch *die*, in contrast to the personal pronoun, has no object case morphology left, it is predictable that the personal pronoun is preferred over the demonstrative pronoun to spell out object case. As a consequence the demonstrative pronoun enters a process where it descends gradually into ungrammaticality with respect to this particular position. The data presented above shows that Dutch *die* is currently in the middle of this process, which a case of the Elsewhere Principle (cf. section 3.4.2). If there are two competing items for the same position, the more specific item, i.e., the item that still displays case morphology, takes precedence over the less specific item, i.e., the item that has lost case morphology. This explanation is supported by the corpus study of the Dutch Vorfeld presented in Bouma (2008). In his analysis of the Corpus of Spoken Dutch, Bouma (2008: 107) shows that 84% of all occurrences of Dutch demonstrative pronouns are sentence initial.

Having arrived at an explanation for the loss of the interchangeability of the demonstrative and the personal pronoun in case assignment positions in Dutch, we are left with the question why the placement of the demonstrative pronoun in the left periphery is grammatical, although it is associated with an object case position. This phenomenon is the other side of the same coin. Whereas personal pronouns in modern Dutch are more suitable to appear in oblique case positions than the demonstrative/relative pronoun, personal pronouns are not suitable to

appear in the left periphery instead of a demonstrative pronoun. This can be seen very prominently in English, which has no demonstrative pronouns that can be moved to the left periphery in order to refer anaphorically to a previously introduced referent.

(53) Look! That woman! ***That** we must help.

Filling this position with a personal pronoun in this constellation is equally ungrammatical. It is therefore that English has no equivalent constructions to the German and Dutch constructions that are introduced with a demonstrative pronoun that refers anaphorically to a previously introduced antecedent.

(54) Look! That woman! ***Her** we must help.

Although fronting of personal pronouns is grammatical in German and Dutch, they cannot have the demonstrative function in the sense that they typically don't serve to instantiate focus-to-topic shift (cf. section 6.3 for discussion). Bosch & Umbach (2007), van Kampen (2010, 2012) and Hinterwimmer (2015) show that the referential properties of personal pronouns and demonstrative pronouns exclude each other. While the personal pronoun serves to pick up the aboutness topic of the previous sentence (which can be equivalent to the discourse topic that has been held over a number of sentences), the demonstrative pronoun serves to pick up a referent located in the focus of the previous sentence in order to make this referent the new aboutness (or discourse) topic. This is shown in example (55) for personal pronouns and (56) for demonstrative pronouns. Both examples present us with two eligible antecedents for the pronoun in the following sentence. In example (55) we can see that the personal pronoun can in principle refer to both antecedents introduced in the previous sentence. Yet the reading experiments for German presented in Bosch & Umbach (2007) show clearly that when given a choice of two antecedents, the personal pronoun relates to the discourse/aboutness topic and not to a referent in the focus of that sentence. This should also become immediately obvious when reading the English translation of the examples. Although I offer possible reference to both antecedents in the English translations, one immediately associates the personal pronoun with Paul in (55a) and Eline in (55b).

(55) a. **Paul**$_{i}$ wollte mit **Peter**$_{k}$ laufen gehen. Aber **er**$_{i/k}$ war
Paul wanted with Peter running go. But he was

leider erkältet.
unfortunately cold (sick)

'Paul wanted to go running with Peter, but, unfortunately, he (=Paul/Peter) had a cold.'

(German, adapted from Hinterwimmer 2015: 62)

b. **Eline**$_{i}$ wilde met **Marlies**$_{k}$ gaan hardlopen. Maar
Eline wanted with Marlies go running. but

ze$_{i/k}$ was helaas verkouden.
she was unfortunately cold (sick)

'Eline wanted to go running with Marlies. But, unfortunately, she (=Eline/Marlies) had a cold.'

In the next example, we can observe the referential behavior of the demonstrative pronoun in German and Dutch which is the mirror image of the referential behavior of the personal pronoun. In contrast to the personal pronoun, the demonstrative pronoun cannot establish reference to both antecedents. Reference to the aboutness (or discourse) topic is ungrammatical. It is the referent in the focus that has to be picked up and becomes the topic of the new sentence.

(56) a. **Paul**$_{i}$ wollte mit **Peter**$_{k}$ laufen gehen. Aber **der**$_{*i/k}$
Paul wanted with Peter running go. But DPR.MT2.NOM

war leider erkältet.
was unfortunately cold (sick)

'Paul wanted to go running with Peter. But, unfortunately, he (=Peter) had a cold.'

(German, adapted from Bosch et al 2007: 162)

b. **Eline**$_i$ wilde met **Marlies**$_k$ gaan hardlopen. Maar
Eline wanted with Marlies go running. but

die$_{*i/k}$ was helaas verkouden.
DPR.MT2/MT3 was unfortunately cold (sick)

'Eline wanted to go running with Marlies. But, unfortunately, she (=Marlies) had a cold.'

(Dutch)

The data discussed in this section so far present us with a peculiar situation in Dutch. The demonstrative/relative pronoun has become unsuitable to surface in object case positions in the syntax due to the erosion of morphological case in the declension paradigm of Dutch *die*. This holds especially for PPs, where the appearance of Dutch *die* without an overt noun causes clear ungrammaticality. These positions are now being occupied by personal pronouns as much as possible. Yet, as we have seen above, personal pronouns are not suitable to perform the function of the demonstrative pronoun in the left periphery. This situation causes a significant lack of suitable pronouns in the left periphery of the Dutch clause. When the left periphery of a (declarative) matrix clause is introduced with a PP, there is no suitable pronoun to appear after the PP. The demonstrative pronoun is excluded from being in the complement of the PP, and the personal pronoun is excluded from adopting the function of the demonstrative pronoun. This causes a striking repair phenomenon in the left periphery of the Dutch clause. Given that the combination of preposition and pronoun is unavailable, Dutch makes use of a pronominal adverb. This is shown in (57) with the pronominal adverb *daarmee* (there-with). The prepositional part *mee* (with) is stranded, while the pronominally used adverb *daar* (there) is fronted and refers to the antecedent at the end of the preceding sentence. A German translation of this construction is impossible (i.e., yields gibberish).

(57) Dat is toch **Eline**$_i$! **Daar**$_i$ zat ik vijf jaar lang **mee** op school.
that is PART Eline there sat I five years long with on school
'That is Eline! I went to school with her for five years'
LITERALLY: 'That is Eline$_i$! There$_i$ I went to school with for five years.'

With these observations in place, we can now return to the pattern of the distribution of the relative pronouns German *der* and Dutch *die* in oblique relative clauses. The relevant contrast observed at the beginning of this section is repeated in (58) and (59).

(58) Ungrammaticality of Dutch *die* in oblique relative clauses introduced by a preposition

a. Dat is de man ***met die** ik gesproken heb.
that is the man with RP.MT2/MT3 I spoken have
'This is the man to whom I talked.'
(Dutch)

b. Das ist der Mann **mit dem** ich gesprochen habe.
that is the man with RP.MT2. DAT I spoken have
'This is the man that I talked to.'
(German)

(59) Dutch *wie* surfacing as a relative pronoun instead of Dutch *die*

a. Dat is de man **met wie** ik gesproken heb.
that is the man with who I spoken have
'This is the man to whom I talked.'
(Dutch)

b. Das ist der Mann ***mit wem** ich gesprochen habe.
that is the man with who.DAT I spoken have
'This is the man to whom I talked.'
(German)

We have seen in Chapter 5 that the Dutch w-item *wie* (who) can only refer to humans (i.e., volitional agents). It follows that when surfacing as a relative pronoun in oblique relative clauses in Dutch, *wie* can only refer to human antecedents in the matrix clause. This means that the head noun of the relative clause has to have a human referent, otherwise the use of Dutch *wie* as a relative pronoun is ungrammatical. This causes a gap in the availability of suitable relative pronouns in oblique relative clauses that are introduced with PPs in Dutch. Given that *die* is banned from surfacing within the PP as a relativizer and *wie* can only refer to humans, there is no suitable relative pronoun for non-human head nouns in this particular construction. To fill this gap, Dutch makes use of the same repair strategy we have observed in (59). Instead of the combination of preposition and relative pronoun, Dutch makes use of pronominal adverbs as relativizers in this situation. Yet, in contrast to the pronominal adverbs used in declarative matrix clauses, the pronominal adverbs used in relative clauses are taken from the inventory of w-items, not from the inventory of d-items. This is shown in (60).

(60) a. Dat is de hond **waarmee** ik een rondje ga lopen.
that is the dog where-with I a round go walk
'That is the dog that I'll go for a walk with.'

b. Dat is de auto **waarmee** ik naar huis ga rijden.
That is the car where-with I to home go drive
'That is the car that I will drive home with.'

Oblique relative clauses in Dutch present us with a situation in which the pronominal adverb has become the general relativizing element, given that it is only human head nouns that can be relativized with the combination of preposition and *wie*. It is therefore not surprising that the use of pronominal adverbs as relativizers is being generalized for all oblique relative clauses with prepositional case in spoken Dutch (cf. ANS: *wie*) and replaces the combination of preposition and *wie* as a relativizing strategy.

(61) Dat is de man **waarmee** ik gesproken heb.
that is the man where-with I spoken have.
'This is the man that I talked to.' (Dutch)

The discussion in this section has shown that the restrictions on the distribution of Dutch *die* as a demonstrative and relative pronoun are due to the erosion of the case system in the declension paradigm of Dutch *die*, which has been replaced by personal pronouns and pronominal adverbs in positions of case assignment. Due to this replacement, the appearance of *die* without an overt noun has become close to ungrammatical in verbal object positions and clearly ungrammatical in PPs. We are therefore dealing with an externalization effect related to the Spellout of case morphology and not with a profound syntactic difference between German and Dutch.

6.5 Summary

In this chapter I have investigated and analyzed the multifunctionality of the demonstrative/relative pronoun in Dutch. This investigation started with the question why the definite article in German and Dutch is monofunctional while the d-item that fulfills the demonstrative and relativization function is multifunctional. Building on the internal structure of German and Dutch d-items I proposed in Chapter 4, I have argued that the monofunctionality of the definite article is a result of the lack of a deictic layer in its internal structure. This deictic layer is present through the projection of SpatP in the demonstrative/relative pronoun and it is spelled out through phonological stress. The resulting

phonological strength of these d-items allows them to function as demonstrative and relative pronouns. I have then shown that the relativizing function can be derived from the configurational makeup of the relative clause if we assume a double-CP analysis, as proposed by Boef (2013). I have then introduced the observation that the distribution of Dutch *die* as a relative and demonstrative pronoun is subject to distributional restrictions that do not hold for German *der*. I have shown that these restrictions are a result of the loss of case morphology in Dutch which caused Dutch *die* to become strongly degraded or ungrammatical in object case positions.

Chapter 7

The Multifunctionality of W-Items

7.1 Introduction

In this chapter I will analyze the multifunctionality of w-items in German and Dutch. In order to get an overview over the multifunctionality of w-items, let me repeat the introductory example of the multifunctionality of German *was* from Chapter 1.

(1) The multifunctional behavior of German *was*

a. interrogative pronoun
Was liegt da auf dem Boden?
What lies there on the ground
'What is lying on the ground over there?'

b. indefinite pronoun
Ich habe **was** Interessantes gelesen.
I have what interesting read
'I read something interesting.'

c. relative pronoun in free relative clauses
Ich kaufe, **was** mir gefällt.
I buy what me pleases
'I buy what I like.'

d. relative pronoun in headed relative clauses (colloquial German)
% Das ist das Bild, **was** ich so schön finde.
that is the picture what I so beautiful find
'That is the picture that I find so beautiful.'

g. relative complementizer (dialectal German: Thüringen, Jäger 2008: 8)
Leite, **wos** allerwend ze spete kummn, warn nich fartch
people what always too late come will not finish
'People who are always late never finish.'

e. quantificational determiner (colloquial German)
% Ich muss noch **was** Salz an die Suppe tun.
I must still what salt at the soup do
'I still have to put some salt in the soup.'

f. exclamative marker
Was ein sonniger Tag!
what a sunny day
'What a sunny day!'

The individual functions that will examine in this chapter are the indefinite-pronoun function in (1b), the interrogative-pronoun function in (1a), the relativizing function for headed relative clauses in (1d) and the quantificational-determiner function in (1e). Exclamatives and free relatives will be excluded from the discussion for the reasons given in section 1.7. Complementizers as the one in (1g) are assumed not to be a case of multifunctionality but the result of grammaticalization from a w-item to a complementizer. I will not go into the details of this development but instead offer a short note on complementizers at the end of the chapter. For each individual function that I will analyze in this chapter, I will show that the internal structure of w-items proposed in Chapter 5 and the hypothesis defended in Chapter 4 that grammatical gender is a mass classifier are crucial to understanding why a w-item is eligible to carry out this function in the given syntactic configuration.

It is a long-standing observation that languages can use the same element to function as an interrogative and indefinite pronoun. I will show that this observation has motivated a number of analyses that aim at deriving interrogative pronouns from indefinite pronouns. The crucial point that I will make in my analysis of the indefinite and the interrogative function in sections 7.2 and 7.3 is that w-items are inherently neutral with respect to both. Indefiniteness and interrogativity will have to be created independently in order for a w-item to take one function or the other. In terms of clause structure, I will show that indefiniteness is related to the *v*P-VP complex, while interrogativity is related to CP. With respect to the indefinite function, I will explain why German *was*, German *wer*, and Dutch *wat* can function as indefinite pronouns, while Dutch *wie* is excluded from this function. With respect to the interpretation of interrogative pronouns, I will furthermore discuss the phenomenon of so-called

context expansion, where we observe the w-items German *was* and Dutch *wat* acquiring a causal or a quantitative interpretation under certain circumstances.

For the relativizing function, I will show in section 7.4 that it is the internal structure of the DP and the WP proposed in Chapters 4 and 5 that allow for alternations of German *das* and *was*, Dutch *dat* and *wat*, and Dutch *die* and *wie* in the position of the relative pronoun. I will also explain why German *wer* is banned from alternating with German *der*. Mass type morphology will be shown to play a crucial role in matching the antecedent of the relative clause with the relative pronoun. The relativizing function as such will be shown to be imposed on the respective items by the syntactic configuration of the left periphery of the relative clause.

The quantificational function of German *was* and Dutch *wat* will be discussed in section 7.5. I will show that this is the only function of these two w-items that can be derived from their internal structure alone. I will show that the quantificational interpretation of German *was* and Dutch *wat* does not result from these elements being associated with a quantifier in some way, but from their internal structure. I will argue that the projection of MassP in the Classification Domain of these items imposes an amount reading on everything that is merged into their complement.

7.2 The Indefinite Pronoun Function

In this section I will discuss the use of German and Dutch w-items as indefinite pronouns. I will begin the discussion with an overview of the w-indefinites of German and Dutch in section 7.2.1. The use of identical elements as interrogative and indefinite pronouns has been documented for many languages in the typological literature. Much of this discussion revolves around the question whether interrogative pronouns can be derived from indefinite pronouns or vice versa. The arguments made in this discussion provide a valuable background for the discussion in this section and will be reviewed in section 7.2.2. The analysis will be formulated in 7.2.3 with the goal of showing that the indefinite function is imposed on a w-item by its syntactic environment. Following the insights of Heim (1982), Diesing (1992), Postma (1994) and Cable (2007), I will argue that the w-item needs to be bound by a choice function and an existential quantifier below the IP level in order to receive an indefinite interpretation.

7.2.1 The W-Indefinites of German and Dutch

The most important observation with respect to w-indefinites in German and Dutch is that the indefinite function only arises when the w-item is located lower than the IP, i.e., in the *v*P-VP complex. When the w-item is fronted, it is interpreted as an interrogative pronoun. This contrast is shown for German *was* and Dutch *wat* in examples (2) and (3).

(2) Indefinite interpretation
a. Ich habe **was** gesehen.
I have what seen
'I saw something.' (German)

b. Ik heb **wat** gezien.
I have what seen
'I saw something.' (Dutch)

(3) Interrogative interpretation
a. **Was** hast du gesehen?
what have you seen
'What did you see?' (German)

b. **Wat** heb je gezien?
what have you seen
'What did you see?' (Dutch)

In German, three of the w-items discussed in Chapter 5 can function as indefinite pronouns: *was* (who), *wer* (what) and *wo* (where). The w-item *was* alternates with the indefinite pronoun *etwas* (something).

(4) Ich habe **etwas** / **was** gesehen.
I have something / what seen
'I saw something.'

The w-item *wer* (who) alternates with the indefinite pronoun *jemand* (someone).

(5) Ich habe **jemanden** / **wen** gesehen.
I have someone.ACC/ who.ACC seen
'I saw someone.' (German)

The w-item *wo* (where) alternates with the indefinite pronoun *irgendwo* (somewhere).

(6) Lass uns **wo** / **irgendwo** hinfahren diesen Sommer.
Let us where / anywhere PART-drive this summer
'Let's go somewhere this summer.' (German)

At this point we observe a striking difference between German and Dutch. In contrast to German, Dutch can only use the w-item *wat* (what) as an indefinite pronoun. Dutch *wat* alternates with the indefinite pronoun *iets* (something). The w-items *wie* (who) and *waar* (where) cannot function as indefinite pronouns (cf. Postma 1994). The use of *wat* as an indefinite pronoun is shown in (7a). The ungrammaticality of using *wie* and *waar* as indefinite pronouns is shown in (7b-c).

(7) a. Ik heb **iets** / **wat** gezien.
I have something / what seen
'I saw something.'

b. Heeft er **iemand** / ***wie** gebeld?
has threre someone / who called
'Did someone call?'

c. Moet je nog **ergens** / ***waar** heen?
must you still somewhere / where LOC-ADV
'Do you still have to go somewhere?' (Dutch)

The w-indefinites of German and Dutch are summarized in Table 37.

Indefinite Pronoun	German	Dutch
Existence	was	wat
Person	wer	–
Location	wo	–

Table 37: The w-indefinites of German and Dutch

A number of comments with respect to the table above are in order. With respect to the interpretation of German *was* and Dutch *wat*, it is important to be aware that the spectrum of suitable referents is equally wide as in the interrogative use of *was* and *wat*. In sections 5.2.1 and 5.2.2 I have argued that the internal structure of German *was* and Dutch *wat* consists of MassP in the Classification Domain and WP in the Linking Domain. The structure is given below.

(8) The internal structure of German *wer*, German *was*, Dutch *wie* and Dutch *wat*

UG		LD	CD
Fseq		WP W	MassP Mass
Ger		**W**	**MT1**
	NOM	w-	-as
	ACC	w-	-as
	DAT	w-	
	GEN	w-	
Du		**W**	**MT1**
		w-	-at

I have furthermore argued that the combination of the set of alternatives provided by W and the interpretation of unbounded mass provided by MassP yields a virtually unrestricted set of possible referents. This unrestrictedness holds for the use of German *was* and Dutch *wat* as indefinite pronouns as well. The only necessary property of a suitable referent for *was* and *wat* as indefinite pronouns is that the referent exists. It is therefore that I have labeled *was* and *wat* with the term *existence* in Table 37.

With respect to the fact that German *wer* (who) and *wo* (where) can function as indefinite pronouns, while Dutch *wie* (who) and *waar* (where) can't, I will provide an explanation only for the unavailability of *wie* as an indefinite pronoun. I unfortunately have no explanation to offer as to why Dutch *waar* is excluded from the indefinite function. This extends to the unavailability of German *wann* (when) and Dutch *wanneer* (when) as indefinite pronouns shown in (9).

(9) a. Ich komme heute ***wann** / **irgendwann** vorbei.
I come today when / sometime by
'I will drop by sometime today.'

b. Ik zal vandaag ***wanneer** / —— langskomen.
I will today when / by-come
'I will drop by sometime today.'

We can furthermore see from the empty slot in (9b) that Dutch doesn't have an indefinite pronoun that specifically refers to points in time. I leave this issue for future research.

7.2.2 The Common Core of W-Interrogatives and W-Indefinites

The affinity between interrogative and indefinite pronouns has been observed and described in the typological literature since the 1960s (see, e.g., Moravcsik 1969, Ultan 1978, Haspelmath 1997) and has been termed the *interrogative-indefinite puzzle* in Bhat (2004: 226). Many languages display indefinite pronouns that are either identical to interrogative pronouns, as is the case with German *was*, *wer* and *wo* and Dutch *wat*, or clearly related to interrogative pronouns, such as the English *somewhere* and *somehow*.[67] Ultan (1978: 230) takes the relatedness between interrogative and indefinite pronouns to be near-universal. Out of his sample of 79 languages, only two languages display entirely unrelated interrogative and indefinite pronouns. Yet further typological research on indefinite pronouns showed that this universalist claim had to be weakened. Haspelmath (1997: 26), who provides the most extensive typological account of indefinite pronouns in the literature, shows that within his sample of 100 languages only 63 display relatedness between interrogative and indefinite pronouns. In current work, based on the examination of 326 languages from all continents, Haspelmath (2013) distinguishes between five kinds of indefinite pronouns. The first kind are interrogative-based indefinites as described above, which are attested in 194 of the observed languages. This strategy can overwhelmingly be observed in Eurasian, North-American and Australian languages. The second kind are indefinites based on generic nouns such as the English *something* and *sometime*, which are displayed in 85 languages of the sample. All African languages in the sample make use of indefinite pronouns that are based on generic nouns. Furthermore, there are special indefinites which bear no relatedness to interrogative pronouns. Examples of these are German *jemand* (someone) and Dutch *iemand* (someone) as well as Dutch *iets* (something). These are found in 22 of the studied languages. 23 languages in the sample display so-called mixed indefinites. These are sets of indefinite pronouns that are formed by all of the different strategies above. This is the case for German and Dutch as well. From the examples above and the discussion in this paragraph, we can see that German and Dutch make use of indefinite pronouns that are identical to interrogative pronouns (*was*/*wat*) and indefinite pronouns

[67] Note that most of the English indefinite pronouns are not derived from or related to interrogative pronouns. They are mostly based on generic nouns: some*thing*, some*time*, some*place*.

that are unrelated to interrogative pronouns (*jemand*/*iemand*). A minor strategy to express indefiniteness, found in only two languages of the sample, is the use of an existential construction in which an existential particle gets combined with a verb form.[68]

Ever since the relatedness between interrogative and indefinite pronouns has been documented, the question at the center of the interrogative-indefinite puzzle has been: What is the nature of the relationship between interrogative and indefinite pronouns? Are we dealing with homonyms (distinct lexical items, distinct functions) or a polyseme (one lexical item, distinct functions)? This question was investigated first and foremost against the background of the semantic similarities between interrogativity and indefiniteness. What was noticed immediately (see, e.g., Wierzbicka 1980) is that constructions containing interrogative and those containing indefinite pronouns have in common that the respective elements cause a so-called *information gap* (Bhat 2004: 227) in the semantic interpretation, which leaves the referent of the pronoun unknown. In other words, both interrogative and indefinite pronouns present us with a lack of information. Consider example (10).

(10) a. Someone stole my bike.
b. Who stole my bike? (Bhat 2004: 227)

In both constructions in example (10), the entity responsible for stealing the bike remains unknown. The difference between the two constructions is that (10a) constitutes a statement about the unknown entity, while (10b) is a request for information with which the unknown entity can be identified. From this point onwards, previous solutions to the interrogative-indefinite puzzle took different directions (for a detailed discussion see Bhat 2004: 226-266). The earliest analyses (see, e.g., Katz & Postal: 1964 113-117, Klima 1964: 139-146 and Quirk et al 1972: 396) have taken indefiniteness as the semantic basis for interrogativity. In order to arrive at an interrogative reading, the request for information that characterizes interrogative constructions had to be added (cf.

[68] An example for such a language is Tagalog:

(i) May d-um-ating kahapon.
exist ACTOR.VOICE-come.PERFECTIVE yesterday
'Someone came yesterday.'
LITERALLY: There exists (one who) came.

(adapted from WALS Online: Indefinite Pronouns)

Bhat 2004: 228). Katz & Postal (1964: 114), for example, argued that sentences such as in (10a) and (10b) were underlyingly the same. What makes (10b) different from (10a) is that it is marked as a question and that this marking turns all elements with an information gap into interrogative pronouns. Klima (1964; 143f) argues that interrogative pronouns such as *who* are derived from indefinite pronouns such as *someone* with an innovation rule, by which *someone* gets dominated by a wh-marker. The problem with this solution is that it stands in contrast with the both synchronically and diachronically well supported claim, defended in Moravscsik (1969: 77) and Haspelmath (1997: 176), that interrogative pronouns don't develop out of indefinite pronouns. Haspelmath's (1997: 176) rejection of Klima's (1964) analysis names the most crucial properties of interrogative pronouns and touches on a number of issues that are directly related to the internal structure of w-items that I have proposed in Chapter 5. I will therefore reproduce the passage here in full.

> This hypothesis is interesting, but it must be rejected. There is no positive evidence for it, although it should be quite easy to find such evidence: there should be plenty of languages whose interrogative-indefinite pronouns go back etymologically to generic ontological-category nouns or to the numeral 'one'. These are sources of indefinites in many languages, and we would expect cases where such indefinites become interrogatives. Furthermore, we would expect at least some of the numerous indefinites consisting of root plus indefiniteness marker to become interrogative pronouns, but we never observe any traces of such earlier indefiniteness markers in interrogatives. What we find instead, is that, in language family after language family, interrogative pronouns prove resistant to etymological analysis. In fact, interrogative pronouns are among the slowest-changing elements in any language. Consider, for instance, interrogatives in Indo-European languages. The reconstructed original root is $*k^{w}i$-/$*k^{w}o$-, and reflexes of this root are still found in all modern languages, e.g. English *what*, Russian *čto*, Modern Greek *ti*, Yazgulami *čiǵ*, Irish *cad*, Punjabi *ki*, Italian *che*. These words have undergone phonological and morphological changes, but the root was never replaced. Interrogative pronouns are generally so old that their root cannot be etymologized. So interrogative-indefinite pronouns can neither go back to interrogative pronouns in a well-understood way nor go back to indefinite pronouns in the way just sketched. We can only conclude that somehow the functional similarity between them which was noted above must be responsible for the systematic polysemy. (Haspelmath 1997: 176)

The important issues that Haspelmath (1997: 176) is pointing us to are (a) the diachronic stability of the root of interrogative pronouns, (b) the general independence of interrogative and indefinite pronouns from each other, given that languages can draw them from different sources (the strategies discussed above), and (c) that one cannot be straight-forwardly derived from the other. I will first discuss the issue in (c) and then turn to (a) and (b).

The problem with not being able to derive interrogative pronouns from indefinite pronouns or vice versa originates in the assumption that interrogativity and indefiniteness are inherent properties of these pronouns themselves, i.e., coded somewhere in their internal structure. If interrogativity and indefiniteness were indeed inherent properties of two distinct but homophonous w-items, it would be unclear why interrogativity in *wh*-fronting languages only arises when the w-item appears in the left periphery of the sentence, while indefiniteness only arises when the w-item appears lower in the clause structure. This conclusion is supported by Bhat (2004: 229), who points out that "the affinity between interrogative and indefinite pronouns appears to be puzzling mainly because linguists have been merely comparing the two types of pronouns with one another." Trying to find the common semantic core of interrogativity and indefiniteness alone entails that we have to ignore all the other functions that w-items can adopt and that display no obvious relation to interrogativity and indefiniteness, such as the relativizing function, for example. This means that instead of asking what the nature of the relation between interrogatives and indefinites is, we have to ask: What is the nature of w-items that allows them to function *also* as interrogative and indefinite pronouns?

This question leads us to observation (a). The diachronic stability of the root of interrogative pronouns prompts us to ask an even more profound question about w-items: What is the nature of this diachronically and cross-linguistically stable root that allows w-items to be accommodated to a number of different functions related to specific syntactic configurations? These questions are essentially questions about the internal structure of w-items. Based on the internal structure of German and Dutch w-items proposed in Chapter 5, my answer is that the cross-linguistically stable root of w-items identified by Haspelmath (1997: 176) is the morphological expression of the W-head, the element that triggers the construction of a set of alternatives. It is this property that allows the w-item to be accommodated to both interrogativity and indefiniteness. Consider examples (11) and (12) from German.

(11) a. **Jemand** hat mich gesehen.
someone.NOM has me.ACC seen
'Someone saw me.'

b. Ich habe **jemanden** gesehen.
I have someone.ACC seen
'I saw someone.'

(12) a. **Wer** hat mich gesehen?
who.NOM has me.ACC seen
'Who saw me?'

b. Ich habe **wen** gesehen.
I have who.ACC seen
'I saw someone.'

Examples (11) and (12b) present us with statements. (11a) informs us that there exists one person who saw me. (11b) and (12b) inform us that there exists one person who I saw. The crucial observation is that the interpretation in all cases is such that the referent of the indefinite pronoun and the w-item is one individual. (12a), in contrast, refers to a set of alternatives and asks us to return one member of that set as a suitable answer to the question. This shows that the interpretation of the w-item, which in isolation denotes a set of alternatives, is restricted to denoting one individual when it is used as an indefinite pronoun, resulting in an existential interpretation. The fact that this interpretation of the w-item only arises when it is merged into the lower part of the structure suggests that the syntactic environment imposes an existential reading on the w-item.

I will now turn to observation (b): the fact that languages can draw or construct indefinite pronouns from different sources. Given the fact that w-items in German and Dutch can only acquire an indefinite interpretation when situated low in the clause, it is not possible for w-items to provide a complete paradigm of indefinite pronouns. If there weren't any independent indefinite pronouns, a sentence in German and Dutch could never begin with one. Independent indefinite pronouns are monofunctional, in contrast to w-items. This means on the one hand that w-items and indefinite pronouns have something in common that allows them to have the same interpretation in one specific syntactic environment, while on the other hand they have to be distinct so that the indefinite pronoun can never acquire any other function, such as the interrogative or the relativizing function.[69]

[69] It has to be noted, however, that the German and Dutch indefinite pronouns *etwas* (something) and *iets* (something) can be used to express quantification in the sense of 'a little'.

7.2.3 Creating Indefiniteness for W-Items

In this section I will formulate my analysis for German and Dutch w-indefinites. I will show that two operations have to be carried out in the syntactic environment of the w-item in order to create an indefinite interpretation. First, the set of alternatives denoted by the w-item has to be reduced to one member. Second, the w-item has to be assigned an existential interpretation.

7.2.3.1 Step 1: Restriction

Examples (11) and (12) in the previous section have shown that interpreting a w-item as an indefinite implies that there is one member of the set of alternatives denoted by the w-item to which the content of a certain utterance applies. It follows that the syntactic environment has to impose a restriction on the set of alternatives so that at the end of the derivation the w-item does not denote the complete set of alternatives, as it does in isolation, If it did, we would arrive at the interpretation that all members of the set of alternatives are denoted by the w-indefinite. Example (12b) would then not be interpreted as 'I saw someone' but as 'I saw everyone'.

Following the proposal by Cable (2007: 135-137), I will assume that in the course of the creation of the *v*P-VP complex, the w-item is merged with a so-called Q-particle, that constitutes an operator in the syntax and is semantically represented as a *choice function* (cf. Kartunen 1977, Winter 1997).[70] A choice

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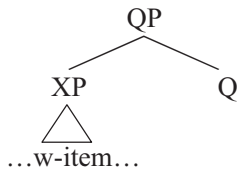
(i) a. Sie ist **etwas** größer.
she is something taller
'She is a little taller.' (German)

b. Zij is **iets** langer.
she is something taller
'She is a little taller.' (Dutch)

[70] Note that this proposal is crucially different from the analyses of Katz & Postal (1964) and Klima (1964). In these analysis it is the independent indefinite pronouns like *someone* or *something* to which an interrogative dimension is added either by a question marker at the sentence level (Katz & Postal 1964: 115) or by a question marker at the word level (Klima 1964: 144). In Cabel's (2007) proposal w-items are not regarded as either inherently indefinite or interrogative, nor are w-items used in interrogative constructions assumed to be derived from independent indefinite pronouns such as *someone* or *something*. W-items are regarded as neutral with respect to indefiniteness and interrogativity. All they provide is a set of alternatives that yields

function is a function takes a set as its argument and returns a member of that set as its value. It follows that when a w-item gets merged as the argument of a choice function, the function will restrict the denotation of the W-head from the whole set of alternatives to one individual of this set by returning only one member as its value. The merger of the Q-particle with the w-item as proposed by Cable (2007) is shown in (13). The branches are neutral with respect to linear order.

(13) Merging w-items with a Q-particle



(adapted from the illustrations in Cable 2007: 34)

From a syntactic point of view, the Q-particle with which the w-item is merged constitutes a so-called *focus-sensitive operator*. The crucial characteristic of this kind of operators is that they can only take elements that denote a focus semantic value as complements. In section 5.4 I have argued extensively that the fundamental property of the W-head is that it denotes only a focus semantic value, i.e., a set of alternatives. Given that the highest phrase of the internal structure of every w-item is WP, every w-item denotes a focus semantic value and therefore constitutes the perfect match for a focus-sensitive operator. Cable (2007: Chapters 3-5) presents extensive empirical evidence for the existence of this operator in his crosslinguistic investigation of interrogative constructions in *wh*-fronting and *wh*-in-situ languages, where it surfaces as a particle. This evidence will be reviewed in section 7.3.2.1, where I analyze the interrogative function of German and Dutch w-items.

The necessity to restrict the set of alternatives denoted by the w-item to one member points us to our observation (b) above. The difference between w-items in their indefinite function and independent indefinite pronouns is that the latter don't contain an element that denotes a set of alternatives. Independent indefinite pronouns in German and Dutch are highly transparent in terms of their morphological makeup. German *jemand* and Dutch *iemand* (someone), for

a lack of information. Both indefiniteness and interrogativity have to be created for w-items independently.

example, are based on the generic Old Germanic noun *man* (human being) and the adverb *je*/*ie* (always, ever). Like any other nouns and pronouns in singular number, indefinite pronouns denote one referent and it is therefore not necessary to restrict them any further with a choice function. This immediately explains why independent indefinite pronouns can never acquire the interrogative function in the left periphery. They don't denote a set of alternatives from which one can be given as a suitable answer to a question.

7.2.3.2 Step 2: Existential Closure

Following the insights of Heim (1982) and Diesing (1992), I will assume that indefiniteness is not inherent to indefinite expressions such as *a dog* but arises as a result of an indefinite expression being bound by an existential quantifier in the course of the derivation. This mechanism was introduced by Heim (1982) with the term *Existential Closure*. I will review it briefly below. Based on the arguments presented in Diesing (1992: 16-23), and Postma (1994: 190), I will propose that the fact that the indefinite function of the w-items is restricted to their appearance in the lower part of the clause results from the circumstance that Existential Closure is instantiated at the level of *v*P. I will provide extensive data that shows that an indefinite interpretation of a w-item in German and Dutch cannot be created at any higher level of the clause. We have seen already that a w-item is interpreted as an interrogative when moved to the left periphery. In addition, I will show that its presence at the TP level causes ungrammaticality.

I will now give a brief overview of the mechanism of Existential Closure. Readers who are familiar with this concept can immediately skip to page 239 and continue reading at example 16.

Heim (1982: 85) argues that the sole lexical content of an indefinite element is a free variable. This variable can be bound by different operators in the syntax. The operators are responsible for the range of interpretations that indefinites display at logical form.

> [T]he indefinite never contributes anything more than this variable-reading to the meaning of the sentence in which it occurs, whatever type of sentence it may be. In other words, whenever the indefinite seems to act as a quantifier in some utterance, it is really something else about the utterance that is responsible for the quantificational force. (Heim 1982: 85)

Heim (1982: 86) argues that the end of a syntactic derivation does not automatically entail that the syntactic structure that is about to be transferred to the semantic interface is unambiguous. She gives two reasons: "(a) There may be more than one potential antecedent for an anaphoric element. (b) The scope of a quantifier may be undetermined." It follows from this that "[s]yntactic structures […] stand in a one-to-many relation to logical forms". In other words, "logical forms represent sentences under certain 'readings'." This means that ambiguous syntactic structures need to be translated into unambiguous logical forms. This is achieved through so-called *rules of construal*. One rule that Heim (1982: 86-101) proposes is the rule of Existential Closure. This rule applies to indefinite expressions that are not in the scope of any quantifier to bind them in the translation from syntactic structure to logical form. Heim (1982: 86, 90) argues that in these cases an existential quantifier is introduced into the logical form that has narrow scope over the indefinite and that supplies it with an existential reading in the semantic interpretation. Consider the following example.

(14) a. A man owns a dog.
b. (∃x,y) [x is a man (and) y is a dog (and) x owns y]

In this example both the indefinite expressions *a man* and *a dog* are interpreted existentially. This gives us a reading of the sentence that says that there exists a man and there exists a dog and the man is the owner of the dog. This reading is caused by the existential quantifier that has been introduced by virtue of the rule of Existential Closure. With respect to the existential quantifier, the indefinite expression bound by it is called *nuclear scope* (cf. Heim 1982: 90). If we replace the indefinite article *a* with a quantifier such as *every*, we lose the existential reading on *man*.

(15) a. Every man owns a dog.
b. Every x [x is a man] (∃y) y is a dog (and) x owns y

In this example *man* is bound by the quantifier *every* and serves as a restrictive set that narrows down the application of *every* to the entities that constitute *men*. Due to its restricting effect on the quantifier, the expression bound by the quantifier is called *restrictive term* (cf. Heim 1982: 90). The whole expression represented by [x is a man] in (15b) is called *restrictive clause* (cf. Diesing 1992: 7).

In her theoretical investigation of indefinite expressions, Diesing (1992) translates Heim's (1982) analysis, which was formulated in terms of logical semantics, into the terms of GB theory (more specifically the Barriers

framework at the time, cf. Chomsky 1986). She argues that the terms of nuclear scope and restrictive clause can be correlated with two separate domains in the clause structure. Nuclear scope is associated with VP, and restrictive clause is associated with IP. This means that by the end of the derivation all items that still reside in the VP will be subject to the rule of Existential Closure and bound by an existential quantifier in the logical form. The key observation to support this claim is the fact that indefinite expressions lose their existential reading when they reside in the IP at the end of the derivation. Compare the following sentences.

(16) a. A man owns a dog.
b. … because a dog barks.

While *a dog* in (16a) is interpreted with an existential reading due to being in the complement position of VP, it receives a generic reading in (16b) because it is placed in the specifier of IP. Diesing (1992: 16-23) argues that in constructions such as (16b), where no overt quantifier (or operator) is present to bind the indefinite expression, it will be automatically bound by a generic quantifier.

Given these insights, the crucial point for this analysis is to show that w-items in German and Dutch must not move out of the *v*P-VP complex throughout the derivation in order to be bound by an existential quantifier. We have seen on numerous occasions that w-items in German and Dutch are inevitably interpreted as interrogative pronouns when moved to the left periphery. I will therefore now move on to the discussion of whether w-items in German and Dutch can move beyond the *v*P level and be interpreted as indefinite pronouns. The first observation we make concerns w-indefinites in object position. Scrambling them out of the *v*P causes ungrammaticality. In the German examples it is the modal particle *ja*, which expresses shared knowledge between speaker and hearer, that marks the border of the vP (cf. Frey & Pittner 1998). In the Dutch examples it is the corresponding modal particle *toch* (for similar examples with negation elements in Dutch, see Postma 1994: 193).

(17) German *was* in object position

a. Ich habe ja **was** gesagt.
I have PART what.ACC said
'But I said something.'

b. *Ich habe **was** ja gesagt.
I have what.ACC PART said
'But I said somehting' (German)

(18) German *wer* in object position

a. Ich habe ja **wen** angerufen
I have PART who.ACC called
'But I called someone.'

b. *Ich habe **wen** ja angerufen.
I have who.ACC PART called
'But I called someone.' (German)

(19) Dutch *wat* in object position

a. Ik heb toch **wat** gezegd.
I have PART what said
'Still I said something.'

b. *Ik heb **wat** toch gezegd.
I have what PART said
'Still I said something.' (Dutch)

The next step is to show whether the same restrictions hold for w-indefinites in the subject position. Given that subjects are standardly assumed to move from Spec*v*P to SpecTP in German and Dutch, we have to establish whether subject movement causes ungrammaticality for w-indefinites. The Dutch data show clearly that *wat* must remain in the *v*P even when it functions as a subject. In these cases the expletive *er* has to be inserted in SpecTP.

(20) Dutch *wat* in subject position

a. Ik weet zeker dat er gisteren **wat** gebeurd is.
I know surely that EXPL yesterday what happened is
'I know for sure that something happened yesterday.'

b. *Ik weet zeker dat **wat** gisteren gebeurd is.
I know surely that what yesterday happened is
'I know for sure that something happened yesterday.' (Dutch)

For German, the situation might seem a little less clear at first sight. Example (21) shows German *was* and *wer* in subject position.

(21) German *was* and *wer* in subject position

a. Ich weiß mit Sicherheit, dass **was** passiert ist.
I know with certainty that what.NOM happened is
'I know for sure that something has happened.'

b. Ich weiß mit Sicherheit, dass **wer** angerufen hat.
I know with certainty that who.NOM called has
'I know for sure that someone has called.'

(German)

In the examples above, both *was* (what) and *wer* (who) display nominative case and subject-verb-agreement. In current minimalist theorizing, it is standardly assumed that nominative case is a reflex of subject-verb-agreement, which is accompanied by movement of the subject from Spec*v*P to Spec TP (cf. Chomsky 2001: 3-5). It might therefore seem that the data above are a problem for the analysis of w-indefinites formulated here. Yet this problem is only apparent. It has been argued on numerous occasions that the standard minimalist analysis of subject-verb-agreement is insufficient to explain subject-verb-agreement in German. It has been shown repeatedly that the subject does not have to move out of the *v*P-VP complex in order to instantiate subject-verb agreement (cf. Webelhuth 1984: 207, Sabel 2005: 28 and Struckmeier 2014: 94-96, among others). This is shown in examples (22) and (23). Using again the modal particle *ja* to make the *v*P border visible, we can see in (22) that the subject *Peter* can move out of the *v*P, while (23) shows that *wer* has to stay inside the *v*P.

(22) a. Ich weiß, dass ja heute noch **Peter** anruft.
I know that PART today still Peter calls
'I know that Peter will definitely still call today.'

b. Ich weiß, dass **Peter** ja heute noch anruft.
I know that Peter PART today still calls
'I know that Peter will definitely still call today.' (German)

(23) a. Ich weiß, dass ja heute noch **wer** anruft.
I know that PART today still who.NOM calls
'I know that someone will definitely still call today.'

b. *Ich weiß, dass **wer** ja heute noch anruft.
I know that who.NOM PART today still calls
'I know that someone will definitely still call today.' (German)

Yet there are cases where it can unmistakably be shown that German w-indefinites do appear to the left of modal particles and negation elements. These cases seem to constitute strong evidence that w-indefinites do move beyond the *v*P border, which poses a problem for the analysis proposed here. These cases will be discussed in the next section, where I will show that w-indefinites stay within the *v*P after all.

7.2.3.3 Do German W-Indefinites Scramble?

The best way to observe German w-indefinites that seem to have moved out of the *v*P-VP complex is by taking a look at constructions with multiple w-indefinites. Two examples without adverbials or modal particles are given in (24).

(24) a. Ich weiß, dass **wer** **wen** angerufen hat.
I know that who.NOM who.ACC called has
'I know for sure that someone has called someone.'

b. Ich weiß, dass **wer** **wem** **was** erzählt hat.
I know that who.NOM who.DAT what.ACC told has
'I know that someone told something to someone.'

Lechner (1998: 279) and Struckmeier (2014: 265) show that when multiple w-indefinites appear in the same construction and a negation element is present, all of them have to move beyond the negation element *nicht* (not) in order to produce a grammatical construction.

(25) a. …dass **wer** **was** nicht gekauft hat.
that who.NOM what.ACC not bought has
'…that someone didn't buy something.'

b. *… dass **wer** nicht **was** gekauft hat.
that who.NOM not what.ACC bought has
'…that someone didn't buy something.'

(German, adapted from Lechner 1998: 279)

In contrast to the ungrammatical example (23b) and (25b), Struckmeier (2014: 69) shows that w-indefinites can move individually when they move beyond a modal particle. This is shown with the modal particle *wohl* (in this case to be translated as 'apparently') in example (26).

(26) a. Da hat wohl **wer** **wem** **was** nicht gesagt.
there has apparently who.NOM who.DAT what.ACC not said.
'Apparently someone has not said something to someone.'

b. Da hat **wer** wohl **wem** **was** nicht gesagt.
there has who.NOM apparently who.DAT what.ACC not said.
'Apparently someone has not said something to someone.'

c. Da hat **wer** **wem** wohl **was** nicht gesagt.
there has who.NOM who.DAT apparently what.ACC not said.
'Apparently someone has not said something to someone.'

d. Da hat **wer** **wem** **was** wohl nicht gesagt.
there has who.NOM who.DAT what.ACC apparently not said.
'Apparently someone has not said something to someone.'

(German, adapted from Struckmeier 2014: 267)

These data suggest that German w-indefinites do move out of the vP-VP complex. Yet there is a crucial difference between the scrambling behavior of the w-items in examples (24), (25) and (26) and the scrambling behavior of DPs in German. With respect to their status in the *v*P-VP complex – subject, direct object or indirect object – DPs can scramble into any order given the proper intonation (cf. Lenerz 1977). Example (27) shows a few possible combinations, which are a version of the examples formulated in Lenerz (1977: 43f). I will bold-face only the definite articles to make the order possibilities more visible.

(27) a. …dass **der** Mann **dem** Kassierer **das** Geld
that the.NOM man.NOM the.DAT chashier.DAT the.ACC money.ACC

gegeben hat.
given has

'…that the man gave the money to the cashier.'

b. …dass **dem** Kassierer **der** Mann **das** Geld
that the.DAT chashier.DAT the.NOM man.NOM the.ACC money.ACC

gegeben hat.
given has

'…that the man gave the money to the cashier.'

c. …dass **das** Geld **dem** Kassierer **der** Mann
that the.ACC money.ACC the.DAT chashier.DAT the.NOM man.NOM

gegeben hat.
given has

'…that the man gave the money to the cashier.'

In contrast to DPs, w-indefinites cannot scramble freely regardless of the intonation. They have to remain in the so-called base order for arguments, i.e., the order in which they are merged in the *v*P-VP complex. For German the base order of arguments has been identified in Lenerz (1977) as the succession of subject, indirect object and direct object. DPs in German can only be ordered freely when scrambled out of their base order positions, i.e., when they leave the *v*P-VP complex. In contrast, when w-items are used as indefinites, they cannot violate the base order. If they do, the construction becomes ungrammatical (the presence or absence of a modal particle is irrelevant).

(28) a. *Da hat **was** **wem** **wer** wohl nicht gesagt.
there has what.ACC who.DAT who.NOM apparently not said
'Apparently someone has not said something to someone.'

b. *Ich weiß, dass **was** **wem** **wer** erzählt hat.
I know that what.ACC who.DAT who.NOM told has
'I know that someone told something to someone.'

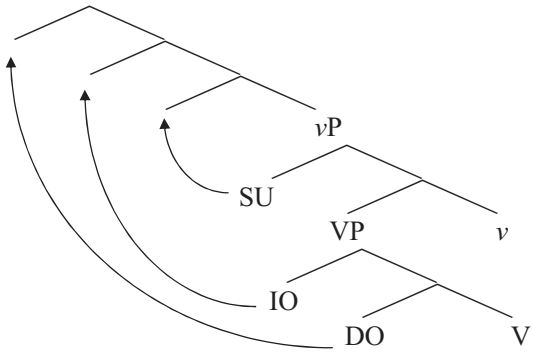
(German, example a adapted from Struckmeier 2014: 267)

This situation confronts us with a dilemma. The fact that German w-indefinites seem to be able to scramble to the left of modal particles and negation elements suggests that they leave the *v*P-VP complex. In contrast, the fact that they can't violate the base order of arguments suggests that they remain in the *v*P-VP complex. The best solution to this problem, in my opinion, has been proposed in

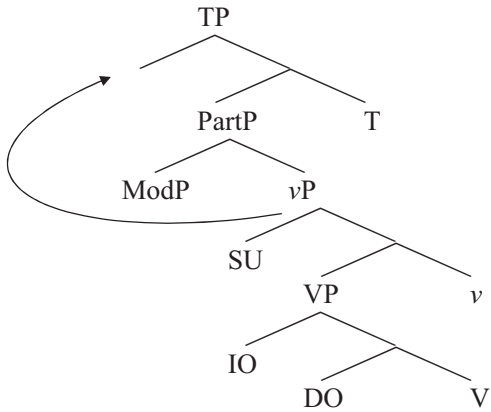
Struckmeier (2014: 263-270), who argues that the fixed word order of the w-indefinites in the examples above does indeed result from the fact that they never leave the *v*P-VP complex. In his profound work on the architecture of scrambling and information structure in German, Struckmeier (2014: Chapters 3, 6, 7) proposes that German can make use of two distinct movement operations in order to displace the arguments merged in the *v*P-VP complex into the middle field: (a) the arguments can be moved out of the *v*P-VP complex individually before T is merged into the structure or (b) the whole *v*P (including VP) can be moved into SpecTP after T is merged into the structure. Only the first movement operation yields what is traditionally understood as scrambling in German, namely the free arrangement of verbal arguments in the middle field. The second movement operation preserves the base order of the arguments, since they are not displaced from their positions within the *v*P-VP complex. Struckmeier (2014: 167f) assumes that modal particles such as *wohl* in (26) are heads that project a PartP. This phrase is merged into the structure on top of *v*P as the complement of T. He argues further that PartP is always present in the structure, even if no overt particle is present.[71] This is shown in the illustrations in (29) and (30) where ModPart stands for modal particle, SU for subject, IO for indirect object and DO for direct object. With respect to the arrangement of the branches in the illustration, I will generally adhere to the standard assumption that German is right-headed below the C-layer. Yet it has to be noted that Struckmeier (2014: 167) takes PartP alone to be left-headed. This assumption is based on substantial empirical evidence on the positioning of adverbs with respect to modal particles in German (cf. Struckmeier 162-169). For extensive discussion on this particular positioning of the Part-head in comparison to principles of ordering of heads, such as the Linear Correspondence Axiom (cf. Kayne 1994) or the Final over Final Constraint (cf. Biberauer et al 2014), see Struckmeier (2014: 169-178) Due to graphic limitations, the arrows give only one possible order for scrambling. Whichever argument gets moved out of the *v*P-VP complex first, that element will occupy the lowest position outside the *v*P. The argument that gets scrambled last will occupy the highest position outside the *v*P.

[71] The motivation for this assumption comes from the more encompassing hypothesis defended in Struckmeier (2014: 142-169) and Struckmeier (forthcoming) that modal particles are functional heads that establish a relation with C in the sense that they constitute elements that have a determining effect on the force properties of the sentence as a whole.

(29) Scrambling in German



(30) *v*P-movement in German



Struckmeier (2014: 263-270) argues that the two movement operations are carried out with different motivations. Scrambling is semantically motivated and can only be triggered when it results in an "effect on the outcome" in the sense of Chomsky (2001: 34). This means that the movement operation is only legitimate when it has an effect on the semantic interpretation of the structure. The movement of *v*P is conceptualized as a purely formal syntactic movement operation, driven by the necessity to fill the subject position as stated by the Extended Projection Principle (cf. Chomsky 1981: 27). In minimalist syntax this principle is implemented by placing an EPP-feature on T which triggers the movement of the subject from Spec*v*P to SpecTP. In example (22) above, we have seen that German seems to have a choice between moving the subject to SpecTP or letting it remain in Spec*v*P. The example is reproduced here.

(31) a. Ich weiß, dass ja heute noch **Peter** anruft.
I know that PART today still Peter call
'I know that Peter will definitely still call today.'

b. Ich weiß, dass **Peter** ja heute noch anruft.
I know that Peter PART today still call
'I know that Peter will definitely still call today.'

In addition to this standard minimalist assumption, Struckmeier (2014: 94-99) argues that the movement triggered obligatorily by the EPP feature cannot only target the subject in Spec*v*P but also *v*P itself. This results in two possible EPP-triggered movements: (a) subject movement to SpecTP and (b) movement of the complete *v*P to SpecTP. This makes two predictions. First, EPP-driven movement of the *v*P has no effect on the semantic interpretation of the sentence. Second, since the verbal arguments are not moved out of the *v*P-VP complex but remain inside the *v*P-VP complex, they should not be able to rearrange in the way that scrambled arguments do. Adherence to the base order of arguments is therefore the main diagnostic of EPP-driven movement of the *v*P. Both predictions are borne out for the syntactic behavior of German w-indefinites observed above. Examples (24) and (26) show clearly that w-indefinites must adhere to the base order of arguments in German regardless of the position of a modal particle. To observe that moving w-indefinites has no effect on the semantic interpretation of the indefinite pronouns, we can resort to Diesing's (1992) observation discussed above that indefinite expressions receive a generic reading when moving beyond the *v*P. This is exactly what we find for indefinite arguments that move out of the *v*P-VP complex with the scrambling operation illustrated in (29) as we can see in (32b) below.

(32) a. …weil ja immer **ein Feuerwehrmann** bereitsteht.
because PART always a firefighter available
'…because there is always a firefighter available.'

b. …weil **ein Feuerwehrmann** ja immer bereitsteht.
because a firefighter PART always available
'…because a firefighter is always available.'

(German, adapted from Struckmeier 2014: 81)

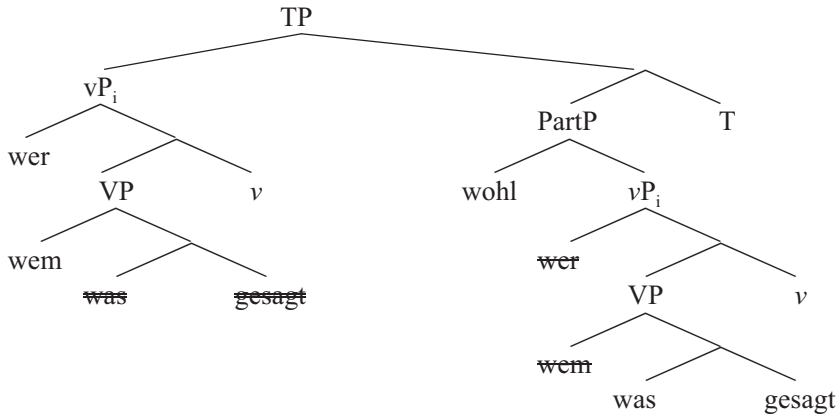
The interpretation of *ein Feuerwehrwann* (a firefighter) in (32a) is existential. This means that at any given moment there is a firefighter who is available. (32b) presents us with a generic interpretation. It tells us that being available is a

general property of firefighters. If the w-indefinites above had been moved out of the *v*P-VP complex, we would expect the same semantic effect. This is not the case. All of the w-indefinites in examples (24) and (26) above receive an existential interpretation regardless whether they appear to the right or the left of the modal particle.

This leads us to the following question: How is it possible that the w-indefinites can appear both to the left and the right of the modal particle given that the modal particle marks the border of the *v*P-VP complex. Struckmeier (2014: Chapter 7) argues that this is an effect of the application of Spellout, more precisely, the mechanism of *Distributed Deletion*. The notion of *Distributed Deletion* as a mechanism of Spellout was formulated after the introduction of the copy theory of movement in Chomsky (1995). The basic assumption of the copy theory of movement is that movement creates copies of the moved element instead of traces, as assumed in GB theory and that Spellout phonologically realizes one of these copies and deletes the others. Given this assumption, it should also be possible for Spellout to realize parts of a higher copy and parts of a lower copy and delete the rest of the copy in the respective position (for extensive theoretical and empirical discussion of Distributed Deletion, see Fanselow & Ćavar 2002). Applying this mechanism to the structure produced by the movement operation in (30), it is possible for Spellout to realize parts of the higher copy and delete them in the lower copy, and vice versa. Given that the whole *v*P is copied and moved from its base position to SpecTP, all w-indefinites contained in the *v*P are present in the higher copy and the lower copy of *v*P. It follows that Spellout can realize either the higher or the lower copies of the w-indefinites. Consequently, w-indefinites in German can appear either to the left or the right of the modal particle depending on which copies are realized and which copies are deleted by Spellout. We consequently arrive at a mechanism that allows us to capture the syntactic behavior of multiple w-indefinites in contrast to argument scrambling in German. This is illustrated in (34) for the example in (33). The indices on the *v*Ps show that they are copies of each other.

(33) Da hat **wer** **wem** wohl **was** gesagt.
there has who.NOM who.DAT apparently what.ACC said.
'Apparently, someone has said something to someone.'

(34) Movement of vP and Distributed Deletion of w-indefinites in German



Combining the insights of the past three subsections, we can see that it takes two steps to create the indefinite function of w-items in German and Dutch. First of all, the reference of the w-item has to be restricted to one member out of the set of alternatives denoted by the W-head. I have implemented this necessity by using a choice function represented as a focus sensitive operator, that takes the w-item as its complement and consequently makes the set of alternatives the argument of the choice function. The second step creates the proper interpretation of the w-item by applying Existential Closure at the *v*P level. The data shown throughout section 7.2 have shown that w-indefinites in German and Dutch cannot move beyond the *v*P. All the apparent cases of such movement have been ruled out.

7.2.4 Why Dutch *wie* Can't Function as an Indefinite Pronoun

The last problem we have to solve with respect to the topic of w-indefinites in German and Dutch is why Dutch *wie* cannot function as an indefinite pronoun, in contrast to Dutch *was*. My answer is that the ungrammaticality of using *wie* as an indefinite pronoun is due to the same development that has led to the unacceptability of *die* in object case positions, discussed in section 6.4.2. I have shown that when Dutch *die* is base-generated as an object of the verb, it has to move out in the course of the derivation, otherwise the construction is perceived as either strongly degraded or ungrammatical. I have argued that due to the erosion of the case system, Dutch *die* has come to be replaced with personal pronouns in the object positions of the VP because personal pronouns display overt object case and therefore take precedence over *die* at the point of Spellout due to the Elsewhere Principle. I have furthermore argued that Dutch *die* can

remain associated with object case when it is moved to the left periphery, i.e., a position where this association is only indirect. It is my impression that we can observe the same effect for Dutch *wie*. I will propose that due to the lack of case morphology on Dutch *wie*, its presence in object case positions is avoided as much as possible. Since object case positions are part of the VP and since w-items need to remain in the *v*P-VP complex to acquire an indefinite interpretation under existential closure, the avoidance of *wie* in object case positions causes *wie* to be moved beyond the existential quantifier into the left periphery, where it is only indirectly associated with object case.
With respect to the positioning of Dutch *die* and *wie* (in its indefinite function) in the lower structure of the clause, we can observe that both elements are blocked by other elements in the object positions of the VP. Dutch *die* has come to be replaced with personal pronouns (cf. section 6.4.2 for extensive discussion) and Dutch *wie* is blocked by the independent indefinite pronoun *iemand*. Both are results of the Elsewhere Principle. Given the lack of object case morphology on *die* and *wie*, a more specific item is chosen at the point of spellout. A personal pronoun, that displays object case, takes the place instead of *die* and an independent indefinite pronoun takes the place instead of *wie*. It is then a natural consequence that the use of *wie* as indefinite pronoun is not being established altogether, i.e., *wie* does also not appear as indefinite pronoun in the subject position of the *v*P.

A further parallel between the avoidance of *die* and *wie* in object case positions can be seen in the construction of oblique relative clauses. In section, 6.4.2 I have shown that the introduction of an oblique relative clause with a PP that contains *die* as a relative pronoun is ungrammatical (see 35a below). I have furthermore shown that the same construction is grammatical when the head noun of the relative clause denotes a human referent and when the w-item *wie* surfaces as relative pronoun in the PP (see 35b below). I have also shown that this creates a shortage of relative pronouns for oblique relative clauses with non-human head nouns, which is repaired by using pronominal adverbs as relativizers in these constructions. The relevant examples are repeated in (35).

(35) a. Dat is de man ***met die** ik gesproken heb.
that is the man with RP.MT2/MT3 I spoken have
'This is the man to whom I talked.'

b. Dat is de man **met wie** ik gesproken heb.
that is the man with who I spoken have
'This is the man to whom I talked.'

c. Dat is de hond **waarmee** ik een rondje heb gelopen.
that is the dog where-with I a round have walked
'That is the dog that I walked a little round with.'

d. Dat is de auto **waarmee** ik naar huis ga rijden.
That is the car where-with I to home go drive
'That is the car that I will drive home with.' (Dutch)

The crucial observation with respect to the examples in (35) is that the construction in (35b) is in the process of reducing to formal registers. Although (35b) is still held to be the grammatically correct version of an oblique relative clause with a human head noun in normative grammars, it is being acknowledged that oblique relative clauses are uniformly introduced with pronominal adverbs in colloquial speech (cf. ANS: wie). This is shown in (36).

(36) % Dat is de man **waarmee** ik gesproken heb.
that is the man where-with I spoken have
'This is the man that I talked to.' (Dutch)

The combination of these developments provides strong evidence for the assumption that Dutch *wie* is undergoing the same process as Dutch *die*. The only constructions in which *wie* remains stably placed in an object case position are interrogative constructions where (a) *wie* is the complement of a preposition or (b) *wie* surfaces in the VP due to presence of multiple w-interrogatives. This is shown in (37).

(37) a. **Met wie** heb je gesproken?
with who have you talked
'With whom did you talk?'

b. **Wie** heeft gisteren **wie** gebeld?
who has yesterday who called
'Who called whom yesterday?' (Dutch)

The explanation for the presence of *wie* in the examples in (37) is purely functional. In contrast to English, Dutch doesn't allow preposition stranding with pronouns (it is only pronominal adverbs that allow for the pronominally used locative adverb to be stranded). At the same time, the PP in (37a) cannot be replaced with a pronominal adverb, since this would cause a loss of the specific human interpretation of the interrogative pronoun. A similar situation holds for (37b). There is no element that could appear instead of the lower *wie* and yield

the same interpretation, as we have seen for a personal pronoun that replaces *die* in this position. It follows that *wie* must remain as an interrogative pronoun in these constructions simply because it cannot be replaced with any other item.

This raises the question why Dutch *wat* is not excluded from being an indefinite pronoun for the same reasons as *wie*. In order to answer this question, let me recapitulate some observations made in earlier chapters of this thesis. In section 4.3.2 I discussed the morphological declension paradigm of mass type 1 (unbounded mass), which constitutes the Spellout out MassP, which is located in the Classification Domain. I have shown that the mass type 1 morpheme *-at*, contained in Dutch *wat*, corresponds to the older expletive *-et*, which was changed to *het* after the erosion of the case system. I argued that the expletive is used to create the nominative morpheme of the mass type 1 declension paradigm and that it can serve as accusative morpheme due to the adjacency of nominative and accusative on the Case Hierarchy (cf. section 3.4.4 for the discussion of Caha's 2009 Case Hierarchy). I furthermore showed in section 4.3.2 that the oblique cases dative and genitive usually denote experiencers/undergoers and possessors, respectively. In section 5.2.1 I showed that the declension paradigm of German *was* displays gaps for dative and genitive case. This is expected given that unbounded masses cannot be experiencers/undergoers or possessors. It follows that Dutch *wat* is an item whose morphological makeup allows the spelling out of accusative case, i.e., direct object case but not genitive or dative case, i.e., oblique case. We therefore expect *wat* to surface in the position of the direct object, and we should expect *wat* not to surface in places where oblique case is assigned. This is exactly what we find for the distribution of *wat* in its function as an indefinite and interrogative pronoun. As an indefinite pronoun, *wat* can only appear in the direct object position of the VP. It cannot appear in PPs. Only the independent indefinite pronoun *iets* (something) can appear in PPs. This is shown in (38).

(38) a. Ik heb **wat** gezien.
I have what seen
'I saw something.'

b. Ik zit nog ***op wat** te wachten.[72,73]
I sit still on what to wait
'I'm still waiting for something.'

c. Ik zit nog **op iets** te wachten.
I sit still on something to wait
'I'm still waiting for something.' (Dutch)

The same observation can be made for interrogative constructions. *Wat* can appear as direct object, but not within a PP. In cases where an interrogative construction would be introduced with a PP, as in (37) above, the PP has to be replaced with a pronominal adverb.[74]

(39) a. ***Op wat** zit je te wachten?
on what sit you to wait
'What are you waiting for?'

b. **Waarop** zit je te wachten?
where-on sit you to wait
'What are you waiting for?' (Dutch)

These data constitute further evidence for the effect of case morphology on the distribution of the items *die*, *wie* and *wat* in Dutch. This provides further support

[72] It needs to be mentioned that there seems to be variation in non-standard varieties of Dutch with respect to the acceptance of a w-item as indefinite pronoun in PPs. The star in (38b) can therefore be given definitively only for standard Dutch. Further empirical testing of this particular construction has to be left for future research.

[73] It furthermore needs to be added that German *was* is not banned from appearing in PPs.

(i) Ich bin noch **mit was** beschäftigt.
I am still with what busy
'I am still busy with something.'

[74] With respect to example (39b), it needs to be mentioned that Dutch *wat* can appear in a PP when it is strongly emphasized.

(i) **Op WAT** zit je te wachten?
on what sit you to wait
'WHAT are you waiting for?'

for the assumption that the distribution of Dutch *wie* and Dutch *die* is significantly affected by the erosion of the case system in Dutch and that the loss of the indefinite function of Dutch *wie* is a consequence of the loss of object case morphology. It follows that the contrast between the grammaticality of German *wer* as an indefinite pronoun and the ungrammaticality of Dutch *wie* as an indefinite pronoun does not present us with a profound difference between German and Dutch that affects the use of w-items but with a surface effect related to externalization.

With these remarks, I conclude the discussion of the indefinite pronoun function of w-items in German and Dutch. I will now proceed to the discussion of the interrogative function.

7.3 The Interrogative Function

In this section, we will move up from the bottom of the clause to the left periphery and investigate the interrogative function of w-items in German and Dutch. I will start the discussion with a short descriptive overview of the w-interrogatives of German and Dutch. I will then proceed to the analysis which will be presented in a similar manner as the analysis of w-indefinites. I will propose that creating an interrogative interpretation for w-items in German and Dutch is carried out in two steps. The first step involves embedding the set of alternatives denoted by the W-head into the choice function that I have introduced in section 7.2.3.1. The second step is to instantiate A-bar movement of the w-item to the left periphery, where it will be bound by an interrogative operator, that directs the request for information at the hearer. I will continue to formulate the analysis against the background of Cable's (2007) framework.

7.3.1 The W-Interrogatives of German and Dutch

The first observation that we make with respect to the interrogative function of w-items is that all w-items function as interrogatives. One example for each w-item is given in (40).

(40) The w-items of German and Dutch in their interrogative function

a. German *was* and Dutch *wat*
Was ist das?
what is that
'What is that?' (German)

Wat is dat?
what is that
'What is that?' (Dutch)

b. German *wer* and Dutch *wie*
Wer ist das?
who is that
'Who is that?' (German)

Wie is dat?
who is that
'Who is that?' (Dutch)

c. German *welch-* and Dutch *welk-*
Welches Buch nimmst du mit?
which book take you with
'Which book are you taking with you?' (German)

Welk boek neem je mee?
which book take you with
'Which book are you taking with you?' (Dutch)

d. German *wo* and Dutch *waar*
Wo ist die Bibliothek?
where is the library
'Where is the library?' (German)

Waar is de bibliotheek?
where is the library
'Where is the library?' (Dutch)

e. German *wann* and Dutch *wanneer*
Wann beginnt das Konzert?
when begins the concert
'When does the concert begin?' (German)

Wanneer begint het concert?
when begins the concert
'When does the concert begin?' (Dutch)

f. German *wie* and Dutch *hoe*
Wie funktioniert das?
how functions that?
'How does that work?' (German)

Hoe werkt dat?
how works that
'How does that work?' (Dutch)

g. German *warum* and Dutch *waarom*
Warum hast du angerufen?
why have you called
'Why did you call?' (German)

Waarom heb je gebeld?
why have you called
'Why did you call?' (Dutch)

The second observation we make when looking at the constructions above is that German and Dutch are *wh*-fronting languages, i.e., w-items can only function as interrogative pronouns if they are located in the left periphery of the sentence. In parallel to the approach I have taken to analyze the indefinite function of w-items, the guiding question for the analysis of the interrogative function is: What is it about the syntactic environment of the w-item that causes it to receive an interrogative interpretation? In my analysis below I will argue again that it takes two steps to instantiate interrogativity. The first step is the creation of an interpretation of the w-item that allows the hearer to return one member of the set of alternatives denoted by the w-item as a suitable answer to the question. I will argue that this is achieved by embedding the set of alternatives into a choice function in the same way as I have argued to be the case for indefinites. The second step is different, however. In order to receive an interrogative interpretation, the w-item must not be bound by an existential quantifier. It has to move out of its scope into the left periphery, where it can be bound by an interrogative operator, that creates the request for information, which characterizes interrogativity.

7.3.2. Creating Interrogativity for W-Items

Wh-fronting in interrogative constructions is one of the core topics of theoretical syntax and has been investigated for about five decades. The investigation is guided by the fundamental question of how it comes about that some languages

have to front their w-items in order to create interrogativity, while other languages don't. Cable (2007: 22-24) shows that the traditional analysis of *wh*-fronting is based on three fundamental assumptions: (a) W-items have a special property X. (b) The position that w-items move to has a special property Y. (c) The grammar of the language is such that things bearing property X must be located at positions bearing property Y. These assumptions are widely held across different frameworks in theoretical syntax. The individual analyses of *wh*-fronting differ mostly only in framework-specific terminology. In GB theory, for example, it was assumed that w-items carry a *wh*-feature and that the complementizer of the interrogative construction is specified for [+*wh*] as well. It was then proposed that an LF filter (the WH-Criterion) requires all elements bearing a *wh*-feature to be located in a [+*wh*]-CP (cf. Pesetsky 1982, Lasnik & Saito 1992). In Minimalism this analysis has been reformulated under the concept of feature interpretability. The w-item is assumed to carry an interpretable question feature [iQ], while the complementizer carries an uninterpretable question feature [uQ]. The w-item then has to move to the specifier of the CP in order to check the [uQ] feature on C (cf. Chomsky 2000). This traditional analysis brings about a number of theoretical and empirical problems, which I will not discuss in detail here (for extensive discussion see Cable 2007: 24-30). Instead I will only concentrate on the problem that arises for the analysis of multifunctionality: the traditional analysis of *wh*-fronting formulates the property of interrogativity as an integral part of the w-item. It follows that it should not be possible to use the very same item as an indefinite pronoun or a relativizer. If interrogativity is a property of the w-item that causes the w-item to move to the left periphery, then all w-items with this property have to undergo this movement (in a *wh*-fronting language) or cause ungrammaticality when remaining in the base position due to the unchecked feature (or violated filter). It follows that we would have to formulate several lexical entries of homophonous w-items, where one carries the *wh*-property and the others don't. This is obviously a highly undesirable consequence. It is therefore necessary to dissociate the property that is related to interrogativity from the w-item.

7.3.2.1 Step 1: Choice

The characteristic property of interrogativity is to present the hearer with a choice of picking a referent out of a predefined set of alternatives and provide this referent as an answer to a question. This property can be fruitfully dissociated from the w-item if we regard only the W-head, which denotes the set of alternatives, as the characteristic property of the w-item. In this way, the w-item possesses a property that is necessary to create interrogativity, but it doesn't

yield interrogativity as such, in the same way that it doesn't yield indefiniteness. The set has then to be accommodated to a certain interpretation by its syntactic environment. We have seen in section 7.2.3.1 that an existential interpretation can only arise by restricting the set to one referent via a choice function and binding this choice function with an existential quantifier. In parallel, I will make use of the same choice function in order to create a situation where only one referent of the set can be returned as a suitable answer to the question. Instantiating this choice constitutes the first step towards interrogativity.

In section 7.2.3.1 I have followed Cable's (2007) proposal and implemented the property of choice by means of an operator that takes the w-item as its complement. This operator denotes a choice function, which correspondingly takes the w-item as its argument and returns one member of the set as its value. I have furthermore promised to review the empirical evidence for this operator in this section. I will now turn to a brief overview of this evidence.

In contrast to *wh*-fronting languages, such as English, German and Dutch, there are a number of *wh*-in-situ languages that display an interrogative particle in addition to the interrogative pronoun. This particle – commonly called Q(uestion)-particle – plays an important role in the analysis of interrogative constructions in these particular languages. The Q-particle can appear in one of two positions. It either remains next to the interrogative pronoun in the lower part of the clause, or it appears in SpecCP, leaving the interrogative pronoun behind. It is standardly assumed that this contrast results from the Q-particle moving either covertly or overtly to the specifier of the interrogative CP. This is exemplified in (41). (41a) shows an example from Japanese, where the Q-particle surfaces in SpecCP. (41b) shows an example from Sinhala, where the Q-particle surfaces next to the w-item. Please note that *wh*-in-situ languages are assumed to be right-headed.

(41) a. John-ga **nani**-o kaimasita **ka**?
John.NOM what.ACC bought.polite Q
'What did John buy?' (Japanese, Hagstrom 1998: 15)

b. Siri **mokak** **də** keruwe?
Siri what Q did
'What did Siri do? (Sinhala, Gair & Sumangala 1991: 39)

In addition to the data from *wh*-in-situ-languages with Q-particles, Cable (2007: Chapters 2 and 3) introduces interrogative constructions from Tlingit, which displays both *wh*-fronting and a Q-particle to the right of the fronted w-item (for

the discussion of further languages that display *wh*+Q-fronting, see Cable 2007: Chapter 4).

(42) **Daa** **sá** aawax̲áa i éesh?
what Q he.ate.it your father
'What did your father eat?' (Tlingit, Cable 2007: 75)

One of the main arguments in Cable (2007) is that the difference between *wh*-in-situ languages, such as Japanese and Sinhala, and *wh*-fronting languages, such as Tlingit, is that the Q-particle moves to the left periphery alone in Japanese and Sinhala and takes the w-item with it in Tlingit. He then extends his proposal for Tlingit to *wh*-fronting languages in general. He argues that all *wh*-fronting languages make use of a Q-particle in addition to the w-item. The only difference between Tlingit and languages such as English, German and Dutch is that the Q-particle is phonologically empty in the latter languages.

These considerations provide strong support for the presence of a Q-particle in German and Dutch, that merges with w-items in the first step of creating interrogativity. We can therefore arrive at a proposal that dissociates the property of interrogativity from the w-item itself. As mentioned above, Cable (2007: 135-137) conceptualizes the Q-particle as a focus-sensitive operator, which means that it is sensitive to the focus semantic value of the w-item. This sensitivity causes the operator to merge with the w-item. From a semantic point of view, this operator constitutes a choice function that takes scope over the set of alternatives denoted by the w-item. The element of choice that is characteristic for questions is therefore added to the w-item and need not be formulated as an integral part of the w-item. Given that a choice function is necessary to create both indefiniteness and interrogativity, it is necessary to formulate a second step that does not lead to Existential Closure of the w-item but to the interpretation of requesting information from the hearer.

7.3.2.2 Step 2: Fronting

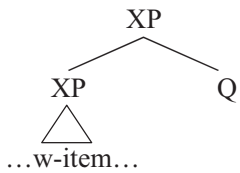
In both *wh*-fronting and *wh*-in-situ languages, the interpretation of a construction as a question is a result of the force imposed on the construction by the CP. It is the interrogative force of the CP combined with the choice function of the Q-particle that yields the request for information brought to the hearer. It follows that the Q-particle generally has to move to SpecCP regardless of whether this movement is overt or covert and whether it includes the w-item or not. This movement constitutes the second step in creating interrogativity. It follows that we need a solution for two problems: (a) the movement of the Q-particle has to

be instantiated and (b) the analysis has to allow for the w-item to be pied-piped and stranded. Following the path taken so far, I will continue to formulate the analysis against the background of Cable's (2007) framework.

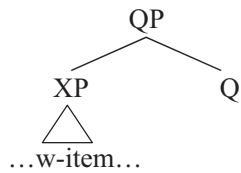
In order to explain the contrast between fronting the Q-particle alone (either overtly or covertly) and fronting the Q-particle including the w-item, Cable (2007: 32-34) proposes that this contrast is the consequence of a structural difference resulting from the merging process. He argues that the Q-particle merges with a phrase that contains the w-item. There are two possible ways of merging: adjunction and complementation. This yields the two possible structures in (43). The branches are neutral with respect to linear ordering.

(43) Merging w-items with a Q-particle

a. adjunction



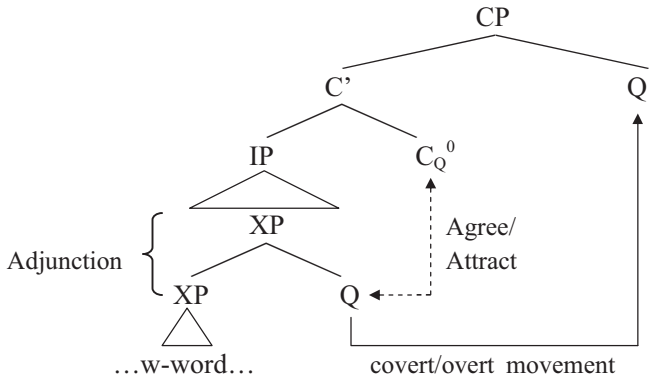
b. complementation



(adapted from illustrations in Cable 2007: 32,34)

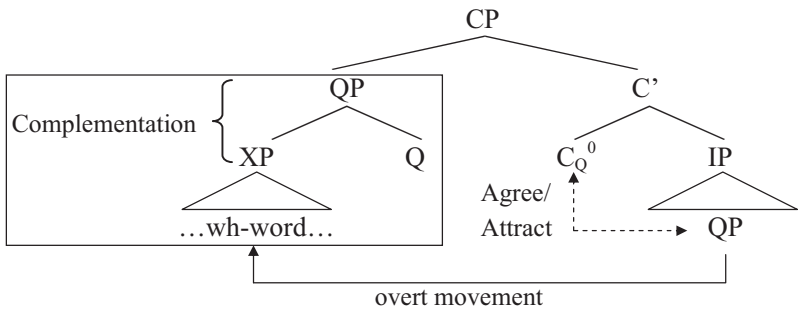
Based on the insights of previous analyses of Q-movement in *wh*-in-situ languages by Hagstrom (1998) and Kishimoto (2005), Cable (2007:32) proposes that the structures in (43) result in two options for movement. If the Q-particle is merged via adjunction, it can move out of the XP into SpecCP, leaving the phrase containing the w-item behind. If the Q-particle is merged via complementation (i.e., Q takes the w-item as its complement), the whole QP has to move to SpecCP. It follows that the w-item can remain low in the structure in *wh*-in-situ languages, but has to move up in the structure together with Q in *wh*-fronting languages. Movement of the Q-particle to SpecCP is implemented with the minimalist tool of feature checking. The Q-particle is assumed to bear an interpretable interrogative feature, while C^0 bears an uninterpretable interrogative feature. The Q-particle then moves to SpecCP and checks the uninterpretable feature on C^0. The illustration in (44) shows movement of the Q-particle in a *wh*-in-situ language. The illustration in (45) shows movement of whole QP in a *wh*-fronting language.

(44) Q-movement in *wh*-in-situ languages



(adapted from Cable 2007: 32)

(45) QP-movement in a *wh*-fronting language



(adapted from Cable 2007: 34)

The illustration in (45) shows clearly that the movement of the w-item to the left periphery of the clause in a *wh*-fronting language is a consequence of the w-item being located in the complement position of Q. The w-item itself is not targeted by the question feature on C and has therefore no direct relation with interrogativity. The association of the w-item with an interrogative reading arises only because it is merged with a Q-particle, that adds a choice function to its interpretation and brings this combination together with the interrogative force of the sentence introduced by C. It follows that we arrive at an analysis that clearly dissociates the property of interrogativity from the property that characterizes w-items. The analysis furthermore determines that w-items can and must function as interrogative pronouns when they surface in the left periphery of the clause. It is consequently not necessary to formulate several homophonous

lexical entries of w-items, where one group functions as interrogative pronouns and another group as indefinite pronouns.

Summarizing the assumptions and arguments made in the course of this section, we arrive at the following process of creating interrogativity for German and Dutch w-items. From a syntactic point of view, the w-item is merged as a complement of the Q-particle. From a semantic point of view, this merger yields an operator-variable relation between the Q-particle, which is a focus-sensitive operator, and the w-item, which denotes a set of alternatives by virtue of only denoting a focus semantic value. The Q-particle is semantically represented as a choice function, which takes a set as its argument and returns a member of this set as its value. Going back to our syntactic point of view, the Q-particle bears a question feature, which is attracted by an interrogative complementizer that has been merged into the left periphery of the clause. This causes the Q-particle and the w-item in its complement to move to SpecCP and check the uninterpretable question feature on C. This instance of feature checking translates into an instance of binding the choice function denoted by Q by an interrogative operator, since choice functions as such are not interrogative. At the end of this process, we arrive at a sentence that is introduced with an interrogative choice function. This yields the situation described by Hamblin (1973: 48). The hearer is presented with a choice among the members of a set of suitable answers and requested to return one answer selected from the set.

With the analysis of the interrogative function of German and Dutch w-items in place, I will now present some more comparative data regarding additional interpretations of German *was* and Dutch *wat*, that deviate from the general unbounded interpretation of these items discussed in sections 5.3.1 and 5.3.2.

7.3.3 Context Expansion of German *was* and Dutch *wat*

In this section I will present the phenomenon that the w-items German *was* and Dutch *wat* can acquire additional interpretations under certain circumstances. Let me start with a short recapitulation of earlier arguments in order to provide a background for the discussion below. With respect to the interpretation of German *was* and Dutch *wat* (what), I have argued in sections 5.2.1 and 5.2.2 that these w-items have no inherent restriction that reduces their interpretation to inanimate entities, as standardly assumed in the literature. Empirically, I based this argument on the fact that the set of suitable answers to an interrogative construction introduced with German *was* and Dutch *wat* is not narrowed down to a particular set of individuals, as is the case with, e.g., German *wer* and Dutch *wie* (who), whose interpretation is restricted to the set of human individuals (i.e.,

volitional agents). Against the background of the theoretical account of the internal structure of d- and w-items proposed in Chapters 4 and 5, I derived this wide spectrum of German *was* and Dutch *wat* from the makeup of the Classification Domain. In section 4.3.2 I argued that the morpheme -*as*/-*at* spells out MassP, which constitutes the lowest phrase in the Classification Domain and yields the interpretation of unbounded mass. In section 5.3.1 I argued that this unboundedness of mass translates into an unboundedness of possible referents when MassP comes to be headed by W, which denotes a set of alternatives. Based on these considerations, I have concluded that the presence of MassP alone in the Classification Domain of the internal structure of German *was* and Dutch *wat* is the reason why these w-items can be used to express a general lack of information.

In addition to this primary interpretation of German *was* and Dutch *wat*, these w-items display the phenomenon of so-called *context expansion* (Himmelmann 2004: 31-34). The term context expansion is used to capture grammaticalization phenomena in which an element goes through one of the following three developments: (a) an element appears in combination with items that it didn't appear with before (host-class expansion), (b) an element appears in syntactic constructions that it didn't appear in before (syntactic context expansion) and (c) an element appears in semantic and pragmatic contexts that it didn't appear in before (semantic-pragmatic context expansion). In this section I will show that German *was* and Dutch *wat* display the phenomenon of semantic-pragmatic context expansion under particular circumstances. This context expansion leads to two additional interpretations of German *was* and Dutch *wat*: a causal interpretation similar to German *warum* and Dutch *waarom* (why) and a quantitative interpretation similar to German *wieviel* and Dutch *hoeveel* (how much). I would like point out immediately that this section will be largely descriptive. The reasons why we are encountering precisely a context expansion to a causal and a quantitative interpretation and not to any other interpretation remain unclear at the current point of development. I will therefore introduce the comparative data first and then offer a possible research avenue for an investigation of this phenomenon in the future.

7.3.3.1 The Causal Interpretation

In certain cases German *was* and Dutch *wat* can receive a causal interpretation in the sense of *warum*/*waarom* (why). This is shown in example (46) for German and (47) for Dutch.

(46) a. **Warum** starrt der uns so an?
why stares DPR us so at
'Why is he staring at us like this?'

b. **Was** starrt der uns so an?
What stares DPR us so at
'Why is he staring at us like this?'
(German, adapted from Jäger 2000: 5)

(47) a. **Waarom** kijkt die zo naar ons?
why looks DPR so at us
'Why is he/she looking at us like this?'

b. **Wat** kijkt die zo naar ons?
What looks DPR so at us
'Why is he/she looking at us like this?' (Dutch)

The crucial difference between the general use of *was*/*wat* and the causal use is that *was*/*wat* constitutes an argument of the verb in the general use but is a causal adverbial in the causal use. Jäger (2000: 45-59) shows that the use of *was*/*wat* as a causal adverbial is highly restricted by not only syntactic but also semantic, phonological and pragmatic factors. At first sight, the use of *was*/*wat* as a causal adverbial seems to become available only when its interpretation as an argument of the verb is excluded. This is shown in (48) where *was*/*wat* cannot acquire a causal reading. It is impossible to interpret the examples in (48) as 'Why are you drinking?'

(48) a. **Was** trinkst du?
what drink you
'What do you drink?' (German, adapted from Jäger 2000: 47)

b. **Wat** drink je?
what drink you
'What do you drink?' (Dutch)

Yet it is possible to create ambiguity between the interpretation of *was*/*wat* as an argument and as a causal adverbial by adding more adverbials to the sentence. Note that the causal reading can only arise under an intonational pattern that indicates that the speaker is surprised.

(49) a. **Was** trinkst du denn schon wieder?
what drink you ADV already again
A: 'What are you drinking again?'
B: 'Why are you drinking again?'

(German, adapted from Jäger 2000: 47)

b. **Wat** drink je nou alweer?
what drink you ADV already-again
A: 'What are you drinking again?'
B: 'Why are you drinking again?' (Dutch)

The fact that the causal interpretation arises unambiguously in sentences where all argument positions are filled, as we have seen in the examples in (47), does not entail that filling all argument positions automatically yields the causal interpretation when *was*/*wat* is added to the construction. Consider the ungrammatical constructions in (50).

(50) a. ***Was** trinkst du Kaffee?
what drink you coffee (German, adapted from Jäger 2000: 47)

b. ***Wat** drink je koffie?
what drink you coffee (Dutch)

Yet again, the addition of adverbial phrases can make the causal reading available.

(51) a. **Was** trinkst du denn schon wieder Kaffee?
what drink you ADV already again coffee
'Why are you drinking coffee again?'

(German, adapted from Jäger 2000: 47)

b. **Wat** zit je nou alweer koffie te drinken?
what sit you ADV already-again coffee to drink
'Why are you drinking coffee again?' (Dutch)

The same can be observed for the following contrast. While the causal interpretation of *was*/*wat* is available for the verbs *schreien*/*schreeuwen* (scream) and *flüstern*/*fluisteren* (whisper), it is unavailable for the verb *denken* (think). This is shown in examples (52) through (54). Note that *was* and *wat* are

ambiguous between being interpreted as arguments and causal adverbials in examples (52) and (53).

(52) a. **Was** schreist du?
what scream you
A: 'Why are you screaming?'
B: 'What are you screaming?' (German)

b. **Wat** schreeuw je?
what scream you
A: 'Why are you screaming?'
B: 'What are you screaming?' (Dutch)

(53) a. **Was** flüsterst du?
what whisper you
A: 'Why are you whispering?'
B: 'What are you whispering?' (German)

b. **Wat** fluister je?
what whisper you
A: 'Why are you whispering?'
B: 'What are you whispering?' (Dutch)

(54) a. **Was** denkst du?
what think you
A: *'Why are you thinking?'
B: 'Wat are you thinking?' (German)

b. **Wat** denk je?
what think you
A: *'Why are you thinking?'
B: 'What are you thinking?' (Dutch)

For examples (52) to (54) above, it seems in principle possible to make the causal reading available, as, for example, in (55), where a number of extra adverbials are added to the construction and the sentence as a whole is given a strong intonation of surprise. Yet it has to be added that the causal reading is much less readily available than in the previous examples. I will therefore mark them with a question mark.

(55) a. **Was** denkst du denn jetzt schon wieder?
what think you ADV now already again
A: 'What are you thinking again?'
B: ?'Why are you thinking again?' (German)

b. **Wat** sta je nu alweer te denken?
what stand you now already-again to think
A: 'What are you thinking again?
B: ?'Why are you thinking again?' (Dutch)

In her extensive investigation of the German data presented above, data with respect to indirect questions and tense restrictions as well as crosslinguistic and historical data from a number of Indo-European languages, Jäger (2000: 53) draws the conclusion that the first and necessary criterion that makes *was*/*wat* available for being used with a causal interpretation has to be attributed to pragmatics. The use of *was*/*wat* with a causal interpretation requires a specific attitude of the speaker. The speaker has to be surprised or startled. Whatever the speaker is referring to with an interrogative expression in which causal *was*/*wat* is used, it has to be something that seems wrong or incomprehensible to the speaker. It is only when this criterion is fulfilled that we encounter further restrictions on the use of *was*/*wat* with a causal interpretation. Jäger (2000: 54) shows that there is a crucial difference between the interpretation of *warum*/*waarom* (why) and the causal interpretation of *was*/*wat*. While *warum*/*waarom* can ask either for a cause or a reason, *was*/*wat* can only ask for a reason but not for a cause. This is shown in (56) for German and (57) for Dutch.

(56) a. **Warum** ist das Haus jetzt schon wieder eingestürzt?
why is the house now already again collapsed
'Why did the house collapse again?'

b. ***Was** ist das Haus jetzt schon wieder eingestürzt?
what is the house now already again collapsed
'Why did the house collapse again?' (German)

(57) a. **Waarom** is het huis nou alweer ingestort?
why is the house now already-again collapsed
'Why did the house collapse again?'

b. ***Wat** is het huis nu alweer ingestort?
what is the house now already-again collapsed
'Why did the house collapse again?' (Dutch)

The difference between a cause and a reason is that a reason implies intentionality. A house is not a volitional agent. It is therefore not possible to assume that a house collapses intentionally. The ban on causal *was*/*wat* in examples (56) and (57) therefore reveals that the use of causal *was*/*wat* expresses the surprise or lack of understanding of the speaker for something that someone does (or did) intentionally. While it is possible in German and Dutch to distinguish between cause and aim in interrogative constructions by using the w-item *warum*/*waarom* (why) for cause and German *wofür*/*wozu* (what for) and Dutch *waarvoor* (what for) for aims, the difference between cause and reason is not reflected in the inventory of w-items in German and Dutch. There is consequently no w-item that is used only in situations where the reason for a certain action is being questioned. What we observe in these cases is that the w-item with the most unrestricted meaning is recruited to fill this highly specific gap.

7.3.3.2 The Quantitative Interpretation

In addition to the causal interpretation, German *was* and Dutch *wat* can also receive a quantitative interpretation. In these cases *was*/*wat* is synonymous with the expression *wieviel*/*hoeveel* (how much). This is shown in (58) for German and (59) for Dutch.

(58) a. **Wieviel** kostet das?
how-much costs that
'How much does that cost?'

b. **Was** kostet das?
What costs that
'How much does that cost?'

(German, example b adapted from Jäger 2000: 5)

(59) a. **Hoeveel** kost dat?
how-much costs that
'How much does that cost?'

b. **Wat** kost dat?
what costs that
'How much does that cost?' (Dutch)

Given the inherent unrestrictedness of *was* and *wat*, we have to ask again what it is about the context that restricts the interpretation of the two w-items to a quantitative one. The first observation that we can make with respect to the example sentences in (58) and (59) is that the verb *kosten* (to cost) implies the interpretation that we are dealing with a measurable amount of something. This observation pertains to other verbs that allow German *was* and Dutch *wat* to function as quantitative interrogative pronouns (cf. Jäger 2000: 33-35). This is shown in examples (60) for German and (61) for Dutch with the verbs *verdienen* (earn) and *wiegen*/*wegen* (weigh).

(60) a. **Wieviel** wiegt ein Elefant?
how-much weighs an elephant
'How much does an elephant weigh?'

b. **Was** wiegt ein Elefant?
What weighs an elephant
'How much does an elephant weigh?'

c. **Wieviel** verdient Peter?
how-much earns Peter
'How much does Peter earn?'

d. **Was** verdient Peter?
what earns Peter
'What does Peter earn?' (German)

(61) a. **Hoeveel** weegt een olifant?
how-much weighs an elephant
'How much does an elephant weigh?'

b. **Wat** weegt een olifant?
What weighs an elephant
'How much does an elephant weigh?'

c. **Hoeveel** verdient Peter?
how-much earns Peter
'How much does Peter earn?'

d. **Wat** verdient Peter?
what earns Peter
'What does Peter earn?' (Dutch)

As soon as we make use of a verb that does not inherently contain the interpretation of a measurable amount, the quantitative reading of German *was* and Dutch *wat* becomes unavailable. In these cases *wieviel*/*hoeveel* (how much) has to be used in order to instantiate a quantitative interpretation. This is shown for the verbs *mitbringen*/*meebrengen* (to bring) and *haben*/*hebben* (to have) in examples (62) and (63).

(62) a. **Wieviel** bringst du mit?
how-much bring you with
'How much do you bring?'

b. **Was** bringst du mit?
what bring you with
'What are you bringing?'

c. **Wieviel** hast du?
how-much have you?
'How much do you have?'

d. **Was** hast du?
what have you
'What do you have?'

(63) a. **Hoeveel** breng jij mee?
how-much bring you with
'How much do you bring?'

b. **Wat** breng jij mee?
what bring you with
'What are you bringing?'

c. **Hoeveel** heb jij?
how-much have you
'How much do you have?'

d. **Wat** heb jij?
what have you
'What do you have?'

Similarly to the observations that we have made for the causal reading of German *was* and Dutch *wat*, the observations above show that the quantitative reading of these w-items has to be imposed on them by the environment. In the case of the quantitative interpretation, it is the inherent semantics of a verb which specifically refers to measurable amounts that imposes this interpretation.

7.3.3.3 Are There Syntactic Restrictions for Context Expansion of W-Items?

In the previous two subsections I reviewed evidence for the phenomenon of semantic-pragmatic context expansion displayed by German *was* and Dutch *wat*. We have seen that under certain circumstances these w-items can expand their primary interpretation as a general lack of information to queries of reason and quantity. Context expansion of w-items is a widespread crosslinguistic phenomenon. In order to investigate this phenomenon further in the future, the first question we have to ask is why certain w-items expand to precisely the interpretations that we observe in the specific contexts where we observe them. Outside interrogative constructions, for example, German *was* and Dutch *wat* can receive a person-related interpretation when used in exclamative constructions with verbs that imply an animate or volitional agent as subject (cf. Jäger 2000: 31-33). There are no direct English translations of these expressions, so I will resort to paraphrasing in the translation. It also has to be added that this person-related use of *was* and *wat* is clearly derogatory. This is due to the dehumanization resulting from replacing German *wer* and Dutch *wie* (who) – the w-items that specifically refer to humans – with a w-item that can refer to anything.

(64) a. **Was** hier alles rumläuft!
what here all around-walks
LITERALLY: 'What all walks around here!'
MEANING: 'The people walking around here!' (German)

b. **Wat** hier allemaal rondloopt!
what here all around-walks
LITERALLY: 'What all walks around here!'
MEANING: 'The people walking around here!' (Dutch)

The second question we have to ask is whether there are any factors in the context expansion of w-items that are specifically related to syntax and allow and/or restrict context expansion of w-items. This investigation would have to start with a typological overview in order to see whether there are any cross-linguistically consistent patterns of context expansion of w-items. With respect

to w-items in Germanic languages, one such proposal has been presented in Vangsnes (2013) focusing mostly on Northern Germanic varieties. Vangsnes (2013) shows that Germanic w-items display highly restricted and uniform patterns in expressing different kinds of queries. German *wie* (how) and Dutch *hoe* (how), for example, can be used for queries of manner, degree, and property. This is shown in (65) and (66) for German and Dutch, respectively. The examples are based on the discussion in Vangsnes (2013: 49-52)

(65) a. **Wie** wirst du das Problem lösen? MANNER
how will you the problem solve
'How will you solve the problem?'

b. **Wie** alt bist du? DEGREE
how old are you
'How old are you?'

c. **Wie** sieht er aus? PROPERTY
how looks he out
'What does he look like?'

(German)

(66) a. **Hoe** ga je dat probleem oplossen? MANNER
how go you the problem solve
'How are you going to solve the problem?'

b. **Hoe** oud ben jij? DEGREE
how old are you
'How old are you?'

c. **Hoe** ziet hij eruit? PROPERTY
how looks he there-out
'What does he look like?'

(Dutch)

In comparison to this, we can observe the w-item *korsn*, which in many Northern Norwegian dialects can be used to express kind and token as well as manner and property but cannot be used for degree queries.

(67) a. **Korsn** vil du løse probleme? MANNER
WH will you solve problem.DEF
'How will you solve the problem?'

b. **Korsn** ser han ut? PROPERTY
WH looks he out
'What does he look like?'

c. **Korsn** bil har du? KIND
WH car have you
'What kind of car do you have?

d. **Korsn** bil e din? TOKEN
WH car is yours
'Which car is yours?'

(Northern Norwegian, Vangsnes 2013: 47)

The Faroese w-item hvør (who) is banned from expressing manner and property, yet, in addition to asking for a person, it can also be used to ask for kind and token.

(68) a. **Hvør** eigur bilin?
who owns car.DEF
'Who owns the car?'

b. **Hvør** bilur er tín?
who car is yours
'Which car is yours?'

c. **Hvør** bil hevur tú?
who car have you
'What kind of car do you have?'

Based on his sample of the use of w-items in Germanic languages in general and in Norwegian dialects in particular, Vangsnes (2013: 57) proposes that the context expansion of w-items can only proceed along a fixed sequence of query types. This sequence is given in (69).

(69) Sequence of context expansion of w-items in Germanic

PLACE – DEGREE – MANNER – PROPERTY – KIND – TOKEN – PERSON

His summary of the sample shows that w-items in Germanic uniformly span across query types in line with the sequence proposed above while no violations

of the sequence are attested. Table 38 shows the respective languages, w-items and query types.

	PLACE	DEGREE	MANNER	PROPERTY	KIND	TOKEN	PERSON
English	where	How		what…like	What		who
German	Wo	Wie			was für		wer
Dutch	Waar	Hoe			wat voor		wie
Swedish	Var	Hur			vad för		vem
				Hurdan			
Faroese	Hvar	Hvussu			hvør		
Nynorsk	Kor		Korleis		kwa slags		
Danish/ Bokmål	Hvor		Hvordan		hva (for) slags	hvilken	hvem
East Nor	å…hen	Å	Åssen			vem	
North Nor	Kor		Korsn				kem
Övdalian	war	Ur		urkin			
					wen för		

Table 38: Context expansion of Germanic w-items (Vangsnes 2013:57)

Given the table above, Vangsnes (2013: 59-62) draws the conclusion that the restriction of context expansion of w-items to a certain order of query types must results from these query types being arranged on a nanosyntactic functional sequence (cf. section 3.4.1 for discussion). Since only adjacent heads can be spelled out by the same item on a functional sequence, the sequence in (69) provides a fruitful mechanism to capture the data correctly. Yet accounting for the data this way has little explanatory power at this early stage. First of all, not all query types are considered in the sequence above. Queries for time, cause, quantity and the general lack of knowledge are missing. Correspondingly, the w-items *was* and *wat* are missing from the typological overview. It would therefore be necessary to include all query types and w-items in order to see whether the full range of queries can be ordered on an Fseq. Furthermore, it would have to be made clear why the queries should be arranged this way. Throughout this thesis, I have shown that a crucial characteristic of Fseqs is that they create containment relations. It is not immediately obvious how this can be applied to the query types above. While a concept such as kind might be plausibly argued to contain a concept such as token, it is entirely unclear why the concept of place should contain the concept of degree.

We can see from this short discussion that the investigation of the context expansion of w-items raises fundamental questions about concept organization in the human mind if we assume that this particular kind of context expansion is restricted by a hierarchically ordered Fseq created by syntax. It therefore seems to be a promising endeavor for future research.

7.4 The Relativizing Function

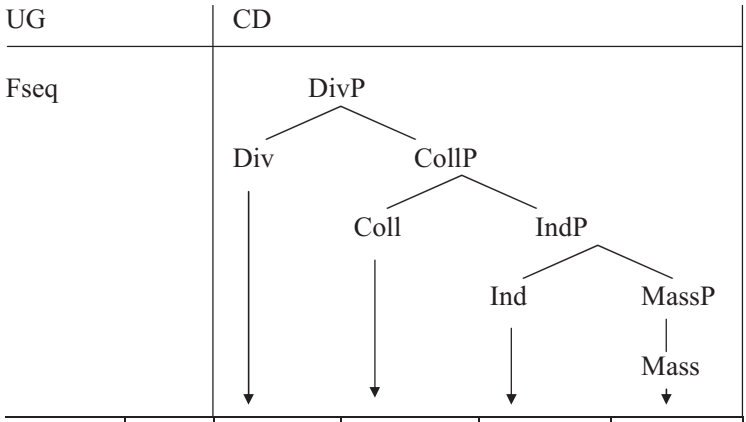
In this section I will investigate the behavior of w-items as relative pronouns in German and Dutch. As in the previous discussions on relative clauses, I will make a distinction between non-oblique and oblique relative clauses, since it affects the use of w-items as relativizers drastically. I would like to point out that I will only discuss non-oblique relative clauses with respect to w-items as relativizers. The reason is that pronominal adverbs play an important role in the construction of oblique relative clauses in both German and Dutch. I have shown a few examples of oblique relative clauses that are introduced with pronominal adverbs in sections 6.4.2. German and Dutch differ greatly in the distribution of pronominal adverbs as relativizers. In order to understand how and why pronominal adverbs are used as relativizers, we have to get a profound understanding of the internal structure of pronominal adverbs and the conditions under which they can be used anaphorically in both languages. Since pronominal adverbs constitute a large research field on their own, it will not be possible to conduct such an investigation within the scope of this dissertation. The distribution d- and w-relativizers in oblique relative clauses in German and Dutch has therefore been left for future research.

I will start the discussion with a descriptive overview of the w-relativizers in German and Dutch non-oblique relative clauses. We will see that German *das* and *was*, Dutch *dat* and *wat* as well as Dutch *die* and *wie* can alternate as relativizers under certain conditions. In contrast, German *der* and *wer* cannot alternate in the relativizing function. The use of German *wer* as a relativizer is ungrammatical. I will then discuss previous analyses of the use of Dutch *die* and Dutch *wie* as a relativizer. This discussion will be rather detailed because these analyses are not only interesting in relation to the phenomena to be explained here but are also useful to reflect on the problems that arise from the use of lexical feature matrices and animacy features in theoretical accounts of such phenomena. I will then present my analysis of w-relativizers in non-oblique relative clauses and show that it doesn't face any of the empirical and theoretical problems that the previous analyses run into. I will then focus on the issue why German *wer* cannot be used as a relativizer, in contrast to Dutch *wie*. W-relativizers in oblique relative clauses will be discussed at the end of this section.

7.4.1 The W-Relativizers of German and Dutch

Before starting the discussion, I would like to point out that mass type morphology will play a crucial role in the analysis of the distribution of d- and w-items as relativizers. I will therefore repeat the mass type morphemes that spell out the Classification Domain of the DP and WP in German and Dutch in the illustration below.

(70) Mass type morphology of German and Dutch



German		**PL**	**MT3**	**MT2**	**MT1**
	NOM	-ie		-er	-as
	ACC	-ie		-en	-as
	GEN	-er		-es	
	DAT	-en	-er	-em	
Dutch		**PL**	**MT3**	**MT2**	**MT1**
		-ie			-at

In the discussion below I will refer to the mass type of the head nouns depending on the mass type morphology that is displayed by the determiner paired with the noun. Recall that I have argued in section 4.3.2.1 that these pairings are largely idiomatic today. It is therefore possible, e.g., for a noun that denotes an individual to appear with a mass type 1 determiner.

The most commonly used w-items in colloquial[75] German and Dutch non-oblique relative clauses are the w-items *was* and *wat*, which alternate freely with

[75] I would like to stress that ascribing the *das*/*was*-alternation in German to colloquial speech is in my opinion a matter of formality. The phenomenon is so widespread that it is questionable whether it should not be regarded as part of standard German. Boef

the d-items *das* and *dat*. In addition, colloquial Dutch allows the alternation between the d-item *die* and the w-item *wie* when the head noun of the relative clause denotes a human referent. The alternation of German *das*/*was* and Dutch *dat*/*wat* are shown in (71) and (72), respectively.[76]

(71) The *das*/*was* alternation in German

a. relativization of a mass type 1 head noun with the d-item *das*
Das ist **das** Bild, **das** ich so schön finde
that is DA.MT1.NOM picture RP.MT1.ACC I so beautiful find
'That is the picture that I find so beautiful.'

b. relativization of a mass type 1 head noun with the w-item *was*
% Das ist **das** Bild, **was** ich so schön finde.
that is DA.MT1.NOM picture what I so beautiful find
'That is the picture that I find so beautiful.'

(German)

(72) The *dat*/*wat* alternation in Dutch

a. relativization of a mass type 1 head noun with the d-item *dat*
Dat is **het** boek **dat** ik zo interessant vond
that is DA.MT1 book RP.MT1 I so interesting found.
'That is the book that I thought was so interesting.'

b. relativization of a mass type 1 head noun with the w-item *wat*
% Das it **het** boek **wat** ik zo interessant vond.
that is DA.MT1 book what I so interesting found
'That is the book that I thought was so interesting.'

Example (73) shows the alternation between the d-item *die* and the w-item *wie* in non-oblique relative clauses in Dutch.

(2013:54) reports that in her study of the *dat*/*wat* alternation across the Netherlands, all informants accepted *wat* as a relativizer for neuter singular nouns, which suggests that the alternation should be regarded as standard Dutch.

[76] Please keep in mind that the mass type morpheme on the relative pronoun does not necessarily reflect the actual mass type of the head noun, but the idiomized mass type morphology reflected in fixed determiner-noun pairs.

(73) The *die*/*wie* alternation in Dutch

a. relativization of a mass type 2 human noun with the d-item *die*
Dat is de man **die** ik gezien heb.
that is the man RP.MT2/MT3 I seen have
'That is the man who I saw.'

b. relativization of a mass type 2 human head noun with the w-item *wie*
% Dat is de man **wie** ik gezien heb.
that is the man who I seen have
'That is the man who I saw.'

c. relativization of a plural human head noun with the d-item *die*
Dat zijn de mannen **die** ik gezien heb.
that are the men RP.PL I seen have
'Those are the men who I saw.'

d. relativization of a plural human head noun with the w-item *wie*[77]
% Dat zijn de mannen **wie** ik gezien heb.
that are the men who I seen have
'Those are the men who Isaw.'

(Dutch, examples b. and d. adapted from Boef 2013:55)

Example (74) shows that the corresponding alternation between the d-item *der* and the w-item *wer* in German results in ungrammaticality. This is clear for the cases where the head noun of the relative clause is plural, since the -*er* morpheme of German *wer* can only spell out mass type 2 (individuative, former masculine singular). It consequently cannot match with a plural head noun. Yet the ungrammaticality of *wer* as a relativizer is less obvious in cases where the head noun is singular as well.

[77] Eefje Boef (p.c.) points out to me that the example in (73d) has not been separately tested with her informants. Yet given (a) that the -*ie* morpheme can be used to refer to both singular and plural nouns when the d-item *die* is used, (b) that *wie* can establish subject-verb-agreement with both singular and plural nouns (cf. section 5.2.3), and (c) that *wie* can refer to plural nouns when used in an oblique relative clause introduced with a PP, we can safely assume that it can refer to plural nouns in non-oblique relative clauses as well.

(74) The ungrammaticality of German *wer* as a relativizer

a. relativization of a mass type 2 human head noun with the d-item *der*
Das ist der Mann **den** ich gesehen habe.
that is the man RP.MT2.ACC I seen have
'That is the man who I have seen.'

b. relativization of a mass type 2 human head noun with the w-item *wer*
*Das ist der Mann **wen** ich gesehen habe.
that is the man who.ACC I seen have
'That is the man who I have seen.' (German)

The w-relativizers of (colloquial) German and Dutch in non-oblique relative clauses are summarized in the table below.

	German		Dutch	
	d-item	w-item	d-item	w-item
MT1	das	was	dat	wat
MT2	der	*wer	die	wie (human only)
MT3	die	–	die	wie (human only)
PL	die	–	die	wie (human only)

Table 39: W-relativizers in German and Dutch non-oblique relative clauses

The table above presents us with two questions: (a) Why are the alternations between *das*/*was* and *dat*/*wat* generally allowed in German and Dutch? (b) Why is the German w-item *wer* excluded from functioning as a relativizer for human head nouns with MT2 morphology, in contrast to Dutch *wie*?

Based on my analysis on the internal structure of d- and w-items in Chapters 4 and 5, I will propose that German *das*/*was*, Dutch *dat*/*wat*, German *der*/*wer* and Dutch *die*/*wie* are all eligible to function as relative pronouns. I will furthermore propose that they are structurally equivalent, in the sense that none of the alternating items can block the other at the point of spellout. I will then show that the ban on German *wer* as a relativizer has to be attributed to an externalization effect, that is related to the spellout of mass type morphology.

While the *das*/*was* alternation in German has not been analyzed explicitly in the literature, a number of accounts have been formulated for the *dat*/*wat* and the *die*/*wie* alternation in Dutch. In order to establish a background for my own analysis of the distribution of w-relativizers shown in Table 39, I will discuss the points that have been made previously in the literature and show that they run

into both theoretical and empirical problems. The three most prominent accounts for these alternations are van Kampen (2007), Barbiers et al (2010) and Boef (2013). Barbiers et al. (2010) formulate a solution with respect to the internal structure of *die* and *wie* which is based on the assumption that *wie* is contained in the structure of *die*. Van Kampen (2007) and Boef (2013) capture the alternation in terms of animacy features. As announced above, this discussion will be rather lengthy. The abovementioned accounts do not only provide a suitable background for the discussion of w-relativizers but point us also to larger issues of accounts that make crucial use of lexical feature matrices. In addition, they point us to a number of problems regarding the use of animacy features. I will dedicate a separate subsection to these problems, given my strong point of view against the assumption of animacy features as a part of grammar. I will then present my own proposal and show that the existence of the encountered alternations is straightforwardly predicted by my analysis of the internal structure of d- and w-items proposed in Chapters 4 and 5. The issue of the ungrammaticality of German *wer* as a w-relativizer will be discussed afterwards.

7.4.2 Previous Analyses of the Alternations *die*/*wie* and *dat*/*wat* in Dutch

I will first discuss the analysis of the *dat*/*wat* and the *die*/*wie* alternation in Barbiers et al. (2010). The authors base their analysis on observations of pronominal doubling in long-distance interrogative constructions in Dutch dialects. A typical example of such a construction is shown in (75).

(75) **Wie** denk je **wie** ik gezien heb.
who think you who I seen have
'Who do you think I have seen?'
(Dutch: Drenthe, Barbiers et al. 2010: 2)

What we observe in (75) is identical doubling. The w-item *wie* appears once in the matrix interrogative CP and once in the embedded CP.[78] In addition to cases such as (75), there are also cases of non-identical doubling. This is shown in

[78] Note that doubling in long-distance interrogative constructions is a phenomenon that has been observed and extensively investigated for German as well. I will not discuss the German data here because they do not play a role in the analysis of the *die*/*wie* alternation in Dutch. For literature on doubling in German long distance interrogative constructions, see Pankau 2014 for the most extensive empirical overview, and Bayer 1996, Brandner 2000, Fanselow & Mahajan, Höhle 2000, Felser 2001, 2004, Rett 2006, and Pankau 2014, among many others, for a number of different analyses of these constructions.

(76), where we can see that the items *die* and *wie* alternate in the same position in the embedded clause.

(76) a. **Wat** denk je **wie** ik gezien heb.
what think you who I seen have
'Who do you think I saw?'

b. **Wat** denk je **die** ik gezien heb.
what think you RP.COM I seen have
'Who do you think I saw?'
(Dutch: Overijssel, Barbiers et al. 2010: 2)

c. **Wie** denk je **die** ik gezien heb.
who think you RP.COM I seen have
'Who do you think I saw?'
(Dutch: North-Holland, Barbiers et al. 2010: 2)

The authors show further that the order in which the doubled elements have to appear is fixed. Reversing the order makes the constructions ungrammatical.

(77) a. ***Wie** denk je **wat** ik gezien heb.
who think you what I seen have
'Who do you think I saw?'

b. ***Die** denk je **wat** ik gezien heb.
RP.COM think you what I seen have
'Who do you think I saw?'

c. ***Die** denk je **wie** ik gezien heb.
RP.COM think you who I seen have
'Who do you think I have seen?'

(Dutch, adapted from Barbiers et al 2010: 3)

Barbiers et al. (2010: 3) further observe that the same patterns hold for long distance relative clauses in Dutch.

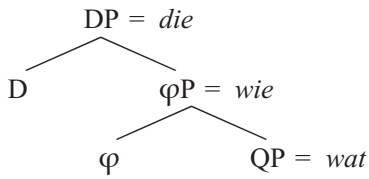
(78) a. Dit is de man **wie** ik denk **die** Jan gezien heeft.
this is the man who I think RP.COM Jan seen have
'This is the man I think that Jan has seen.'

b. *Dit is de man **die** ik denk **wie** Jan gezien heeft.
this is the man RP.COM I think who Jan seen have
'This is the man I think that Jan has seen.'

(Dutch, adapted from Barbiers et al. 2010: 3)

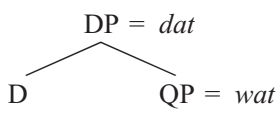
With the empirical background in place, Barbiers et al. (2010) formulate their theoretical account in a minimalist setting with two additional assumptions. Following the minimalist model of the language system, Barbiers et al. (2010) assume that syntax is feature-driven and that lexical items are made up of a feature matrix. In contrast to the attribute-value feature matrices, that are typical for minimalist accounts (cf. section 2.2 for discussion), Barbiers et al. (2010) assume that features are privative, i.e., either present or absent (cf. section 2.5 and 3.4.1 for discussion). Furthermore, the authors make use of phrasal Spellout, i.e., the assumption that a phonological string can spell out one or more syntactic phrases (cf. section 3.4.2 for discussion). Barbiers et al. (2010: 7f) assume three lexical features which can be either present or absent in the lexical feature matrices of d- and w-items in Dutch: [plural], [non-neuter] and [definite]. The absence of these features leads to default specifications at Spellout. The absence of [plural] yields [singular], the absence of [non-neuter] yields [neuter] and the absence of [definite] yields [indefinite]. Dutch *die* is assumed to be specified for φ-features (i.e., [plural] and [non-neuter]) and definiteness. Dutch *wie* is assumed to be specified for φ-features only and Dutch w*at* is assumed to be unspecified for all the three lexical features named above, which is assumed to result in indefinite, singular, neuter default specifications at Spellout, which become visible through the singular, neuter morpheme -*at*. Barbiers et al. (2010) further assume that *die*, *wie* and *wat* spell out different layers of the DP. They maintain that the DP decomposes into three layers. The lowest layer is assumed to be the Quantificational Phrase (QP), which is spelled out by *wat*. The assumption that *wat* constitutes a QP is based on the observation that *wat* can be interpreted as an unspecific amount of something, which I will show in detail in section 7.5. The second layer is a φP-layer which is assumed to be spelled out by *wie*, given that it is only specified for φ-features in its lexical feature matrix. The highest layer is the DP-layer, which is assumed to be spelled out by *die*, since *die* is specified for both φ-features and definiteness. The structure of the DP proposed by Barbiers et al. (2010) is given in (79).

(79) The internal structure of the DP in Barbiers et al. (2010: 6)



With respect to the internal structure of the QP, the authors assume that *wat* is situated in the specifier of the QP, while the head of the QP can remain empty (cf. Barbiers et al. 2010: 9). Based on the arguments above, the internal structure of Dutch *dat* is a DP without a φP-layer.

(80) The internal structure of Dutch *dat*



The non-identical doubling phenomena observed above are then argued to result from partial copying, which means that a subpart of the DP is extracted in the embedded clause and moved to left periphery of the matrix clause. This accounts for the ordering restrictions of the doubled elements, since it is not possible to extract a higher phrase from one of its embedded phrases.

While this analysis accounts nicely for the ordering facts discussed above, it runs into both theoretical and empirical problems. The first problem of the analysis is that it locates a QP below a φP in the internal structure of the DP. This is incompatible with the widely held and convincingly motivated claim that whatever is related to quantification must be located above whatever is related to classification, so since φ-features are related to classification (mass type and number in my terminology), they cannot have a QP as their complement (cf. 4.3.2, 4.3.3 for discussion). The second problem arises from conceptualizing Dutch *wie* as spelling out a φP. In section 4.3.2.1 I have argued that personal pronouns in German constitute the Spellout of the phrases projected in the Classification Domain alone. The Classification Domain of the DP in my terminology corresponds to what is traditionally thought of as φP. It has been argued extensively for both German (cf. Wiltschko 1998) and Dutch (cf. van Koppen 2005: 113-116) that personal pronouns are the Spellout of a φP. Given the internal structure of the DP proposed by Barbiers et al. (2010), it is unclear how personal pronouns in Dutch can be distinguished from the w-item *wie* since both of them are considered to consist of φ-features alone. It seems insufficient

to assume that a w-item corresponds to a d-item without definiteness. The lack of definiteness does not provide the alternative semantics that a w-item crucially needs in order to function as an interrogative and indefinite pronoun. It has furthermore been argued extensively in the literature that φPs cannot function as relative pronouns (cf. Wiltschko 1998, Borsley 1997, Boef 2013), and it has been on those grounds that personal pronouns have been excluded from functioning as relativizers. The assumption that *wie* spells out a φP therefore entails that it should not function as a relativizer in the first place. The same problem holds for the use of Dutch *wat* as a relative pronoun. QPs typically don't function as relativizers. The third problem is related to the alternation of *die* and *wie* as well as *dat* and *wat* in the position of the relative pronoun. It is unclear why the syntax should randomly base-generate a DP (*die*, *dat*), a φP (*wie*) or a QP (*wat*) in this position when the head noun allows to be relativized by more than one element. Given these considerations, we have to draw the conclusion that the approach of Barbiers et al. (2010) will not lead to a viable analysis of d/w-alternations in Dutch relative clauses.

I will now proceed to the discussion of Boef's (2013) account of the *die*/*wie* and the *dat*/*wat* alternation in Dutch relative clauses. Her approach combines assumptions from Minimalism and Distributed Morphology. For the makeup of the lexical item, Boef (2013) makes use of attribute-value feature matrices as discussed in section 2.2.2. It follows that the internal syntactic structure of d- and w-items as well as their behavior in syntax has to be analyzed as the result of their featural makeup in the lexicon. For the Spellout procedure, Boef (2013: 4) adds the hypothesis from Distributed Morphology that phonological material is late inserted into the terminal nodes of the structure after the syntactic derivation has been completed. In order to regulate the matching procedure between syntactic nodes and phonological strings, she proposes the Closest Match Principle.

(81) Closest Match Principle (Boef 2013: 71)

> The phonological exponent of a Vocabulary Item is inserted into a node if the item matches *one or more* of the grammatical features specified in the node. Where several Vocabulary Items meets the conditions for insertion, the item that matches the *greatest number* of features specified in the node and that contains the *smallest number* of features unspecified in the node must be chosen.

Let's now take a look at how Boef's (2013) system accounts for the *die*/*wie* and the *dat*/*wat* alternation in Dutch relative clauses. Boef (2013: 56-61) proposes the following feature matrices for Dutch *die*, *dat*, *wie* and *wat*.[79]

(82) Feature specification of Dutch *die*

a. [referentiality: definite] = definite
b. [number] = underspecified for number
c. [gender: common] = common
d. [animacy:] = underspecified for animacy

(Boef 2013: 59)

Feature specification of Dutch *dat*

a. [referentiality: definite] = definite
b. [number] = underspecified for number
c. [gender:] = underspecified for gender
d. [animacy: human] = underspecified for animacy

(Boef 2013: 61)

Feature Specification of Dutch *wie*

a. [referentiality:] = underspecified for definiteness
b. [number] = underspecified for number
c. [gender:] = underspecified for gender
d. [animacy: human] = human

(Boef 2013: 56)

[79] At a later stage in her dissertation, Boef (2013: 185-192, 197) proposes an additional [location]-feature, present in the feature matrices of *die* and *dat*. Following the analysis of Dutch demonstrative pronouns in Rooryck (2003), she assumes that distal is the default specification that results from an underspecified location feature on Dutch *die* and *dat* and that proximate is the result of a specified location feature ([location: proximate]) on Dutch *deze* and *dit*. Note that I have argued against the assumption that the distinction between distance and proximity is coded in grammar. For discussion see section 4.3.4.

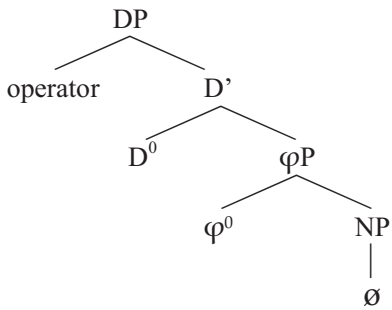
Feature Specification of Dutch *wat*

a. [referentiality:] = underspecified for definiteness
b. [number] = underspecified for number
c. [gender:] = underspecified for gender
d. [animacy:] = underspecified for animacy

(Boef 2013: 53)

Boef (2013: 44) furthermore proposes that A-bar pronouns (i.e., pronouns that can move to the left periphery and behave as operators) are generally to be analyzed as DPs. Given that both *die* and *wie* constitute A-bar pronouns, they are both conceptualized as DPs. This marks a crucial difference to the analysis in Barbiers et al. (2010), which take w-items to be structurally contained within d-items.

(83) The structure of A-bar pronouns proposed by Boef (2013: 44)



Boef (2013: 46) furthermore argues that D^0 need not be definite, but that it is the place where either definiteness or indefiniteness is expressed. If a certain item is unspecified for the referentiality feature, D^0 (and consequently the whole DP) will be interpreted as indefinite.

The greater problem that we observe here is related to combining a minimalist lexicon with the Spellout procedure of a non-lexicalist framework. If a Spellout mechanism is based on competition, it is never possible for unequally specified items to alternate in the same position. One item will always take precedence over the other. Given the formulation of the Closest Match Principle above, *wie* should always be blocked by *die* for two reasons: (a) Given that the relative pronoun has to match the φ-features of the head noun, *die* should take precedence over *wie*, since *wie* has no specified φ-features to match. (b) *Die* is specified for the referentiality feature. It consequently has more specified features than *wie* with respect to the head noun and less unspecified features

with respect to the D^0-node. A similar situation holds for the alternation of *dat* and *wat*. Although both items are unspecified for φ-features, *wat* should always be blocked by *dat* because *dat* is specified for the referentiality feature and therefore has less unspecified features with respect to the D^0-node.

To account for the *die*/*wie* alternation, Boef (2013: 61) argues that there is a postsyntactic choice between spelling out syntactic gender, which is determined by the φ-feature specifications of an item, and semantic gender, which is determined by the animacy value of an item. This assumption is based on the Audring's (2009) proposal of the Individuation Hierarchy, which I have discussed in section 4.3.2.2. Audring (2009) claims that whenever a pronoun in Dutch cannot match its antecedent in syntactic gender, it can switch to what she calls semantic gender, i.e., the expression of animacy and biological sex with personal pronouns. Based on this claim, Boef (2013) argues that the same holds for relative pronouns. Since Dutch *wie* cannot match the φ-feature of the head noun, it has to switch to expressing the semantic gender of the head noun, which in the case of *wie* can only match human head nouns, since the animacy feature of *wie* is specified for human. Although this argument may provide a solution to the blocking factor identified in (a) above, it does not provide us with a solution for the blocking factor in (b). *Die* would still block *wie* due to its specified referentiality feature.

A further problem, that Boef (2013: 55) points out herself, is that even a feature matrix as underspecified as the one of Dutch *wat* hits its limits in terms of flexibility when it comes to highly multifunctional elements, such as Dutch *wat* and German *was*. The feature specification of Dutch *wat* shown above is insufficient to account for the function of *wat* as a quantificational determiner, which will be discussed below in section 7.5. The following quote from Boef (2013; 55) illustrates this.

> […] the distribution of *wat* as a determiner is very different from the distribution of *wat* as a relative pronoun. Whereas determiner *wat* only occurs with plural (and mass noun) antecedents, relative pronoun *wat* only occurs with neuter and/or singular non-human antecedents. Put differently, there is no subset/superset relation between *wat* as a determiner and *wat* as a relative pronoun […]. For this reason it is very complicated (if not impossible) to come up with a mechanism that accurately accounts for the interpretation and distribution of *wat* in all its different uses, given the feature specification [above]. (Boef 2013: 55)

It follows that a theoretical account that is based on lexically specified feature matrixes will have to formulate an additional feature matrix to account for the function as a quantificational determiner, which amounts to the assumption that

we are dealing with homonyms of Dutch *wat* and German *was* and not with one multifunctional w-item. This amounts to the formulation of a construction-specific statement in the lexicon.

7.4.3 The Animacy Problem

Given the assumption of Audring (2009) and Boef (2013) presented above that pronouns can express either syntactic gender or semantic animacy, I will now concentrate the discussion on the use of animacy features to explain the alternation of *die* and *wie* in Dutch headed relative clauses. The most prominent account that bases the use of d- and w-items as relativizers in Dutch on animacy considerations is van Kampen (2007). Based on the fact that *wie* can only be used to relativize a head noun that denotes a human entity, van Kampen (2007: 114) formulates the assumption that the d-system as a whole is sensitive to grammatical gender, while the w-system as a whole is sensitive to semantic animacy. With this assumption in place, she postulates the following rule for the selection of relative pronouns in Dutch.

(84) Main rule for relative pronoun selection

> If it is possible to express gender agreement[80] between the antecedent and the relative, select the d-pronoun. Select the w-pronoun if such agreement cannot be expressed.
>
> (van Kampen 2007: 114)

The reasoning we observe here is that gender matching, or, more generally spoken, φ-feature matching between the relative pronoun and the head noun, is the default mechanism by which the relationship between the relative pronoun and head noun is established. Only if this relation cannot be established, a w-pronoun has to be inserted as a relativizer, which then matches with the animacy status of the referent. The first problem with this logic is that it makes the wrong predictions for the selection of d- and w-relativizers in Dutch. The first prediction is that the *die*/*wie* alternation shouldn't exist. Spoken in terms of the assumption that gender on nouns is inherent (which I have argued to be misguided), nouns that denote humans are always also specified for grammatical

[80] Note that van Kampen (2007) uses the term *agreement* in the sense of matching, not in the sense of the syntactic operation Agree as formulated in Chomsky (2000, 2001). As Boef (2013: 51f) shows, the relation between the relative pronoun and the head noun cannot be argued to be a case of Agree because it would be incompatible with the concept of cyclic spell-out.

gender, which in the case of Dutch is common gender (the Spellout of mass types 2 and 3 in my terminology).[81] If w-items are only selected as relativizers when d-items cannot match with the gender feature, the w-item *wie* should never be selected as a relativizer because *die* can always match the gender feature on human head nouns. The *die*/*wie* alternation is therefore predicted not to exist. The same prediction is made for the *dat*/*wat* alternation. Both *dat* and *wat* can only relativize singular neuter nouns. It follows that *dat* can be selected as a relative pronoun for every singular neuter head noun. Consequently, the selection of *wat* as a relative pronoun should never arise. A further prediction of van Kampen's (2007) selection rule is that *wat* should match the head noun in terms of animacy features. This prediction is related to the widely held assumption that w-items such as Dutch *wat* can only refer to inanimate nouns. Apart from the fact that I have shown in section 5.3.1 that this assumption is untenable, van Kampen's (2007) selection rule would make the wrong predictions even if it were true that *wat* refers to inanimate nouns. The w-item *wat* can appear as relative pronoun in all instances where *dat* can appear as a relative pronoun. The animacy status of the head noun is irrelevant. This is shown in example (85).

[81] There are two exceptions to this rule both in Dutch and German. The first exception are diminutives. The diminutive endings -*chen* in German and -*je*/*tje* in Dutch can be attached to any noun and cause a neutralization of grammatical gender. Therefore, all diminutive nouns in German and Dutch carry neuter gender. The second exception is the word *child*, which is *kind*/*Kind* in both Dutch and German and inherently neuter. It is questionable, however, whether we are talking about true exceptions here. The property of humanness is crucially linked to the property of sentience, which implies conscious and volitional agency. From an interpretive point of view, what diminutive human nouns such as Dutch *mannetje* (little man), *vrouwtje* (little woman), *meisje* (girl), German *Jungchen* (little boy), and *Mädchen* (girl) have in common with the neuter noun *kind*/*Kind,* is that they all denote human entities with a reduced capacity of sentience and volitional agency. Given that our notions of free will, sentience and volitional agency are inextricably linked to our concept of humanness and that we experience the deprivation of these properties as dehumanizing, suggests that diminutive human nouns and the word *child* are not interpreted as entities of fully developed humanness. The generalization that German human nouns are always specified for masculine or feminine gender (in my terminology the parasitic expression of biological sex by means of mass type morphology) and Dutch human nouns are always specified for common gender thus holds. I take the philosophical complexity of defining humanness as such as a strong indication that humanness cannot be a grammatical feature that syntactic operations are sensitive to.

(85) a. relativization of an inanimate head noun with *dat* and *wat*

Dat	is	**het**	boek	**dat**	/ **wat**	ik	wil	kopen.	
that	is	DA.MT1	book	RP.MT1	/ what	I	want	buy	

'That is the book that I want to buy.'

b. relativization of an animate head noun with *dat* and *wat*

Dat	is	**het**	paard	**dat**	/ **wat**	ik	zo	mooi	vind
that	is	DA.MT1	horse	RP.MT1	/ what	I	so	beautiful	find

'That is the horse that I find so beautiful.'

c. relativization of a human[82] head noun with *dat* and *wat*

Dat	is	**het**	kind	**dat**	/ **wat**	ik	zo	lief	heb.
that	is	DA.MT1	child	RP.MT1	/ what	I	so	dear	have

'That is the child that I am so fond of.' (Dutch)

We can see from the patterns in (85) that mass type matching between head noun and relative pronoun is the only relevant factor for relative pronoun selection. Consequently, *dat* and *wat* can alternate freely. The same observation holds for the *das*/*was* alternation in German.

(86) a. relativization of an inanimate head noun with *das* and *was*

Das	ist	**das**	Buch	**das**	/ **was**	ich	will.	
that	is	DA.MT1.NOM	book	RP.MT1.ACC	/ what.ACC	I	want	

'That is the book that I want.'

b. relativization of an animate head noun with *das* and *was*

Das	ist	**das**	Pferd	**das**	/ **was**	ich	so	mag.
this	is	DA.MT1.NOM	horse	RP.MT1ACC	/ what.ACC	I	so	like

'That is the horse that I like so much.'

c. relativization of a human head noun with *das* and *was*

Das	ist	das	Kind	**das**	/ **was**	ich	so	mag.
that	is	DA.MT1.NOM	child	RP.MT1.ACC	/ what.ACC	I	so	mag

'That is the child that I like so much.'

(German)

[82] Please see fn. 81 for the conjecture that although the word *kind*/*Kind* in Dutch and German refers to a human entity, this entity might be interpreted as a reduced state of humanness.

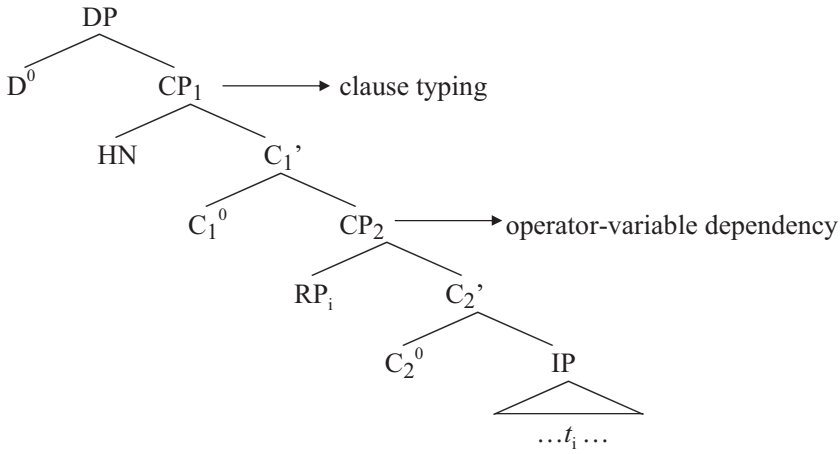
We can see from the data above that the assumption that animacy features are involved in the choice of relative pronouns in German and Dutch is entirely unnecessary.

The discussion above shows that there are two main issues that we have to consider in our analysis in the next subsection: (a) In order to produce an alternation between two items in the same syntactic position, the items must be such that none of them blocks the other in a competition-based Spellout procedure. (b) Animacy features cannot play a role in formulating an account for the alternations of d- and w-relativizers in German and Dutch non-oblique relative clauses.

7.4.4 Determining the Relativizing Function

In section 6.3 we have seen that headed relative clauses in German and Dutch must obligatorily be introduced with a relative pronoun (to be abbreviated with RP in glosses and illustrations below). As for the structural makeup of the relative clause, I have used Boef's (2013: 139) analysis of restrictive relative clauses in Dutch and shown that this analysis can be straightforwardly extended to German. The analysis is repeated in the illustration in (87).

(87) The left periphery of Dutch restrictive relative clauses



(adapted from Boef 2013: 139)

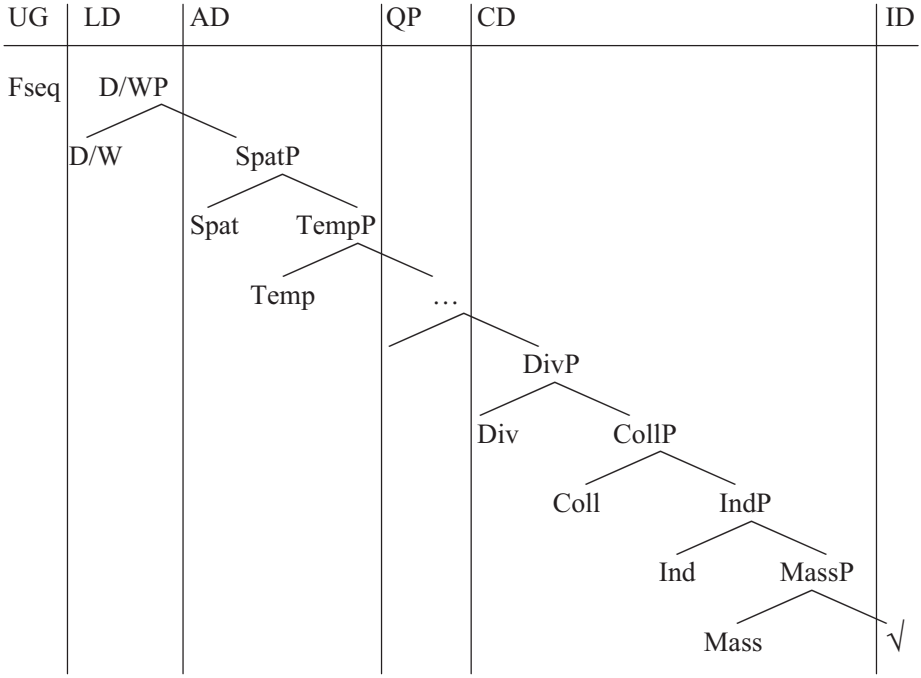
The goal of this section is to capture both the use of d-items and the use of w-items as relativizers with the structure proposed by Boef's (2013). In this vein, it

is first of all important to point out that Boef's (2013) double-CP analysis allows both d- and w-items to function as relativizers. Both d- and w-items have operator status in syntax and are therefore both suitable to be located in the specifier of the lower CP. Recall that Boef (2013: 139) proposes that the relative pronoun is located in the specifier of CP_2, while the head noun is located in the specifier of CP_1. The relation between the head noun and the relative clause is a relation of Predicate Modification, which amounts to set intersection.

I will now show that combining Boef's (2013) analysis of headed relative clauses with my analysis of the internal structure of d- and w-items proposed in Chapters 4 and 5 leads precisely to the alternations we observe and the ban on German *wer* as a relativizer.

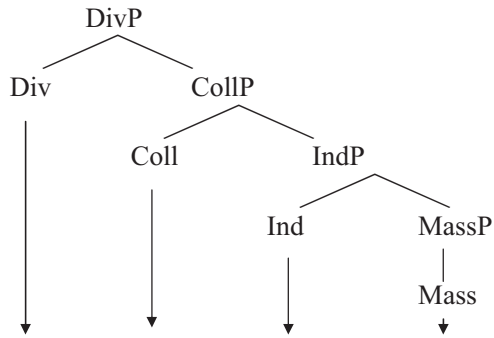
Given that I make use of a phrasal Spellout operation, the first important issue is that the alternating d- and w-items must not block each other in the position of the relative pronoun due to the circumstance that one constitutes a superset of the other. This problem does not arise for the functional sequences of d- and w-items that I have proposed in Chapters 4 and 5. From a structural point of view, d- and w-items are equivalent in my analysis. The buildup of d- and w-items is identical below the Linking Domain. It is only the Linking Domain where the items differ from each other by either projecting a DP or a WP. Only one of the heads – D or W – can appear in the Linking Domain. This is shown in the illustration below.

(88) The Fseq of the DP and the WP



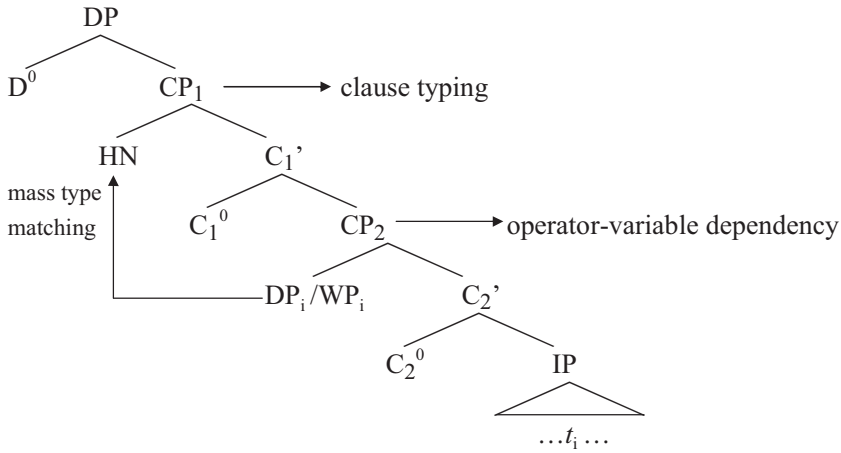
We can see from the illustration that none of the two highest phrases – DP and WP – is contained by the other. Under this analysis, it is unnecessary to employ animacy features in order to create a switch from a d- to a w-relativizer. The structure above predicts that d- and w-items can alternate freely as relativizers as long as the item correctly matches the mass type of the head noun. The Spellout of the Classification Domain with mass type morphemes for German and Dutch d- and w-items is repeated in the illustration below.

(89) Mass type morphology of German and Dutch

UG		CD			
Fseq					
German		**PL**	**MT3**	**MT2**	**MT1**
	NOM	-ie		-er	-as
	ACC	-ie		-en	-as
	GEN	-er		-es	
	DAT	-en	-er	-em	
Dutch		**PL**	**MT3**	**MT2**	**MT1**
		-ie			-at

The following illustration shows mass type matching between the head noun and the item functioning as relative pronoun. Please note again that as I have discussed at the end of section 6.4.1, in a decompositional analysis of the DP as proposed here, it is most probably not possible to attach the relative clause as a direct complement to D, since the phrase (or phrases) related to φ-feature morphology (mass type and number in my terminology) need to be projected below the DP-layer as well. For extensive discussion on this issue, see Wiltschko (2013). I will remain neutral about this issue for the time being because it doesn't have any consequences for the analysis proposed here. Regardless of what the attachment site of the relative clause is, the item functioning as a relative pronoun has to match the (either assigned or idiomatized) mass type of the head noun.

(90) Alternation of d- and w-relativizers in German and Dutch



The analysis above allows us to account exactly for the cases we find, namely the free alternation of German *das* and *was* as well as Dutch *dat* and *wat*, and exclude the cases we don't find, such as the combination of German *was* and Dutch *wat* with only inanimate head nouns. The structure furthermore predicts that Dutch *wie* alternates with Dutch *die* for mass type 2 and plural nouns. The restriction to human head nouns is a side effect of the fact that *wie* gets a volitional agent (i.e., human) default interpretation in isolation (cf. section 5.2.1 for discussion).

With respect to the interpretation of the relative clause, we observe a peculiar situation for w-items. No other referent either in the linguistic or the discourse context can be denoted by the relative pronoun. Of all the functions that they can acquire in the syntax, the function as a relativizer in a headed relative clause is the only one where they refer to a specific referent, namely the referent denoted by head noun of the relative clause. This means that the interpretation of the w-item in this specific configuration must be such that the set of alternatives denoted by the w-item is restricted to the one specific member of this set that is denoted by the head noun. How is this restriction possible? For the indefinite and interrogative functions of w-items, I have followed the argument in Cable (2007) that a referent for an interrogative or indefinite pronoun needs to be returned by means of a choice function that takes the set of alternatives denoted by the w-item as its argument. It is important to be aware that such a choice function is not necessary when a w-item is used as a relativizer in a headed relative clause. The key to understanding this particular interpretation of the w-item lies in the assumption that the relation between the head noun and the relative clause is a relation of set intersection, i.e., that the

whole construction of the head noun and the relative clause refers to the intersection of the set denoted by the head noun and the set denoted by the relative clause (cf. section 6.4.1). Under this assumption, it is the mechanism of set intersection itself that will reduce the set of alternatives denoted by the w-item to the one specific member. When the set denoted by the w-item and the set denoted by the head noun are intersected, the only overlap between the two will be the set denoted by the head noun. It is therefore that a w-item can be made to refer specifically to one referent when placed in a relative clause.

Summarizing the arguments made in this section, we arrive at the following picture for alternations of d- and w-items in German and Dutch relative clauses. The d-items German *das* and Dutch *dat* as well as the w-items German *was* and Dutch *wat* all spell out MassP in the Classification Domain with the morpheme *-as*/*at*. MassP yields the interpretation of mass type 1 (unbounded mass). This has the consequence that the interpretation of German *was* and Dutch *wat* is not restricted to a certain kind of individuals, as we have observed for German *wer* and Dutch *wie*, which can only refer to volitional agents (i.e., humans). German *was* and Dutch *wat* can therefore relativize the same set of head nouns that can be relativized by German *das* and Dutch *dat*, namely all heads nouns that bear mass type 1. This yields the free alternation of *das*/*was* and *dat*/*wat* in the position of the relative pronoun.

In contrast to German *was* and Dutch *wat*, Dutch *wie* is restricted to individuals by virtue of projecting IndP on top of MassP in the Classification Domain. The combination of WP and IndP yields the default interpretation of the volitional agents which is interpreted as human. This default interpretation holds also when CollP and DivP are projected on top of IndP to create a plural interpretation. This has the following consequence for the alternation of Dutch *die* and *wie* in the position of the relative pronoun. In principle both *die* and *wie* can relativize all head nouns that match mass type 2 and plural.[83] Yet, due to the inherent restriction on the interpretation of Dutch *wie* to human individuals, the set intersection between the set denoted by the relative clause and the set denoted by the head noun yields an empty set when the relative clause is introduced with *wie* and the head noun denotes a non-human referent.

[83] I am only mentioning mass type 2 and plural head nouns here because I am under the impression that collective nouns acquire an individuative interpretation when relativized.

(i) a. ??This is the police that caught the thief.
b. ??This is the humanity that has been populating the earth for 200 000 years.

Consequently *wie* is restricted to relativizing only a subset of the head nouns that can be relativized by *die*. It is therefore that we only observe the alternation of *die* and *wie* when the head noun is human. These insights leave us with one more problem to solve: the exclusion of German *wer* from the relativizing function.

7.4.5 Why German *wer* Can't Function as a Relativizer

In section 4.3.2 I have shown that the breakdown of the Indo-European mass type system has led to a parasitic use of this system to express biological sex, i.e., male and female. This development plays an important role in the anaphoric use of pronouns. Personal pronouns in German and Dutch as well as d-items in German distinctly display all three mass types – unbounded mass, individuative, and collective – in their morphological makeup. In the expression of biological sex with mass type morphology, individuative and collective have come to express male and female sex, respectively. When personal pronouns in German and Dutch as well as d-items in German are used to refer anaphorically to a human antecedent, the mass type of these pronouns and d-items gets aligned with the sex of the antecedent. Since both German and Dutch personal pronouns display syncretism between collective and plural, the German personal pronoun *sie* (she/they) and the Dutch personal pronoun *zij* (she/they) can either refer to a singular female antecedent or to a plural antecedent regardless of their biological sex. In contrast, the individuative pronouns German *er* (he) and Dutch *hij* (he) can only refer to singular male antecedents. This situation translates to German *der* when referring to a human antecedent. The individuative form *der* can only refer to singular male antecedents. The collective/plural form *die* can refer to female and plural antecedents. In contrast to these pronouns, the Dutch d-item *die* can refer to the widest range of antecedents. Since the -*ie* morpheme of *die* spells out individuative, collective and plural syncretically, Dutch *die* can refer to male, female and plural antecedents. Examples (91) and (92) below show the alignment of mass type morphology and biological sex in the anaphoric use of personal pronouns and d-items in German and Dutch.

(91) Alignment of biological sex and mass type morphology in German

a. Das ist **Peter**. Wir müssen **ihm** helfen.
that is Peter(M) we must MT2.DAT help
'That is Peter. We have to help him.'

b. Das ist **Eline**. Wir müssen **ihr** helfen.
that is Eline(F) we must MT3.DAT help
'That is Eline. We have to help her.'

c. Das ist **Peter**. **Den** habe ich gestern gesehen.
that is Peter(M) DPR.MT2.ACC have I yesterday seen
'That is Peter. I saw him yesterday.'

d. Das ist **Eline**. **Die** habe ich gestern gesehen.
that is Eline(F) DPR.MT3.ACC have I yesterday seen
'That is Eline. I saw her yesterday.'

(German)

Given that the object forms of the Dutch personal pronoun *hem* (him) and *haar* (her) used to be datives[84] but are now used for object case in general, I will gloss them with OBJ after the mass type classification.

(92) Alignment of biological sex and mass type morphology in Dutch.

a. Dat is **Peter**. We moeten **hem** helpen.
that is Peter(M) we must MT2.OBJ help.
'That is Peter. We have to help him.'

b. Dat is **Eline**. We moeten **haar** helpen.
that is Eline(F) we must MT3.OBJ help.
'That is Eline. We have to help her.'

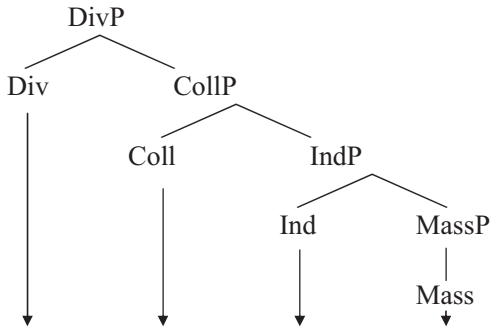
c. Dat is **Peter** / **Eline**. **Die** heb ik gisteren gezien.
that is Peter(M) Eline(F) DPR.MT2/MT3 have I yesterday seen
'That is Peter/Eline. I saw him/her yesterday.

(Dutch)

Given this alignment of mass type and biological sex with anaphorically used personal pronouns and d-items, we should expect the same for the use of anaphorically used w-items. This can be shown for Dutch relative clauses when the Middle Dutch forms of *wie* are used as relative pronouns. In contrast to

[84] In Old Dutch we can observe clearly distinct forms for the singular feminine personal pronouns in accusative and dative case. For the accusative we find the form *sia*, while the dative is expressed with the form *iro*, the predecessor of present-day *haar* (cf. Quak & van der Horst (2002: 43). Although the singular masculine forms in dative and accusative have come to be syncretic in Old Dutch with the form *imo*, the discussion in van der Horst (2008: 160-167) shows clearly that the syncretic form *imo* is a dative form that has gradually replaced an earlier accusative form.

modern Dutch *wie*, Middle Dutch *wie* displays distinct morphology for mass type 2 (individuative, interpreted as male) and mass type 3 (collective, interpreted as female) in cases other than nominative. The Middle Dutch declension paradigm of *wie* is shown in Table 40, including the corresponding syntactic projections for mass type. The WP in the Linking Domain is omitted.



	PL	MT3	MT2	MT1
NOM	wie	wie	wie	wat
ACC	wie	wie	wien	wat
GEN	wier	wier	wies	[85]
DAT	wien	wier	wien	

Table 40: The declension paradigm of Middle Dutch *wie* and *wat* (adapted from Hogenhout-Mulder 1983: 33).

Some of these forms are still retained today in formal and literary language. The Middle Dutch genitive of *wie* can be found until today in the forms *wiens* for mass type 2 (interpreted as male) and *wier* for mass type 3 (interpreted as female). It has to be noted that *wier* has vanished entirely from spoken language and that *wiens* is used to refer to both male and female antecedents today. Yet, in formal and literary language, the distinction between male and female antecedents can still be seen clearly. Example (93) shows two highly antiquated formal constructions that show the alignment of biological sex and mass type in relative clauses introduced with *wie*.

[85]Hogenhout-Mulder (2007: 33) lists the genitive and dative forms of Middle Dutch *wie* as the genitive and dative forms of Middle Dutch *wat* as well. Yet, given the discussion in section 5.3.1, I will assume that these slots are empty for both German *was* and Middle Dutch *wat*.

(93) a. Ken jij een edelman **wiens** broer…
know you a nobleman(M) W-MT2.GEN brother
'Do you know a nobleman whose brother…'

b. De studente **wier** naam ik alvast genoteerd heb…
the student(F) W-MT3.GEN name I already written-down have
'The student whose name I already wrote down…'

(Dutch, ANS)

Interchanging the w-items used as relativizers in (93a) and (93b) with each other would result in ungrammaticality. Due to the erosion of case and mass type morphology, Dutch lost the forms of *wie* that display a distinction between mass types 2 and 3. Consequently modern Dutch *wie* can be aligned with both male and female antecedents when used in a headed relative clause. In addition to this, we have seen that the -*ie* morpheme is also syncretic with plural. If follows that Dutch *wie* can refer to both male and female antecedents in both singular and plural number.

In contrast to Dutch *wie*, the declension paradigm of German *wer* has never developed any forms to spell out mass type 3 or plural number (cf. Meisen 1968: 40). This means that there are no forms that could be aligned with female and plural antecedents. It follows that if German *wer* was used anaphorically to refer to an antecedent, which is the case in a relative clause, it would be subject to following three restrictions: (a) Due to the projection of IndP in the Classification Domain and the projection of WP in the Linking Domain, it yields the interpretation human. (b) Mass type 2 yields the interpretation singular. (c) Alignment of mass type 2 and biological sex yields compatibility with male referents only. Given these restrictions, there is only one kind of antecedent that could be referred to by *wer*: singular male antecedents. These only include the nouns *der Mann* (the man), *der Junge* (the boy) and the singular forms of names for professions denoting male individuals, such as *der Pilot* (the male pilot). The conclusion that I draw from this situation, is that *wer* is ruled out as a viable relative pronoun simply because (in contrast to Dutch *wie*) there are hardly any head nouns that it could ever relativize. It follows that there is no profound syntactic reason that excludes *wer* from functioning as relative pronoun in headed relative clauses in German. German *wer* is simply unsuitable to acquire this specific function in the syntax. The exclusion of German *wer* from the relativizing position in relative clause construction constitutes, therefore, no profound difference between German and Dutch w-items but is the result of an externalization effect related to the parasitic expression of biological sex with mass type morphology.

With these remarks, I conclude my discussion of w-items as relativizers and will move on to the discussion of the quantificational function of German *was* and Dutch *wat*.

7.5 The Quantificational Function

In this section I will examine the behavior of German *was* and Dutch *wat* in situations where these elements take complements. In these constructions, German *was* and Dutch *wat* receive a quantificational interpretation comparable to a degree or amount interpretation. Yet, in contrast to quantifiers such as *a little*, *some*, *many* or *a lot*, German *was* and Dutch *wat* have no specific interpretation with respect to the size or the degree or amount. Depending on the context, *was* and *wat* can refer to any degree or amount from small to large. In their quantificational function *was* and *wat* can appear in combination with a number of different elements: nouns, verbs, adjectives and adverbials. As quantificational determiners of nouns, they can appear with two kinds of nouns: mass nouns and plural nouns. The use of German *was* with plural nouns is less widespread than that in Dutch. It is restricted to dialectal varieties, more precisely, to places close to the Dutch-German border, such as the Lower Rhine region. The use of German *was* with mass nouns, verbs, adjectives and adverbials is common in colloquial speech. Example (94) shows the use of German *was* and Dutch *wat* with a mass noun, example (95) illustrates their use with a plural noun.

(94) German *was* and Dutch *wat* with mass nouns

a. % Ich muss noch **was** Salz an die Suppe tun.
I must still what salt at the soup do
'I still have to put some salt in the soup.' (German)

b. Ik moet nog **wat** zout in de soep doen.
I must still what salt in the soup do
'I still have to put some salt in the soup.' (Dutch)

(95) German *was* and Dutch *wat* with plural nouns

a. #Ich muss noch **was** Geschenke kaufen.
I must still what presents buy
'I still have to buy some presents.' (German, Niederrhein)

b. Ik moet nog **wat** cadeaus kopen.
I must still what presents buy
'I still have to buy some presents.' (Dutch)

Example (96) shows German *was* and Dutch *wat* in combination with a verb. There are no direct translations of these examples, so I will give a clarification of the interpretation.

(96) German *was* and Dutch *wat* with verbs

a. Ich will mich noch **was** bewegen heute.
I want me still what move today
LITERALLY: 'I still want to do some moving today.'
MEANING: 'I still want to do an unspecified amount of exercising today.'
(German)

b. Ik wil nog **wat** sporten vandaag.
I want still what sport(VERB) today
LITERALLY: 'I still want to do some sporting today.'
MEANING: 'I still want to do an unspecified amount of exercising today.'
(Dutch)

Example (97) shows German *was* and Dutch *wat* with an adjective and example (98) shows the two elements with an adverbial. Please note that the amount denoted by *was* and *wat* in these combinations is equally unspecific as the amount denoted by *some*, which I used for the translations above. Yet it is not possible to translate these examples with English *some*. I will therefore indicate the unspecific amount denoted by *was* and *wat* with square brackets in the translation.

(97) German *was* and Dutch *wat* with adjectives

a. % Sie ist **was** stärker als ich.
she is what stronger than I
'She is [unspecified amount] stronger than I am.' (German)

b. Zij is **wat** sterker dan ik.
she is what stronger than I
'She is [unspecified amount] stronger than I am.' (Dutch)

(98) German *was* and Dutch *wat* with adverbials

a. % Ich gehe gleich noch **was** raus.
I go soon still what outside
'I'm going to go outside soon [for an unspecified amount of time].'

(German)

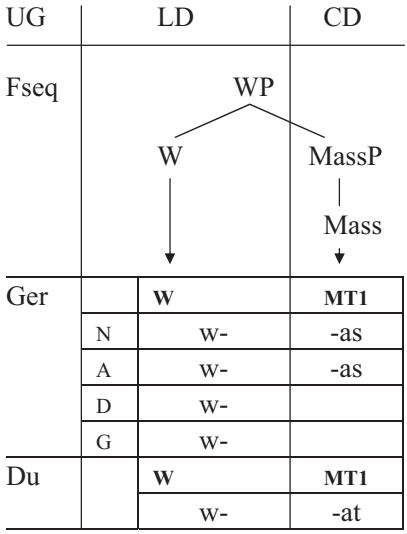
b. Ik ga straks nog **wat** naar buiten.
I go soon still what to outside
'I'm going to go outside soon [for an unspecified amount of time].'

(Dutch)

The data above show that the size of the amount or degree denoted by German *was* and Dutch *wat* is not inherently specified by the w-items but must be gathered from the context. Due to this observation, Barbiers et al. (2010: 10) have suggested that Dutch *wat* constitutes the Spellout of a Quantifier Phrase (QP)[86], which simply denotes the concept of 'quantity', which results in the interpretation of an unspecific degree or amount. Although the internal structure of this QP is not further discussed by the authors, it is clear that the head of a QP must be a quantifier. In section 4.3.3 I have introduced the standard assumption that with respect to internal structure of the DP, quantifiers have to be located above whatever is related to classification and below the DP-layer (cf. Borer 2005a: 96-120). For my analysis, I have reformulated this assumption in terms of a Quantity Domain that is located above the Classification Domain and below the Linking Domain. With respect to the internal structure of German *was* and Dutch *wat*, I have argued that they consist only of a WP in the Linking Domain and MassP in the Classification Domain. They consequently don't project a phrase in the Quantity Domain. The structure is given below.

[86] Note that both Quantifier Phrase and Question Phrase are abbreviated with QP in the literature.

(99) The internal structure of German *was* and Dutch *wat*



The absence of projections in the Quantification Domain in the structure above makes the internal structure of German *was* and Dutch *wat* proposed here incompatible with the assumption that Dutch *wat* is the Spellout of a QP and, by extension, with the standard assumption that quantifiers are located higher in the structure than classifiers. In my analysis of the data above, I will show that it is not necessary to conceive of German *was* and Dutch *wat* as a quantifier in order to get an interpretation of unspecific amount.

In section 4.3.2 I have argued that the interpretation of MassP is unbounded mass. I sections 5.3.1 I argued that the combination of WP and MassP results in the construction of a set of alternatives that is not restricted to a particular kind of individuals. I furthermore argued that this unrestrictedness of the set of alternatives denoted by German *was* and *wat* allows them to express a general lack of information in their interrogative function. In their indefinite function German *was* and Dutch *wat* denote merely the existence of something. This something can be anything, given that the w-item has no inherent restriction to a certain kind of individuals. For the quantitative interpretation of German *was* and Dutch *wat* I propose that the combination of WP and MassP yields the interpretation of unspecific mass, which is interpreted as unspecific amount when the w-item takes another element as its complement. Let's go through the logic of this proposal step by step: In sections 4.3.1 and 4.3.2 I defended the assumptions that the phrases in the Classification Domain determine the interpretation of whatever is merged as a root into the Identification Domain of

the structure. As a consequence of this argument, I take it that German *was* and Dutch *wat* impose a mass/amount reading on whatever is merged into their complement. Combining the interpretation of MassP with the interpretation of WP, we arrive at an interpretation of a set of alternative masses of whatever is denoted by the complement. This is tantamount to an unspecific degree or amount, since the only property that these alternative masses can vary in is size. The quality of the mass is defined by the complement. This is precisely the case for the interpretation of the examples we have seen above. In the cases where German *was* and *wat* take either a mass or a plural noun, the interpretation of the noun is an unspecific amount of whatever the noun denotes. In examples (94) and (95) it is either an unspecific amount of salt or an unspecific amount of presents. It is even possible to impose a mass reading on an individuative noun if we locate it in the complement position of German *was* and Dutch *wat*. In the same way that the noun *dog* acquires a mass reading in the sentence 'There is dog on the wall', it acquires a mass reading that is interpreted as an unspecific amount of this mass in the examples below. Please note that these examples are so unexpected with respect to the interpretation that they would probably not be accepted by non-linguist speakers of German and Dutch.

(100) a. Ich muss noch **was** Hund kaufen.
I must stil what dog buy
'I still have to buy some dog.'

b. Ik moet nog **wat** hond kopen.
I must still what dog buy
'I still have to buy some dog.'

The same observation holds for the other examples above. We observe that the verb in (96) is interpreted as doing an unspecific amount of the activity denoted by the verb. The comparative adjective in (97), expressing that someone is taller than someone else, is interpreted as an unspecific amount of being taller. The local adverbials in (98) are interpreted as an unspecific amount of being at this place.

Under the analysis above, the interpretation of *was* and *wat* themselves as "unspecified quantity", to use the words of Barbiers et al. (2010), is not due to the fact that these elements spell out a QP, but due to the effect that these elements have on the interpretation of anything that is merged into their complement. It is therefore that the quantitative interpretation of German *was* and Dutch *wat* arises only in this specific syntactic configuration and cannot be observed when the complement position of German *was* and Dutch *wat* is empty.

7.6 A Short Note on Complementizers

It is well known that the demonstrative pronouns German *das* and Dutch *dat* are homophonous to the complementizers *dass* and *dat*. The same holds for the English demonstrative *that* and the complementizer *that*. In addition, both German and Dutch display the use of *was*/*wat* as a relative complementizer in certain regions. This use of *was*/*wat* as a relative complementizer certainly has its roots in the w-item *was*/*wat* as we see it in all the other functions but cannot be attributed to same underlying syntactic structure. The characteristic property of complementizers in relative clauses, for example, is that they can relativize any given head noun. This means that *was* and *wat* have to be insensitive to the mass type of the head noun in order to function as relative complementizers. This stands in contrast to the use of *was* as a relative pronoun, which is clearly sensitive to mass type, as we have seen in section 7.4. We can therefore assume that the grammaticalization process from pronominal *was*/*wat* to complementizer *was*/*wat* includes a process in which the Classification Domain of *was*/*wat* becomes inert, while the phonological material spelling it out remains in place.

This assumption is supported by data from Westphalian German, which makes use of the w-item *wer* (who) as a relative complementizer. Westphalian *wer* has gone through an erosion of both case and mass type morphology, yielding the form *we*. Fleischer (2005: 177) shows that *we* can be used as a relativizer for both human (101a) and non-human head nouns (101b). Note that the definite article in Westphalian is phonologically reduced in the same way as in Dutch.

(101) a. **de** Saot, **we** ik saiet häff
DA.MT2/MT3 seed who I sowed have
'the seed that I sowed'

b. **de** Fru, **we** he 'n Teeken gaff
DA.MT2/MT3 woman who he a sign gave
'the woman whom he gave a sign'

(Westphalian German, adapted from Fleischer 2005: 177)

This observation further supports my argument that humanness is not an inherent quality of the w-item *wer*, but an interpretation that arises from its mass type. If the human interpretation of *wer* was not dependent on the mass type of this w-item, it would not have been lost under the erosion of mass type morphology. Given the discussions in Roberts & Roussou (2003: 110-121) for English *that*, Boef (2013: 192-199) for Dutch *dat*, and Leu (2010) for German *dass*, I presume that the grammaticalization path from demonstrative *das* and *dat* to the

complementizers *dass* and *dat* must also have included the process in which the Classification Domain of the demonstrative pronouns has become inert. For a competing view, that challenges the standard assumption that the complementizer *dass* is a descendant of the demonstrative pronoun *das*, see Axel-Tober (2013).

7.7 Summary

This chapter concludes the investigation of the internal structure and the multifunctional behavior of German and Dutch d- and w-items conducted in this thesis. In the course of this thesis I have advocated an analysis of the internal structure of d- and w-items in German and Dutch that is based on the idea that all derivations start with a root that represents an encyclopedic chunk of knowledge, which gets shaped into a certain grammatical category by the functional structure built on top of it (cf. sections 2.4, 3.2, and 3.3). For the internal structure of d- and w-items in German and Dutch, I have defended the hypothesis that the lower part of this structure is made up of a Classification Domain, in which mass type distinctions are created (cf. section 4.3.2). I have furthermore defended the hypothesis that d- and w-items differ in their internal structure only with respect to the highest head, which is located in the Linking Domain. While d-items contain a D-head, that creates definite reference, w-items contain a W-head, that provides a set of alternatives. (cf. sections 4.3.5, 5.4). In this chapter, I have shown that the internal structure of w-items developed in the course of Chapters 4 and 5 constitutes a crucial factor in understanding the multifunctional behavior of w-items in German and Dutch.

For the indefinite and interrogative functions, I have shown that it is the set of alternatives provided by the W-head that yields the lack of information, which forms the interpretative basis of both functions. From there it is possible to create either indefiniteness or interrogativeness. In both cases the w-item needs to be merged with a Q-particle in order to restrict the set of alternatives provided by W to one member of the set. The resulting QP can then either remain in the lower structure of the clause in order to get bound by an existential quantifier or be moved into higher structure of the clause, specifically, into the specifier of an interrogative CP.

For the relativizing function, we have seen that the structural equivalence of d- and w-items allows them to alternate in the position of the relative pronoun without one being blocked by the other at the point of spellout. I have furthermore shown that the mass distinctions identified in Chapter 4 play a crucial role in understanding why some alternations, such as the one between German *das* and *was,* are possible, while other alternations, such as the one between German *der* and *wer,* are excluded. Based on the concept of mass type

distinctions, I was able to show that German *wer* receives a too restricted interpretation when used anaphorically and is therefore prevented from functioning as a relative pronoun.

As for the quantificational function, I have argued that it is the concept of mass type distinctions that allows us to understand this particular function of German *was* and Dutch *wat*. Under the assumption that MassP is the only phrase projected in the Classification Domain of German *was* and Dutch *wat* and that the projection of this phrase yields the interpretation of unbounded mass, we can understand that everything that is merged into the complement of these items will receive mass or amount interpretation. The set of alternatives provided by the W-head turns this mass/amount interpretation into an alternative of masses/amounts, which yields the interpretation of an unspecific mass/amount. It is therefore that we conceive of German *was* and Dutch *wat* as denoting an unspecific amount of something when they take a complement.

Chapter 8

Conclusions and Outlook for Future Research

In this final chapter, I will first provide a summary of each individual chapter of this thesis in section 8.1. I will then point out the empirical and theoretical contributions made in this thesis in section 8.2. In section 8.3 I will show a number of paths for future research based on the present contributions and conclusions.

8.1 Summary

The main goal of this thesis was to provide an account for the multifunctional behavior of d- and w-items in German and Dutch. In order to achieve this goal, I divided the analysis of the d- and w-items of German and Dutch into two parts. The first part dealt with their internal structure (Chapters 4 and 5), and the second part analyzed the individual functions these items can acquire in a certain syntactic environment (Chapters 6 and 7). I embedded the account as a whole into a framework that combined conceptual insights and theoretical tools from the different individual frameworks of Generative Grammar (Chapters 2 and 3).

Chapter 2

In this chapter, I discussed the fundamental assumptions on which the frameworks of Minimalism, Cartography, Constructivism, Nanosyntax and the Universal Spine Model are built. I showed that the differences between the individual frameworks in conceptualizing the language system lead to different ways in which they capture language variation and multifunctionality. One of the central assumptions of Minimalism (cf. Chomsky 2000, 2001) is that syntactic operations are driven by the features of lexical items that enter the syntactic computation. Lexical items are conceptualized as assemblies of features (feature matrices), where each feature consists of an attribute and a value. A minimalist account of multifunctionality therefore has to derive the individual functions a lexical item can acquire in the syntax from the featural makeup of this item. Cartography (cf. Kayne 2005 and Cinque & Rizzi 2008) assumes that there is a universal hierarchy of functional projections, where the head of each projection

corresponds to one feature. All functional heads are assumed to be present in all languages. Individual languages can differ in expressing these heads overtly or covertly. In this framework, multifunctionality would have to be defined as the same sequence of functional projections being spelled out with the same phonological string in different syntactic environments. Constructivism rejects the minimalist concept of feature drivenness. In Distributed Morphology (cf. Halle & Marantz 1993, and Harley & Noyer 1999), the syntactic derivation starts from a small number of universal morphosyntactic features which are not assembled into larger bundles previously to the syntactic computation. It is the syntax itself that builds both word and sentence structure. This point of view is most strongly expressed in Borer's (2005a,b, 2013) Exo-Skeletal-Model, where the syntactic computation starts from a root that contains only a chunk of encyclopedic knowledge with no grammatical information whatsoever. Everything that belongs to grammar is built on top of this root during the syntactic computation. In both frameworks, morphological form is inserted into the terminal nodes of the syntactic structure after the derivation is completed. In this framework, we are dealing with multifunctionality when two or more terminal nodes that share at least one morphosyntactic feature are spelled out by the same phonological string. Nanosyntax (cf. Starke 2009, Caha 2009) combines insights of both Cartography and Distributed Morphology. In this framework, it is assumed that there is a universal hierarchy of projections as well as a postsyntactic lexicon. In contrast to Cartography, all functional heads need not be present in every derivation. Functional projections can be present or absent, which stands in contrast to the assumption that they can be overt or covert. With respect to multifunctionality, the primary interest of Nanosyntax is to explain syncretisms, i.e., multifunctional morphemes. In this framework we are dealing with multifunctionality when a certain sequence of heads that is associated with a certain phonological string in the postsyntactic lexicon can be found in different syntactic environments. The Universal Spine Model (Wiltschko 2014) differs from all other generative frameworks by rejecting the assumption that all syntactic categories that can be found across languages are provided by UG. The fundamental assumption of this framework is that the set of universal categories is much smaller than the number of categories observed in language typology. Wiltschko (2014) proposes precisely four universal categories from which all language-particular categories are constructed. The construction of these language-particular categories proceeds by associating pairs of sound and meaning with one of the four universal categories. We are dealing with multifunctionality if we can show that a certain pair of sound and meaning is associated with more than one universal category.

Chapter 3

Based on the comparison of the individual generative frameworks in Chapter 2, in Chapter 3 I proposed an eclectic approach to the architecture of the language system and the syntactic structures built within it. I started by adopting the fundamental assumption from Borer (2005a) that there is a principled distinction between linguistic meaning and encyclopedic knowledge. I followed Borer's (2005a) argumentation that chunks of encyclopedic knowledge enter the syntactic derivation as uncategorized roots. Linguistic meaning is consequently derivative of syntactic structure. It arises at the end of the derivation, where the encyclopedic knowledge that has entered the language system is interpreted in terms of the structure that the language system has built on top of it. It follows that much of what we regard as human knowledge only comes into existence by the combinatorial mechanism of syntax. It is only on the basis of these assumptions that the language system can be conceptualized as ontologically productive, i.e., as adding new concepts to the human mind, concepts that cannot exist in the absence of the language system (cf. Hinzen 2009).

Following the insights of Wiltschko (2014), I assumed that UG only provides us with a small number of distinctions, from which the more fine-grained distinctions that we find in functional sequences are derived. With respect to the general buildup of syntactic structure, I respresented these distinctions with five Universal Distinction Domains.

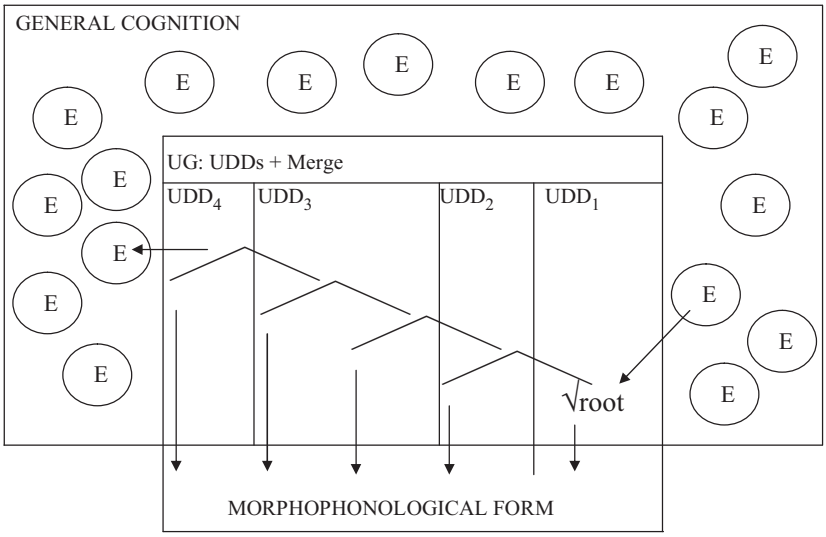
(1) The hierarchy of Universal Distinction Domains

Linking > Anchoring > Quantity > Classification > Identification

With respect to individual syntactic derivations, I followed the assumption of Nanosyntax that the buildup of functional projections follows a fixed sequence of functional heads, which can be either present or absent in the structure (cf. Starke 2004, 2009). I argued that there is no fixed number for functional projections per domain, except for the Identification Domain. This domain is the place where the root is merged, i.e., where the encyclopedic knowledge enters the language system. I furthermore adopted the assumptions that Spellout can be phrasal, i.e., that more than one hierarchically adjacent syntactic phrases can be spelled out by one morpheme (cf. Caha 2009) and that languages vary with respect to how many phrases are spelled out by the same morpheme while the underlying syntactic structure remains the same (cf. Starke 2010). Following the insights of Chomsky (1995, 2000, 2004) and Zwart (2011), I furthermore adopted the assumption that Merge creates sets. An application of Merge results in an ordered pair where the newly merged element is the first member and everything that has been merged before the second. For the interpretation this

means that the information provided by a higher node contains all the information provided by lower nodes. The combination of all the assumptions made in Chapter 3 led to the following model of the language system (where UDD stands for Universal Distinction Domain and E for encyclopedic chunk).

(2) The Language System



Chapter 4

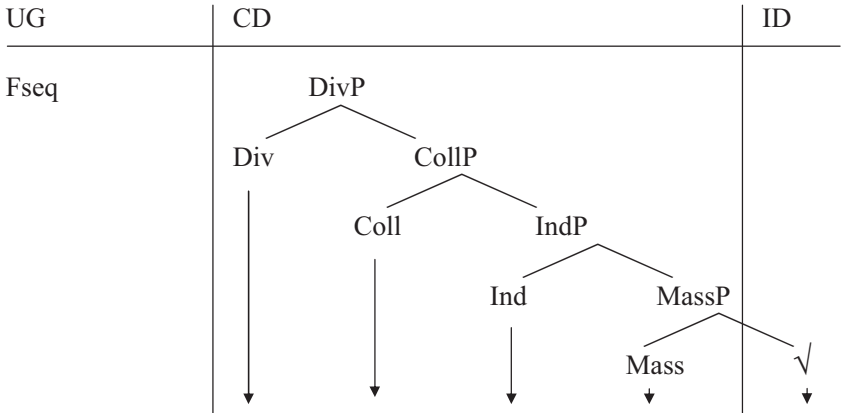
In this chapter I started my investigation into the multifunctional behavior of German and Dutch d- and w-items. The first step in this endeavor was to identify the internal structure, i.e., functional sequence that underlies these items. In Chapter 4 I concentrated on the internal structure of the d-items alone. I started by providing a detailed empirical description of the morphological makeup and historical development of the d-items of German and Dutch. I made a number of crucial observations:

- The declension paradigms of German and Dutch determiners display noticeable syncretisms between plural and feminine singular as well as masculine and neuter singular.
- The definite article in German (*der*) and Dutch (*de*) is phonologically weaker than the simple demonstrative pronoun (*der*/*die*).
- The complex demonstrative pronoun in German (*dieser*) and Dutch (*deze*) contain a locative morpheme (-*ies*-/-*ez*-).

- German demonstrative pronouns and d-adverbs are much less sensitive to the proximate/distal distinction than Dutch ones.

Based on the empirical observations, I motivated a functional sequence for the internal structure of d-items in German and Dutch. The central hypothesis that I proposed was that grammatical gender constitutes a mass classifier and that sex-based theories of gender are misguided. I argued that the gender inflection on German and Dutch determiners corresponds to a sequence of phrases that are projected in the Classification Domain of German and Dutch d-items directly on top of the root that will be interpreted as a noun at the end of the derivation. Following the insights of Borer (2005a), I argued that the function of grammatical gender is to classify the root into one of three distinct mass types: unbounded mass (mass type 1), bounded mass (individual, mass type 2), collective (mass type 3). I consequently argued that grammatical gender is not inherent on nouns as is commonly assumed, but assigned by a functional element. Based on the results of diachronic investigations into Indo-European (cf. Brugmann 1889, 1897 and Lehmann 1958), Old High German (cf. Unterbeck & Rissanen eds. 2000 and Leiss 2005a), and other Old Germanic Languages, I showed that nouns were assigned multiple genders by the determiner system corresponding to mass-related distinctions. Neuter gender was primarily associated with nouns denoting masses. Masculine gender was primarily associated with nouns denoting individuals/objects. Feminine gender was primarily associated with nouns denoting collectives. I proposed that the Classification Domain decomposes into four functional heads: Mass, Individuative, Collective and Division. The first three heads are responsible for creating the respective mass types while the last head serves to create a plurality by division (cf. Borer 2005a). From this structure I derived the declension paradigms of German and Dutch determiners and personal pronouns. I showed that all observed syncretisms are straightforwardly predicted by the proposed functional sequence. I furthermore showed that the crucial morphological difference between German and Dutch determiners – German displaying three genders in the singular while Dutch displays only two – arises from the number of phrases that are spelled out by one morpheme. The morpheme that respresents common gender in Dutch spells out the phrases projected by both Individuative and Collective while in German these phrases are spelled out separately by masculine and feminine gender respectively.

(3) Mapping the Classification Domain to mass type morphemes in German and Dutch

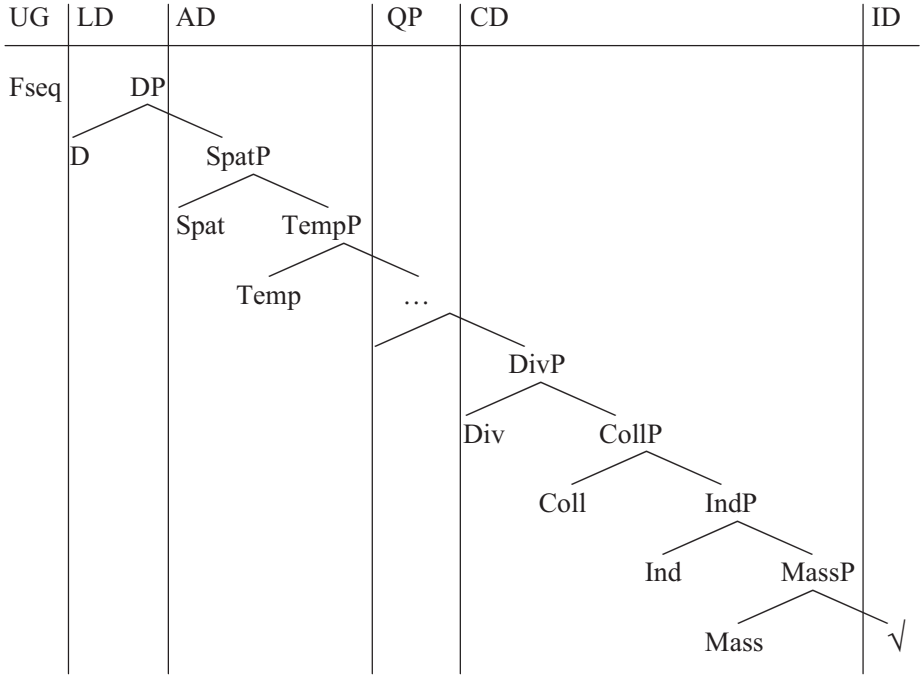


German		**PL**	**MT3**	**MT2**	**MT1**	**NOUN**
	NOM	-ie		-er	-as	
	ACC	-ie		-en	-as	
	GEN	-er		-es		
	DAT	-en	-er	-em		
Dutch		**PL**	**MT3**	**MT2**	**MT1**	
	DA	-e			-et	
	DPR	-ie			-at	

Following this discussion, I drew the reader's attention to the racist and sexist history behind the notion of 'grammatical gender' and proposed to exclude it from the technical terminology altogether and introduced the term 'mass type' instead.

For the functional sequence above the Classification Domain, I followed the general assumption that everything related to quantification must be situated immediately on top of the Classification Domain in the Quantification Domain. I argued that the next layer – the Anchoring Domain – is responsible for creating spatial and temporal deixis. Accordingly, I proposed to decompose this layer into two phrases: SpatP and TempP. I furthermore argued that the distinction between distal and proximate is not coded in the functional sequence but held in place by convention. For the highest layer of the DP, which constitutes the Linking Domain, I proposed that it is occupied only by the D-head, which serves to create definite reference. Combining the proposals and assumptions made in the course of Chapter 4, I arrived at the following functional sequence for German and Dutch d-items.

(4) The Fseq of the DP

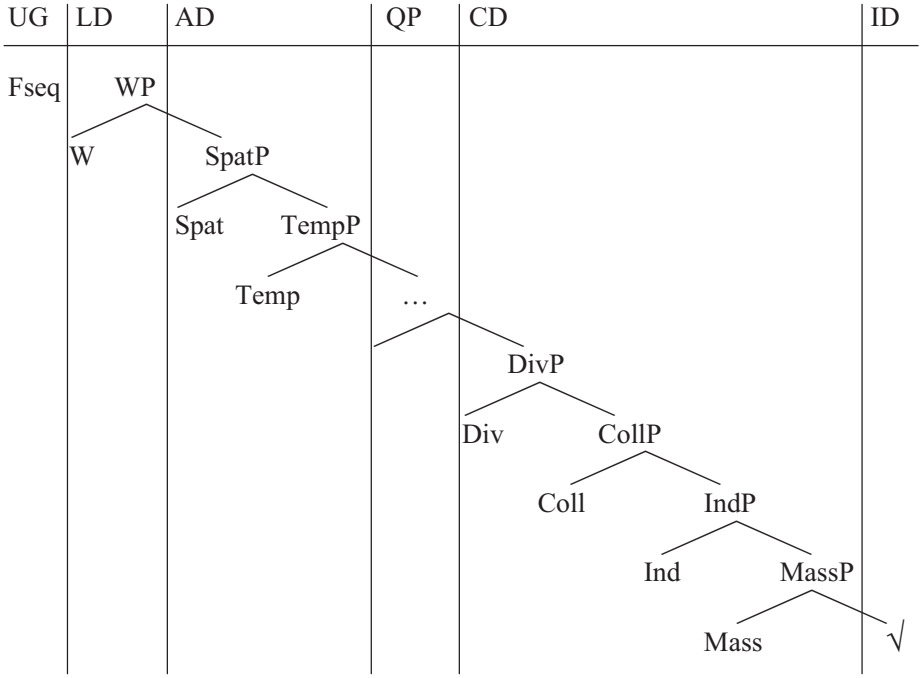


I then proceeded to analyze each individual d-item that I had introduced in the empirical overview with the structure proposed above.

Chapter 5

With the internal structure of German and Dutch d-items in place, I moved on to the analysis of the internal structure of German and Dutch w-items. The main insight that the chapter started out with was that the internal structure of d- and w-items is identical below the Linking Domain. The only aspect in which d- and w-items differ is the topmost head of the functional sequence. While the functional sequence of d-items ends with a D-head, the functional sequence of w-items ends with a W-head.

(5) The Fseq of the WP



The main goal of Chapter 5 was to formulate an analysis of the nature of the W-head in order to understand why w-items cannot denote a specific referent, in contrast to d-items. W-items present us with a lack of information, which is crucial in their function as interrogative and indefinite pronouns. I argued that the W-head represents a set of alternatives in the sense of Rooth (1985, 1999). It is the alternative set that yields the interpretation of an unknown referent since all members of the set constitute a suitable refrent for the w-item. I furthermore argued that this set is restricted to a certain kind of referents by the functional projections present below the WP-layer. It is therefore that the individual W-items can refer to alternative indivuals or alternative places, for example.

With respect to the analysis of the individual w-items, I extended my proposal formulated in Chapter 4 that grammatical gender creates mass type distinctions. I showed that we can only arrive at a proper understanding of the interpretation of German *wer* and Dutch *wie* (who) as well as German *was* and Dutch *wat* (what) if we associate gender inflection with mass type distinctions. A sex-based theory of grammatical gender does not yield any insights as to why it is that German *was* and Dutch *wat* can represent a general lack of information, while German *wer* and Dutch *wie* can only refer to volitional agents. This

contrast follows straightforwardly from a theory that captures grammatical gender in terms of mass types. The morpheme *-as*/*-at* constitutes the Spellout of MassP, which yields the interpretation of unbounded mass. Combined with the set of alternatives provided by the W-head, the resulting w-item *was*/*wat* can refer to virtually anything. The w-items German *wer* and Dutch *wie*, on the other hand, spell out IndP in the Classification Domain, which restricts the set of alternatives to individuals which I have argued to be interpreted as volitional agents in this particular case.

Chapter 6

In this chapter, I dealt with the multifunctional behavior of d-items in German and Dutch. The discussion revolved around three functions: the function of the definite article, which I argued to be carried out by a monofunctional element, and the functions of the demonstrative and the relative pronoun, which I argued to be carried out by a multifunctional element. The first crucial argument I made was that the monofunctionality of the definite article in German (phonologically weak *der*) and Dutch (*de*) results from the lack of a deictic layer in the internal structure of the definite article. The absence of this layer causes the definite article to be phonologically weak, which necessitates that the article surfaces with an overt noun in its complement. This makes it unavailable to function as a demonstrative and relative pronoun. Phonological strength and the ability to appear alone are prerequisites in order to perform these functions. I showed that a d-item has to possess four crucial properties in order to serve as a demonstrative pronoun. It has to be (a) available for movement to the left periphery, (b) able to trigger focus to topic shift, (c) able to bear the main sentence stress, and (d) able to bear contrastive focus. It is not possible for a phonologically weak element to have all of those properties. Bearing the main sentence stress and contrastive focus are by definition excluded. With respect to (phonologically strong) German *der* and Dutch *die*, I argued that the presence of SpatP in the Anchoring Domain of these items is spelled out with phonological strength. They consequently do not need an overt noun in their complement and can bear the main sentence stress and contrastive focus. Given the necessary properties to function as a demonstrative pronoun and the fact that demonstrative pronouns can and relative pronouns must appear alone in the left periphery and establish reference with a linguistic antecedent (or a referent that can be gathered from the utterance situation in the case of the demonstrative pronoun), German *der* and Dutch *die* constitute ideal elements to cover both of these functions.

In addition to the multifunctionality of German *der* and Dutch *die*, I investigated their distribution in different syntactic environments. This investigation started with the observation that in contrast to German *der*, Dutch *die* cannot function as a relativizer in oblique relative clauses that are introduced

with a preposition. I showed that this situation is not particular to relative clauses but that Dutch *die* is generally banned from surfacing alone in PPs. I argued that this contrast between German and Dutch is not due to a profound syntactic difference between the two languages but to an externalization effect related to the Spellout of case morphology. I argued that the loss of case morphology on Dutch *die* led to a development in which *die* was gradually replaced with personal pronouns in object case positions since the 3rd person personal pronouns of Dutch retained object case morphology and are therefore preferred in this context given the Elsewhere Principle. Since German *der* did not undergo a loss of case morphology, it is equally acceptable in object case positions as personal pronouns.

Chapter 7

The goal of this chapter was to provide an account of the multifunctionality of w-items in German and Dutch, which is much more complex than the multifunctionality of d-items. With respect to German *was* (what) and *wer* (who) as well as Dutch *wat* (what) and *wie* (who), I discussed the functions of the indefinite pronoun, interrogative pronoun and relative pronoun. For German *was* and Dutch *wat*, I furthermore discussed how they function as quantificational determiners. For the indefinite and the interrogative function, I have shown that both indefiniteness and interrogativity are created on the basis of the alternative set provided by the W-head. Following the insights of Cable (2007), I adopted the assumption that the w-item needs to be merged with a Q-particle in order to restrict the set of alternatives to one member of the set. From this point onwards, the interpretation of the w-item depends on where the resulting QP is positioned in the clause structure. If the QP remains within the *v*P-VP complex, it gets bound by an existential quantifier and the w-item receives an indefinite interpretation. If the QP moves to the left periphery, it gets bound by an interrogative operator, resulting in an interrogative interpretation of the w-item. With respect to the relativizing function of w-items in German and Dutch, I argued that in order to alternate in the same position, they need to be structurally equivalent to d-items functioning as relativizers in the sense that none of them structurally contains the other. Otherwise, either the d- or the w-item would be permanently blocked at the point of Spellout. This structural equivalence is guaranteed under the analysis of the internal structure of d- and w-items that I proposed in Chapters 4 and 5. Since d- and w-items only differ with respect to the topmost head in their internal structure, none of them is more or less specific than the other and none of them can be structurally contained in the other. Based on this analysis, I derived the free alternation between German *das* and *was*, Dutch *dat* and *wat*, and the restricted alternation between Dutch *die* and *wie* in their function as relative pronoun. I furthermore showed that the

ungrammaticality of German *wer* as a relative pronoun is due to an externalization effect related to the Spellout of mass type distinctions with mass type morphology. With respect to the quantificational function of German *was* and Dutch *wat*, I showed that mass type distinctions play a central role in understanding this function as well. I argued that it is the projection of MassP in the Classification Domain of German *was* and Dutch *wat* that imposes an unbounded mass interpretation on whatever is merged into the complement of *was* and *wat*. Combining this mass interpretation with the set of alternatives provided by the W-head yields the overall interpretation of an unspecific mass or amount of the item in the complement position.

8.2 Empirical and Theoretical Contributions

This thesis has touched on a number of important topics in theoretical syntax, including conceptual considerations on the architecture of the language faculty, the formulation of theoretical accounts for specific empirical phenomena, and the use of data that theoretical accounts are based on. It has contributed to scientific progress in all of these aspects. An overview of the empirical and theoretical contributions of this thesis is given below.

The study of multifunctionality

Multfunctionality phenomena are ubiquitous in human language and point towards a certain efficiency of the grammatical system, which tends to make use of the same structural complexes (i.e., internally structured items) in different structural environments. The study of multifunctionality makes it possible to understand this kind of recycling and therefore offers us the great opportunity to decrease the number of lexical entries and construction-specific statements in the theory of grammar and the study of language variation. In the present thesis, I have contributed to this goal by showing that one d- or w-item can acquire a number of functions in the syntax depending on where it is merged into the clause. By keeping the internal structure of the respective items constant, I was able to show how much the item iself constributes to a certain function and how much of the overall interpretation is determined by the structural environment.

A comprehensive overview of the diachronic development of d- and w-items in German and Dutch

In my investigation of the internal structure of d- and w-items, I have taken a diachronic empirical perspective. I have provided a detailed comparative description of the development of German and Dutch d- and w-items from the Old Germanic period until today.

Identification of the functional sequence of d- and w-items in German and Dutch

Based on my profound diachronic investigation into the morphological makeup of each individual d- and w-item of German and Dutch, I have identified the sequence of atomic semantic building blocks from which all d- and w-items in German and Dutch are constructed. I have furthermore shown that individual partitions of this sequence are associated with fundamental distinctions related to the classification of mass, quantification of size, anchoring in space and time, and linking to the linguistic and utterance context. The most important result of this analysis was the association of gender morphology with mass classification, which led to a new understanding of grammatical gender as a mass classifer. A further important aspect was to show that d- and w-items only differ with respect their topmost functional projection, which makes them structurally equivalent. This equivalence allows us to explain why these items can alternate in the position of the relative pronoun rather than one item blocking the other.

Understanding the semantic dimension of grammatical gender as a mass classifier

A new perspective on grammatical gender as a semantically meaningful category that creates mass distinctions (unbounded mass, individuative, collective) is one of the major contributions to scientific progress in this thesis. Taking a diachronic perspective in order to explain a synchronic phenomenon was crucial to understanding that gender morphology on determiners in German and Dutch today is a remnant of multiple gender assignment through the determiner system. From a synchronic point of view, grammatical gender doesn't seem to have a meaningful function in the grammar of German and Dutch. It appears random and semantically empty. From a diachronic point of view, however, it was possible to show that the gender systems of German and Dutch are in a process of regrammaticalization, i.e., the task of multiple gender assignment (i.e., creating mass distinctions) shifts slowly from the determiner system to other functional elements. For German, we were able to observe that nominal derivational suffixes are in the process of taking over the task of gender assignment. For Dutch we were able to observe that the grammatical gender of anaphorically used personal pronouns is in line with the distinctions of unbounded mass, individuative and collective.

Externalization effects

A further advantage of adding a diachronic perspective to the investigation of a synchronic phenomenon is that we have a higher probability of detecting surface-related historical accidents and distinguishing them from truly syntactic issues. My comparison of German and Dutch d-items in their function as

demonstrative and relative pronouns and the comparison of German and Dutch w-items in their function as relativizers and indefinite pronouns have shown that the loss of case and gender morphology affects the distribution of these elements in several syntactic environments. It is only through the historical perspective that we can understand these phenomena as connected and as related to surface morphology and not syntax proper.

An eclectic approach to theoretical syntax

In this thesis I have made a point of justifying every assumption on which I based my theoretical account of the data. I have argued that each individual framework of Generative Grammar offers valuable theoretical tools which we can use to futher our understanding of the language system and language variation. While I have chosen a primarily nanosyntactic approach to the analysis of the internal structure of the d- and w-items of German and Dutch, I have taken Minimalism as background for the representation of larger structural configurations in the clause. The success of these analyses shows that combining the insights that have been made across frameworks leads to greater explanatory power and potential for unification.

8.3 Paths for Future Research

In this section I will point out a number of possible paths for future research based on the empirical and theoretical contributions made in this thesis.

The bigger picture of multifunctionality

The data presented in this thesis has shown that some items display a higher degree of multifunctionality than others. The German w-item *was* (what), for example, can acquire five distinct functions depending on the syntactic environment, while the d-item *der* (this/that) can only acquire two functions. We have also seen that correlates of the same item across languages can display varying degrees of multifunctionality. While the German w-item *wo* (where) can function as an interrogative and indefinite pronoun, Dutch *waar* (where) is mysteriously excluded from the indefinite function. In addition to this, we have seen that certain items can undergo so-called context expansion, a process in which they acquire a wider range of interpretations. When the German w-item *welch-* is used as interrogative pronoun, it can have only one interpretation: the interpreation of token ('Which car is yours?'). In contrast, we have seen that the Northern Norwegian w-item *korsn* can have the interpretation of token, kind, property and manner when used in interrogative constructions. For the future research of multifunctionality, it will be crucial to investigate the regulatory process that governs the expansion from one function to another. Such an

investigation would contribute greatly to a more profound understanding of the efficiency of grammatical systems.

The importance of historical data

This thesis has shown that it is highly rewarding to take a historical perspective in approaching any linguistic phenomenon. Theoretical and diachronic syntax are often treated as separate fields of investigation, where the former is primarily interested in the fundamental rules of the language system and the investigation of synchronic language variation, while the latter is interested in the laws that govern language change over long periods of time. As mentioned above, taking the historical development of an element under investigation into account helps us to distinguish truly syntactic issues related to this element from historical accidents. It is only when we look at the bigger historical picture of grammatical systems and appreciate the extreme slowness with which they develop and change that we can achieve a profound understanding of the data that we are presented with at any given moment in time. If the trend towards the study of microvariation and the decomposition of increasingly smaller items into elaborate sequences of functional projection continues, then taking a historical perspective as the standard starting point of every theoretical account will be indispensable. If we want to use the morphological makeup of a certain item as empirical base for its internal syntactic structure, we have to know how the specific form that we are observing came about in order to avoid taking historical accidents for syntactic problems and homophonous morphemes for multifunctional ones.

A new typological approach to grammatical gender

The analysis of grammatical gender as a mass classifier can be taken as the starting point for a larger typological investigation into the semantic dimension of gender. Given that creating mass distinctions through multiple gender assignment was fully functional in Indo-European, we should be able to find similar developments of either a breakdown or regrammaticalization of the gender system for all its descendants as we have found in German and Dutch. An obvious first step would be to investigate the development of grammatical gender in modern Romance languages, which has reduced to a two-way distinction between masculine and feminine. A particularly interesting path for research would be a diachronic investigation of Indo-European descendants that have become entirely gender-neutral, such as Armenian, Persian and the Indo-Aryan languages. Painting a larger picture, it might be possible to put grammatical gender on a par with numeral classifiers related to creating the distinction between mass and count nouns, which are typical for the Chinese languages, for example, in which grammatical gender is absent.

Language variation as externalization

In this thesis, I have taken a strong universalist perspective, operating on the assumption that everything related to syntax proper is universal, while everything related to variation is a matter of externalization. It follows that language variation can serve as a fruitful database for issues in theoretical syntax, but theoretical syntax as such (i.e. the study of syntax in the narrow sense) will not be able to provide explanations of language variation. If the goal is to reduce language variation to externalization, as envisioned in recent generative literature, it is the procedure of Spellout that we have to develop a theory of in order to account for variation. The formulation of such a theory will therefore have to be one of the crucial aims of the study of comparative syntax.

Language as a tool of thought

In my setup of the theoretical background for this thesis, I have given special attention to the goal of conceptualizing the language faculty as an ontologically productive system, i.e., a system that creates new concepts for the human mind that would not exist if the language faculty was absent. This entails that language is crucially not a system that encodes pre-existing, language-independent thought, but a system that creates thought as such. I have pointed out that such a conceptualization of the language system is not possible under Minimalist assumptions, where syntax is assumed to be feature-driven and banned from adding anything new to what has already been coded in the lexicon. I have therefore adopted the fundamental assumption of the Exo-Skeletal model that every derivation starts with a chunk of encyclopedic knowledge, which is then shaped into a certain concept through the functional structure provided by syntax. Given that Minimalism is the most dominant framework in Generative Grammar, it will be the most challenging and yet most promising endeavor of theoretical syntax to dispense with the minimalist model of the language faculty and conceptualize it anew, as an ontologically productive system. It is my conviction that this profound reformulation will give Generative Grammar the potential to unearth the laws of computation that yield the conceptual power and magnificence of the human mind.

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Samenvatting in het Nederlands

Deze dissertatie behandelt het fenomeen van multifunctionaliteit vertoond door Duitse en Nederlandse d- en w-items. De term d-item bevat de groep d-pronomina zoals de Nederlandse *die* en *deze*, d-lidwoorden zoals de Nederlandse *de/het*, en ruimtelijke en temporele bijwoorden die beginnen met een d-morfeem zoals de Nederlandse *daar* en *dan*. De term w-item verwijst naar de groep woorden die gebruikelijk *w/wh*-woorden worden genoemd, of vragend voornaamwoorden zoals de Nederlandse *wie*, *wat*, *waar* en *wanneer*. Multifunctionaliteit is het vermogen van een taalkundig element zoals een woord of morfeem om te verschijnen in verscheidene syntactische omgevingen en een andere functie aan te nemen in elk van deze omgevingen. Duitse en Nederlandse d- en w-items vertonen een hoge graad van multifunctionaliteit, wat te zien is voor het Nederlandse w-item *wat* in voorbeeld (1).

(1) Het multifunctionele gedrag van de Nederlandse *wat*

a. Vragend voornaamwoord
   Wat heb je gelezen?

b. Onbepalend voornaamwoord
   Ik heb **wat** interessants gelezen.

c. Relatief voornaamwoord in vrije relatiefzinnen
   Ik lees **wat** ik interessant vind.

d. Relatief voornaamwoord in relatiefzinnen met hoofd
   % Dat is het boek **wat** ik zo interessant vind.

e. Kwantificerende determiner
   Ik moet nog **wat** artikels lezen.

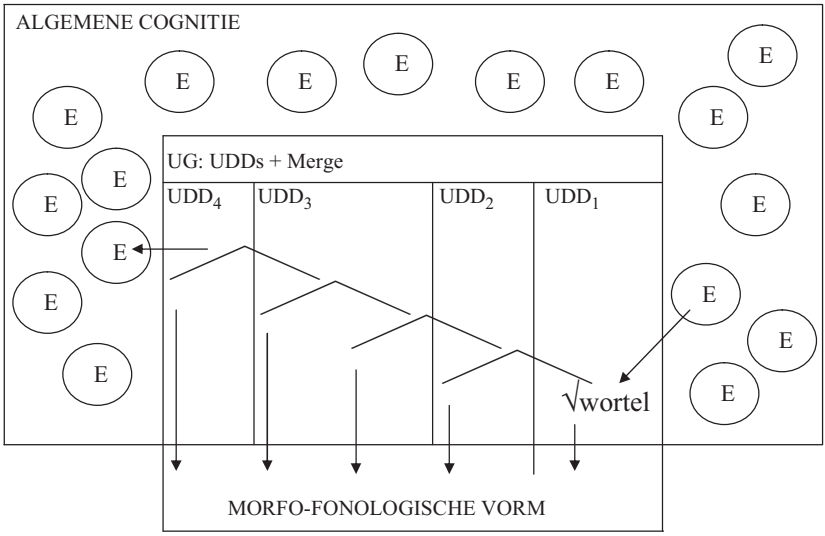
f. Exclamatieve marker
   Wat een mooie dag!

Het doel van deze dissertatie is om een gedetailleerde analyse en verklaring te geven voor het multifunctionele gedrag van d- en w-items in het Duits en het Nederlands. Om dit doel te bereiken verdeel ik de analyse van d- en w-items van Duits en Nederlands in twee delen. Het eerste deel bevat de interne structuur (hoofdstukken 4 en 5), en het tweede deel analyseert de individuele functies die deze items kunnen verkrijgen in een bepaalde syntactische omgeving

(hoofdstukken 6 en 7). Ik omsluit de verklaring als geheel in een kader dat conceptuele inzichten en theoretische werktuigen uit verschillende individuele kaders van Generatieve Grammatica combineert (hoofdstukken 2 en 3).

In **hoofdstuk 2** bespreek ik de fundamentele aanname waarop de kaders van Minimalisme, Cartografie, Constructivisme, Nanosyntax en het Universele Spine Model zijn gebouwd. Ik laat zien dat de verschillen tussen de individuele kaders in het conceptualiseren van het taalsysteem leiden tot verschillende manieren waarop zij taalvariatie en multifunctionaliteit vastleggen. In **hoofdstuk 3** combineer ik een aantal inzichten vanuit de individuele theoretische kaders om een eclectische benadering te formuleren van een model van het taalsysteem, waarop ik mijn analyse baseer. Het model is gegeven in (2).

(2) Het Taalsysteem



Dit model wordt als volgt gelezen: ik begin met het aanpassen van de fundamentele aanname uit Borer's (2005a) Exo-Skeletal Model dat er een principieel onderscheid is tussen taalkundige betekenis en encyclopedische kennis. Brokken encyclopedische kennis (gerepresenteerd als E hierboven) betreden de syntactische derivatie als ongecategoriseerde wortels (√) en alle grammaticale structuur wordt daar bovenop gebouwd door het syntactische apparaat. Linguïstische betekenis is derhalve afgeleid van syntactische structuur. Het ontstaat aan het einde van de derivatie, waar de encyclopedische brok geïnterpreteerd wordt in termen van de structuur die de syntax er bovenop heeft

gebouwd en wordt daarna uitgespeld terug in algemene cognitie. Naar aanleiding van de inzichten van Wiltschko (2014) neem ik aan dat UG de menselijke geest niet voorziet met alle syntactische categoriën die geobserveerd worden in taaltypologie. UG wordt aangenomen beperkt te worden tot een klein nummer onderscheidingen waaruit de fijnere distincties worden afgeleid. Met betrekking tot de algemene opbouw van syntactische structuur presenteer ik de universele distincties met een hiërarchie van vijf Universele Distinctie Domeinen (UDD).

(3) De hiërarchie van Universele Distinctie Domeinen
Linken > Anchoren > Kwantiteit > Classificatie > Identificatie

Wat betreft individuele syntactische derivaties volg ik de aanname van Nanosyntax dat de opbouw van functionele projecties een vaste volgorde van functionele hoofden volgt, welke aanwezig of afwezig kan zijn in de structuur (cf. Starke 2004, 2009). Ik beweer dat er geen vast nummer voor functionele projecties per domein is, behalve voor het Identificatie Domein. Dit domein is de plaats waar de wortel wordt samengevoegd, i.e. waar de encyclopedische kennis het taalsysteem betreedt. Verder neem ik de aanname over dat Spellout op frase-niveau is, i.e. dat meerdere hiërarchisch aangrenzende syntactische frasen uitgespeld kunnen worden door één morfeem (cf. Starke 2010). Naar aanleiding van de inzichten van Chomsky (1995, 2000, 2004) en Zwart (2011) volg ik de aanname dat Merge sets creëert. Een toepassing van Merge resulteert in een geordend paar waarin het nieuwe gefuseerde element het eerste lid is, en alles dat daarvoor gefuseerd is het tweede element. Voor de interpretatie betekent dit dat de informatie gegeven door een hogere node alle informatie bevat die gegeven wordt door lagere nodes.

In **hoofdstuk 4** begin ik mijn onderzoek naar het multifunctionele gedrag van Duitse en Nederlandse d-items. De eerste stap in deze onderneming is om de interne structuur te identificeren, i.e. de functionele volgorde die ten grondslag ligt aan deze items. Ik geef een gedetailleerde empirische beschrijving van de morfologische opmaak en historische ontwikkelingen van de d-items in Duits en Nederlands. De cruciale observaties zijn:

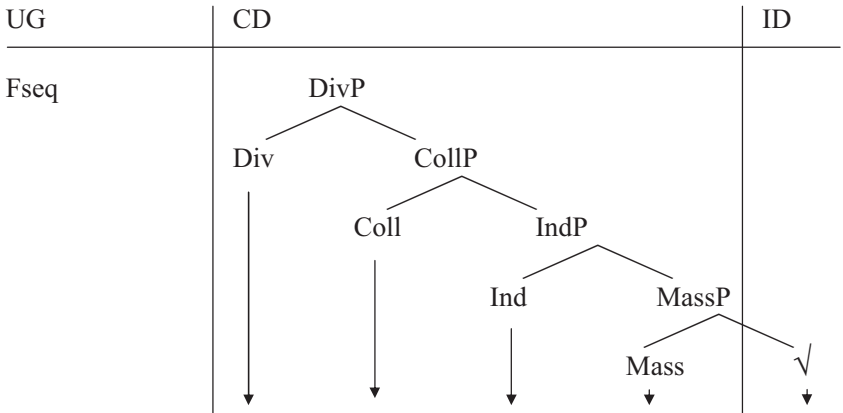
- De verbuigingsparadigma van Duitse en Nederlandse determiners laten merkbare syncretisme zien tussen zowel meervoud en vrouwelijk enkelvoud als mannelijk en onzijdig enkelvoud.
- Het definitieve lidwoord in het Duits (*der*) en in het Nederlands (*de)* is fonologisch zwakker dan het simpele aanwijzende voornaamwoord (*der/die)*.

- Het complexe aanwijzende voornaamwoord in het Duits (*dieser)* en Nederlands (*deze*) bevatten een locatief morfeem (*-ies-/-ez-*).
- Duitse aanwijzende voornaamwoorden en d-bijwoorden zijn veel minder gevoelig voor de distinctie tussen nabij en ver dan de Nederlandse varianten.

Gebaseerd op de empirische observaties motiveer ik een functionele volgorde voor de interne structuur van d-items in het Duits en het Nederlands. De centrale hypothese die ik voorstel is dat grammaticaal geslacht een onderscheid vormt tussen verschillende types van *mass* en dat gendertheorieën gebaseerd op sekse misplaatst zijn. Ik beweer dat de gender inflectie op Duitse en Nederlandse determiners correspondeert met een sequentie van frasen die direct bovenop de wortel die geïnterpreteerd zal worden als een nomen aan het einde van de derivatie zijn geprojecteerd in het Classificatie Domein van Duitse en Nederlandse d-items. Ik beargumenteer dat de functie van grammaticaal gender is om de wortel te classificeren als een van drie aparte *mass types*: ongebonden mass (mass type 1), gebonden mass (individueel, mass type 2), collectief (mass type 3). Ik stel derhalve voor dat grammaticaal gender niet inherent is aan nomen zoals algemeen aangenomen, maar aangewezen door een functioneel element. Gebaseerd op de resultaten van diachronisch onderzoek naar Indo-Europees (cf. Brugmann 1889, 1897 en Lehmann 1958), Oud Hoog Duits (cf. Unterbeck & Rissanen eds. 2000 en Leiss 2005a), en andere Oud Germaanse Talen, laat ik zien dat nomen meerdere genders waren aangewezen door het determiner systeem corresponderende met mass-gerelateerde distincties in eerdere fasen van het Germaans. Onzijdig gender was primair geassocieerd met nomen die verwezen naar niet-telbare massa. Mannelijk gender was voornamelijk geassocieerd met nomen die verwezen naar individuen of objecten. Vrouwelijk gender was voornamelijk geassocieerd met nomen die verwezen naar collectieven. Gebaseerd op deze observaties stel ik voor dat het Classificatie Domein ontleden wordt in vier functionele hoofden: Mass, Individuatief, Collectief en Divisie. De eerste drie hoofden zijn verantwoordelijk voor het creëren van de respectieve niet-telbare mass types, terwijl het laatste hoofd dient om een pluraliteit te creëren door verdeling (cf. Borer 2005a). Van deze structuur leid ik de verbuigingsparadigma af van Duitse en Nederlandse determiners en persoonlijke voornaamwoorden. Ik laat zien dat alle geobserveerde syncretismes duidelijk voorspeld worden door de voorgestelde functionele volgorde. Ik laat verder zien dat het cruciale morfologische verschil tussen Duitse en Nederlandse determiners – waarbij Duits drie genders vertoont in de enkelvoud en Nederlands maar twee – voortkomt uit de hoeveelheid frasen die uitgespeld worden door één morfeem. Het morfeem dat algemeen gender representeert in het Nederlands spelt de frasen uit die worden geprojecteerd door

zowel Individuatief en Collectief, terwijl in het Duits deze frasen apart uitgespeld worden door mannelijk en vrouwelijk gender. Dit is te zien in (4).

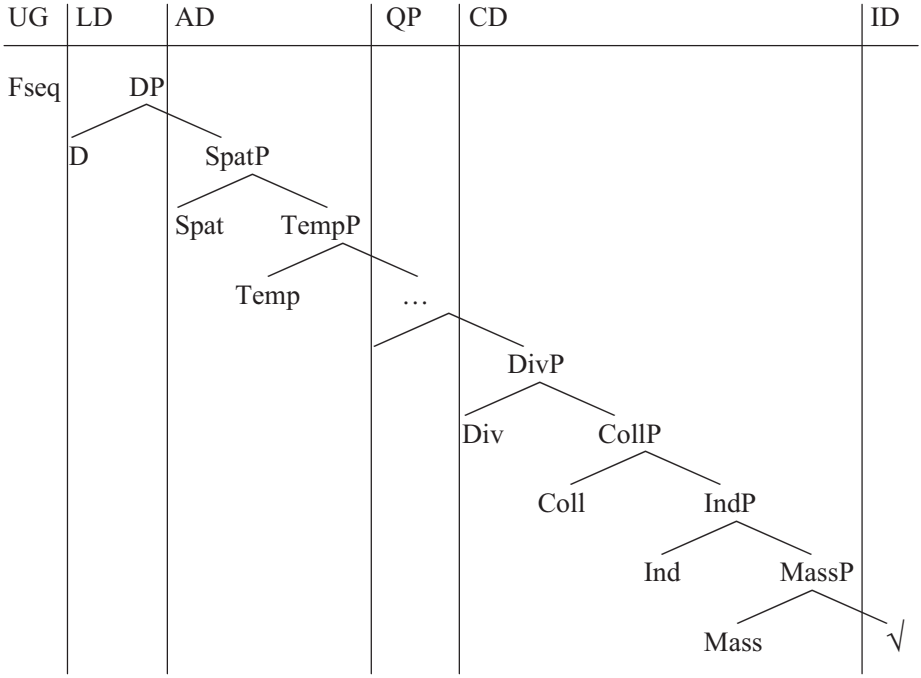
(4) Mapping van het Classificatie Domein naar mass type morfemen in het Duits en het Nederlands



German		**PL**	**MT3**	**MT2**	**MT1**	**NOUN**
	NOM	-ie		-er	-as	
	ACC	-ie		-en	-as	
	GEN	-er		-es		
	DAT	-en	-er	-em		
Dutch		**PL**	**MT3**	**MT2**	**MT1**	
	DA	-e			-et	
	DPR	-ie			-at	

Voor de functionele volgorde boven het Classificatie Domein volg ik de algemene aanname dat alles gerelateerd aan quantificatie direct boven op het Classificatie Domein gesitueerd moet zijn in het Quantificatie Domein, en dat de volgende hogere laag – het Anchoring Domein – verantwoordelijk is voor het creëren van ruimtelijke en temporele deixis. Daarmee overeenkomstig stel ik voor deze laag te ontleden in twee frasen: SpatP en TempP. Voor de hoogste laag van de DP, bestaande uit het Linking Domein, suggereerde ik dat deze bezet wordt door alleen het D-hoofd, wat dient om bepalende verwijzing te creëren. Dit leidt tot de volgende functionele volgorde voor Duitse en Nederlandse d-items.

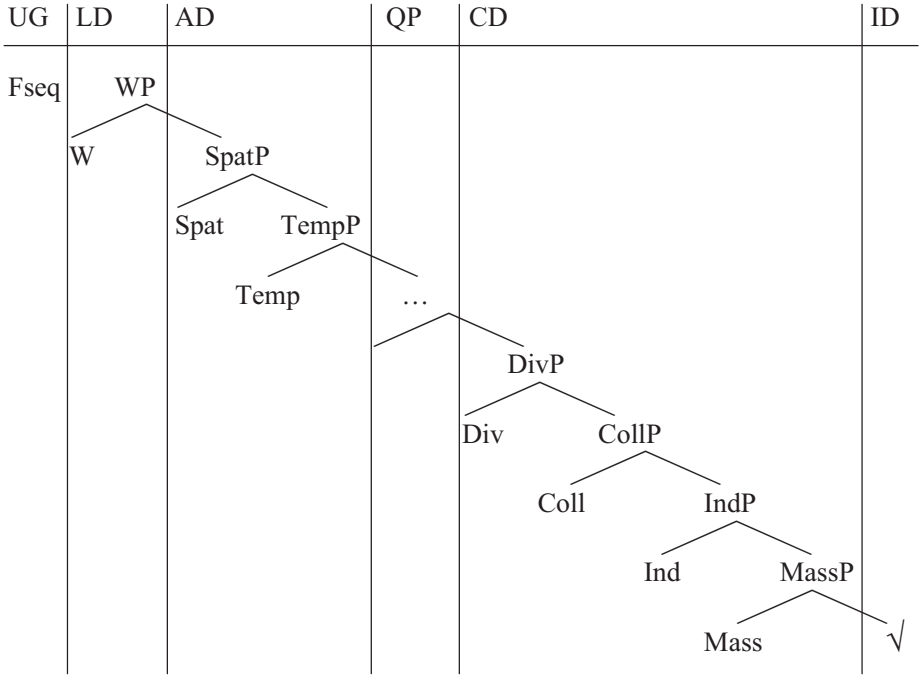
(5) De Fseq van de DP



Vervolgens analyseer ik elk individueel d-item geïntroduceerd in het empirisch overzicht met structuur die hierboven is voorgesteld.

In **hoofdstuk 5** analyseer ik de interne structuur van Duitse en Nederlandse w-items. Ik begin met het inzicht dat de interne structuur van d- en w-items identiek is onder het Linking Domein. Het enige aspect waarin d- en w-items verschillen is het bovenste hoofd van de functionele volgorde. Terwijl de functionele volgorde van d-items eindigt met een D-hoofd, eindigt de functionele volgorde van w-items met een W-hoofd.

(6) De Fseq van de WP



In contrast met d-items, kunnen w-items niet een bepaalde referent aanduiden die cruciaal is in zijn functie als vragend en onbepalend voornaamwoord. Ik beargumenteer dat het W-hoofd een set alternatieven in de zin van Rooth (1985, 1999) representeert, wat de interpretatie voortbrengt van een onbekende referent sinds alle leden van de set een toepasselijke referent voor het w-item vormen. Wat betreft de analyse van de individuele w-items, breid ik mijn voorstel geformuleerd in hoofdstuk 4 uit dat grammaticaal gender mass type distincties creëert. Ik laat zien dat we alleen tot een juist begrip kunnen komen van de interpretatie van Duitse *wer* en Nederlandse *wie* (wie) zowel als Duitse *was* en Nederlandse *wat* (wat) als we genderinflectie associëren met mass type distincties. Een sekse-gebaseerde theorie van grammaticaal gender levert geen inzichten op over waarom het zo is dat Duitse *was* en Nederlandse *wat* een algemeen gebrek aan informatie kunnen representeren, terwijl Duitse *wer* en Nederlandse *wie* alleen naar vrijwillige agenten kunnen verwijzen. Dit contrast volgt direct uit een theorie die grammaticaal gender omschrijft in de vorm van mass types. Het morfeem *-as/-at* bestaat uit de Spellout van MassP, welke de interpretatie oplevert van ongebonden mass. Gecombineerd met de set alternatieven gegeven door het W-hoofd, kan het resulterende w-item *was/wat* naar vrijwel alles verwijzen. Aan de andere kant, de w-items Duitse *wer* en

Nederlandse *wie* spellen IndP uit in het Classificatie Domein, die de set alternatieven beperkt tot individuen waarvan ik heb beargumenteerd dat ze geïnterpreteerd worden als vrijwillige agenten in dit geval.

In **hoofdstuk 6** bespreek ik het multifunctionele gedrag van d-items in Duits en Nederlands. De discussie focust op drie functies: bepalend lidwoord, aanwijzend voornaamwoord en relatief voornaamwoord. Ik beargumenteer dat het bepalend voornaamwoord in Duits en Nederlands een monofunctioneel element is terwijl de functies van aanwijzende voornaamwoorden uitgevoerd worden door een multifunctioneel element. Ik stel voor dat de monofunctionaliteit van het bepalend lidwoord van Duits (fonologisch zwakke *der*) en Nederlands (*de*) resulteert uit het gebrek van een deictische laag (het Anchoring Domein) in de interne structuur van het bepalend lidwoord. De afwezigheid van deze laag resulteert in een fonologisch zwak bepalend lidwoord, wat noodzaakt dat het lidwoord verschijnt met een overt nomen in zijn complement. Dit zorgt dat het lidwoord niet beschikbaar is om te functioneren als aanwijzend voornaamwoord en relatief voornaamwoord, welke alleen moeten verschijnen en verwijzen naar een eerder geïntroduceerde referent. Wat betreft het (fonologisch sterke) Duitse *der* en Nederlandse *die* beargumenteer ik dat de aanwezigheid van SpatP in het Anchoring Domein van deze items uitgespeld is met fonologische sterkte. Daardoor kunnen zij alleen verschijnen, en de stress van de hoofdzin en contrastieve focus dragen. Naast de multifunctionaliteit van Duitse *der* en Nederlandse *die,* onderzoek ik hun distributie in verschillende syntactische omgevingen. De discussie focust op de observatie dat Nederlandse *die* wordt verboden om alleen te verschijnen in PPs in tegenstelling tot Duitse *der*. Ik beargumenteerde dat dit contrast komt door een externalisatie effect gerelateerd aan de Spellout van naamvalmorfologie. Het verlies van naamvalmorfologie in Nederlandse *die* leidde tot een ontwikkeling waarin *die* langzaam vervangen werd met persoonlijke voornaamwoorden in object posities omdat de 3^{e} persoon persoonlijk voornaamwoorden van het Nederlands object case morfologie behielden en daarom de voorkeur krijgen in deze context volgens het Elsewhere Principe. Sinds Duitse *der* dit verlies van naamvalmorfologie niet heeft ondergaan, is het even acceptabel in object positie als persoonlijke voornaamwoorden.

In **hoofdstuk 7** analyseer ik de multifunctionaliteit van Duitse en Nederlandse w-items. Voor zowel Duitse *was* (wat) en *wer* (wie) en Nederlandse *wat* en *wie* bespreek ik de functies van het onbepaald voornaamwoord, vragend voornaamwoord en relatieve voornaamwoord. Voor de onbepaalde en de vragende functie laat ik zien dat beide zijn gecreëerd op basis van de alternatieve set gegeven door het W-hoofd. Ik volg de inzichten van Cable (2007) en

adopteer de aanname dat het w-item samengevoegd moet worden met een Q-deeltje om de set alternatieven te beperken tot één lid van de set. De uiteindelijke interpretatie van w-items is afhankelijk van waar de resulterende QP is gepositioneerd in de zinsstructuur. Als de QP in het *v*P-VP complex blijft, wordt hij gebonden door een existentiële quantifier en wordt het w-item geïnterpreteerd als onbepaald. Als de QP verplaatst naar de linker periferie, wordt hij gebonden door een vragende operator, wat resulteert in een vragende interpretatie van het w-item. Wat betreft de relativizerende functie van het w-item in Duits en Nederlands beargumenteer ik dat om te kunnen alterneren in dezelfde positie zij structureel equivalent aan d-items die functioneren als relativizers moeten zijn zodat geen van hen structureel de ander bevat. Sinds d-items en w-items in mijn analyse alleen verschillen van elkaar in het bovenste hoofd van hun interne structuur, is geen van hen meer of minder specifiek dan de ander en kan geen van hen structureel bevat zijn in de ander. Vanuit dit leid ik een vrije alternatie af tussen Duitse *das* en *was*, Nederlandse *dat* en *wat*, en een beperkte alternatie tussen Nederlandse *die* en *wie* in hun functie als relatief voornaamwoord. Voor de quantificatie-functie van Duitse *was* en Nederlandse *wat* laat ik zien dat mass type distincties een belangrijke rol spelen in het begrepen van ook deze functie. Ik stel dat het de projectie van MassP is in het Classificatie Domein van Duitse *was* en Nederlandse *wat* die een ongebonden mass interpretatie oplegt aan wat er in het complement van *was* en *wat* samengevoegd is. Het combineren van deze mass interpretatie en de set alternatieven gegeven door het W-hoofd geeft de algemene interpretatie van een niet specifieke massa of hoeveelheid van het item in de complement positie.

In **hoofdstuk 8** geef ik een samenvatting en een overzicht van de meest belangrijke theoretische en empirische bijdragen van deze dissertatie.

- Een gedetailleerde beschrijving en analyse van multifunctionaliteitfenomenen met voorbeelden van d- en w-items in Duits en Nederlands
- Een beknopt overzicht van de diachronische ontwikkeling van d- en w-items in Duits en Nederlands.
- De itendificatie van de functionele volgorde van d- en w-items in Duits en Nederlands
- Een uitleg voor de semantische dimensie van grammaticaal gender als een mass classifier
- Het laten zien van het belang van externalisatie effecten voor het begrip van taalvariatie
- Een eclectische benadering van theoretische syntax dat ons toestaat om het taalsysteem te zien als een werktuig voor het schapen van menselijke gedachten.