Lateral relations & multiple source constructions

The Old English subject relative clause and the Norwegian *han mannen*-construction

Dissertation zur Erlangung des akademischen Grades
Doctor Philosophiae (Dr. Phil.)

vorgelegt dem Rat der Philosophischen Fakultät der
Friedrich-Schiller-Universität Jena

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geboren am 07.11.1991 in Rotterdam

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Tag der mündlichen Prüfung: 07.05.2021

ABSTRACT

In construction grammar, the term *multiple inheritance* has been used to talk about constructions that inherit features that can be traced back to more than one construction. The constructions involved are organized hierarchically, in that the more specific construction – the target construction – inherits features from multiple more general and abstract constructions (Hudson 2007; Trousdale 2013). In recent years, however, increased attention has been drawn to lateral or constructional relations, which connect constructions at the same level of abstraction (Cappelle 2006; Van de Velde 2014; Traugott 2018; Diessel 2019). Adopting a nested-network approach (Diessel 2019), this dissertation shows that constructions can be motivated by multiple constructions at the same level of abstraction. This phenomenon, lateral relations and multiple source constructions, is explored by means of two case studies.

The first study is diachronic and investigates the change from object-verb to verb-object order in Old to Middle English subject relative clauses. It is argued that both the principle of end-weight and influence from declarative main clauses facilitated the change to verb-object word order. The principle of end-weight motivated the existence of a postverbal slot, which could expand under the influence of declarative main clauses. It is shown that Old English had a group of non-prototypical subject relative clauses, e.g., *Estas is sumor, **se hæfþ sunstede*** 'Estas is [the] summer, which/it has solstice' that bore formal and functional similarity to declarative main clauses. This group proves essential in the analysis of the analogical transfer of verb-object order from main clauses to subject relative clauses.

The second study takes a synchronic perspective. The Norwegian definite noun phrases of the type *han mannen* (lit. 'he man-the' 'that man') are argued to live at the intersection of three other constructions: *den mannen* (lit. 'that/the man-the' 'the/that man'), *mannen* (lit. 'man-the' 'the man'), and *(ha)n Per* (lit. 'he Per' 'Per'). Although *han mannen* might be entrenched in the constructicon of certain individual speakers, there are signs that it is not fully conventionalized on the population level. First, the form of the *han mannen*-construction is argued to

be motivated by the use of *han*, *hun*, and *den* as determiners and pronouns. Second, the relation of *han mannen* to its neighbors is considered in terms of structural similarity and contrast. This is statistically evaluated with the method of partial dependence plots based on random forests. It is shown that *han mannen* shares characteristic features with all three constructions individually and is partially motivated by all three. The construction distinguishes itself from its neighbors by its intersubjective character.

Both studies support the idea that multiple source constructions are able to motivate changes and variation of a target construction to which they are related by lateral relations, i.e., they exist at the same level of abstraction.

ACKNOWLEDGEMENTS

First, I would like to thank three people who have greatly inspired me and who have taught me a lot. First and most recently, my supervisor, Holger Diessel, who drew my attention to the interconectedness of the language system. Thank you for your support and confidence in this project, the freedom you gave me, your enthusiasm every time I got accepted into a workshop or a conference, and, of course, the talks and feedback. In addition, I would like to thank Arie Verhagen, who introduced me to the marvels of construction grammar. Tusen tack till Muriel Norde, who motivated me to become an aspiring academic. I am very grateful for the example you set.

I would like to thank the proofreaders of parts of my thesis. Merlijn Breunesse, for welcoming me in Jena, for our talks about Norwegian and Latin demonstratives board game nights, playing *kickern*, and the Dutch-style feedback. I am grateful for this friendship of yours. Daniel Jach, for the invitation to barbeque in the park when I just arrived in Jena, the heated discussions in the office, and the fun game nights. Florian Haas, for these our chats, the laughs, the creation of music-themed exams. Lena Tykhostup, for the lunches, the tips for online teaching, and the social distancing socializing. Linda Gerisch, for the company on breaks and in Leipzig. Karsten Schmidtke-Bode, for the encouragement and the always kind words.

Many thanks go out to my colleagues at the Friedrich-Schiller-Universität throughout the last few years, for making me feel welcome in the department, and for your feedback at the workshops and colloquia. A special thanks goes out to Simone Bahlmann-Schulze, for the German practice and the overall support.

I would like to thank my father and my mother, who used to emphasize that constructions were bad (referring to cushions on top of chairs on top of couches). Your faith, love, and pragmatic take on things have been invaluable. Thanks too to my brother, Rens, and my sisters, Aline and Nanda, for your *gezelligheid*.

This dissertation would not have been possible without Gidon. There are not enough words in the universe to express how grateful I am for you being you.

I dedicate this thesis to my grandfather, Lau Dullaart.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

GLOSSES & ABBREVIATIONS

ACC	accusative
ADJ	adjective
AM	West Saxon/Anglian Mercian
AMB	ambiguous
AN	animate
APP	appositional
ART	definite article
AUX	auxiliary
BNC	British National Corpus
C	communal
cf.	confer, compare
D	discourse
DAT	dative
daTenTen17	Danish web corpus
DEF	definite
DEM	demonstrative
DET	definite determiner
deTenTen13	German web corpus
DIM	diminutive
DM	discourse marker
DPC	diminutive prefixoid construction
EM	East Midlands
F	feminine
GEN	genitive
HES	hesitation marker
IN	inanimate
INT	deictic intensifying
	adverb
KE	Kentish
KIN	kinship term
lit.	literally
M	mean
m	masculine
N	noun
N	number
NA	not applicable
NAME	proper name
NEUT	neuter
nlTenTen14	Dutch web corpus
No	Northern
NoDiaCo	Nordic Dialect Corpus
NoDiaSyn	Nordic Dialect Database
nom	nominative
NoTa	Norsk talespråkskorpus Oslo-delen
NP	noun phrase
O	object
OED	Oxford English Dictionary
P	private shared
PA	preproprial article
PDD	psychologically distal demonstrative
PL	plural
PN	pronoun

PO	prepositional object
POSS	possessive pronoun
PPCME2	Penn-Helsinki Parsed Corpus of Middle English, second edition
pst	past
PTC	particle
PTCP	participle
RC	relative clause
REFL	reflexive
REF	referential
REL	relativizer
S	subject
S	situational
SBJ	subjunctive
SG	singular
SO	Southern
SPC	subject oriented predicative complement
TAUS	Talemålsundesøkelsen i Oslo
V	verb
V1	verb-first
V2	verb-second
VIM	variable importance measures
V-late	verb-late
vs.	versus
WA	West Saxon/Anglian
WM	West Midlands
WS	West Saxon
WX	West Saxon/X
X	undefined element
Y	second undefined element
YCOE	York-Toronto-Helsinki Parsed Corpus of Old English
Z	third undefined element
1	first-person
2	second-person
3	third-person

CHAPTER 1: INTRODUCTION

In this dissertation, I investigate the dynamics of two constructions that, on the face of it, have very little in common. The first of these constructions is the subject relative clause in Old and Middle English.

(1a)	*se*	*munuc*	*þe*	*þæt*	*hordern*	*heold*	***(...)***
	the	monk	REL	the	treasury	kept	(...)
	'The monk who kept the treasury...'					(YCOE, Cogredc, 1901)	
(1b)	*a*	*man*	*that*	*drynketh*	*hony*	***(...)***	
	a	man	REL	drinks	honey	(...)	
	'A man who drinks honey ...'				(PPCME2, Cmctmeli, 474)		

Old English subject relative clauses primarily exhibited object-verb word order. This is exemplified in (1a), where the object *þæt hordern* precedes the finite verb *heold*. This word order disappeared. In Middle English, as is the case nowadays, subject relative clauses preferred to pattern as verb-object. This is illustrated in (1b). In this study, the central argument is that that this word order change is complex. Multiple factors are found to facilitate the spread of the verb-object word order, the most important of which are the principle of end-weight (Behaghel 1909; Hawkins 1994; Wasow 1997) and influence from declarative main clauses.

The second study looks at the use of a particular definite noun phrase construction in colloquial Norwegian, the so-called *han mannen*-construction. This construction is exemplified in (2).

(2)	*så*	*sa*	***han***	***mannen***	*til*	*kjerringa*	*at*	*(...)*
	so	said	DET	man.ART	to	woman.ART	that	(...)
	'So, that man said to the woman that ...'							
	(NoDiaCo, Brunlanes_ma_02)							

The *han mannen*-construction has traits of three groups of definite human referring expressions. The first group are noun phrases that are marked for definiteness by the prenominal determiner *den* 'that/the', as in (3a). The second group are noun phrases that are marked for definiteness by a definite suffix only, as in (3b). The last group consists of noun phrases that contain a preproprial article, as in (3c).

(3a)	*ja*	*hvorfor*	*det*	*da*	*sa*	***den***	***mannen***
	yes	why	that	then	said	DET	man.ART
	"Yes, why that then?' said that man.'						(NoDiaCo, Råde_ma_01)
(3b)	*ja*	*det*	*syntes*	***mannen***	*var*	*greit*	
	yes	that	thought	man.ART	was	okay	
	'Yes, the man thought that that was okay.'					(NoDiaCo, Skien_ma_01)	
(3c)	*så*	*vet*	***han***	***Per***	*at*	*(...)*	
	so	know	PA	Per	that	(...)	
	'So, Per knows that ...'					(NoDiaCo, Stange_02uk)	

The *han mannen*-construction is argued to be partially motivated by each of these three patterns. That is, its existence is supported by these three patterns and its form, meaning, and distribution is partially explained by each of them. The study focuses on central traits of the three patterns and analyzes in which aspects the *han mannen*-construction behaves like one of the three patterns and in which ways it contrasts with them. It is shown that *han mannen* shares characteristic features of all three constructions, and therefore, it is argued that the *han mannen*-construction 'lives at the intersection' of *den mannen, mannen,* and *han Per*.

Although the constructions investigated – the Old and Middle English subject relative clause and the Norwegian *han mannen* – are completely different constructions and might at first glance appear to have nothing in common, both constructions are motivated by multiple source constructions to which they are laterally related. Gaining a better understanding of this phenomenon is the central theoretical aim of this dissertation. To properly frame this, let us take a step back and briefly consider the theoretical background.

1.1. The framework

This thesis adopts a usage-based construction grammar approach. Very briefly, the main idea of usage-based approaches is that people develop an understanding of language through actual language use. A speaker's knowledge of language is shaped throughout their lifetime. It is emergent and grounded in one's experience with language (Kemmer and Barlow 2000, 2; Bybee 2006, 711). Consequently, the linguistic system is dynamic. This is true for both the linguistic system of an individual speaker as well as for linguistic systems of speech communities (which should not be conflated) (Schmid 2015, 10).

In construction grammar, constructions are the fundaments of language. A construction is a form-meaning pairing, comparable to the Saussurean sign (de Saussure 1916). Constructions are proposed to exist at all levels of linguistic analysis. Morphemes, words, phrase structure, and clause patterns are all treated as form-meaning pairings. Constructions thus come in different degrees of schematicity and abstractness (Langacker 1987, 58; Fillmore, Kay, and O'Connor 1988) that interact with each other (Verhagen 2000, 276).

In usage-based construction grammar, constructions are organized in a structured system, which emerges through language use. Through usage events speakers come into contact with fully specified and concrete units. In these usage events, speakers recognize recurrent patterns, categorize the linguistic units, and make abstractions over them. This results in the emergence of a system of linguistic knowledge in which form-meaning pairings can be concrete representations of linguistic units, i.e., item specific knowledge, and they can represent more generalized knowledge over linguistic units (Goldberg 2006, 45–65).

Constructions can interact with each other because they are organized in a structured way. More specifically, it is typically proposed that grammar (and language) is organized as a dynamic network (Bybee 1995, 2006, 2010; Croft and Cruse 2004; Langacker 2008; Boas 2010; Traugott and Trousdale 2013; Diessel 2019). Constructions are the nodes in this network, which are connected to each other via various relations. The organization of the network and consequently the types of relations that exist between constructions has been a matter of debate.

1.2. Inheritance

Since Goldberg (1995), the network of constructions has been primarily viewed as a taxonomic network. In such a network, constructions exist at different levels of abstraction. At the lowest level, there are concrete constructions. They are typically fully specified in their form. The higher the level, the more schematic constructions become and the more general their meaning. Lower level constructions are thought to be motivated by the more abstract ones. Their form, their meaning, and their distributional properties can be inherited. This is illustrated by the comparative correlative construction in Figure 1.

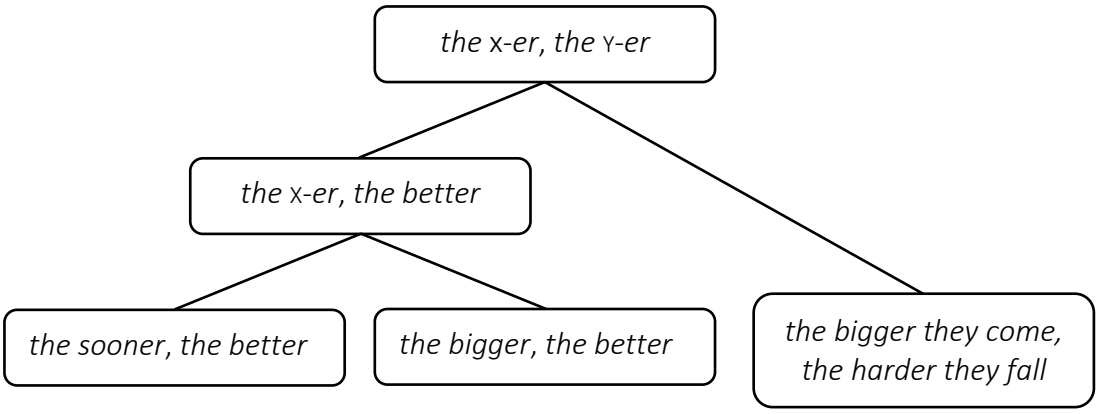

Figure 1: Inheritance relations of the comparative correlative

The expressions *the sooner, the better* and *the bigger, the better* are motivated by the more abstract schema *the* X-*er*, *the better* (see Hoffmann, Horsch, and Brunner 2019). Both expressions have a concrete meaning: *the sooner*, *the better* is typically used when one desires that something happens as soon as possible, while *the bigger, the better* is used when one thinks that something should be as big as possible. The meaning of the *the* X-*er*, *the better* schema is more general: It expresses that it is better for something to be more X. It is "used to emphasize the importance or desirability of what is specified by the first comparative" (OED, *better*). The majority of the form of both concrete constructions is inherited from the more abstract *the* X-*er, the better*, and so is the majority of their meaning. Both of them, however, have their own specifications, such as the element that fills the X position and the more particular meanings.

The fixed expression *the bigger they come, the harder they fall* is not motivated by the *the* X-*er, the better* schema. According to the OED (*big*), the expression is

used to suggest that people of power or prominence are more severely affected by a downfall or defeat. As such, its meaning has nothing to do with desirability, nor does the construction contain the comparative form *better*. Therefore, *the bigger they come, the harder they fall* is not an instance of *the* X-*er, the better*. Despite the differences in meaning and in form, both *the* X-*er, the better* and *the bigger they come, the harder they fall* have some crucial commonalities. These are caused by both of them being motivated by the same schema, *the* X-*er*, *the* Y-*er*. The most obvious commonalities are the shared structure [*the*] [comparative phrase] [*the*] [comparative phrase] (Hoffmann, Horsch, and Brunner 2019) and the shared meaning of expressing the idea that as one moves along the first scale, one moves along the second scale as well (see Cappelle 2011 for a discussion of the different semantic aspects of the construction). These commonalities, as well as certain constraints on the use of the patterns (Culicover and Jackendoff 1999; Kim 2011), are specified in the higher, more abstract schema *the* X-*er*, *the* Y-*er*. Both *the* X-*er, the better* and *the bigger they come, the harder they fall* inherit these properties from *the* X-*er*, *the* Y-*er*, as they are instances of this construction (Croft and Cruse 2004, 270).

In sum, language has been presented as a taxonomic network. In this taxonomy, a construction is primarily motivated by and inherits properties from another construction that dominates it. The link between a lower level construction and its motivating construction is called an *inheritance link* or *inheritance relation* (e.g., Goldberg 1995; Goldberg and Suttle 2010; Torrent 2012; Trousdale 2013; Hilpert 2014), and has also been called *taxonomic link* or *taxonomic relation* (Croft 2001; Croft and Cruse 2004; Diessel 2015, 2019).

1.3. Multiple inheritance

In the previous section, I explained that a lower level construction can be motivated by a higher level construction. This was illustrated with an example of the comparative correlative construction. Constructions can also be partially or fully motivated by several more abstract constructions. The construction then instantiates more than one construction and inherits features from multiple constructions. This is called multiple inheritance (Hudson 2007; Trousdale 2013). A typical example is the English gerund (Hudson 2000), e.g., *talking, cooking*,

which is both noun and a verb and inherits features from both categories, as indicated in Figure 2.

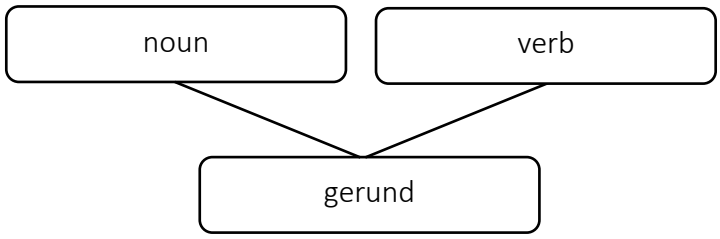

Figure 2: Multiple inheritance

That gerunds have characteristics of both nouns and verbs is illustrated by the examples in (4).

(4a) *Her mouth was actually watering as she thought of* ***Theresa's cooking.*** (BNC, EV1 166)

(4b) *There's a man* ***cooking chestnuts*** *on the corner.* (BNC, A74 2832)

(4c) ***Your saying the work is urgent*** *is the trigger.* (BNC, AYJ 840)

The gerund in (4a) combines with a possessive noun phrase, *Theresa's*. This is a characteristic only of nouns, not of verbs. In English, one can for example say *Per's peaches*, but *Per's teach* or *Per's teaches* does not form a constituent. Yet, (4b) shows that gerunds can take a direct object, which is a feature of verbs. As such, gerunds inherit from nouns and verbs. It is not the case that the gerund inherits from nouns in one context and from verbs in another, but it inherits from both categories at the same time. This is made clear in (4c), where the gerund is possessed and simultaneously takes a direct object.

This illustrates that constructions can be motivated by multiple constructions to which they are linked taxonomically by inheritance links.

1.4. Lateral relations

Inheritance cannot, however, be the full story of how constructions are related to each other. First, inheritance links between constructions have been posited when the constructions share a form, or share both form and meaning, but they are not proposed when there is an overlapping meaning without an overlapping

form. The association between constructions based on meaning is allegedly not represented in grammar (Goldberg 1995, 108). Construction grammar aims, however, to account for the entirety of language (Kay and Fillmore 1999, 1). Not acknowledging that functional associations between constructions might be represented in the grammar network marginalizes the importance of these meaning-based associations between constructions and neglects a part of our knowledge of language. This is unfortunate, as it has been well recognized that semantic relations are cognitively important (Meyer and Schvaneveldt 1971; Spellman, Holyoak, and Morrison 2001; Perek 2012).

Second, inheritance relations are typically proposed when one construction 'dominates' another (Goldberg 1995, 73), i.e., is positioned higher up in the taxonomy.[1] This neglects the possibility that constructions that are not necessarily hierarchically connected can be associated with each other and influence each other. Previous research has shown just that: Constructions that are not taxonomically related can, at least partially, motivate each other (see Diessel 2019, 199–222). For example, Abbot-Smith and Behrens (2006) have shown that the acquisition of German stative passives (e.g., *Die Tür ist geöffnet* 'The door is opened') is facilitated by knowledge of copular clauses (e.g., *Die Tür ist offen* 'The door is open'). The two constructions are not taxonomically related, but they do show a high degree of similarity. Both constructions have a similar word order, NP V ADJ/PTCP, contain a form of the verb *sein* 'be', and both designate resultant states (Diessel 2019, 200). This relation based on similarity partially motivates the acquisition of the stative passive. In language change, it has been shown that a construction can change under the influence of another construction, even when the two constructions are non-taxonomically related. This is for example evidenced in cases of constructional contamination, where "a subset of instances of a target construction is (stochastically) affected in its realization by a contaminating construction, because of a coincidental resemblance between the superficial strings of instances of the target construction and a number of instances of the contaminating construction"

[1] Note that more recently, Goldberg's subpart relation (Goldberg 1995, 78f.), which is a type of inheritance relation, has been interpreted as a relation that does not require that constructions are hierarchically connected (Hilpert 2014, 62–63; Lyngfelt 2018).

(Pijpops and Van de Velde 2016, 543–44). An example of constructional contamination is the increased absence of the final *-s* in the Dutch partitive genitive construction, e.g., *Ik heb **iets verkeerds/verkeerd** gegeten* 'I have eaten something wrong/the wrong way' (Pijpops, De Smet, and Van de Velde 2018, 271). This loss of the final *-s* happens under the influence of the sequentially similar and in some contexts semantically similar adverb-construction, e.g., *Ik heb **iets verkeerd** geïnterpreteerd* 'I have interpreted something in the wrong way' (Pijpops, De Smet, and Van de Velde 2018, 271). The frequent occurrence of the string (without the final *-s*) in the adverb-constructions leads to the use of the same string without the final *-s* in the partitive genitive construction. Hence, a construction can change under the influence of another construction without one of them being more abstract or schematic than the other.

These effects are a clear indication that a construction can (partially) motivate the existence of or changes in another construction to which it is not taxonomically related. For this reason, a link must exist between constructions at the same level of abstraction, between constructions that are associated with each other due to functional or formal similarity. These are lateral relations (Cappelle 2006; Van de Velde 2014; Norde and Morris 2018; Traugott 2018; Audring 2019; Diessel 2019).

1.5. Theoretical contribution

To recap, language has been perceived of as an inheritance network. In this network, constructions can be motivated by multiple more general constructions simultaneously. This phenomenon is called multiple inheritance. Recent research has highlighted that the language network (or, grammar network) contains more than taxonomic relations. In particular, lateral relations have recently received more attention. These connect constructions at the same level of abstraction. Constructions that are associated with each other by similarity and contrast can influence each other and one construction may motivate the existence, form, and/or meaning of another construction.

By extension it follows that a construction might be motivated by more than one construction to which it is not taxonomically related, but to which it is laterally related. This is the central thesis of this dissertation: *Multiple source constructions can motivate the existence of, or changes in, a target construction at*

the same level of abstraction. This is investigated in the context of language change on the one hand, and language variation on the other. The theoretical contribution of this dissertation is to shed light on this phenomenon by means of two case studies.

1.6. The studies

The first study takes a diachronic perspective. It investigates the change from the preference for object-verb word order (OV) in Old English subject relative clauses to the prevalence of verb-object word order (VO) in Middle English subject relative clauses. The study aims to answer two questions about this development.

The first question is what underlies the word order alternation of in Old and Middle English. In Old and Middle English both word orders, OV and VO, are attested in subject relative clauses. While VO word order was dispreferred in Old English, approximately a third of the subject relative clauses already exhibited this pattern. Investigating the word order alternation and finding out what motivates the variation can shed light on the change of the preferred word order pattern. The results show that the principle of end-weight and the relativizer introducing the relative clause are the most important factors in motivating word order in Old English subject relative clauses. In Middle English, VO word order had become the conventionalized default.

The follow-up question is how these clauses changed from preferring OV word order in Old English to having VO as default in Middle English. It is argued that both the principle of end-weight and the influence from declarative main clauses motivated the change to VO word order. More specifically, the principle of end-weight created a postverbal slot for heavy objects. Under the influence of main clauses, the association between the postverbal slot and heaviness weakened, which was crucial for the word order change. The relation between main clauses and subject relative clauses is most clearly visible in a group of subject relative clauses that bore formal and functional similarity to declarative main clauses. This group of clauses was typically introduced by a demonstrative relativizer and had an appositional function, as e.g., *Estas is sumor,* ***se hæfþ sunstede*** 'Estas is [the] summer, which/it has solstice'. Already in Old English, the new VO order was more prevalent and less restricted to heavy objects in this group than in other subject relative clauses. The study illustrates how one construction

motivates changes in another construction to which it is laterally related, and how multiple source constructions are involved in the development of a default object-verb word order in English subject relative clauses.

The second study takes a synchronic perspective. This study focuses on the Norwegian definite noun phrases of the type *han mannen* (lit. 'he man-the'). The *han mannen*-construction is hypothesized to live at the intersection of three other constructions: *den mannen* (lit. 'that/the man-the'), *mannen* (lit. 'man-the'), and *(ha)n Per* (lit. 'he Per'). The relations between the constructions are investigated on the basis of the similarity and differences in their sequential and functional relations and the social setting in which they are used. In order to gain proper insight into this neighborhood of definite human referring expressions, the characteristics of the three hypothesized source constructions are identified first. It is shown that the constructions have unique characteristics that are not shared with the others: *Den mannen* is characterized by its highly frequent co-occurrence with deictic adverbs and adjectival modification. *Mannen* is characterized by its use as an associative anaphoric referring expression and its co-occurrence with postnominal possessive pronouns. *N Per* is characterized by its reference to persons that are identifiable through shared communal knowledge and its high frequency in social settings in which the discourse participants know each other well. After the identification of the characteristics of *den mannen, mannen,* and *n Per*, the position of *han mannen* can be evaluated. The results show that *han mannen* behaves functionally mostly like *mannen*, but is more intersubjective than all three other constructions. Sequentially, *han mannen* lives at the intersection of *mannen* and *den mannen*. Lastly, on the social dimension, *han mannen* has the same tendency as *n Per* to be used more, if the discourse participants know each other. The form of the *han mannen*-construction is discussed in depth. Its form cannot be fully explained by making reference to this neighborhood alone, and the analysis requires consideration of the relation between the Norwegian pronominal and determiner system. In sum, the study shows how the *han mannen*-construction is synchronically motivated by multiple constructions to which it is related laterally.

The aim of both studies is to illustrate how constructions interact with each other and to show that constructions can be motivated by multiple other constructions at the same level of abstraction. I suspect that the scenarios

discussed in this study are indicative of a very widespread phenomenon, because it ties in with the central role of analogy in language use and language change.

1.7. Outline

The thesis is structured as follows. In Chapter 2, the theoretical background to the study will be laid out in detail. This includes an introduction of the framework of construction grammar and the nested-network approach, as well as some reflections on the distinction between language at the individual and the population level, the distinction between entrenchment and conventionalization, and the relation between conventionalization and language change.

Chapter 3 dives deeper into the theoretical topic of the dissertation: lateral relations and multiple source constructions. It introduces the concept of lateral relations in more depth by making reference to previous literature, and it relates this concept to the notion of analogy. Thereafter, multiple inheritance and the related concept of multiple source constructions are introduced more thoroughly. This is then linked to lateral relations and analogy.

Chapter 4 introduces the statistical methods that are used in the two studies.

In Chapter 5, the first study is presented, which deals with the OV/VO alternation in Old and Middle English subject relative clauses.

The second study is presented in Chapter 6. This study is concerned with the Norwegian *han mannen*-construction.

Chapter 7 is the final chapter of the thesis. Here, the findings of the two studies will be summarized and related to the central topic of lateral relations and multiple source constructions.

CHAPTER 2: THEORETICAL PREREQUISITES

The present thesis is written within the framework of construction grammar. Construction grammar is a collective name for the different theories of and approaches to language. These theories and approaches have in common that they assume that constructions are the basic building blocks of language (Goldberg 2013). The term *construction* refers to a pairing of linguistic form and meaning (G. Lakoff 1987, 467). Constructions encompass all levels of description, reaching from the morphological level to idioms to fully abstract phrasal patterns (Goldberg 2003, 219). Construction grammar thus aims to be all inclusive. To put it in Kay and Fillmore's words: "To adopt a constructional approach is to undertake a commitment in principle to account for the entirety of language" (1999, 1).

More specifically, the study takes a usage-based, nested-network approach. It might appear that this study combines elements of different versions of construction grammar and is not strictly committed to one version of construction grammar. This is indeed the case. Many of the differences between usage-based construction grammar approaches are differences in emphasis, and the different branches are actually highly compatible (for an overview of various branches of construction grammar, see Hoffmann and Trousdale 2013b). This chapter presents the specifics of the theoretical background to the study and elaborates on the theoretical assumptions and axioms.

This chapter will elaborate on the motivation behind construction grammar, which is presented in Section 2.1, and it will provide an explanation of the notion of constructions in Section 2.2 and constructs in Section 2.3. In Section 2.4, the nested-network approach will be presented. Thereafter, I will discuss some of the differences between investigating language at the individual and the population level in Section 2.5, elaborate on the distinction of entrenchment and conventionalization in Section 2.6, and discuss the relation between

conventionalization and language change in Section 2.7. The chapter concludes with Section 2.8, which contains a very brief summary of the adopted approach. This chapter presents the necessary theoretical background for the studies that will be presented in Chapters 5 and 6.

2.1. Construction grammar

In the traditional compositional model of language, phonological, semantic, and syntactic components of language are treated as different modules. These components are connected to each other by linking rules. The lexicon – the place where words are stored – is viewed as an additional layer (Croft and Cruse 2004, 226).

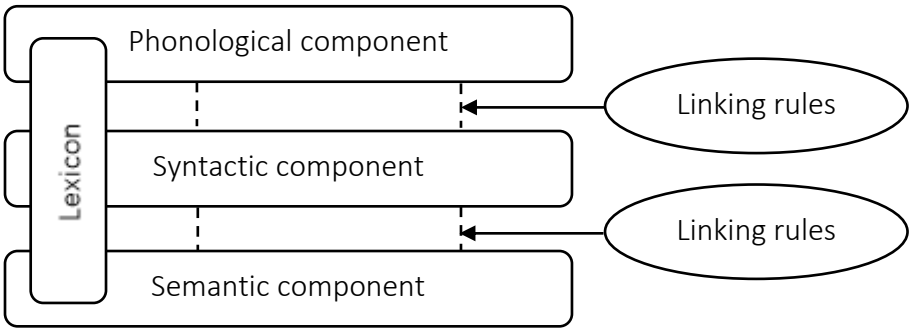

Figure 3: The compositional model (Croft 2001, 15)

This model, visualized in Figure 3, predicts that the largest linguistic elements that can be idiosyncratic are words. Since words are typically instantiations of an arbitrary link between form (i.e., the phonological and syntactic component combined) and meaning (the semantic component), they are thought to be stored separately in the lexicon. As they are stored independently, they allow for any kind of idiosyncrasies. Larger units are generally not assumed to be stored in the lexicon. Instead, general rules and linking rules make sure that words combine in a grammatical and meaningful way. Hence, larger units should behave in a predictable manner. In this view, idioms are problematic. It is well known that idioms regularly defy the general rules of a language. As an illustration, consider English coordination. The apparent rule is that one can only combine two constituents with equal syntactic status (Huddleston and Pullum 2002, 1275). One can combine two adjectives, as in ***tedious*** *and* ***thankless*** *work* (BNC, AMY 1347), two prepositions, ***to*** *and* ***from*** *work* (BNC, KBH 91), but

adjectives and prepositions can generally not be combined, e.g., **to and **thankless** work*. What then to think of the expression *by and large*? Following the general rule, this expression should not exist, since it coordinates a preposition and an adjective. What is more, its meaning 'in a general aspect, on the whole' (OED) is non-predictable from its parts. Yet, speakers of English somehow know what the expression means and when and how to use it. It must therefore be conventionalized as a whole and be stored as a whole.

If all idioms were similar to *by and large* with regard to their fully specified form and their conventionalized meaning, one could propose that the lexicon contains a number of other, larger linguistic units than words, and the problem would have been solved. However, many idioms do not have a fully substantiated form. Take a look at the Dutch expression *zich een hoedje schrikken* (lit. 'to scare oneself a hat'), meaning 'to be frightened out of one's wits' (Cappelle 2014). The phrase is grammatically unexpected since the verb *schrikken* does not normally take a reflexive pronoun (**Ik schrik me*) nor an object (**Ik schrik een hoedje*), let alone both. At the same time, the phrase is not completely lexically fixed. One can replace *een hoedje* by a variety of noun phrases, e.g., *een aap* ('a monkey'), *een ongeluk* ('an accident'), *de tering* ('the tuberculosis'), *de pleuris* ('the pleurisy'), *het apelazerus* ('the monkey leprosy'), *het leplazarus* ('the lepra-leprosy'), and *een hartverlamming* ('a heart failure'). Other types of constituents can fill the slot as well, e.g., (*half)dood* ('(half-)dead), *wild* ('wild'), *kapot* ('broken'), *wezenloos* ('senseless'), *te pletter* ('into smithereens'). To keep the discussion concise, I discuss nominal fillers only. Examples of the expression are presented in (1). (1a) contains the prototypical noun phrase in this construction *een hoedje* 'a hat'. (1b), (1c), and (1d) have different noun phrases, namely *een bult* 'a bump', *een ongeluk* 'an accident', and *een aap* 'a monkey'. The possibility to vary the noun within this expression shows that it is not as lexically substantiated as *by and large*.

(1a) ***Zij*** ***zullen*** ***zich*** *bij* *die* *kinderdagverblijven* ***een*** ***hoedje*** ***geschrokken*** ***zijn.***
they shall REFL at those daycare.centers a hat.DIM startled be
'The people at those daycare centers must have gotten quite a fright.'

(1b) *Piet* ***schrok*** ***zich*** ***een*** ***bult.***
Pete startled REFL a bump
'Pete got quite a fright.'

(1c) *KÁ!!* *vlak* *bij* *m'n* *kop,* ***ik*** ***schrik*** ***me*** ***een*** ***ongeluk.***
KÁ!! near at my head I startle REFL an accident
'KÁ!! Near my head, it makes me jump.'

(1d) ***Je*** ***zal*** ***je*** *wel* ***een*** ***aap*** ***geschrokken*** ***hebben.***
You shall REFL DM a monkey startled have
'You must have gotten quite a fright.' (nlTenTen14)

Not only can one exchange *een hoedje* for a variety of elements, the examples in (1) show i) that the form of the reflexive pronoun varies depending on the form of the subject (*zich, zich, me, je,* respectively); ii) that the verb is inflected for tense and number; iii) that the verb can occur with different auxiliaries (*zijn* 'be') and *hebben* 'have'); and iv) that the word order is variable following the general tendencies of Dutch word order. All in all, the expressions have in common that they contain a subject, a form of the verb *schrikken,* a reflexive pronoun, and some additional element, but the only phonologically substantiated element is *schr_k*. These kinds of idioms cannot be explained as fully specified elements that are stored in the lexicon, because this would skip over the fact that these idioms contain variable elements and can be used productively (Verhagen 2005, 201). Since the meaning of the idiom is non-compositional, and the idiom is not lexically substantiated, its meaning must be linked to a more schematic representation of the expression.

This illustrates the point made by Fillmore, Kay, and O'Connor (1988), who claimed that idioms are more prevalent than previously suggested. Therefore, idioms should not be considered a clearly demarcated category, nor should they be set aside as 'exceptions', but one should account for them. One can do this by employing the notion of construction. As the pervasiveness of constructions came to light, the necessity of replacing the traditional compositional model of language became more urgent (Croft and Cruse 2004, 247–56). Construction grammar was offered as an alternative (Fillmore 1988).

Subsequently, Goldberg (1995) used the notion of construction to account for core schemas of language – for argument structure – bringing core and peripheral elements of language together and analyzing them in the same way. Consider the following examples:

(2a) *They laughed the poor guy out of the room.*
(2b) *Frank sneezed the tissue off the table.* (Goldberg 1995, 152)

The sentences in (2) have in common that the object of the sentence is set into motion, i.e., in (2a), *the poor guy* moves from inside the room to out of the room, and in (2b), *the tissue* moves from on the table to off the table. This movement and the previous location of the object cannot be directly linked to the verb in these contexts, as *laugh* and *sneeze* are not typically associated with semantics of movement. The movement of the objects is a consequence of the action of the subject: Their laughing caused the poor guy to leave and because of Frank's sneezing, the tissue fell off the table. Each of the sentences thus contains two events, one of which causes the other. The second event – the movement of the object – is not expressed by a verb but is nevertheless interpretable. This illustrates that the sentences in (2) contain more meaning than the sum of their parts. These patterns are not idioms, and the construction can be applied to new situations with new verbs, e.g., *(...) as you all* ***manspread me into the tightest corner of the trolley*** (Bagwell 2016). To account for this caused-motion meaning of the abstract structure [subject verb object oblique_object], Goldberg (1995, 152) proposes that even in the case of argument structure, a form and a meaning are stored together. Argument structure constructions are thus highly abstract and schematic.

These and similar analyses led to the development of a new model of language, which moved away from the traditional strict distinction between lexicon and grammar in favor of a syntax-lexicon continuum and the analysis of *all* linguistic elements as constructions. Constructions were defined as form-meaning/function pairings, which are stored in the *constructicon* (Jurafsky 1991, 8), that is, the repertoire of linguistic knowledge. In the following section, a more detailed definition of constructions will be given.

2.2. Constructions

As was mentioned previously, constructions are seen as pairings of linguistic form and meaning. Although this definition appears to be intuitively straightforward, multiple definitions have been proposed, some being more restrictive than others. Therefore, it is important to discuss the concept in some detail.

In the early days of construction grammar, constructions were defined as "form-meaning correspondences that are not strictly predictable from knowledge of the rest of grammar" (Goldberg 1992, 3). About a decade later, the definition of construction had expanded to the following:

> Any linguistic pattern is recognized as a construction as long as some aspect of its form or function is not strictly predictable from its component parts or from other constructions recognized to exist. In addition, (...) patterns are stored even if they are fully predictable as long as they occur with sufficient frequency.
>
> (Goldberg 2003, 219–20)

This amended definition no longer requires a construction to be somehow non-compositional, but accepts fully predictable patterns as constructions. In principle, I follow this definition, but it should be noted that individual speakers may have a representation of a construction, even if it is fully compositional and highly infrequent, and conversely, individual speakers may not have stored a language pattern even if it is frequent or non-compositional. This issue will be further discussed in Section 2.5.

Goldberg's new definition moreover defines constructions as form-*function* pairings, while they were previously defined as form-*meaning* pairings. The two – function and meaning – are typically used interchangeably, although what is meant by meaning or function warrants some reflection. To do this, I will discuss the model of constructions that was proposed by Radical Construction Grammar (Croft 2001). This is visualized in Figure 4.

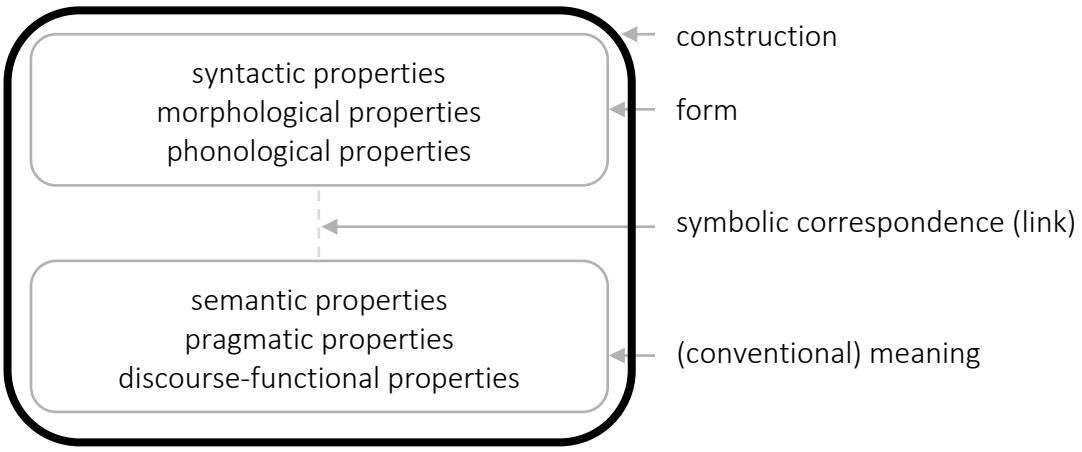

Figure 4: Constructions as symbolic units (Croft 2001, 18)

In this model of constructions, phonological, morphological, and syntactic properties make up the form-side of a construction. Note that these components are not thought to be distinct categories, instead the distinction between those properties is vague and gradual. The same is true for the properties making up (conventional) meaning. *Meaning* should be interpreted in a wide sense of the word, representing "all of the CONVENTIONALIZED aspects of a construction's function" (Croft 2001, 19). In this interpretation, purely functional discourse markers such as *uh* and *uhm*, which are used to express hesitation, are analyzed as constructions as well. Moreover, highly grammatical markers, such as definite articles, are thought to bear meaning. What is more, constructions such as *what's the X doing Y* (Kay and Fillmore 1999) that have only a pragmatic function, in this case the expression of surprise, are captured within (conventional) meaning. The inclusion of these types of elements is needed in order to truly embrace the entirety of language. All above mentioned elements are crucial for communication and essential for the accurate interpretation of a speaker's intention and thoughts as accurately as possible. Therefore, they should not be neglected.

The two components of a construction – form and meaning – are linked by a symbolic correspondence link, in the same manner as the *signifiant* and *signifié* of the Saussurean sign are connected (de Saussure 1916). In fact, a construction can be seen as an extension of the sign (Hoffmann and Trousdale 2013a). The symbolic correspondence link is usually arbitrary and motivated by social

convention. Recent studies have regained attention to iconicity and remarked that there often is a similarity between form and meaning (Dingemanse et al. 2015), indicating that the connection is not always arbitrary. An example of such a non-arbitrary, iconic relation between form and meaning is found with onomatopoeic words. In these, the form of the word mimics the sound associated with the meaning. For example, the noise a pig makes – *oink* – is used to refer to the sound a pig makes. Although the degree of iconicity and arbitrariness of the link between form and meaning varies, the link must nevertheless be or become conventionalized in a speech community. For instance, even though onomatopoeic expressions are sometimes thought to have an inherent relation to their meaning, their actual phonological form varies from language to language: The sound a pig makes is quite different amongst languages even within one language family. English pigs say *oink*, Dutch ones *knor* (sometimes also *oink*), Swedish ones say *nöff*, and German ones make a *grunz* sound. Therefore, even those iconic relations are at least to some degree arbitrary and can be captured by the symbolic correspondence link.

The symbolic correspondence link is not only found with fully lexicalized linguistic elements – also referred to as fully phonologically substantiated elements – but with schematized ones as well. Thus, as was noted previously, constructions vary in their degree of schematicity. This can be viewed best as a cline ranging from fully lexicalized to fully schematic constructions (Brems 2011, 65). This is illustrated in Figure 5.

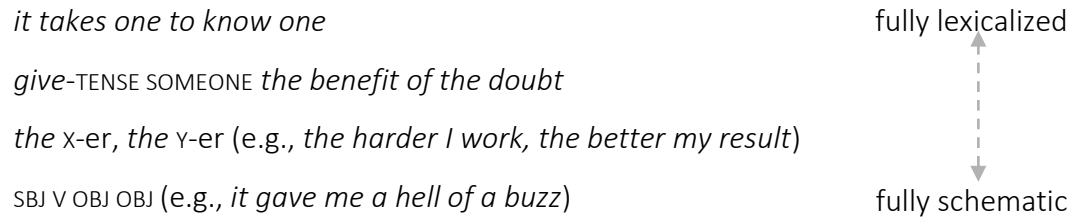

Figure 5: Schematicity cline

To easily distinguish between the different levels of schematicity, Traugott (2008) has proposed three terms: At the lowest level of abstraction one finds *micro-constructions*. These are usually fully lexicalized constructions. Over these micro-constructions one can abstract a partially schematic construction, the

meso-construction. In a later work, this term was replaced by *subschemas* (Traugott and Trousdale 2013, 17). At the highest level of schematicity one finds *macro-constructions*, later *schemas*. It should be noted that these distinctions are not absolute distinctions, but they are – as the cline in Figure 5 suggests – gradient (Traugott and Trousdale 2013, 16).

In addition to varying in degree of schematicity, constructions vary in their degree of complexity. Constructions can be atomic or any degree of complex. Atomic constructions cannot be further reduced into parts, whereas complex constructions can be dissected further. In Figure 5, only complex constructions are exemplified, the construction *give someone the benefit of the doubt* contains a definite noun phrase construction *the doubt*, which in turn contains two constructions *the* and *doubt*. These last two are examples of fully lexicalized atomic constructions.

Radical Construction Grammar contests the idea that atomic schematic elements like [subject] or [determiner] exist. Instead, it argues that syntactic categories are defined within complex constructions (Croft 2001). In principle, I support this view.[2] However, in order to analyze language at the population level, atomic schematic constructions are a useful analytical tool that makes the description of a construction efficient. It should be noted that whenever I use the same category, e.g., [N], with two different constructions, it does not mean that every element that can be used to fill the slot in one construction can be necessarily employed in the corresponding slot in the other construction. For example, in a definite noun phrase construction like [*the* N], the noun slot can be filled by the word *air* (*the air*), but the same word cannot fill the noun-slot in the indefinite construction [*a(n)* N] (**an air*). Employing different annotations for each of these nuances between constructions would decrease communicative effectiveness and make it difficult to present coherent analyses. When relevant, these nuances will, of course, be mentioned and discussed. In this study, constructions will be presented as [form | meaning]. Restrictions on a particular slot in the construction will be notated in subscript where relevant.

[2] Although it is likely that language education increases the psychological realness of atomic schematic constructions, leading to the potential psychological representation of this type of construction within individual speakers (Dąbrowska 2012, 234–38; Schmid 2020, 99f.).

Concerning the definition of constructions, one more issue needs to be addressed. In certain usage-based and/or constructional approaches, the term *sign* is used to refer to what is here called construction. In these studies, the term construction is more specialized and only refers to patterns in which at least two meaningful elements combine, whereas a single symbolic unit is called a lexeme (Langacker 1987, 82–96; Diessel 2019, 90–112). Psychologically, lexemes and constructions are likely processed differently. Lexemes are thought to access encyclopedic knowledge, whereas constructions provide instructions on how to interpret lexemes (Diessel 2019, 107–8). Although I recognize advantages of making such a distinction, in this study lexemes are viewed as a type of construction. The term *construction* will be used to refer to conventionalized form-meaning pairings, whether they are monomorphemic and phonologically substantiated, or schematic and complex, and lexemes are part of that.

2.3. Constructs

Expressions used in an actual communication events often consist of a multitude of constructions. Take for example the utterance *it gave me a hell of a buzz*, which instantiates a ditransitive construction [subject verb object$_1$ object$_2$ | intentional agent transfers something to a willing recipient] (see Hilpert 2014, 31–35). Each of the slots of this construction is filled by another construction. For example, the first object slot is filled by the lexical construction *me*. The second object is filled by a partially substantive subschema of the expressive binominal construction:[3] [*a hell of a(n)* N] | N is particularly bad, difficult, or great]. Its variable N-slot is again filled with another construction, namely the lexical atomic [*buzz* | high]. The actualized utterance *it gave me a hell of a buzz* is the result of a speaker combining various constructions to communicate a thought. This is a so-called construct (Kay and Fillmore 1999, 2).

Constructs are thus are the "utterance-tokens that instantiate constructions in discourse" (Fried 2008). Constructs themselves are not conventionalized. Speakers are able to interpret them because they are created on the basis of conventionalized form-meaning pairings. Constructs are also not represented in

[3] The expressive binominal construction can be represented as follows: [DET$_1$ N$_1$ *of* DET$_2$ N$_2$| N$_2$, which exhibits an extraordinary amount of characteristics of N$_1$ subjective and evaluative] (see Foolen 2004; Verhagen 2005, 202).

the minds of the speakers of a language. The only representation of a form-meaning pairing are constructions, which are stored in the constructicon. This constructicon can be best described as a structured and dynamic network. This network is the topic of the following section.

2.4. The constructicon as a nested network

As previously mentioned, the inventory of constructions is called the constructicon (Jurafsky 1991, 8). All form-function pairings are thought to make up a speaker's knowledge of language, that is, their constructicon. This inventory differs substantially from the traditional view of the lexicon (Bloomfield 1933) and should not be simply interpreted as an extension thereof. Instead of a dictionary-style list with all kinds of specifications per entry, the constructicon is very much a structured and dynamic entity, and it is thought to be an emergent network. Usage-based approaches are grounded in the idea that "all things flow from the actual usage events in which people communicate linguistically with one another" (Tomasello 2000, 61). Our knowledge of grammar is not innate but instead is built on usage events throughout a human's lifetime. The constructicon is thus a necessarily dynamic and emergent system. An accurate model of the constructicon should be grounded in usage events, in "instances of a speaker's producing and understanding language" (Kemmer and Barlow 2000). This section will introduce the various ways in which the constructicon has been described in previous literature and will subsequently present the nested-network approach adopted here (Diessel 2019).

Different construction grammar theories have proposed various approaches to the constructicon, which vary regarding the makeup and starting point of the constructicon. Generally, the constructicon is treated as an inheritance network, or a collection of inheritance networks in which more specific constructions inherit features from more abstract constructions (Lyngfelt 2018, 6–7). This comes in two flavors. The constructicon can be viewed as a full-inheritance network, in which more abstract constructions transfer all of their features to the lower level constructions. Alternatively, the constructicon can be viewed as a default-inheritance model. In default-inheritance models, a lower level construction inherits all non-conflicting information from more abstract constructions. That is, the default-inheritance model is a bottom-up version

(Hudson 2007), where more specific information of low-level constructions is not overridden by features of more general constructions. The links between constructions are primarily taxonomic in these models, but are nevertheless flexible and dynamic (Torrent 2015). In addition, there is a third way of thinking of the constructicon, namely as a full-entry model, in which all characteristics of constructions are specified at each level of abstraction (Barðdal and Gildea 2015, 23). The full-entry model of the constructicon is associated with usage-based approaches, as the adequate representation of a cognitively real inventory of language is deemed more important than parsimoniousness (Barðdal and Gildea 2015, 31–32). Constructs are not specified in the full-entry model. A construct is always an instantiation of one or multiple constructions and is per definition more concrete than a construction.[4] Consequently, in the creation and interpretation of constructs, taxonomic relations always play a role. Although the full-entry model recognizes the importance of taxonomic relations, it leaves room for other types of relations to be of equal status in the network. In this study, a full-entry model of the constructicon is adopted. Importantly, in a full-entry model of the constructicon, constructions are – as in the other two models – connected to each other in a structured way, and should not be seen as merely lists of constructions and their specifications.

Although many studies have proposed various links potentially connecting constructions, only recently a systematic approach to tackle the various relations that define the grammar network has been brought forward, namely the nested-network approach (Diessel 2019). This approach is adopted in the current study. A brief summary follows.

The basic idea behind Diessel's model is that language is structured as a nested network, which is defined in terms of associations between the different linguistic elements. Within this network, there are two types of nodes, or two types of linguistic signs. On the one hand, there are lexemes, which are mono-morphemic words and single morphemes, and on the other hand there are constructions that are defined as "meaningful templates that include slots for

[4] This does not mean that a construction is necessarily more schematic than a construct, e.g., *all of a sudden* is a construction, but the same string is attested in constructs as well (Hilpert 2014).

other linguistic expressions" (2019, 11). Combined, constructions and lexemes are linguistic signs, and signs constitute nodes within the network. As noted previously, although I adopt Diessel's nested-network model, lexemes are here viewed as a type of construction. Consequently, my terminology and Diessel's terminology slightly conflict. Most importantly, Diessel's *sign* is synonymous with what I refer to as *construction.* In this explanation of Diessel's model, I make use of his terminology.

The nodes in the network, i.e., signs, are not simple atomic units but constitute networks on their own. Hence the term *a nested-network approach*. For these nested networks, Diessel proposes that there are three basic relations that connect the different aspects of linguistic signs (2019, 12), namely *symbolic relations*, *sequential relations*, and *taxonomic relations*. A symbolic relation is the connection between the form and the meaning of a sign. Symbolic relations are emergent, and they are connected to more general cognitive mechanisms in the domains of conceptualization and social cognition (Diessel 2019, 90–112). A sequential relation is a link between a sign and its syntagmatic context. Sequential relations are asymmetric, and they are connected to the cognitive domains of predictability and automatization (Diessel 2019, 63–89). Taxonomic relations connect a construction with its different levels of abstraction. Taxonomic relations are emergent like sequential and symbolic relations, but differ in that they are formed by generalizations over concrete elements that are recognized to be similar (Diessel 2019, 43–62). These three relations are central for the nested-network. Of course, each of the three relations is well known from previous literature and has been often employed in linguistic analyses. For example, sequential relations have been central in grammaticalization studies as the syntagmatic context of a linguistic unit affects its development (e.g., Bybee and Scheibman 1999; Breban 2010, 79–110) and in collocational analyses (Stefanowitsch and Gries 2003; Schmid 2003; Norde and Goethem 2014), in which a unit is defined "by the company it keeps" (Firth 1962 [1957], 11).

In addition to these three relations which define signs, individual lexemes and constructions are connected to each other as well, forming a higher-level network. This can be defined in terms of *filler-slot relations, lexical relations,* and *constructional relations*. Filler-slot relations connect a construction with the lexemes or constructions filling its slots, lexical relations are the connections

between different lexemes, and constructional relations exist between the different constructions (Diessel 2019, 13). These constructional relations correspond to what in the introduction of this thesis was defined as *lateral relations* and has also been referred to as *horizontal relations* (Van de Velde 2014). They allow one to account for connections between constructions at the same level of abstraction without there being the need to propose an overarching, more schematic construction subsuming both of them. Chapter 3 will discuss this type of relation in more detail.

In sum, the constructicon is viewed as a nested network, in which constructions are local networks themselves. In line with the usage-based approach the network is dynamic and emergent. The following section elaborates on the distinction between language at the individual level and language on the level of the population, and discusses important considerations for the analysis of language at the level of the population.

2.5. Individual & population level

Importantly, the approach of construction grammar taken here is usage-based, which means that it is based on the assumption that one's knowledge of language is emergent and is grounded in actual language use (Kemmer and Barlow 2000; Tomasello 2000; Bybee and Hopper 2001; Bybee 2006; von Mengden and Coussé 2014; Diessel 2015). As individuals constantly engage in usage events, and usage events shape linguistic knowledge, the language system is dynamic. It remains fluid and is adaptive. Therefore, the constructicon of one speaker of a particular language is likely not identical to that of another speaker of the same language. This idea has long been recognized before the establishment of the usage-based approach. For example, Bloomfield stated in 1933 that "we should find that no two persons – or rather, perhaps, no one person at different times – spoke exactly alike" (Bloomfield 1933, 45). Hudson (1993, 11) echoed this sentiment: "[N]o two speakers have the same language, because no two speakers have the same experience of language". Dąbrowska (2012) renewed this idea arguing against the widespread belief that grammar is one uniform thing that is the same for each speaker of a language. She showed that there are individual differences in generalizations speakers make. For example, concerning the Polish genitive ending, she showed that only a few speakers consistently apply the genitive

ending *-u* with masculine substance nouns and *-a* with masculine nouns designating objects, while others only assign *-u* to inanimate masculine nouns and *-a* to animate nouns (Dąbrowska 2012). As a consequence for studies that intend to keep close to the cognitive reality – as is the aim for usage-based approaches – it is important to be conscious of the distinction between population and individual language (Beckner et al. 2009) and hence between communal and individual constructicons.

Individual constructicons are individual nested-networks made up of form-meaning pairings, and they are cognitively real. They are fully emergent and correspond to the nested-network model described in the previous section. Figure 6 shows a simplified illustration of the formation of such constructicons. Speakers come into contact with language in usage events. As explained in §2.3, the concrete realizations of language are constructs. These constructs are the input for the formation and subsequent evolution of individual constructions. Speakers make use of general cognitive processes to process and store the input (Diessel 2019, 23–39).

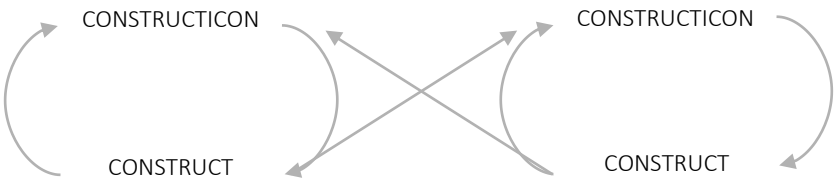

Figure 6: The individual level (interpersonal)

However, this study, like many other studies on language variation and change, is not concerned with the language of an individual (cf. Petré and Van de Velde 2018; Petré et al. 2019). Instead, the subject of investigation is language at the population level. The constructicon of a speech community, or *the communal constructicon*, is the result of conservative generalizations and abstractions over the cumulative output of individual members of this speech community. That is, it is the grammar based on the collection of constructs that a given speech community has uttered. This is illustrated in Figure 7.

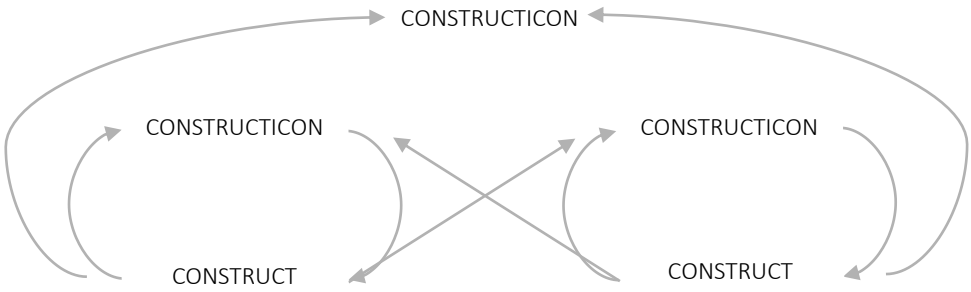

Figure 7: The communal level

Linguists do not have access to the complete collection of constructs a speech community has produced. In practice, linguistic descriptions and analyses of communal constructicons are based on samples of their output, which are thought to be representative of the output of a given speech community. As abstractions and generalizations that individuals make can vary, as evidenced by e.g., Dąbrowska's study mentioned above, individual variation can lead on the population level to features in the constructicon that are not shared amongst all individual speakers. The reason for this discrepancy is that individual speakers come into contact with the constructicons of other individuals only indirectly, through usage events. The constructicon at population level is thus aimed to be representative of the constructicons of the individual speakers of a language, but it is not identical to them. Although this might appear obvious, it is a distinction that has sometimes been neglected (Blumenthal-Dramé 2012, 23–65) and has consequences for identifying, defining, and analyzing constructions.

On the one hand, what might be represented within the constructicon of some individual speaker(s) may not be represented on the population level (e.g., Norde and Sippach 2019). For this reason, one's own native intuition is not a reliable representation of what is going on in a certain language, nor is asking one native speaker for their insight. Moreover, it means that one should be conservative in making generalizations. On the other hand, what is reflected on the population level might not be psychologically real for all or even the majority of speakers of a language (Beckner et al. 2009; Dąbrowska 2015). That is, it may not be represented within the minds of individual speakers. As a consequence, the abstractions and highly schematic constructions linguists often have posed for analysis and/or as an explanatory layer for certain linguistic phenomena (e.g.,

Goldberg 1995) cannot readily be posited as psychologically real units (Lieven and Tomasello 2008).

Crucially, the constructicon of a speech community is not identical to the constructicon of its individual speakers, since even adult native-speakers of a language do not have identical grammars. This is important to keep in mind when looking at language variation, as apparent variation on the population level might be a reflection of individual differences or a reflection of variation within individuals.

2.6. Entrenchment & convention

The previous section introduced the distinction between individual and communal constructicons. By the same token, one should be conscious of the difference between entrenchment and convention. Both notions are central for the relative stability of the dynamic system of language, yet are emergent and dependent on language usage. Convention is most directly relevant on the level of a speech community. Following Schmid (2015, 2020), *entrenchment* will be reserved to refer to the cognitive strengthening of memory representations in people's minds.

Entrenchment is the memory imprint that is left behind when an individual comes in repeated contact with a particular unit (Langacker 1987, 59; Bybee 2007, 217). As suggested by the definition of entrenchment as "memory traces that stabilize the more often this unit recurs" (Behrens 2009, 386), entrenchment has been directly related to token frequency (Ellis 2002, 166; Bybee 2006, 715). The role of frequency in entrenchment is, however, not as straightforward as this might suggest (Blumenthal-Dramé 2012; Divjak and Caldwell-Harris 2019). First, the role of frequency is different in the entrenchment of fully lexicalized constructions than when it comes to the entrenchment of (partially) schematized constructions. While fully lexicalized constructions are reinforced by repetition of identical strings, schematic constructions become entrenched by input that is "variable but shares identical or similar meanings or functions" (Schmid 2015, 16). The former is what is generally called token frequency, while the latter is type frequency (Clausner and Croft 1997, 252–54). Note that, if a schema itself is viewed as a token, high type frequency entails high token frequency. Second, a construction that occurs more frequently can be less entrenched than one that

occurs less frequently. For example, while object relative clauses are more frequent in the input for children than subject relative clauses (Diessel 2004, 145–46), Diessel and Tomasello (2005) found that subject relative clauses caused fewer errors than object relative clauses in the responses of children. This indicates that the pattern of subject relative clauses is better entrenched, even though it is less frequent than that of object relative clauses. Third, even with low token frequency, constructions can become entrenched. This happens especially when the unit is marked as important for the future (Gurevich, Johnson, and Goldberg 2010). For these reasons, entrenchment is here viewed as a cognitive process that interacts with frequency of occurrence in a complex way. In this light, it is important that the frequency of activating a certain association, or memory trace, should not be equated with the frequency of occurrence of a construction in the input of an individual speaker, let alone with the frequency of a construction in a given speech community. As a consequence, speakers may entrench infrequent constructions, and a frequent construction may not be entrenched in all speakers.

The related notion of convention interacts with entrenchment through usage events (Schmid 2015, 2020). A linguistic convention can be defined as "a mutually known regularity of behavior which the members of a community conform to because they mutually expect each other to conform to it" (Schmid 2020, 88). Conventions aid in communication events by functioning as coordination devices (Croft 2000, 95–99). Like entrenchment, a convention is emergent based on repetition of the linguistic behavior, and it becomes established and often more stable, the more it is used. The relation between frequency and degree of conventionalization is not that straightforward either. The reason for this is twofold. First, almost any speech community consists of other, smaller speech communities. These speech communities partially overlap, and individual speakers can rather freely engage in multiple different speech communities (Croft 2013a). Speech communities therefore do not have well-defined, stable borders but are difficult to define. This leads to complications with determining whether a linguistic behavior is a convention, because conventions necessarily exist at population level. That is, they are defined by a spread within a speech community. It is therefore important to remain conservative in making generalizations about the overarching speech community,

as the observed conventions may be established in a smaller speech community only. Second, conventionalization is contingent on the co- and context of the utterance or construction (Schmid 2020, 89–90). As a consequence, even infrequent form-meaning pairings can be a linguistic convention if they are strongly associated with or frequent within a particular co- or context.

Finally, the distinction between convention and entrenchment has a significance for the definition of construction, as many a study has defined constructions as "conventionalized form-meaning pairings" (Bergs and Diewald 2008; Gisborne and Trousdale 2008; Boogaart, Colleman, and Rutten 2014). This definition captures primarily form-meaning pairings that exist on the population level. When constructions are investigated from the cognitive and individual perspective, it would be more appropriate to refer to a construction as an "entrenched form-meaning pairing" (Gries, Hampe, and Schönefeld 2010).

2.7. Conventionalization & language change

As language is an inherently dynamic system, change is intrinsic and constant. The term language change is, however, normally reserved for a change that has reached a certain amount of consensus. In this light, it is once again important to distinguish the individual level from the population level.

Changes on the individual level cannot be equated to what most linguists mean when they are talking about *language change*. This is perhaps easier to understand if one is conscious of the distinction between *grammar* and *language*. *Grammar* refers to the cognitive representation of language, i.e., an individual's constructicon, while *language* covers the constructicon on the population level.[5] Changes in one's grammar are an intrinsic part of human communication, as each usage event shapes and adds to one's knowledge of language. This is usually covered by studies of language acquisition. When an individual does something

[5] This distinction is motivated by Croft (2000, 26)'s distinction between grammar and language. There is however an issue when it comes to his definition of language for the notion of language change. Croft defined language as "the population of utterances in a speech community", with which he aims to capture "the set of actual utterances produced and comprehended in a particular speech community". He does not appear to make a distinction between the collection of utterances and the abstraction and generalization over this collection, but it is only in the latter case that we tend to speak of language change. If such a distinction is not upheld, a single innovation that is produced and comprehended automatically constitutes a language change.

new, the new behaviour may or may not be imitated (selected). If the new behaviour successfully spreads, it might reach other people, and potentially result in change on the population level (Harder 2010, 89). The notion of language change often only captures this last aspect and has been restricted to being a property of the speech community, as the changed or new construction must be "shared across individual networks in a population" (Traugott and Trousdale 2013, 46). In other words, it is only change when it has become conventionalized. In this section, I briefly discuss conventionalization as a process in language change.

Usually, a process of language change starts with an individual speaker. Any time an individual speaker produces a construct that has not been uttered before, there is something that changes in the collection of constructs, or the population of utterances that make up a language. This is called *innovation.* There are two types of innovation. First, there is the creation of something completely new. This is rare. More common is relative innovation, that is, when a speaker uses or processes existing linguistic material in a new way (Lass 1997). This is also what studies focusing on aligning language change to (cultural) evolution might call *mutation* (e.g., Landsbergen et al. 2010). An example of this kind of innovation is the use of a new lexeme in an established schematic construction, or the use of an established construction in a new situation. Innovation is very widespread and happens constantly (Traugott 2016, 376). An innovation might be successful (i.e., be selected) and spread, or it might be short-lived.

The first step of a successful innovation happens when the innovation spreads from one discourse participant to the other. This is facilitated by co-semiosis and co-adaptation. Co-semiosis can be defined as "the activity of negotiating and establishing mutual beliefs or the mutual understanding of an utterance in a given context" (Schmid 2020, 30), and co-adaptation is the "repetition of fixed units and partly or fully variable patterns" (Schmid 2020, 33). When the participants come to a stable, albeit temporary, linguistic behavior, this is the lowest degree of conventionalization. But, the behavior has not become a convention (yet) and thus does not constitute language change (yet). The first step toward a convention is thus when two (or more) discourse participants successfully coordinate something in a new way, and repeat it within the boundaries of the speech event. This may or may not become a part of a speaker's

constructicon (Auer and Hinskens 2005). If it does, speakers can reduplicate the behavior in other communicative events.

It is only when the discourse participants repeat this new linguistic behavior in a conversation with other people, that it can be considered a language change, that is, only when the innovation spreads. This repetition and thereby increase in frequency of an innovation is what has been called *diffusion* (Labov 2007; Schmid 2015; De Smet 2016) or *propagation* (Croft 2000; Blythe and Croft 2012) and can be viewed in terms of evolution as the selection and spread of a mutation (Croft 2000, 166–95; Landsbergen 2009, 15). As it spreads across the speech community, the new linguistic behavior becomes increasingly stable in a growing group of individuals and becomes thus more and more conventionalized. As such, the processes of conventionalization and diffusion or propagation are essentially the same (Croft 2000, 95, 166). The end-result of a successful innovation is then achieving full conventionalization on the level of the speech community.

Of course, the scenario of language change described above is very much simplified and is mainly compatible with the type of language change in which a new linguistic behavior spreads, and by extension it is also compatible with change scenarios in which multiple variants are in competition. Language change does not necessarily mean the spread of a pattern. Other pathways are possible – and common – as well; e.g., a construction can go through the process of obsolescence (Rudnicka 2019). The take-away for this section is that a distinction should be maintained between change in an individual's constructicon and change in the communal constructicon. A change on the population level is per definition gradual, as it spreads across the community or through smaller communities. Language change on the population level is defined by the process of conventionalization. Language change in an individual's constructicon is directly related to entrenchment and better known from language acquisition.

2.8. Summary

The preceding sections laid out the theoretical approach in which this dissertation is grounded. In particular, the chapter introduced a constructional, usage-based, nested-network approach to language. It was explained that this approach assumes that a speakers' knowledge of a language can be entirely

captured by constructions, which are stored in the individuals' constructicons. These constructicons are nested-networks defined by associations between the various aspects of constructions and associations between constructions. The current study is however not concerned with the make-up of individual constructicons, but applies the nested-network approach to analyze language on the population level. Following the cognitive commitment, this dissertation aims to do so in a way that is representative of the cognitive reality. Therefore, the preceding section elaborated on the relation between individual and communal constructicons and its implications for the conceptualization of convention and language change.

CHAPTER 3: LATERAL RELATIONS & MULTIPLE SOURCE CONSTRUCTIONS

This chapter presents the theoretical phenomenon that is central to this dissertation: lateral relations and multiple source constructions. As this is a complex notion, the chapter is divided into two major sections. Section 3.1 introduces the concept of lateral relations in more depth and relates it to the cognitive mechanism of analogical reasoning. The second section, Section 3.2, elaborates on the concept of multiple inheritance and extends this notion from taxonomic to lateral relations.

3.1. Lateral relations

In recent years, the idea that constructions at the same level of abstraction are sometimes related to each other has gained traction. This type of relation between constructions is known as the lateral relations. In §3.1.1, lateral relations are introduced in more depth by discussing the previous literature on the topic. Thereafter, in §3.1.2, the concept of lateral relations is framed in terms of analogy.

3.1.1. Previous studies on lateral relations

Let us start with the first two studies that drew attention to lateral relations between constructions, namely Cappelle (2006) and Van de Velde (2014). Both studies have in common that they propose a connection between constructions that are instances of the same construction, the so-called parent construction, on the basis of semantic similarity.

Traditionally, clauses that are different in form but have a highly similar or even identical meaning have been analyzed in terms of transformations (Harris 1957). For example, a passive sentence is viewed as a transformation of an active sentence. In that view, the sentence *One of the songs on 'Choo Choo Hot Fish' was written by Randy Bachman* (BNC, C9J 2023) can be derived from the active sentence *Randy Bachman wrote one of the songs on 'Choo Choo Hot Fish'*. Construction grammarians argued against this idea of transformations (Goldberg 1995, 103–8). Instead, constructions of this type have been viewed as independent

form-meaning pairings. Cappelle (2006) supports the idea that they are independent constructions, but he argues that constructions that are semantically alike to such a high degree must nevertheless be directly related. To capture this idea, he proposes the notion of allostruction. Allostructions are constructions that have the same or a highly similar function but have a different structure. An allostruction can therefore be viewed as the constructional equivalent of allomorphs. To illustrate this, Cappelle looks at the alternation of particle placement. In English, one can either place the particle in between the object and the verb or let it follow both constituents, as in *she turned **off** the TV* and *she turned the TV **off***. Cappelle analyzes these patterns as two distinct constructions, each with their own specific constraints. Yet, the constructions are related to each other, because they are "variant structural realizations of a construction that is left partially underspecified" (Cappelle 2006, 18). This is illustrated in Figure 8.

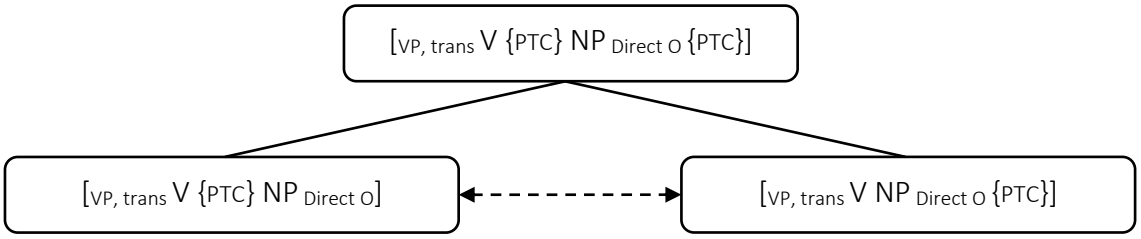

Figure 8: The allostructions of the verb-particle construction (Cappelle 2006, 18)

Like allomorphs, allostructions have an overlapping function and are interchangeable in many situations. Depending on various factors (e.g., the principle of end-weight, the ordering of given and new information), one construction may be preferred over the other in a specific context. The two constructions are therefore two formally distinct realizations of a more abstract construction that is not specified for form. The two allostructions of verb-particle placement are laterally related, but they are also taxonomically connected, as they have a common parent.

In Perek (2012), Cappelle (2006)'s proposal is used to explain speakers' categorization of sentence types. Perek shows that native speakers of English make generalizations on the basis of semantic similarity. This is evident from the

results of his experimental study about the caused motion-construction (1a, 1b), the *with*-applicative (1c), and the ditransitive-construction (1d).

(1a) *Lyn splashed something on Maggie.*
(1b) *Audrey kicked something to Sue.*
(1c) *Dana plastered Marge with something.*
(1d) *Kim lent Rose something.* (Perek 2012, 610)

Although the sentences in (1a) and (1b) instantiate the same construction, the caused motion-construction, Perek (2012)'s results show that the majority of speakers do not group them together. Instead, locative caused motion sentences, like the one in (1a), are grouped with *with*-applicatives, which are exemplified in (1c). Both share the meaning "X causes Y to go in/on Z". Caused motion-constructions of the type exemplified in (1b) are grouped with ditransitives (1d), both meaning "X causes Y to have Z". To capture this, Perek proposes two overarching constructions that are formally underspecified, in a similar vein as Cappelle's parent construction of the verb-particle constructions. Unlike Cappelle, Perek does not propose a lateral relation between the semantically similar constructions, although he acknowledges that "the semantic relatedness of constructions could as well be captured by direct links between con[s]tructions", but he counters that this would have the disadvantage of having to posit "a new type of construction-to-construction relation" (2012, 631).

Van de Velde (2014) takes a slightly broader approach to lateral relations, which he calls *horizontal relations*. In addition to relations between allostructions, Van de Velde considers relations between constructions that also have a high degree of functional similarity but are in complementary distribution. More concretely, Van de Velde proposes lateral relations as an extension of paradigmatic relations to the domain of syntax. He illustrates this by reframing the verb position in Dutch clauses, the Middle Dutch case marking patterns with experiencer verbs, and the integration and non-integration of Dutch subordinate clauses in terms of syntactic paradigms. For example, the different clause types in Dutch have different positions for the verb: verb-second (V2), which is attested in declarative main-clauses; verb-first (V1), which is found in imperatives, polar questions and conditionals; and verb-late (V-late), which is used in subordinate

clauses. This can be viewed as a paradigm, in which V1, V2, and V-late are alternatives. The choice between the alternatives depends on the particular context. These patterns are therefore associated with each other in a similar way as the different conjugated verb forms are associated with each other. They are linked paradigmatically – hence laterally – as well as taxonomically, as is illustrated in Figure 9.

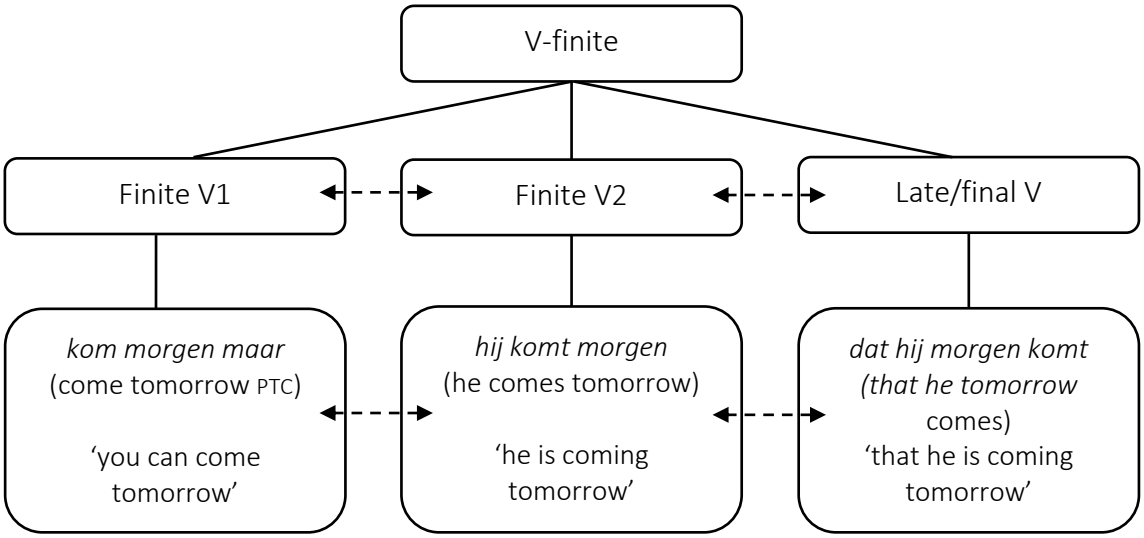

Figure 9: The Dutch verb-position as a constructional network (see Van de Velde 2014, 150)

Both Cappelle (2006) and Van de Velde (2014) are concerned with lateral relations between constructions that share a parent construction. In each case the target constructions are motivated by the same overarching construction and thus are related taxonomically as well as laterally. This does not have to be so. Diessel (2019, 199ff.) discusses lateral relations, which he calls *constructional relations*, that are not restricted to relations between constructions that share a parent construction.

Diessel (2019) argues that there are two types of lateral relations, namely constructional relations that are characterized by similarity and those that are characterized by contrast. These relations define the construction's "ecological location" in the network (2019, 200). Constructions that are strongly associated with each other based on similarity are organized in constructional neighborhoods. As one of the examples, Diessel discusses the neighborhood of relative clauses. Diessel and Tomasello (2005) have argued that similarity plays a

great role in the acquisition of relative clauses. The results of their sentence-repetition experiment showed that English-speaking children had fewest problems with subject relative clauses, as exemplified in (2a); erred most with genitive relative clauses, illustrated in (2c); and regularly had difficulty with other types of relative clauses, e.g., with object relative clauses like the one in (2b). This was not due to a lack of knowledge of the constructions, but to the activation of a different grammatical pattern, in particular, of the pattern exhibited by the subject relative clause.

(2a) *the man who saw the farmer*
(2b) *the cat that the dog chased*
(2c) *the man whose cat caught a mouse* (Diessel and Tomasello 2005, 884)

Interestingly, however, subject relative clauses are not the most frequent type of relative clause; object relative clauses are more common (Diessel and Tomasello 2005, 898). The frequency of the construction can therefore not account for the children's ease with (re)producing subject relative clauses. Instead, they argue that the relative clauses that children have the least difficulty with show a high degree of similarity to simple declarative main clauses. In subject relative clauses, the actor is expressed by the initial noun phrase, while this is not the case with non-subject relative clauses. In a simple main clause, *the man saw the farmer, the man* is the doer of the event expressed by the verb *saw* and is expressed by the first noun phrase in the sentence. The same true is for the subject relative clause in (2a). In the object relative clause in (2b), however, the second noun phrase, *the dog*, and not the first noun phrase, *the cat*, refers to the entity doing the chasing. Genitive relative clauses (2c), which are the most difficult, are also the most disparate in both form and meaning. The acquisition of relative clauses starts with particular subject relative clauses that are formally and functionally highly similar to simple main clauses and then proceeds step by step with children learning relative clauses based on other clause patterns they already know. This supports the idea that relative clauses form a network of constructions which is based on similarity (Diessel 2019, 209–14).

As an example of lateral relations that are defined by contrast, Diessel (2019, 229–45) discusses the phenomenon of differential object marking.

Crosslinguistically, it is rather common that a subgroup of objects (or, P-arguments) is marked with more morphological material than other objects. Objects that are definite, specific, topical, and/or animate are often coded in a different way than indefinite, non-specific, non-topical, and/or inanimate objects. For example, in Spanish, animate objects are typically marked with an additional morpheme, *a,* as in (3b), while inanimate objects lack such a marker, as in (3a).[6]

(3a)	*Encontré*	*un*	*problem.*		
	found.1.SG	a	problem		
	'I found a problem.'				
(3b)	*Encontré*	***a***	*un*	*superviviente.*	
	found.1.SG	ACC	a	survivor	
	'I found a survivor.'				(Fábregas 2013)

As objects are typically indefinite, non-specific, non-topical, and inanimate (Diessel 2019, 234–35), it is the unexpected and infrequent type of object that tends to be overtly coded. The expected and frequent types of objects occur without any marking. Thus, in other words, for objects that are not prototypical members of the category *objects*, speakers signal that they are part of said category (Aissen 2003). In the case of differential object marking, contrastive lateral relations exist between the marked and unmarked object constructions: Although they are part of the same category – both are object constructions – one is the default construction and the other signals unexpectedness. Other examples of contrastive lateral relations are plentiful, and they are found in domains that have traditionally been perceived of as paradigms (Diessel 2019, 224–28). Examples are singular and plural noun phrases, and positive and comparative adjectives, as shown in (4). In (4a), it is illustrated that plural nouns in English are marked with more morphological material than the singular. The more frequent and expected member of the pair, the singular, is marked with less

[6] This is a simplification of the situation. Other factors than animacy have been argued to play a role in differential marking in Spanish, e.g., specificity and – depending on the variety – definiteness (von Heusinger and Kaiser 2005).

morphological material than the less frequent and more expected member, the plural.

(4a)	singular: [N]	e.g., *page*
	plural: [N]-**s**	e.g., *page**s***
(4b)	positive: [ADJ]	e.g., *tough*
	comparative: [ADJ]-**er**	e.g., *tough**er***

The English positive and comparative form of adjectives are exemplified in (4b). Both express degree on adjectives. Comparatives, the less frequent member, are marked with a suffix. Both these examples reflect the crosslinguistic tendency to mark the less frequent and expected member of a category or contrastive pair with more (morphological) material than the more frequent and expected member. This type of relation between constructions is based on contrast between constructions that belong to the same category or paradigm (and are thus functionally related).

Although the existence of an overarching construction is often assumed or proposed, Diessel's examples show that such a taxonomic relation is not a prerequisite for the existence of a lateral relation. The singular and the plural form of nouns cannot be captured by one more abstract schema, nor do the positive and comparative form of an adjective instantiate one and the same construction. Yet, the alternative patterns are associated with each other by functional contrast and similarity. As such, it is necessary to posit "a new type of construction-to-construction relation" (Perek 2012, 631), which can then potentially be employed to account for constructions that have previously been related to each other indirectly via taxonomic relations as well.[7]

To me, an important reason to shift the focus from taxonomic relations to lateral relations is that it has been suggested that highly schematic constructions might not be psychologically real, or at least, not represented in the knowledge of all or most speakers of a speech community (Lieven and Tomasello 2008, 186;

[7] This does not entail that one should get rid of taxonomic relations and overarching schematic constructions. See Audring (2019) for an explanation of the necessity of what she calls *mother schemas,* here referred to as *parent constructions*.

Dąbrowska 2012; Blumenthal-Dramé 2012). As one of the main objectives of the usage-based approach is to analyze language in a way that is representative of its psychological reality (Langacker 1987, 56), i.e., to make a cognitive commitment (G. Lakoff 1991; Ibbotson 2013), it is more appropriate to focus on the lower-level constructions and on the relations that exist between them, rather than having to posit a more schematic or abstract overarching construction in order to account for one construction influencing another. Hence, a focus on lateral relations between constructions should be the starting point.

3.1.2. Lateral relations & analogy

Having introduced the concept of lateral relations and how it has played a role in previous studies, I will here discuss them in terms of analogy. I propose that lateral relations are in essence analogical relations grounded in the recognition of contrast and structural similarity.

3.1.2.1. Analogy

The term analogy has been used to refer to a domain-general cognitive process (Blevins and Blevins 2009, 2). It is the process by which we map "knowledge from one domain (the base) into another (the target) which conveys that a system of relations that holds among the base objects also hold among the target objects" (Gentner 1988, 48). This has also been called analogical thinking (Traugott and Trousdale 2013, 22) and analogical reasoning (Gust et al. 2008). To illustrate how analogy works, take a look at the forms in Figure 10. Following Holyoak (2012), the base will here be called the source.

Figure 10: Four-part analogy

The first step in analogical reasoning is recognizing or identifying a relation or set of relations between the objects in the source set. Let us say, one construes the relation beteen the two objects in (i) in Figure 10 as a mirror relation. Then, looking at the target objects one can recognize that the knowledge of the source

set can be transferred to the target set. In both sets, one recognizes that the objects are mirror images of each other. This is the basis of analogical reasoning, of our "ability to think about relational patterns" (Holyoak, Gentner, and Kokinov 2001). Analogical reasoning is not solely the recognition of similarity – be it object similarity or relational similarity – but also our ability to infer objects when a relation is known, or to posit relations in order to predict or create objects. That is, if one looks at Figure 11, and is asked to draw the fourth form, one typically makes use of analogical reasoning to solve the problem.

Figure 11: Analogical reasoning for simple problem solving

When asked to solve the problem in Figure 11, many people would reach the same conclusion, namely that the relation between the two forms in (i) should be the same as the relation between the objects in (ii), thus the outline of the form in (ii) will be drawn, while the pattern visible in the right side of the form is changed from diagonally crossing lines to horizontal and vertical crossing lines. The human analogical reasoning is not limited to simple four-part analogy (or, proportional analogy) as in Figure 10 and Figure 11, nor is it limited to cases in which the similarity is clearly perceptual, as should become clear throughout this section.

In addition to this cognitive process, the term analogy has also been used to refer to the relation that holds between the objects in a source set and those in a target set. To be specific, this will be called an analogical relation. These analogical relations are based on (structural) similarity and differences between the source set and the target set.

In language, similarity exists not only in form (i.e., object similarity), but in meaning and in the symbolic relation between form and meaning as well (Anttila 2008, 426). Constructions can share the same form (e.g., *left* (V) and *left* (ADJ)), meaning (e.g., *rucola, rocket, arugula*), or both (e.g., the plural *-s* in *brothers*, *sisters*, etc.). One similarity does not entail an analogical relation between the

constructions. As analogy generally involves a relation between relations (Holyoak 2012, 238), i.e., structural similarity, it has been proposed that "analogy always involves a *combination* of form and function" (De Smet and Fischer 2017, 241). From this it would follow that there is no analogical relation between the lexemes *left* and *left*, nor between *rocket* and *arugula*. Between *brothers* and *sisters* an analogical relation would exist, as the form *-s* has the same function in both constructions, and the constructions thus share a symbolic relation. A construction is, however, defined by more relations than its symbolic relation alone, as was discussed in §2.4, and thus an analogical relation can exist between two linguistic objects based on similarities of the other relations as well. As analogical association is an association grounded in similarity and contrast and not on the basis of an inherently hierarchical relation, I propose that lateral relations are analogical relations. In the same vein, the lateral motivation of a construction is in essence analogical transfer. The two differ in that the latter is a cognitive process, while lateral motivation is its equivalent on the population level. Analogical transfer can then be the trigger of change on the population level. This change then shows signs of larger scale adoption of features from another construction or set of constructions at the same level of abstraction.

3.1.2.2. Analogy & language change

Both in the production and understanding of language, we humans make use of analogical reasoning. This allows us to identify and impose structural similarity links between (sets of) linguistic objects (Gentner and Markman 2005). In linguistics, the term analogy is often used with regard to language change, where it is used to describe or explain the origin or development of particular constructions. However, as was discussed in §2.6 and §2.7, language change pertains to language at the population level, but analogy, as defined in the previous section, is primarily a cognitive and individual process. Therefore, analogy as a cognitive process should be distinguished from analogy as a mechanism in language change. That is, analogical reasoning and analogical change should remain distinct concepts. More specifically, analogical reasoning can be viewed as a trigger of analogical change.

Analogical change is observable on the population level and reflects that large groups of people used analogical reasoning for interpreting and producing the

same or similar language phenomena, and/or it reflects that analogical reasoning led to innovation which then became conventionalized. The two are not mutually exclusive. Analogical reasoning supports the spread of an innovation, as "speakers are more likely to solve new communicative tasks with the help of new words that are related to existing words, and hearers who are confronted with a new word find it easier to make sense of it if they can related its parts to words they already know" (Schmid 2020, 136). Thus, it is likely that analogical reasoning plays a part in language change, most particularly, it motivates the innovation. Moreover, as analogical reasoning is a general cognitive process shared by all humans, and speakers of a language come in context with a largely shared set of linguistic objects, analogical reasoning can facilitate diffusion when speakers identify or impose the same analogical relations between the same sets of objects as other speakers do. The likelihood of multiple individuals drawing the same conclusion is increased with a high degree of similarity between source and target set.

3.1.2.3. Analogical change & lateral relations

As is well known, there are many types of analogical change, e.g., analogical levelling, analogical extension, backformation, folk-etymology, hypercorrection, etc., but a discussion and evaluation of the different types of analogical change falls outside the scope of the current study. For overviews of the different types of analogical change, see Campbell (2013, 91–104) and Fertig (2013, 42–70). What is important here is what these types of changes all have in common: Two constructions that previously did not have a certain thing in common, start to share this. In other words, a feature has transferred from one construction to another.

Any type of analogical change is grounded in analogical reasoning, which per definition results in the transfer of a feature from one domain to another, as illustrated in Figure 12. As a first step in analogical reasoning, one comes into contact with the target object. This target object functions as a cue to retrieve or activate a potentially useful source. This is indicated by the retrieval link in Figure 12. It is then possible to establish a mapping between the source object and the target object – a set of systematic correspondences – that aligns the inner

structure of both objects. This is the recognition of structural similarity between target and source object.

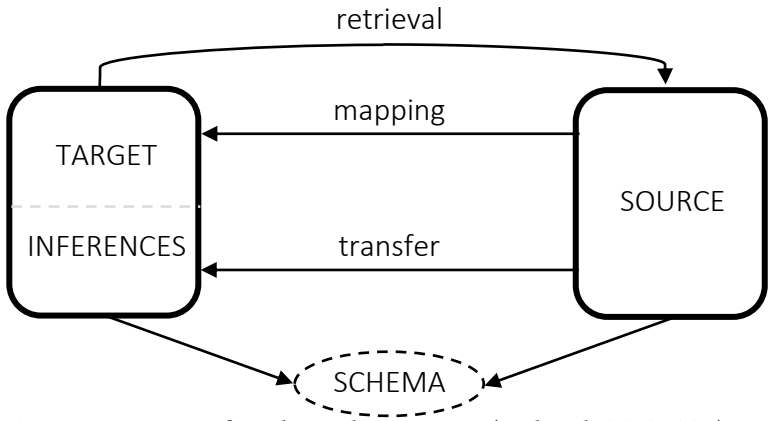

Figure 12: Major components of analogical reasoning (Holyoak 2012, 236)

Based on this mapping, in combination with the knowledge of the internal make-up of the source object, the representation of the target object can then be elaborated, and one draws new inferences about the target object (Holyoak 2012, 235). The recognition of structural similarity can thereby lead to the transfer of some feature or, perhaps more accurate in a nested-network approach, a relation of the source to the target.

"In the aftermath of analogical reasoning about a pair of cases, some form of relational generalization may take place yielding a more abstract schema for a category of situations" (Holyoak 2012, 235). These schemas "guide future analog retrieval, mapping and inference" (Holyoak 2012, 252). Putting this in constructional terms, an overarching construction may be formed. The creation of an abstract schema is more likely with multiple instances of such analogical relations between source and target, but this does not ensure the creation of an overarching construction. In this way, analogical relations between source and target construction, and thus lateral relations, are more basic than taxonomic relations, which can be abstracted from repeated use of lateral relations.

Analogical reasoning, and consequently analogical change, is not necessarily based on one object and can rely on or gain support from a larger set of objects. A feature associated with a group can be transferred to a new object, based on some perception of similarity between the target object and the group of source

objects. For example, the formation of the past-form of nonce-verb *frink* can be based either on an analogy to one single other verb, e.g., *drink*, or on a larger group of verbs *sting*/*sing*/*drink*/*shrink*/*stink*, etc. The first analogical relation is particularly clear when a specific object is primed, whereas the second appears to be the default state (Ramscar 2002). For example, when participants in a series of experiments were asked to form the past tense of *frink*, 60% produce an irregular form (*frank*). When they were primed by any regular form of an unrelated nonce-verb form, this decreases rapidly to 20%. A slightly weaker decrease is observed when the semantic association to *wink* or *blink* – whose past tense forms are regular – is intentionally activated (27%). No significant change is observed when speakers are primed with an irregular form of an unrelated nonce-verb (60%), but significantly more irregular verb forms are produced when *drink* – which has a irregular past form – is semantically primed (77.5%) (Ramscar 2002). This shows that while speakers of English typically produce an irregular form of the verb *frink* on the basis of a group of phonologically similar verbs with an irregular past form, the irregular form is even more frequently produced when a specific object is presented which speakers can use to solve the problem of forming a past tense analogically.

Comparable to the analogical reasoning based on groups of objects, the extension of a (partially) schematic construction to new slot-fillers can be viewed as a type of analogical change (Barðdal and Gildea 2015, 7). The application of a schematic construction to a new context highlights the existence of an overarching construction that directly activates abstractions made over lower level constructions, which the new utterance inherits. One can, however, also frame this as the creation of an analogical relation between the new contexts – the targets – and (a set of) lower level constructions.

Consider as an example the previously mentioned instance of the caused motion-construction in the sentence *as you all* ***manspread me into the tightest corner of the trolley*** (Bagwell 2016). This can be framed as the application of the abstract construction [subject verb object oblique_object | X causes Y to go in/on Z] to a new context with the new verb *manspread*. Alternatively, the speaker retrieves a set of lower level constructions, i.e., more concrete instantiations of the caused motion-construction, such as *I can't let you* ***push me into a corner*** (BNC, H97 1043), *you've* ***forced me into a corner*** (BNC, G1W 2203), and *Blanche*

knew it was (...) foolish to ***drive them into a corner*** (BNC, G1W 452). Recognizing the similarity of the new context and the contexts in which these utterances were used, the speaker can transfer the common pattern to the new context. Thereby, the speaker uses analogical reasoning and creates an analogical relation between the lower level constructions and the new utterance.

This way of framing highlights the importance of lateral relation between constructions. Thus, I suggest that even in the context of the extensibility of a schematic construction, the role of lateral relations should not be disregarded. In previous research, it has been shown that the relations between lower-level constructions influence the productivity of the overarching construction (Barðdal and Gildea 2015, 37–41). More specifically, the semantic coherence between members of the construction improve the construction's extensibility (Barðdal 2006). This strongly indicates that in the extension of a schema to a new situation, not only a hierarchical dimension is relevant, but the degree of similarity between lower-level constructions facilitates its extension as well. Thus, even in this context, the lateral relations are crucial.

3.2. Multiple source constructions

In this section, the notion of multiple inheritance is introduced in §3.2.1 and the related notion of multiple source constructions in §3.2.2. By means of a discussion of the previous literature, I show how this concept can be fitted into a nested-network approach in §3.2.3 and, more specifically, how it relates to lateral relations §3.2.4 and analogy §3.2.5. The final section, §3.2.6, brings everything together and presents a model of multiple source constructions and lateral relations.

3.2.1. Multiple inheritance

As mentioned in the introduction, multiple inheritance is a mechanism by which constructions are motivated by more than one, more abstract or general, construction. In the construction grammar literature, the term *multiple inheritance* has been applied to analyze the primarily synchronic motivation of a construction (Goldberg 1995; Sag 1997; Hudson 2000, 2007; Chung et al. 2001; Booij 2017), but it has been applied in diachronic analysis as well (Trousdale 2013).

Synchronically, multiple inheritance has been viewed as a phenomenon in which multiple constructions are involved in the production of an utterance, or in which multiple more abstract constructions motivate a more concrete construction. The result of multiple inheritance can be fully compositional or non-compositional. The former is, for example, the case with the plural noun *farmers*. *Farmers* inherits both from *farmer* and from the plural noun-construction. The contribution of each construction is reflected by the segmented form of the target pattern, i.e., *farmer-s* (Hudson 2007, 65–68). Examples of non-compositional multiple inheritance are syntactic amalgams (G. Lakoff 1974; De Smet and Van de Velde 2013) and English gerunds (Hudson 2000, 2007). In the case of syntactic amalgams, a part of the form originates from multiple other constructions. For example, when the expressions *to a party* and *you can imagine what kind of a party* are combined in the utterance *to you can imagine what kind of a party* (G. Lakoff 1974, 322), a part of the form – *a party* – originates from both expressions. English gerunds, e.g., *cooking*, have both verbal and nominal properties (Hudson 2007, 183–210), but the contribution of the noun construction and the verb-construction is not reflected by segments in the form of *cooking*. In each of these types of multiple inheritance, two constructions motivate a particular utterance or a lower level construction: *Farmers* instantiates the plural noun-construction and is a subpart of *farmer*, syntactic amalgams instantiate two stored patterns, and gerunds are instances of both nouns and verbs. The main reason for pointing out that multiple inheritance comes in compositional and non-compositional form is that it is essential for the recognition of the involvement of multiple constructions. Multiple constructions can be involved in motivating another without it being obviously reflected in the form of the resulting construction, as in the case of gerunds.

Diachronically, multiple inheritance is a mechanism in which multiple abstract constructions motivate changes in or the creation of a lower level construction (via the level of the construct). Trousdale (2013) discusses the development of the *give* + *-ing*-construction as the result of multiple inheritance. In Late Modern English, *give* + *-ing* was a new type of composite predicate pattern. It consist of a form of the verb *give* and a deverbal noun ending in *–ing,* as in *They would* ***give*** *Mr Mathematic* ***a roasting*** *and humble him a little* (Trousdale 2013, 507). *Roasting* and other *–ing*-forms have a rather idiosyncratic

meaning in these contexts, denoting "physical force or verbal castigation", and the verb *give* expresses telic aspect (Trousdale 2013, 498). Trousdale proposes that this composite predicate pattern originates from multiple constructions:

i) A general composite predicate-construction in which the verb marks telic aspect, and the process is expressed by a deverbal nominal (e.g., *give a bath, take a nap*)
ii) The double object-construction with *give* (e.g., *give me a pencil*)
iii) Deverbal nouns with the suffix *–ing*

The new composite predicate-construction inherited characteristics of all three: First, like the general composite predicate-construction, the main process expressed by *give a roasting* comes from the deverbal noun, and the verb *give* has expresses telic aspect. But, differently from the general composite predicate-construction, the new pattern does not contain the bare form of the noun, but a form with the suffix *-ing*. Second, the new pattern shares the structure of the double object-construction [subject *give* object object], but can, for example, not be passivized in the same way. Lastly, the meaning of the process expressed by the new construction is inherited from verb the deverbal noun is derived from. With repeated usage, the new patterns became conventionalized and thereby formed a new construction.

To summarize, in each of the above discussed cases, multiple higher level constructions motivate a lower level construction or an utterance (or, *construct*) to which they are taxonomically related. Multiple inheritance has been applied both synchronically and diachronically.

3.2.2. Multiple source constructions

The formulation of the axiom that language is structured as a nested network in which constructions are connected in more ways than one, unlocks the idea that a construction may receive features or have characteristics from constructions to which it is related in another way than taxonomically. By extension it then follows that a construction might be motivated by more than one construction to which it is not taxonomically related.

Van de Velde, De Smet, and Ghesquière (2013) have framed the phenomenon of multiple constructions motivating another construction in a diachronic perspective and dubbed it *multiple source constructions*. They discuss a wide range of language changes and show that multiple source constructions are very widespread. The most salient example comes from word formation, e.g., blends. A blend involves two lexemes that are combined to form a new one, for example *glamping* from *glamour* and *camping*. It is clear the new word has both formal and functional traits that are associated with both *glamour* and *camping*. In this case, the source constructions and the target construction are both fully lexicalized, and the target construction cannot be viewed as an instantiation of one of its two source constructions. In other words, it raises the question whether and to which degree this can be seen as an instance of multiple inheritance.

In this example, a taxonomic relation between *glamping* and *camping* is likely, as it can be based on hyponymy – *glamping* means 'a form of camping that involves accommodation and facilities more luxurious than those associated with traditional camping' (OED). Such a relation does not exist between *glamour* and *glamping*. Yet, the construction *glamping* is partially motivated by *glamour*, which is reflected in its form. Therefore, taxonomic relations are not a necessary precondition for multiple source constructions to motivate a target construction.

To illustrate this point, let us consider the development of Dutch case marking patterns with experiencer verbs. This study is one of Van de Velde (2014)'s case studies, with which he illustrates *degeneracy*. This is the phenomenon that semantic difference(s) between constructions of the same paradigm can be expressed in more than one way. In Middle Dutch, experiencer verbs typically combined with one of four case alignment patterns:

i) Nominative experiencer with an accusative stimulus
ii) Nominative experiencer with a genitive stimulus
iii) Dative experiencer with a genitive stimulus
iv) Dative experiencer with a nominative stimulus

(Van de Velde 2014, 154)

The four case alignment patterns are each associated with a different degree of agentivity of the experiencer. The patterns in (i)–(iv) form a cline, where

nominative experiencers that combine with an accusative stimulus (i) are used with the most agentive experiencers, and dative experiencers with nominative stimuli (iv) are the least agentive. One might expect that the function that was expressed by agentivity marking of the experiencer disappeared when the Dutch case-system collapsed, but this did not happen. Instead, prepositions, the transitive construction, voice-based distinctions, applicative prefixes, and lexical differentiation took over functions previously expressed primarily by these case marking patterns (Van de Velde 2014, 159–67). All these strategies did not and do not only mark agentivity of the experiencer. Each of them is used for other functions as well, e.g., voice can also be used to leave certain participants unmentioned. These constructions were never taxonomically related; they only had a partially overlapping function and could, in certain contexts, be used interchangeably. Yet, the disappearance of one of them – case – resulted in the others changing as well: The original functions expressed by case were merged into these others. Modern Dutch prepositions, voice, and prefixes are therefore all the result of multiple source constructions: their Middle Dutch predecessors and Middle Dutch case.

There is thus some clear indication that constructions can be motivated by multiple source constructions without there being a taxonomic relation between the source constructions and the target construction.

3.2.3. Multiple source constructions in a nested-network approach

Traugott and Trousdale (2013)'s analysis of the English *way*-construction very nicely illustrates the incorporation of the concept of multiple source constructions from a network perspective. In their study, it is argued that there were two precursors to the Present-Day English *way*-construction in Middle English: i) the intransitive construction with *wei*, exemplified in (5a), and ii) the transitive construction with *wei*, as in (5b).

(5a)	*þe*	*kniht*	*tok*	*leue*	*and*	*wente*	***his***	***wei***
	the	knight	took	leave	and	went	his	way

'The knight took leave and went his way.'

(5b)	*To*	*þe*	*castel*	*med*	*wiþoute*	*toun*	***þun***
	to	the	castle	meadow	outside	town	that
	wei	*sone*	*he*	*nom.*			
	way	soon	he	took			

'He soon took the path to the castle meadow outside town.'

(Traugott and Trousdale 2013, 80–81)

In the intransitive construction, *wei* was part of an adverbial slot. When the construction contained *wei*, its verb slot was often filled with a motion verb. In other words, there existed a strong sequential relation of collocation between motion verbs and *wei*. In transitive constructions, *wei* filled the object slot and collocated with acquisition verbs, like *nim-* and *take*. In the early 16th century, the association between *wei* and particular elements that occurred in the construction changed. The association between *wei* and possessive pronouns increased at the expense of other determiners and/or prepositions. Moreover, *wei* became more strongly associated with deictic motion verbs, e.g., *go* and *come*. This resulted in the constructionalization of a specialized *way*-subschema under the intransitive motion construction, as the sequences became syntactically non-compositional. This subschema did not become an independent construction at this stage, i.e., it did not emancipate but remained an instantiation of the intransitive construction, as the pattern had not become productive. At the beginning of the Early Modern English period, the intransitive *way*-subschema narrowed and became more restricted to deictic motion verbs, while the verb-slot in the transitive constructions with *way* expanded paradigmatically. It became productive. At the end of the 17th century, this pattern had become independent from the transitive *wei*-construction, and a new, independent *way*-construction had arisen. At this point, then, the taxonomic relations of both the transitive construction with verbs of acquisitions, e.g., *nim-* 'take', and the *way*-schema had changed. Instead of the latter being an instantiation of the former, the *way*-schema had become an independent construction. Subsequently, the type of verbs that could occur in the *way*-construction (then still transitive) expanded. On the basis of a particular subtype of verbs that occurred in the transitive *way*-constructions – *dig*, *fight*, and *force* – with an implied semantics of manner, other verbs that had an implied meaning of manner were analogously recruited in the

construction. Many of these verbs did not have any meaning of motion on their own, and this function became attributed to the construction as whole, thereby changing its symbolic relation. The rapid expansion of its filler-slot connections resulted in a rapid expansion of its taxonomic relations as well, because a variety of subschemas emerged, including an intransitive subschema with the meaning of 'iterative path-traversal with accompanying activity'. The present-day *way*-construction thus finds its origin in multiple source constructions, and the construction is analyzed in such a way that it falls in very nicely with Diessel's nested network approach. Thereby, it supports the importance of the various types of associations of and between constructions in language change.

3.2.4. Multiple source constructions & lateral relations

Focusing on lateral relations, Norde and Morris (2018) investigated Dutch diminutive prefixoid constructions (henceforth: *DPCs*), e.g., *bloed-je-serieus* (lit. 'blood-DIM-serious') 'very serious' and showed that these are the result of multiple source constructions. DPCs contain a prefixoid,[8] a diminutive affix, and – most commonly – an adjective. The meaning of the construction is in essence the meaning of the adjective, which is downtoned and intensified, or emphasized and intensified. Interesting in this construction is the diminutive element *-je*. This element is phonologically conditioned in the same way as the general diminutive suffix *-je* in Dutch, which is for example found in *paard-je* horse-DIM 'small horse'. The diminutive element in *bloedjeserious* has received these specifications from the general diminutive suffix. Despite this formal similarity, the two diminutive morphemes have a different function: Whereas *-je* in *bloedjeserieus* is used for expressing emphasis or downtoning, *-je* in *paardje* is typically used to indicate that the referent is small. What is more, the diminutive element in the DPC lacks the function of nominalization, which is apparent when the suffix combines with an adjective: *klein* + *tje* 'small' + DIM > *kleintje* 'little one/small one'. For these reasons, the diminutive element in the DPC cannot simply be analyzed as an instantiation of the regular diminutive suffix. A second construction is important in motivating the DPC, namely the prefixoid subschema. This construction does not directly transfer its features to the diminutive prefixoid construction. Instead, specific micro-constructions are

[8] A prefixoid is a prefix-like morpheme that still corresponds to a lexeme (Booij 2007).

formed under the prefixoid subschema, and these specific micro-constructions partially motivate particular micro-constructions of the DPC, and as such, transfer (most of) their features. As "diminutive prefixoids only occur as variants of existing non-diminutive prefixoids" (Norde and Morris 2018, 67), the DPC-micro-constructions are primarily motivated by a lateral relation. Thus, for example, the micro-construction *bloedjeserieus* has features of both *bloedserieus,* which is a micro-construction at the same level of abstraction, and of the more schematic [N-diminutive]-construction. This study illustrates very nicely that, contra Goldberg (1995), constructions need not be related taxonomically for a construction to motivate another. Moreover, it shows the involvement of multiple source constructions, one that is more schematic than the target construction, and one that exists at the same level of abstraction.

3.2.5. Multiple source constructions & analogy

Multiple source constructions being involved in the creation or change of a construction is a very widespread phenomenon (Van de Velde, De Smet, and Ghesquière 2013). The studies discussed in the previous sections are merely the tip of the iceberg. This may not come as a surprise if one considers analogy as a central mechanism and cognitive process, because, as Fischer (2013, 518) has noted, analogy "depends on similarity in form and/or meaning *between constructions*". Analogy per definition involves more than one construction, but note this does not necessarily mean that it involves multiple source constructions per se.

The interconnectedness of analogy and multiple source constructions is central in Fischer (2013)'s study. She illustrates this with three developments that were previously considered as unidirectional grammaticalization, i.e., the development of the epistemic core modals in English; the development of pragmatic or discourse markers in English; and the development of *to* into an infinitival marker in English, Dutch, and German. I will discuss the first development here briefly, which is thoroughly presented in Fischer (2007).

Instead of viewing the English epistemic modals as having directly developed out of deontic modals, Fischer argues that they are the result of a syntactic blend of two Old English constructions: i) the monoclausal deontic modal-construction

with an agentive subject, exemplified in (6a); and ii) a biclausal impersonal modal-construction, illustrated in (6b).

(6a)	*he*	***mæg***	*unbinden*	*þa*	*fæstan*	*cnottan*			
	he	can	undo	the	firm	knot			
	'He can undo the firm knot.'								
(6b)	*Eaðe*	***mæg***	*gewurðan*	*þæt*	*þu*	*wite*	*þæt*	*ic*	*nat*
	easily	can	become	that	you	know	that	I	not-know
	'It may easily be the case that you know what I don't know.'								

(Fischer 2013, 524)

In the example in (6b), the modal verb *mæg* is used impersonally with a more general meaning than usual, that is, instead of meaning 'to have power or ability', it refers to the general ability or possibility. Hence, *mæg* in (6b) is epistemic. This division of labor is found with other modal verbs as well. In Middle English, the two constructions merged, and the epistemic meaning could also be expressed by structures like the one in (6a). This development was facilitated by the loss of the case marking system, the loss of impersonal verbs, and the rise of the syntactic subject. The form and function of the first construction and the function of the second construction combined into a single construction in English. As such, it is not the case that deontic modals changed into epistemic modals, but two source constructions motivated the new epistemic modals.

3.2.6. Lateral constructions & multiple source constructions

In Section 3.1.2, lateral relations were introduced and the relation between lateral relations and analogy was explored. This section introduced multiple source constructions. As Fischer (2013) has stated, analogical change and analogical reasoning, per definition, involve more than one construction, as they involve the recognition of structural similarity between objects. As such, multiple source constructions are likely a very widespread phenomenon. Lateral relations are in essence analogical relations grounded in the recognition of contrast and structural similarity. Therefore, it would be expected that the scenario in which multiple source constructions motivate a target construction at the same level of abstraction is likewise a very widespread phenomenon. As such, I deem it

worthwhile to explore the extent to which a target construction can be motivated by multiple source constructions to which they are laterally related, explore ways to operationalize and evaluate the constructions involved and which features are transferred.

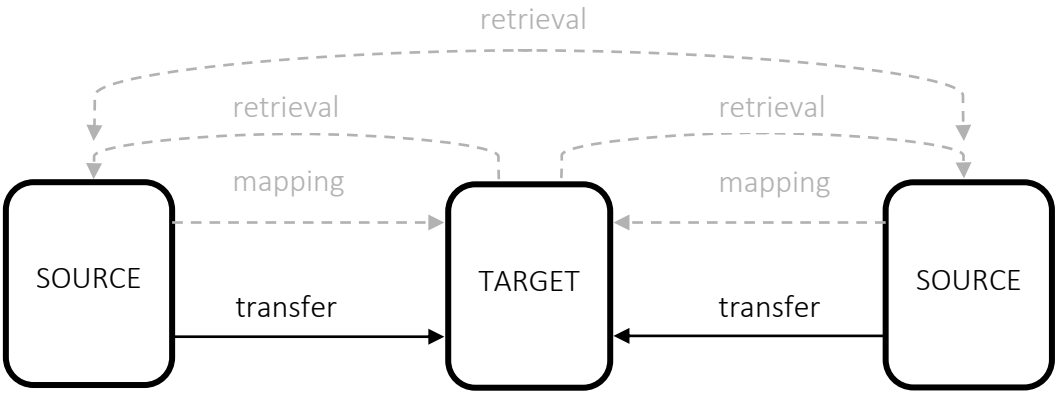

Figure 13: Multiple source constructions & lateral relations

Extending the concept of multiple inheritance – in which one construction inherits features from two more abstract constructions – I think that in an analogical transfer scenario, multiple source construction can also be involved, be it diachronically or synchronically. Both of these scenarios are captured by the schema in Figure 13, which is an adaptation of Holyoak's visualization of the major components of analogical reasoning, which was presented in Figure 12.

Different from analogical reasoning, however, we are here talking about lateral relations on the population level. The underlying retrieval and mapping (see §3.1.2.3) involving multiple sources – indicated by the dotted lines – do not need to take place within the mind of one individual. The association with multiple sources is what is observed at the population level, and it may be a reflection of two different and independent analogical reasonings. What is visible on the population level is the result of transfer, namely that the target construction has features or properties of more than one source construction.

From a diachronic perspective, the target is the new or changed construction. The sources are the constructions that are involved in the creation of the target construction. From these, the target can receive its form, its function, and distributional tendencies. The sources can contribute roughly equal features to the target construction, or one source may be a more dominant motivator. The

latter is particularly the case when a construction is in hindsight perceived to have changed into something, as in the case of the deontic modals (Fischer 2007, 2013) that was discussed in the previous section and which is illustrated in Figure 14.

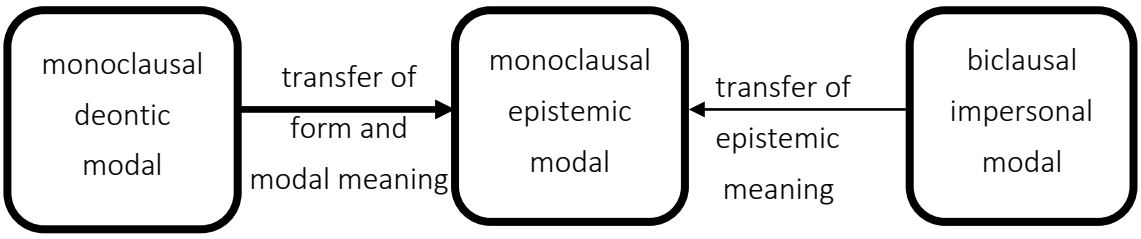

Figure 14: Fisher's analysis of epistemic modals as multiple source constructions and lateral relations

Synchronically, a construction's existence may be motivated by more than one construction, meaning that (an aspect of) the construction's nested network is not fully arbitrary, but can be accounted for by multiple source constructions (Booij 2017, 13).

3.3. A note on the term *lateral relations*

Finally, a note on the terminology used in this dissertation. As mentioned before, in the previous literature many different terms have been used to refer to the relation between constructions at the same level of abstraction, i.e., constructional relations (Diessel 2019), horizontal relations or links (Van de Velde 2014; Fonteyn and Maekelberghe 2018; Traugott 2018), sister links (Audring 2019), paradigmatic relations (Booij and Masini 2015), and lateral relations (Norde and Morris 2018). I will here adopt the term *lateral relations*. Although it is merely a matter of nuance and perspective, this choice is motivated. First, I prefer *lateral* over *horizontal relation* as lateral takes the perspective of the node, i.e., of the construction, while horizontal implies the existence of a fixed external anchor. As the network is inherently dynamic, I prefer the former over the latter. The metaphor *sister relation* has the implication that the two connected constructions have a parent in common, which might be true in some cases, but I do not wish to imply that this is the case for all laterally related constructions. I do not employ the term *constructional relations* (Diessel 2019) to avoid terminological confusion, as Diessel's definition of construction is

not identical to the definition of construction adopted here. The term *paradigmatic relations* has been well established in morphological studies to refer to forms that are connected to each other at the same level of abstraction. Yet, I hesitate to fully employ this term, as it requires at least a slight rethinking of the notion of paradigm, which is something that is still very much in progress (Diewald and Politt 2018; Audring and Hilpert 2019). Moreover, I prefer to see groups of constructions that are related to each other by (partial) formal overlap as constructional neighborhoods, rather than as paradigms. I hope that the discussion above has indicated that constructions can be associated with each other, even when the constructions are only partially in paradigmatic relation to each other. By using the concept of constructional neighborhood, the focus on the network structure of language is more salient, as neighborhoods inherently have an association of being part of a larger entity – a city, a country, and the world – and constructions can be associated with multiple neighborhoods.

CHAPTER 4: STATISTICAL METHODS

In this chapter, I present the various statistical methods used in the studies. In Section 4.1, the chi-squared and the Fisher's exact test are discussed. Section 4.2 presents the collostructional analysis. In Section 4.3 conditional inference trees are introduced. Section 4.4 discusses random forests. The two methods that were used to interpret the results of random forests, variable importance measures and partial dependence plots, are explained in Sections 4.5 and 4.6 respectively. The specifications particular to the individual studies can be found in the methodology section in the relevant chapters (§5.3.2 and §6.4.2).

The data analyses were done with the computer program R (R_Core_Team 2019). For transparency, the functions and the packages that were used in the analyses are mentioned in each of the sections as well.

4.1. Chi-squared test & Fisher's exact test

For simple frequency tables, Pearson's chi-squared test was used to confirm significance. Specifically, the function CHISQ.TEST was used. The chi-squared residuals will sometimes be provided. These values show which of the values are responsible for the effect, and which ones are not (Gries 2014). They will mainly be reported when the chi-squared test is applied on larger frequency tables than two-by-two, in order to get more insight into what underlies the *p*-value.

The chi-squared test requires that all cells in the frequency table have an expected value of higher than one and that 80% of the cells or more have an expected value of at least five. If these requirements were not met, the Fisher's exact test was used (Levshina 2015, 29). The Fisher's exact test was computed with the function FISHER.TEST.

4.2. Collostructional analysis

Collostructional analysis is a method developed by Stefanowitsch and Gries (2003). It is a tool to investigate a construction and the lexemes that are attracted to it or repulsed by it. The attraction (or repulsion) of a lexeme to a construction is represented by collostructional strength. To calculate this, one needs i) the frequency of the lexeme in the construction, ii) the frequency of the lexeme in all

other constructions, iii) the frequency of the construction with the lexeme, and iv) the frequency of the construction without the lexeme. These values are subjected to a Fisher's exact test. The resulting *p*-value indicates the association between the lexeme and the construction. The smaller the *p*-value, the stronger the association between construction and lexeme. This process can be repeated for all lexemes that occur in a construction. The end-result is a list of lexemes and their collostructional strength which can be ranked from strongest association to weakest association with the construction.

To perform collostructional analysis, I used the program by Gries (2007). Importantly, this program does not return the *p*-values, but a logarithmic transformation (*–log10*) of the *p*-value as collostructional strength. As a consequence, the results should be interpreted as follows: The higher the collostructional strength, the stronger the construction and lexeme are associated with each other.

4.3. Conditional inference trees

Conditional inference trees are a type of classification trees. Classification trees can be used to predict the outcome of a response variable based on predictor variables. This is accomplished by repeatedly splitting the data into two smaller subsets based on the association of one of the predictor variables with the response variable. To plot conditional inference trees, I have used the CTREE function of the 'party'-package (Hothorn, Hornik, and Zeileis 2006).

The algorithm behind the CTREE function tests "the global null hypothesis of independence between any of the input variables and the response" (Hothorn et al. 2020). If the null hypothesis cannot be rejected, the model stops. If it can be rejected, the predictor with the strongest association to the response variable is selected. This is based on the *p*-value. The selected predictor variable motivates a binary split in the data. This process is repeated until no predictor variable is statistically associated with the outcome (Tagliamonte and Baayen 2012, 159; Levshina 2015, 291). For more detailed information about the algorithm, see Hothorn, Hornik, and Zeileis (2006).

The method of conditional inference trees is based on permutation and is therefore a non-parametric way of evaluating the association between multiple predictor variables and a response variable. This has as advantage that it can

handle collinear predictor variables quite well (Gries 2019). Moreover, it can deal with a relatively small data set with a relatively high number of predictor variables (Levshina 2015, 275). Compared to other decision trees, conditional inference trees have less issues with overfitting, because of the implementation of the restriction that a split in the tree must be statistically significant.

There are also some disadvantages to this method. The main issue is that the model is not always stable (Strobl, Malley, and Tutz 2009; Gries 2019). The results can dramatically change when the values of the predictor variables are slightly changed. As a solution to this problem, random forests (Breiman 2001) have been proposed. Random forests average over a specified number of conditional inference trees and are therefore more stable (Strobl, Malley, and Tutz 2009).

4.4. Random forests

A random forest grows a multitude of conditional inference trees. Unlike the method of conditional inference trees, the trees in random forests are not calculated on the basis of the entire data set, nor on the entire set of predictor variables. Instead, each individual conditional inference tree within a forest considers a restricted number of predictor variables and a random sample of the data. Identical to the method of conditional inference trees, the model selects the variable with the strongest association to the response, which then motivates a split in the data. This process is repeated until there is no predictor variable that allows for a statistical split. A random forest model repeats this process a specified number of times, i.e., it calculates a predefined number of conditional inference trees (Tagliamonte and Baayen 2012; Levshina 2015, 291–300). With each tree, the model takes a new sample of data and predictor variables.

To compute random forests, I used the function CFOREST of the 'party' package (Hothorn et al. 2020). The number of conditional inference trees that are calculated can be defined by NTREE and the number of selected predictor variables at each split by MTRY. In the methodology sections of the case studies, one can find the specifications for the analyses.

The accuracy of the random forest can be compared with that of a naïve model by means of a confusion matrix. This indicates whether the model predicts the predictor variables more accurately than when it would assign the most frequent

predictor to everything. In addition, Somers' D_{xy} and the *C*-index can be calculated to verify whether the model performed better than chance. For this, I used the SOMERS2 function in the 'Hmisc' package (Harrell Jr. and Dupont 2020). The *C*-index "is an index of concordance between the predicted probability and the observed response" (Baayen 2008, 223). A *C*-index of 0.5 indicates that the prediction of the model is random, and a value of 1 indicates a perfect prediction. As a rule of thumb, values of 0.8 or higher indicate that the model may have real predictive power. Somers' D_{xy} is a related measure. It is a rank correlation between the observed responses and the predicted probabilities (Baayen 2008, 224). Its value can range from 0 to 1, with 0 indicating complete randomness, and 1 being a perfect prediction. Thus, the higher Somers' D_{xy} and the *C*-index, the better the model.

4.5. Variable importance measures

Random forest have one major disadvantage: They are difficult to interpret. For this reason, additional functions have been used to interpret the results. Variable importance measures are a common way to visualize what is going on in the random forests. They show the importance of a given predictor variable on the prediction of the response variable, given the other predictor variables. These values are then used to rank the variables from most important to least important for the prediction of the response variable.

To compute the variable importance measures, I used the function VARIMP from the 'party' package (Hothorn et al. 2020). The VARIMP function permutes the values of a given predictor variable. This breaks the association between the response and the predictor variable if there was any. The difference in the accuracy is calculated for each tree in the random forest. This is then averaged over all trees. The resulting value is the mean decrease in accuracy of classification after the variable is permuted. If the model with the permutated predictor variable is considerably less accurate than the one in which the predictor variable has its observed values, the predictor variable is considered important and associated with the response variable. If there is no change or only very little change in the accuracy of the model, it can be concluded that the predictor variable is not associated with the response variable (Tagliamonte and Baayen 2012). It is important to note that variable importance measures result in

a ranking of the variables from most important to least important. The values should not be considered as absolute values. The rule of thumb is that a variable is important if its value is higher than the value of the lowest negative-scoring variable, or, if there is no negative variable, zero. Unimportant predictor variables will vary around zero, and their ordering will be unstable (Levshina 2015, 298). Therefore, all models have been rerun numerous with different seeds to confirm important and unimportant variables.

If the data contains correlated variables, the model can favor the correlated predictor variables over non-correlated variables. To overcome this issue the VARIMP function was specified for CONDITIONAL = TRUE, and multiple MTRY-values were tried, when this was the case. See Strobl et al. (2008) for more information.

4.6. Partial dependence plots

Besides variable importance measures, I have made use of partial dependence plots to interpret the results of the random forest models (Greenwell 2017). Where variable importance measures indicate which predictor variables are associated with the response variable, partial dependence plots can provide more information about the relationship between the response and the predictor variables. Partial dependence plots indicate the direction and strength of the effect that a given value of a predictor variable has on the response variable.

To compute the partial dependence plots , I used the function PARTIAL from the 'pdp' package (Greenwell 2018). The function PARTIAL returns partial dependence scores for each value of the tested predictor variable(s), the *yhat*. To obtain the yhat, the model proceeds as follows. When the variable is categorical – which is the case in the majority of the tested variables in both studies – the model replaces all instances of the variable by the calculated category. For example, if there is a variable OBJECT_TYPE with three categories – *clausal, nominal,* and *pronominal* – and the effect of *nominal* is computed, all instances of *clausal* and *pronominal* are replaced by *nominal*. The averaged predictions are computed (Molnar 2020, §5.1). These averaged predictions are the partial dependence scores, the yhat. For the specific algorithm and details, see Greenwell (2017).

As is the case with the variable importance measures, the values are not absolute, but they are meaningful in comparison to the other values within the same model.

CHAPTER 5: WORD ORDER IN ENGLISH SUBJECT RELATIVE CLAUSES

5.1. Introduction

This chapter is concerned with lateral relations and multiple source constructions in language change. The study that is presented here looks at the well-known change from object-verb (OV) to verb-object (VO) and zooms in on the change in subject relative clauses in particular. In Old English, subject relative clauses preferred OV word order as exemplified in (1a), but VO also occurred, see (1b). In Middle English, VO had become the most prevalent pattern, illustrated in (2a), but OV remained possible, as in (2b). The study aims to answer two questions: i) What underlies the OV/VO word order in Old and Middle English subject relative clauses?, and ii) How did these clauses change from preferring OV word order in Old English to having VO as default in Middle English? It will be argued that the principle of end-weight on the one hand and the lateral relation between declarative main clause and subject relative clause on the other motivated the spread of the VO word order in subject relative clauses.

(1a)	*se*	*preost*	***þe***	***þin***	***ehte***	*is*	*adwæsced*
	the	priest	REL	you.ACC	persecuted	is	extinguished
	'The priest who persecuted you is extinguished.'						(Cocathom2, 2002)
(1b)	*Estas*		*is*	*sumor*	***se***	***hæfþ***	***sunstede***
	Estas		is	summer	REL	has	solstice.ACC
	'Estas is [the] summer that has solstice.'						(Cotempo, 161)
(2a)	*a*	*book*	***that***	***hath***	***sharpe***	***feet***	is fals
	a	book	REL	has	sharp	feet	is wrong
	'A book that has sharp feet is wrong.'						(Cmpurvey, 2353)
(2b)	*þet*	*is*	***god***	***þe***	***al***	***wot***	
	that	is	God	REL	all	knows	
	'That is God who knows all.'						(Cmayenbi, 1197)

The reorganization and initial variation of verb and object order in English has been the focus of many studies (van Kemenade 1987; Pintzuk and Kroch 1989; Koopman 1992, 2005; Weerman 1993; Foster and van der Wurff 1995; Pintzuk 1996, 2002a, 2002b; Moerenhout and van der Wurff 2000; Fischer et al. 2004; McFadden 2005; Taylor and Pintzuk 2012a, 2012b, 2015). To the vast body of work on the change from OV to VO, this study contributes a detailed investigation of the word order change of object and finite verb in relative clauses. In many of the previous studies, the focus lies on the changing position of main verbs in all clause-types (Kroch and Taylor 2000b; Pintzuk 2002a; Moerenhout and van der Wurff 2000) or in subordinate clauses in general (Taylor and Pintzuk 2012b; Heggelund 2015), but to the best of my knowledge, no detailed investigation of relative clauses has been provided. It is important to study the different types of subordinate clauses individually, as the different types of subordinate clauses have been shown to differ significantly in their association with particular word order patterns. Heggelund (2009) shows that, although all types of subordinate clauses prefer SXV word order in Old English, significant differences are found between them. For example, nominal clauses had a weaker preference for SXV word order than adverbial and adjectival clauses, and adverbial clauses had a stronger association with SVX word order than nominal and adjectival clauses in Late Old English (Heggelund 2009, 100–103).

This study moreover applies a new methodology to this old issue, which allows the evaluation of factors that have been proposed to influence the alternation and change, and to evaluate some variables that have not been statistically tested in this light before. In addition, the study reframes the issue in a constructional framework and considers the role of lateral relations – in particular the relation between relative clause and declarative main clause – in this language change. The remainder of this section briefly introduces the change under investigation and presents an overview of the current chapter.

5.1.1. Word order in English relative clauses

Subject relative clauses – the object of the current study – are relative clauses in which the relativized element functions as the subject. In (3a), an example of a Present-Day English subject relative clause is given. The relativized element, *the critic*, is the subject of the clause-internal verb *admires*. Other functions can be

relativized in English as well. English has object relative clauses – in which the relativized element functions as the object – like the one in (3b), indirect object relative clauses, oblique relative clauses, and genitive relative clauses (Diessel and Tomasello 2005).

(3a) *I was screaming at that critic* ***who admires The White Hotel.***

(BNC, GoX 283)

(3b) *I still get very nervous when I meet people* ***who I admire.***

(BNC, AB3 327)

With the exception of object relative clauses, all relative clauses nowadays pattern as verb-medial, or SVO. Object relative clauses, as can be seen in (3b), exhibit (O)SV word order instead. This pattern does not adhere to the prevalent pattern of verb-medial in Present-Day English (Breivik 1991, 32–33). The OSV pattern is only found in a few other constructions – topicalization and *wh*-questions – and thus only has a small number of neighboring constructions compared to the other relative clauses (Diessel 2019, 207–8). Subject and object relative clauses can, in Present-Day English, thus be differentiated by the position of the verb: In the subject relative clause, the verb is placed in between the subject and the object, while it follows both constituents in the object relative clause. This is not the case in all other Germanic languages. In Dutch, for example, a sequence like the one in (4) is ambiguous between a subject and object relative clause.

(4)	*de*	*vriend*	***die***	***mijn***	***tante***	*heeft*	*bezocht*
	the	friend	REL	my	aunt	has	visited

'the friend who has visited my aunt/the friend who my aunt has visited'

(Frazier 1987, 545)

The different relative clause-constructions are typically differentiated by means of verb-inflection, if the subject and the object have a different number; by means of contextual cues, e.g., discourse salience of the referent; and by means of animacy (Kaan 2001; Mak, Vonk, and Schriefers 2006), but not by word order. In Old English, like in Present-Day Dutch, one could not systematically tell apart

the object and transitive subject relative clause based on word order. Both object and transitive subject relative clauses preferred a verb-final word order, yielding (O)SV – i.e., (NP) NP V – for most object relative clauses and (S)OV – i.e., (NP) NP V – for subject relative clauses. However, while object relative clauses almost never diverged from this pattern, subject relative clauses displayed variation in Old English and quite frequently patterned as (NP) V NP word order. In Middle English, (NP) V NP became the preferred word order in subject relative clauses.

The situation of variation in Old English subject relative clauses was the prelude for the ultimate spread of the VO pattern in subject relative clauses in Middle English. Understanding the motivations behind the initial variation provides the foundation for understanding the diffusion of the VO pattern to this context. The study will therefore focus first on the factors underlying the choice between OV and VO word order in Old English and investigate whether the same factors played a role in Middle English. Subsequently, the hypothesized role of analogy in the spread of the VO pattern to subordinate clauses (Stockwell 1977; Kohonen 1978; Bean 1983; Bech 2001) is tested in the subject relative clauses and reframed in terms of lateral relations.

5.1.2. Outline

The chapter is structured as follows. Section 5.2 will present the background to the study. In this section, the working definition of relative clauses will be clarified, and the word order change will be discussed in light of previous research. Section 5.3 will give an overview of the study's methodology. The data selection process will be explained, the statistical methods will be discussed, and each of the tested variables will be introduced. The results for the study concerning the OV/VO alternation in Old and Middle English will be laid out in Section 5.4. These will confirm that the principle of end-weight was a strong motivator for postverbal objects in Old English subject relative clauses, but the data will additionally reveal that this was not the sole factor responsible for the ultimate choice of OV and VO. The relativizer[9] introducing the clause will turn out to play an important role as well. Whereas relative clauses with the invariable relativizer *þe* will be shown to have been associated with OV order, those

[9] Following Bergs (2005, 133), the term *relativizer* is used here as a cover term for both relative pronouns and relative complementizers/particles.

introduced with *se* tended to pattern as VO. Testing the same variables with data from Middle English, it will become apparent that the earlier motivations behind the word orders were no longer in force. Instead, the data will indicate that the VO word order had become the conventionalized default at this time. In Section 5.5, the spread of the VO pattern will be analyzed in relation to main clauses, and it will be shown that a subset of subject relative clauses that showed a high degree of similarity to main clauses exhibited early on a relatively high frequency of VO word order compared to the relative clauses that lacked such similarity. It will be argued that the influence of main clauses weakened the association between the postverbal slot and heavy object, and thus is an important aspect in the spread of the VO pattern in subject relative clauses. The final section to this chapter, Section 5.6, will summarize the results and briefly relate them to the overall topic of the dissertation.

5.2. Background

5.2.1. A working definition of relative clauses

Before continuing, it is important that the term *relative clause* is properly defined. As one might be aware, it is notoriously difficult to define this concept crosslinguistically. Major variation is found in the types and positions of the relativizer, the relationship between main clauses and the relative clause, and the form of the verb within the relative clause (Hendery 2012). What is more, relative clauses do not have one clearly defined function. A relative clause can be non-restrictive, providing extra information of the referent, or they can have a restrictive function, reducing the potential group of referents by delimiting it to a set with a specific characteristic or behaviour (Huddleston and Pullum 2002, 1034–35). This heterogeneity leads, however, not only to complications for the definition of relative clauses crosslinguistically but also within one language. Consider as an illustration the sentences in (5).

(5a) *Later I told Caroline,* ***who said 'Rubbish!'*** (BNC, CES 1430)

(5b) *The other part of your homework* ***I've given you to do****, is to write down all of the intervals that you can possibly have.* (BNC, G3V 370)

(5c) *I have far fewer friends and I am partially sighted,* ***which makes me a lot more vulnerable****.* (BNC, A00 200)

In form, the clauses in (5) vary amongst other things with respect to the presence or absence of the relativizer, and the form of the relativizer if it is present. The clause in (5a) is headed by a relative interrogative pronoun, *who*, the bolded relative clause in (5b) lacks a relativizer, and in (5c), the relative clause is introduced with invariable *which*. In function, the clauses show variation as well. The bolded clause in (5a) provides additional information about the relativized element *Caroline* and is not needed in order for the addressee to identify the referent of this noun. In (5b), the relative clause helps to identify the referent of *homework* by restricting the set of denotations to one, namely the one that *I've given you to do*. The clause in (5c) does not contain a nominal relativized element at all, and defining it as either restrictive or non-restrictive is not possible. Instead, the relative clause expresses a consequence of the proposition expressed by *I am partially sighted,* and thus has a function that is typically associated with adverbial clauses. This diversity makes it highly difficult to capture these clauses as one form-meaning pairing in Present-Day English. What they have in common is that they modify a constituent of the main clause, and the most concrete schematization that can be proposed is highly abstract, i.e., [X (relativizer) finite_clause | clause modifies X]. This captures that it is a modification construction in which the modifying element is a clause. Modification is here to mean both non-restrictive and restrictive modification. In this chapter, the analyses are only concerned with structures in which the [X]-slot is filled by a noun, pronoun, or noun phrase, and clauses of the type exemplified by (5c) are excluded. With this restriction, the considered clauses are fillers of a nominal postmodifier slot, which can be filled by a wide variety of elements (Biber et al. 1999, 602–44). Only finite, clausal fillers are considered in the definition of relative clauses.

As was mentioned above, in function, two types of relative clauses can be distinguished, restrictive and non-restrictive relative clauses. Restrictive relative clauses typically have the function of delimiting the potential referents, and they are characterized by integration in the main clause in terms of both prosody and meaning. Non-restrictive relative clauses, which are also called appositive and supplementary relative clauses, provide additional information about the referent and are more loosely connected to the main clause (Huddleston and Pullum 2002, 1058). The two types have a different determinative power. Restrictive

relative clauses are a type of subordinate clause, because they lack illocutionary force, while appositive relative clauses have illocutionary force, and are as such – functionally – not subordinated (Cristofaro 2003, 195). Even though restrictive and non-restrictive relative clauses differ from each other in this regard, I do not a priori exclude non-restrictive relative clauses, since the two clauses constitute in English two opposite ends of a scale, with on the one end absolute restrictiveness and on the other absolute non-restrictiveness (Šímová 2005, 132–36).

The working definition excludes free relative clauses, like the one exemplified in (6), which bear a great resemblance to relative clauses in form.

(6) *Thank you very much to those who volunteered, or who were volunteered to help, especially to* ***who worked as hard as I did to get the whole thing set up***. (BNC, QNM 869)

This group of clauses is viewed as constructions that are closely related to relative clauses, but are in fact instantiations of a nominalization construction. The crucial difference between the two clause types lies in their function. Whereas free relative clauses refer, relative clauses modify a referring expression.

An additional adaption of the working definition excludes noun-complement constructions, as in (7).

(7) *There is also evidence* ***that algal growth helps promote its spread.*** (BNC, HBG 274)

Traditionally, it has been assumed that noun-complement clauses can be differentiated from relative clauses by means of a presence or absence of a gap. While relative clauses are said to contain a gap, as the relativized constituent is moved to the front of the relative clause or is omitted, noun-complement clauses lack such a gap (Comrie and Horie 1995, 66–67). In line with the constructional what-you-see-is-what-you-get-approach, the current study does not assume a structural gap in relative clauses (see van Trijp 2014). Instead, the difference between the relative and noun-complement clause-construction is viewed as

follows. The referent of the modified noun (phrase) is a participant of the event expressed by the subordinate clause in relative clauses, but not in noun-complement clauses. *The evidence* in (7) is not a participant in the event expressed by the subordinate clause, whereas *Caroline* in (5a) – *Caroline who said rubbish* – is a participant in the speaking-event. While the referent of the modified (pro)noun is part of the proposition of the subordinate clause in relative clauses, this is not the case for the referent in noun-complement clauses. The distinction between the two clause types is thus predominantly functional, and affects the participant structure of the subordinate clause.

Old and Middle English relative clauses were structurally quite different from Present-Day English relative clauses. First off, Old English relative clauses had a different basic constituent order than Present-Day English ones, with the exception of object-relative clauses, as was shown in §5.1.1. Moreover, the system of relativizers was substantially different. Old English had no *wh*-relativizers. Instead an invariable relativizer, *þe*, and demonstrative relativizers where used. In Middle English, this situation changed, with a reduction of the use of demonstrative relativizers, the replacement of the invariable relativizer *þe* with the previously demonstrative relativizer *þat(t)*/*that*, and the slowly upcoming use of *wh*-relativizers. What is more, in Old English, relative clauses did not need to be adjacent to the (pro)noun they modified. This point requires a final adaption of the definition, as it needs to allow for elements to intervene between the antecedent and the finite relative clause. This will be schematically represented by an asterix (*).

Taken all these points together, the definition of the diachronic English relative clause used in this chapter is the following:

> [(P)N * (relativizer) finite_clause] | clause modifies (P)N on the basis of participation of the referent of (P)N in event or state expressed by the clause]

5.2.2. Background

This section presents the background to the study. Many previous studies have dealt with the changing word order in English and alternating word order

patterns in earlier stages of English. §5.2.2.1 presents a brief overview of the word order in Old English. Thereafter I discuss previous explanations for the OV/VO alternation and the change into VO in §5.2.2.2. The third section, §5.2.2.3, highlights two important differences of this study in comparison to previous ones.

5.2.2.1. Old English word order

Differently from Present-Day English, Old English did not have one basic word order for all clause types. Main clauses preferred to pattern as verb-second (V2) and subordinate clauses were characterized by a verb-final pattern (Los 2015, 160–62, 184–86). V2 is exemplified in (8a), and (8b) illustrates the verb-final pattern.

(8a)	*Crist*	***gesette***	*ða*	*ealdan*	*æ*	
	Christ	established	the	old	law	
	'Christ established the old law.'					(Cocathom 2, 2699)
(8b)	*Sona*	*swa*	*Atheniense*	*wiston*	[*þæt*	*Darius*
	Soon	as	Athenians	realized	[that	Darius
	hie	*mid*	*gefeohte*	*secan*	***wolde***]	*hie*
	them	for	battle	visit	wanted]	they
	acuron	*endlefan*	*þusend*	*monna*		
	chose	eleven	thousand	men		
	'As soon as the Athenians realized [that Darius intended to seek them in battle], they selected eleven thousand men.'					(Coorosiu, 866)

These tendencies in Old English were unlike the verb-second and verb-final tendencies in Present-Day Dutch and German, in that Old English actually showed a wide range of variety, both in main clauses (Breivik 1991; Denison 1993; Bech 2001, 2012) and subordinate clauses (Heggelund 2009, 2015). In fact, Bech shows that the strength of the Old English V2 tendency depends on the coding decisions one makes, in particular whether pronominal arguments are considered to be clitics or full noun phrases (Bech 2001, 79–86). Yet, in both analyses, the majority of Old English main clauses patterned as V2: 55.6% of the main clauses is V2 in Old English when pronouns are counted as full arguments. When

pronouns are analyzed as clitics, this rises to 66.5% in Early Old English and 71.3% in Late Old English (Bech 2001, 71, 84).

The effect of V2 on the relative position of object and verb is relevant for the current study. The second position of the verb in main clauses is thought to have been functionally motivated. It was used to establish focus domains and to demarcate topics and background domains from new information (Los 2012). The preverbal slot was thus reserved for topics and background items. As a consequence, objects, which generally convey new information, were infrequent in this position. Consequently, main clauses had a high rate of VO word order.

Differently, subordinate clauses have been described as verb-final. As (almost) all clausal slots preceded the verb in subordinate clauses, there was no restriction on the type of elements that could occur in preverbal position. As such, they have a lower rate of VO than main clauses. This has been shown by previous literature (Kohonen 1978), as can be observed in Table 1. Note that the data in Table 1 include main clauses that do not adhere to the V2 pattern.

	Main clauses	*Subordinate clauses*
VO	73%	34%
OV	27%	66%

Table 1: OV and VO word order in main and subordinate clauses in Old English (Based on Kohonen 1978, 109)

One should, however, be a bit careful with these proportions, since different distributions have been documented. For example, Heggelund (2009) reported a significantly higher rate of VO in subordinate clauses than Kohonen (1978). In his data, Old English subordinate clauses patterned as VO in 40% (436/1081) of the cases (Heggelund 2009, 120–22). Importantly, both studies report that main clauses had a considerably higher proportion of VO word order than subordinate clauses. Yet, both clauses were flexible: Main clauses could pattern as OV and subordinate clauses frequently diverged from the verb-final pattern by having a postverbal object.

5.2.2.2. The OV/VO alternation

There are many studies dealing with the OV/VO alternation and the changing word order from (primarily) OV to VO. In this section, the various factors that have been proposed to have influenced this change or underlain the OV/VO alternation will be presented.

5.2.2.2.1. Language contact

The word order changes in the history of English have often been related to periods of language contact. In particular potential influence from Old Norse has been taken seriously. I will here briefly describe the most extreme position in this regard, which is taken by Emonds and Faarlund (2014), who have argued that Middle English is not an English language, but a descendant of Norse with borrowed English vocabulary.

As is well known, the Scandinavian invasions of England started at the end of the 8th century, with the attack on Lindisfarne in 793 being the first well-known attack (Downham 2017). These invasions eventually led to the establishment of the Danelaw in the 9th century in the northern and eastern regions (van Gelderen 2006, 96–97). During this time, there was no substantial influence of Norse on the English language. In the area of the Danelaw, a variety of Old English was spoken alongside a variety of Old Norse. The conquest of England by the French-speaking Normans changed this situation. Emonds and Faarlund suggest that "the miserable circumstances gave rise to a complete fusion of two previously separate populations, speakers of Old English and speakers of Scandinavian" (2014, 43). They adopted one language, Anglicized Norse (Emonds and Faarlund 2014, 155). As Old Norse has been assumed to have underlying VO word order (Faarlund 2004, 160), Middle English, being a descendant of Norse, also became VO.

Weaker hypotheses about the influence of Norse on English are more widespread. For example, Trips (2002) has argued that particular texts in Early Middle English exhibited linguistic patterns that are indicative of influence from Old Norse. This, she stated, was not limited to loan words, but included syntactic patterns and stylistic fronting as well. Following this observation, she assumed that the occurrence of VO word order is due to influence from Old Norse as well (Trips 2002, 75). Van Gelderen (2006, 106–8) also considers language contact,

but argued on the basis of the research by Thomason and Kaufman (1988) that the influence of both Old Norse (Scandinavian) and French did not reach the levels of changing the word order of English. Therefore, she concludes that the word order changes must have happened for language-internal reasons.

In this study, I do not dismiss a language contact scenario, but focus on the language-internal motivators for the language change. In light of the spread of VO word order to subject relative clauses, I deem the language-contact scenario with Old Norse unlikely, because OV (surface) word order was the norm in Old Norse subject relative clauses due to stylistic fronting (Faarlund 2004; Wagener 2017), which fronts various types of light non-subject constituents to a preverbal position in finite clauses without a subject (Ott 2018).

5.2.2.2.2. Extraposition, or the principle of end-weight

The attestation of non-verb-final patterns in subordinate clauses has been primarily accounted for in terms of extraposition and heavy NP shift (van Kemenade 1987; Pintzuk and Kroch 1989; Stockwell and Minkova 1991). Pintzuk and Kroch (1989) have argued that these two mechanisms should be distinguished. The crucial difference is that heavy NP shift is characterized by an intonation break between the verb and the heavy NP, while such a break does not exist with extraposition (van Kemenade 1987, 41; Pintzuk and Kroch 1989). Moreover, they state that heavy NP shift is the postponement of the noun phrase constituent, whereas extraposition is restricted to prepositional phrases and clauses. Although these mechanisms are thought to be different (Pintzuk and Kroch 1989) and different definitions have been given for extraposition, these phenomena result in a heavy final section of the clause. This is accounted for by the general principle of end-weight (Quirk et al. 1992), that is, the overall preference for placing long and/or heavy elements in a later clause-position than light elements (Behaghel 1909).

It is important to consider the principle of end-weight in light of Old English specifically. Although it is often presented as such, the tendency of placing heavy constituents later in the clause than shorter constituents is not universal. Japanese in fact exhibits the opposite preference, i.e., shorter elements tend to follow long ones. Hawkins (2001, 6) has explained this opposite preference by the general head placement within the language. Whereas Present-Day English is a

head-initial language, Japanese is a head-final language. For processing reasons, Japanese prefers a different ordering of short and long constituents than Present-Day English. Old English is quite interesting in this regard since it exhibited both characteristics of being a head-final and head-initial language. Both prepositions and postpositions are attested in Old English. Prepositions, which are associated with head-initial, were most common, but postpositions, e.g., *him on* 'on him', are also attested, albeit restricted to pronouns (Mitchell 1978, 242). Adjectives could be placed both prenominally and postnominally, e.g., *ðæs* ***mænniscan*** *lichoman* 'of the human body' vs. *gersuman* ***unateallendlice*** 'uncountable treasures' (Fischer 2001, 249). Again, the preference here was for a prenominal, thus head-initial, position. What is more, the auxiliary had a flexible positioning; it could both precede and follow the main verb. Once more, the head-initial ordering – AUX-V – was preferred. Although Old English is not purely head-initial, the head-initial patterns (e.g., prepositions, prenominal adjectives, and auxiliaries preceding the main verb) were more frequent than the head-final alternatives. Because Old English in general preferred the word orders associated with head-initial languages, it can be assumed that Old English should have adhered to the principle of end-weight. Previous studies have indeed shown this: In Old English, heavy objects are strongly associated with a postverbal position, whereas light objects tend to prefer a preverbal position (Taylor and Pintzuk 2012b).

The principle may be seen as the motivation for the existence of a postverbal constituent slot in Old English subordinate clauses, but cannot on its own account for the spread of VO word order (Tily 2010). According to Hock (1982) extraposition cannot be rejected as a potential explanation, but extraposition on its own does not necessarily lead to a change in basic constituent order as there are languages that have both extraposition and a stable OV word order, e.g., Japanese, or stable OV word order in subordinate clauses, e.g., Dutch. How and why this position became eventually the default position for objects remains hence elusive.

5.2.2.2.3. Pronouns, or discourse status

It is by now well-known that pronouns and nominal noun phrases in Old English had different distributions. In general, pronouns are more conservative than

nominal noun phrases (Bybee and Thompson 1997). For example, pronominal subjects occurred regularly in a preverbal position in main clauses, even when the first slot of the clause was already filled by another element. Nominal subjects were rarely preverbal in these contexts. Concerning the OV/VO alternation, pronominal objects were more strongly associated with a preverbal position than nominal objects (Kohonen 1978, 199). Moreover, pronouns were amongst the group of objects that remained in a position preceding the main verb for a long time,[10] even when the majority of the objects had become postverbal (Moerenhout and van der Wurff 2000, 2005).

The observation that pronouns were more reluctant to occur in a postverbal position has been related to the principle of end-weight. Pronouns are thought to be inherently light elements (Los 2015, 173) and are therefore placed in an earlier position than nominal noun phrases. It should be noted, however, that there are a few types of pronominal constituents that can (potentially) be heavy, namely i) pronouns followed by a form of *self*, ii) postmodified pronouns, and iii) coordinate pronouns. In addition, when pronouns are contrastively stressed, they can occur in non-canonical positions (Koopman 2005). Thus, weight and type of object should not be completely conflated.

What is more, pronouns typically mark old information (Los 2015, 173). This observation has led to the hypothesis that the different word orders might have been functionally motivated to mark the distinction between given and new information (Taylor and Pintzuk 2011). In recent studies, this idea has gained much attention and lead to the conclusion that the underlying word order of Old English was VO rather than OV. For example, Struik and Van Kemenade (2018) have shown in the context of Old English subject relative clauses with a complex predicate (AUX + main V) that nominal object encoding given information more frequently precede the verb than those that encode new information. These results suggest that the OV pattern – rather than the VO pattern – was functionally motivated, and therefore was not the basic word order of Old English. The spread of the VO pattern is then thought to be the result of the loss of the syntactic differentiation between old and new information.

[10] Together with objects with a negative element (e.g., *nought, no money*) and quantified objects (e.g., *all things, more money*).

5.2.2.2.4. Loss of case morphology

Previous studies have made the claim that the stabilization of word order is directly linked to the decline of the morphological richness in the nominal domain (Marchand 1951; Vennemann 1974; Roberts 1997). The basic idea behind this is that case marking initially had the function to demarcate the syntactic role of the constituents. When the (morphological) case system started to deteriorate, case marking could no longer be used to reliable distinguish subjects from objects. Instead, a fixed word order took over this function. The preverbal position was, in verb-second clauses, already strongly associated with topicality. As subjects are most frequently topics, the fixed position for subjects became the preverbal position. For objects, the position that lend itself best for this function was a position after the finite verb, because the preverbal position in main clauses was strongly associated with topicality (Vennemann 1974), and was thus functionally marked.

This hypothesis has been regularly refuted (Pintzuk 2002b; McFadden 2005; Hinterhölzl 2009) and no direct correlation between loss of case and the changing word order in English has been found (Allen 2006).

5.2.2.2.5. Analogy

Occasionally, analogy has been mentioned as an explanation for the word order changes in subordinate clauses (Bean 1983; Bech 2001; Kohonen 1978). As main clauses are typically more innovative than subordinate clauses (Bybee 2002b), they can function as a model to which subordinate clauses can conform. For example, Stockwell (1977) states that the word order distinction between main and subordinate clauses may have been "destroyed by analogical spread (generalization) of main-clause order into non-main clauses". The pressure from the main clause, or the drive to conform to the tendency of the overall system, has been offered as a reason for why one cohesive word order pattern in all clause types could have been established by others as well, e.g., Kohonen (1978, 91). Yet, a data-driven study into the role of analogy in the spread of the VO pattern has, to the best of my knowledge, not been provided yet. In §3.1.2, I discussed how analogical change of this type hinges on relations between constructions at the same level of abstraction, that is, on lateral relations. In the remainder of this

section, I introduce one particular type of clause that lives at the intersection of declarative main clauses and subject relative clauses.

(9)	*ðæt*	*folk*	***þe***	***heora***	***reaf***	***wurpon***	***under***
	the	folk	REL	their.ACC	garments.ACC	throw	under
	þæs	***æssan***	***fet***	*þæt*	*sind*	*martyras*	
	the	ass'	feet	that	are	martyrs	

'The folk who throw their garments under the ass' feet, those are the martyrs.' (Cocathom1, 2663)

(10)	*Siba*	*wæs*	*gehaten*	*sum*	*Dauides*	*þegena*	***se***
	Siba	was	called	a	David's	servant	REL
	astyrode	***þæt***	***folc***	***mid***	***feondlicre***	***spræce***	
	stirred.up	the.ACC	people.ACC	with	hostile	speech	

'A servant of David was called Siba, who/he stirred up the people with hostile speech.' (Coaelhom, 3716)

Amongst the subject relative clauses, there was a group of clauses that can alternatively be analyzed as a main clause (see Los 2015, 198–200). In the current study, one will encounter subject relative clauses that are highly similar to – and in fact almost indistinguishable from – main clauses. Consider the two bolded clauses in (9) and (10). Whereas the subordinate clause in (9) is unambiguously a subject relative clause, the one in (9) can alternatively be viewed as an instantiation of a main clause. These two types of subject relative clauses differ in certain formal and functional characteristics, with the clause type in (10) having characteristics that are typically associated with main clauses. First, while the clause in (9) precedes the verb of the matrix clause – *sind* – and is thus center-embedded, the clause in (10) is attached after the matrix clause, resembling the sequential ordering of two main clauses. Second, while the relativizer in (9) – *þe* – is a subordinator only, the relativizer in (10) – *se* – corresponds in form to the nominative case of the demonstrative pronoun. This pronoun can be interpreted as a noun phrase functioning as the subject of the verb *astyrode*. Third, the relative clause in (9) has a restrictive meaning and is needed to identify the intended referent. In (10), the second clause has a supplementary function, providing additional information about the referent, and it is not required for

identification of the referent. As such, the function of this clause is comparable to a function of main clauses, namely to continue providing information about a previously introduced entity. These three factors each contribute to a high degree of similarity between the clause in (10) and main clauses, resulting in a situation in which the clause ambiguously instantiates a main clause or a relative clause.

Since the current study assumes a network organization of language (Bybee 2010; Diessel 2019), in which the relations between constructions play a crucial role in language variation and language change, these types of clauses are included in the later analyses. These hybrid-constructs highlight the gradient nature of the relations between relative clauses and other clause types (Croft and Cruse 2004, 302–7). Moreover, the existence of such bridging contexts between relative and main clause establishes that main clauses and subject relative clauses were associated to each other by formal and functional similarity, and hence were laterally related.

This connection between main clauses and relative clauses is strongest within the subgroup of subject relative clauses, as was exemplified above. Object relative clauses did not and still do not have such a connection with declarative main clauses. As was mentioned in §5.1.1, Old English relative clauses almost uniformly patterned as OSV. Differently, main clauses only sporadically followed this word order. When objects were topicalized, OSV word order could occur, as in Present-Day English (e.g., *That remedy I do not offer* (BNC, BP0 2608)). Unlike Present-Day English, the Old English object topicalization-construction could alternatively exhibit V2, yielding not an OSV pattern, but OVS instead. This is exemplified in (11).

(11) *[Micele ðing]* ***abædon*** *[ða mæran apostolas]*
[great things.ACC] **asked** [the great apostles.NOM]
æt ðan halgan Fæder æfter ðæs Hælendes upstige
at the holy father after the Savior ascension
'Great things the apostles asked of the holy Father after the Savior's ascension.' (Allen 1977, 40)

Overall, the OSV pattern in main clauses was highly infrequent (Bech 2001, 119–24). Object relative clauses in Old English thus only bore a very weak similarity

to main clauses. The preference for verb-final word order we see in Old English object relative clauses was also found in other subordinate clauses, but even in the other subordinate clauses, XSV – and therefore OSV as well – was very rare (Heggelund 2009). Old English relative clauses thus had, like other subordinate clauses, but unlike declarative main clauses, a preference for a verb-final pattern. No systematic formal or functional similarity existed between the main clause and the object relative clause.

5.2.2.3. Two notes

This study diverges from most previous studies in two crucial ways. These are important to note, as they make the results not strictly comparable. First, the current study looks at observable word order and does not assume any underlying word order, as has been the case in many a study (van Kemenade 1987; Pintzuk 1996, 1999, 2002a, 2002b; van Kemenade and Los 2008; Taylor and Pintzuk 2012b; Struik and van Kemenade 2018). Instead, word order is viewed as an integral characteristic of a construction (Kuningas and Leino 2006, 308) and is specified per construction. Therefore, it is here not assumed that one word order underlies all clausal constructions, nor that one word order is more basic than another. One language can exhibit multiple word orders without one being derived from another, since these word orders are associated with different constructions. Consequently, the search into what underlies the OV/VO alternation is not a search for the variables that motivate the derivation of one pattern from another.

Second, the current study concentrates on the position of the object and the *finite* verb. In the past, the focus has often been on the position of the main verb, specifically in the context of complex, or periphrastic, verb phrases. The purpose of this was to abstract away "from the effects of verb movement of the finite verb" (Koopman 2005). Hence, studies that are restricted to complex predicates only present a highly focused, but therefore somewhat incomplete picture of the frequency distribution of postverbal objects. As a consequence, the role of the finite verb in the development into VO word order may have been undervalued.

5.3. Methodology

The study is concerned with the word order change in English subject relative clauses. In Old English, subject relative clauses primarily patterned as object-verb (ca. 70 %), but this changed in Middle English to a strong preference for verb-object word order (ca. 85%). This raises the following questions:

i) How did subject relative clauses change from preferring OV word order in Old English to having VO as default in Middle English?

The situation of variation in Old English was the prelude for the ultimate spread of VO. Understanding the motivations behind the initial variation provides the foundation for understanding the actualization of the VO pattern. Investigating the alternation in both periods and comparing the factors motivating the different word orders can shed light on the change of preferred word order. Therefore, the following subquestions are asked:

ii) What underlies the OV/VO word order alternation in Old English subject relative clauses?
iii) What underlies the OV/VO word order alternation in Middle English subject relative clauses?

In what follows, the data used to answer these questions is introduced in §5.3.1. The statistical methods and their specifications are presented in §5.3.2 and the variables that will be tested are explained in §5.3.3.

5.3.1. The data

Two data sets are used for the study in the current chapter. The first contains Old English relative clauses and the second data from Middle English. The Old English data were extracted from the York-Toronto-Helsinki Parsed Corpus of Old English Prose (henceforth*: YCOE*) (Taylor et al. 2003). The Middle English data originates from the Penn-Helsinki Parsed Corpus of Middle English, second edition (PPCME2) (Kroch and Taylor 2000a). These corpora are selected, because they are both tagged and parsed, capture the intended period, and consist of a relatively wide variety of texts.

To identify the relevant clauses, I use the computer programs CorpusSearch2 (Randall, Taylor, and Kroch 2005) and CorpusStudio (Komen 2014). Clauses that are dominated by noun phrases and labelled as CP-REL are extracted with these programs. This corresponds to the extraction of relative clauses that modify a noun phrase. The data are cleaned up manually, so that clauses that do not contain a finite verb, modified another constituent than a noun phrase, or originate from the same sentence as another observation are removed. From the remaining relative clauses a random sample of 1000 is taken for Old English. This process is repeated for Middle English.

For the statistical analysis that investigates the factors underlying the OV/VO alternation, only transitive subject relative clauses are considered. Therefore, two subsets of the data are created. The first subset contains all transitive subject relative clauses from Old English, which are 293 instances. The second subset contains 260 transitive subject relative clauses from Middle English.

5.3.2. Statistical methods

To answer the questions regarding the factors underlying the word order alternation in Old English, various predictor variables are formulated on the basis of previous literature. These will be introduced in the next section. To identify which variables are important for the selection of the object-verb or verb-object word order, I use the methods of random forests and variable importance measures. The results show which factors are important for the selection of object-verb or verb-object word order in Old English. The analysis is repeated for Middle English to test whether the factors underlying the word order in Old English remain relevant in Middle English, or whether the motivations behind the word orders have changed. For this, I use the functions CFOREST and VARIMP of the 'party'-package. The number of trees calculated by the random forests (NTREE) is specified as 2000, and the number of tested predictor variables considered at each split of the tree (MTRY) is 3, which corresponds to the square root of the number of variables rounded down. The models are run five times with different seeds to verify the models' stability. The statistics of the models and the specific seed underlying the results will be provided in the analysis. The variable importance measures are specified for CONDITIONAL = TRUE, as some of the predictor variables are clearly correlated.

In addition to the variable importance measures, I use partial dependence plots for each of the categories of the variables to get insight into the direction of prediction. Partial dependence plots indicate the effect of the individual category per variable. They are based on the random forests. For reasons of space, these will be presented as plots for the most important values of the variable only. For other variables in which this provides additional information, partial dependence scores – yhat – will be given in a table.

On the basis of the results of this analyses, it is hypothesized that the postverbal slot in Old English subject relative clauses, which was originally motivated by the principle of end-weight, could expand to short objects under the influence of declarative main clause-constructions. This hypothesis leads to the formulation of two testable predictions:

- Relative clauses that are highly similar to declarative main clauses have more verb-object word order than relative clauses that show little or no resemblance to declarative main clauses.
- Relative clauses that are highly similar to declarative main clauses have shorter postverbal objects than relative clauses that show little or no resemblance to declarative main clauses.

These predictions are tested with the chi-squared test and conditional inference trees. For the conditional inference trees, I use the function CTREE of the 'party'-package.

5.3.3. The variables

This section introduces the variables that were tested as potential factors underlying the OV/VO alternation in Old and Middle English. Each individual variable is briefly discussed. The discussion of the variables starts with the response variable. Thereafter, the predictor variables are introduced. At the end of this section, the predictor variables are summarized in Table 2 for easy reference.

5.3.3.1. The response variable: OV/VO

The response variable is the relative order of the verb and the object. A clause was classified as either *OV* or *VO*, with V standing for the finite verb, and O for

the object. When the verb phrase of the relative clause was a complex predicate, only the finite verb in the clause was considered for the classification. A constituent was identified as an object if it was an internal core element of the verb phrase (Huddleston and Pullum 2002, 216) and thus includes accusative, dative, and genitive objects, as well as direct and indirect objects. Only the accusative or direct object was considered in case of constructions with multiple objects.

5.3.3.2. Dialect (DIALECT)

DIALECT encodes the dialect from which the text originates. The classification follows the one maintained by the corpora. The attested dialects in Old English are West Saxon (*WS*), West Saxon/Anglian (*WA*), West Saxon/Anglian Mercian (*AM*), and West Saxon/X (*WX*). The dialects found in the Middle English data set are East Midlands (*EM*), West Midlands (*WM*), Kentish (*Ke*), Northern (*No*), and Southern (*So*). This variable is included in order to take dialectal variation and potential influence from Scandinavian into account (Kroch and Taylor 2000b; Trips 2002; Emonds and Faarlund 2014; but cf. van Gelderen 2006). Moreover, it should be noted that the majority of Old English texts originate from a different dialect area than the lion's share of the Middle English data. Whereas the West-Saxon dialect is best represented in Old English, its descendant – the Middle English 'Southern' variety – is only attested in the Late Middle English data. The majority of the Early Middle English texts were written in West- and East-Midlands, which were spoken in the Midlands. The West-Midlands dialect has likely developed out of Anglian Mercian. About the predecessor of East-Midlands almost no information has been preserved (Quirk and Wrenn 1987). This means that the dialects are not continuous nor equally represented per period, which makes it necessary to control for them.

5.3.3.3. Manuscript period (MANPER)

MANPER is a period division based on when the manuscript was written. Old English consists of three periods: *O2*, reaching from 850 to 950; *O3*, which covers the period between 950 and 1050; and *O4*, which ranges from 1050 to 1150. Middle English is divided into four periods: *M1*, which covers 1150–1250; *M2*, reaching from 1250–1350; *M3*, containing data from 1350–1420; and *M4*, ranging

from 1420–1500. The classification was based on the corpus annotations. The more fine-grained period division was considered in order to verify whether the alternation changed within the Old or Middle English period. Moreover, it controls for the possibility that one of the variables only had an effect in one specific time-period.

5.3.3.4. Animacy of the object (OBJANIM)

OBJANIM stands for the animacy of the object. The variable contains two levels: animate (*an*) and inanimate (*in*). An object was coded as animate when the referred to entity was i) a divine entity (e.g., *hys gost* 'his spirit', *deofla* 'devil'); ii) human (e.g., *guode men* 'good men', *Jon Wakeryn*); iii) an animal (e.g., *þæt hryþer* 'the bull'); or iv) a group of animate individuals (e.g., *his folk* 'his people'). If the object did not fill any of these requirements, it was classified as inanimate.

The animacy status of constituents has been related to various word order alternations. For example, Rosenbach (2005) has shown in her study on genitive variation that animacy is a more important variable than weight in the choice between the *s*-genitive and the *of*-genitive.[11] More specifically, genitives with animate possessors have a strong preference for the *s*-genitive, whereas inanimate possessors mainly occur in the *of*-genitive construction. Moreover, Wolk et al. (2013) discovered that inanimate recipients became more frequently used in the double object construction compared with the *to*-dative-construction during the twentieth century than before. This indicates that the effect of animacy on constituent order is not fixed but can change over time.

In general, animate referents are thought to be more easily accessible than inanimate ones. Since easily accessible elements tend to occur in an earlier position than inaccessible ones (Branigan, Pickering, and Tanaka 2008, 184), it is predicted that animate objects are more likely to occur in an earlier position than inanimate objects and thus are more strongly associated with OV word order.

5.3.3.5. Case of the object (OBJCASE)

OBJCASE contains information about the case marking of the object. An object was coded as case marked (*yes*) when its attested form was distinguishable from

[11] Although, when the possessor contains more than two pre-nominal modifiers, weight starts to out-perform animacy.

nominative and dative case, or, in case of a dative object, when it was distinguishable from nominative and accusative form of the noun. Instances of case syncretism were coded as ambiguous (*amb*). When the noun had the same form in the nominative, accusative, and dative case, the objects were coded as unmarked for case (*no*). The decisions were made on the basis of the rest of the text, for example, if a relative clause originated from Ælfric's Lives of Saints, this particular text was searched for other forms of the noun. On the basis of this information, a classification decision was made.

The variable was included, because – albeit regularly refuted (Pintzuk 2002b; McFadden 2005; Allen 2006; Hinterhölzl 2009) – previous studies have made the claim that the stabilization of word order is directly linked to the decline of the morphological richness in the nominal domain (Marchand 1951; Vennemann 1974; Roberts 1997). If the loss of case morphology is responsible for, or tightly connected to, the word order change in English, it is predicted that objects that are case marked showed variation and could pattern as OV for a longer time, while those that are not marked for case or ambiguously so used the VO order. As case marking sufficed for identifying the syntactic role of the constituent, case-marked objects did not need to be in a fixed position and could roam freely within the clause. Constituents whose function could not be morphologically determined required a fixed position within the clause. The position that lend itself best for this function was a position after the finite verb, because the preverbal position in main clauses was strongly associated with topicality (Vennemann 1974). Thus, the expectation is that objects that were not case marked and objects with ambiguous case marking are strongly associated with VO word order.

5.3.3.6. Definiteness of the object (OBJDEF)

OBJDEF codes whether the object is definite (*def*) or not (*no*). Following Ringe and Taylor (2014, 448), the following elements were coded as definite: personal and demonstrative pronouns, proper names, noun phrases containing or existing of a form of *all,* and noun phrases with a definite determiner, i.e., a form of *se, þe, þes* or a possessive pronoun. The objects that did not meet any of these criteria were coded as non-definite.

Previous studies have shown that definiteness can have an independent effect on word order. For example, Van Bergen and De Swart (2010) have shown in their study of Dutch adverb-object versus object-adverb placement ('scrambling') that the higher the object ranked on the definiteness scale (Aissen 2003, 437), the more frequently it preceded the adverb (i.e., the more frequently it was scrambled). Definite constituents are thus more strongly associated with an earlier position than less definite ones. A probable reason for this tendency is difference in accessibility between definite and non-definite noun phrases. Definite noun phrases typically mark accessible information, while non-definite ones do not (Ariel 1990, 225). Definite noun phrases are therefore less likely to be postponed for processing reasons.

The hypothesis is that definite objects occur more frequently in a preverbal position than non-definite object, as the latter are less accessible and heavier than the former.

5.3.3.7. Relative length of the object (OBJLVL)

The variable OBJLVL measures the length of the object. Based on previous research showing that the relative length of constituents is more important for the position of the constituents than their absolute length (Stallings and MacDonald 2011), the variable considers both the length of the object and the length of the finite verb. Wolk et al. (2013) tested various methods of measuring this and came to the conclusion that number of words, number of characters, and aggregated measures performed highly similarly. Therefore, the most straightforward measure of length in characters was chosen. The relative length of the object is then measured by subtracting the length of the verb in characters from the length of the object in characters.

In previous studies on the word order alternation in Old and Middle English, it has been observed that heavy noun phrases are associated with a post-verbal position. For example, Pintzuk and Kroch (1989) have noted – for all clause types – that heavy noun phrases are associated with a postverbal position in Beowulf and Taylor and Pintzuk (2012a, 2012b, 2015) demonstrated that heavy objects more frequently follow the main verb in subordinate clauses than light objects. It is expected that long objects occur more frequently following the finite verb in

subject relative clauses as well, while short objects are expected to be more strongly associated with a preverbal position.

5.3.3.8. Type of object (OBJTYPE)

OBJTYPE is an abbreviation of type of object. This captures whether the object takes the form of a clause (*cl*), a nominal (*np*), or a pronoun (*pn*). It is well known that the OV word order in both Old and Middle English is associated with pronominal objects (see §5.2.2.2.3), while clausal objects uniformly follow the verb (Fischer et al. 2004, 144). This has been related to the weight of the constituents: As pronominal constituents are light elements (Los 2015, 173) and clausal constituents are considered to be heavy elements (Sapp 2011), their preverbal position is predicted on the basis of their weight.

Although this variable correlates with the length of the constituents, the two should not be conflated into one variable of weight (Tily 2010, 35). Object clauses can be shorter in length than nominal objects, and some pronominal objects are longer than certain nominal ones. The different types of constituents differ in more aspects than merely their average length. Pronominal objects are primarily functional constructions, whereas nominal constructions are formed around a contentful lexeme. Moreover, pronouns and full noun phrases mark different degrees of accessibility (Ariel 1991), and pronouns are typically associated with given or non-focused information (Hinterhölzl and Petrova 2010). As such, the type of object covers not merely a difference in form, but in function as well.

5.3.3.9. Relativizer (REL)

REL stands for the relativizer introducing the relative clause. Old English relativizers are divided into three categories: demonstrative relativizers, the invariable relativizer, and complex relativizers. The first category (*dem*) consists of *se, seo, þæt* and *þa*, which correspond to the masculine, feminine, neuter, and plural nominative form of the demonstrative *se* respectively. The only invariable relativizer in Old English was *þe*. This is the second category (*inv*). Complex relativizers (*comp*) are combinations of a demonstrative relativizer and the invariable relativizer like *se þe*, as well as contracted forms like *þætte*.

In Middle English, the relativizer system was changing. Only the forms *þa, þe* and *þatt* are attested in both Old and Middle English. *Þa* is the only

demonstrative pronoun (*dem*) that has remained in Middle English. Like in Old English, *þe* is in Middle English categorized as an invariable relativizer (*inv_o*). *Þatt* falls under the category *thVt,* together with the various spelling variants of the same lexeme, e.g., *that, þet* and *þatt*. In Middle English, *thVt* developed from a demonstrative pronoun into an invariable relativizer (Suárez 2012) and can therefore not be consistently classified as either one. In order to avoid forcing an inappropriate system onto Middle English, *thVt* is treated as a category on its own. Besides the disappearance of some of the relativizers, new relativizers appear in Middle English. These are *þe which*, *which*, *which that, þe wylke*, and zero. *Þe which, which that*, and *þe wylke* are classified as complex relativizers (*comp*), *which* as an invariable *wh*-relativizer (*wh*), and the absence of a relativizer as zero (*zero*).

Fischer and colleagues (2004, 55–56) have noted that relative clauses introduced with the relativizer *se* exhibited a high amount of verb-second word order compared to *þe* and *se þe*. They explain this observation diachronically: Since relative clauses introduced with a demonstrative pronominal relativizer are thought to have developed from paratactic structure, they have occasionally retained their old structure, a main clause structure. From a synchronic perspective, it can be said that this type of relative clause bears a higher degree of similarity to main clauses because a demonstrative pronoun could function as an argument of the verb, while *se þe* and *þe* generally did not have this function. In either case, the expectation is that VO word order is more frequent with the demonstrative relativizers than with the invariable one in Old English.

5.3.3.10. Name of the source text (TEXT.NAME)

The variable TEXT.NAME contains the name of the text from which the relative clause originates. It was coded take individual variation into account. Since a number of texts were written anonymously, and the name of the author has been lost for others, the name of the manuscript was used as an approximation of the individual. The coding was directly based on the corpus annotation.

5.3.3.11. Translation (TRANSLATION)

The variable TRANSLATION codes whether the texts was originally written in English or translated from another language. The variable has two levels in the

Old English data set: *no* for Old English originals, and *Latin* for translations from Latin. Middle English translations originate from more languages. This was encoded in the variable. *No* was used for manuscripts that were originally written in Middle English, *French* for texts that were translations from Old French, *Latin* from texts that were originally written in Latin, *Dutch* for translations from Old Dutch, and *half* for a source that was translated from Latin, but whose English version was much longer than the Latin original. The coding decisions were based on information provided by the corpora.

The variable was coded in order to control for potential transference from the source language to the translated text (Taylor 2008).

5.3.3.12. Complexity of the predicate (VPTYPE)

VPTYPE indicates whether the predicate consisted of a single verb, or consisted of multiple verbs. A relative clause was coded as *simple* when it contained only one verb and as *complex* when the clause contained two or more verbs.

Previous studies have shown that in clauses with a periphrastic predicate, the object tends to follow the finite verb, but precedes the main verb (Pintzuk 2002a; Haeberli 2005). The proposed explanation for this has been that the main verb remains in-situ, i.e., its base-generated position, while the finite verb is – for thus far unknown reasons – moved to a higher position. Consequently, the object follows the main verb more frequently in clauses with a single finite verb than in clauses with a complex predicate (Fischer et al. 2004, 51). In this study, however, V is defined as the finite verb. As a consequence, the VO word order is likely more frequent in clauses with complex predicates than in simple clauses. Potentially, because the finite verb is semantically lighter when there is another verb functioning as the semantic head.

Variable	*Levels*	*Explanation*
Dialect	*AM; WA; WS; WX; EM; Ke; No; So; WM*	The dialect from which the source text originates, based on the corpus annotation.
ManPer	*O2; O3; O4; M1; M2; M3; M4*	The period in which the manuscript was written, based on the corpus annotation.
ObjAnim	*an; in*	The animacy of the object, animate (*an*) or inanimate (*in*).
ObjCase	*amb; no; yes*	Case marking on the object. The object can be distinctively marked for case (*yes*), not marked for case (*no*), or ambiguously marked for case (*amb*).
ObjDef	*def; no*	Whether the object was definite (*def*), or not (*no*).
ObjLVL		The relative length of the object to the verb, measured in difference in characters.
ObjType	*CL; NP; PN*	The syntactic type of the object, pronominal (*pn*), nominal (*np*), or clausal (*cl*).
Rel	*comp; dem; inv, inv_o; thVt; wh; zero*	The relativizer used to introduce the clause, complex (*comp*), demonstrative (*dem*), invariable *þe* (*inv, inv_o*), *that* or form thereof (*thVt*), *wh*-pronoun (*wh*), or no relativizer (*no*).
Text.name		The name of the text from which the clause originates based on the corpus annotation.
Translation	*no; Dutch; French; Half; Latin*	Whether the text was a translation, or not. A text was a translation – and from which language – or originally written in English (*no*).
VPType	*complex; simple*	The complexity of the verb phrase, the clause contained simple verb phrase (*simple*), or a complex predicate (*complex*).

Table 2: Summary of the predictor variables and their values

The predictor variables and their levels are summarized in Table 2.

5.4. The OV/VO alternation

In the introduction to this chapter, it was mentioned that Old English subject relative clauses already showed some word order variation. This is supported by the data used in the current study in Table 3 (for a more complete distribution of word order in Old and Middle English relative clauses, see Appendix 1).

	Pattern	*Old English*		*Middle English*	
Object RC	(NP) NP V	244	92.42%	199	88.44%
	(NP) V NP	4	1.52%	2	0.89%
	other	16	6.06%	24	10.67%
Subject RC[12]	(NP) NP V	201	68.60%	41	15.77%
	(NP) V NP	86	29.35%	217	83.46%
	other	6	2.05%	2	0.77%

Table 3: Word order in Old and Middle English subject and object relative clauses

Although both subject and object relative clauses preferred to pattern as verb-final in Old English, the data also indicate that while the object relative clause almost uniformly patterned as (NP) NP V, the subject relative clause displayed significantly more variation ($p < 0.001$). The (NP) NP V pattern (i.e., (S)OV) accounted for the majority of the subject relative clauses, but approximately 30% already displayed the (NP) V NP pattern (i.e., (S)VO). This distribution was roughly stable throughout the Old English period (850–1150). In Middle English, the situation changed, and transitive subject relative clauses started to primarily pattern as (NP) NP V, i.e., (S)OV. Object relative clauses retained their old order of (O)SV. For an investigation of the word order change, it is interesting that the subject relative clause has changed into the verb-medial pattern – (NP) V NP – that is nowadays so widely attested, while the object relative clause did not.

The above described differences between object and subject relative clauses in Old, Middle, and Present-Day English necessarily entails that relative clauses cannot be treated as one uniform construction in the change from OV to VO word order.

[12] The table only considers transitive subject relative clauses.

The majority of the relative clauses in Old and Middle English were subject relative clauses. The second most frequent were object relative clauses. Old and Middle English had other types of relative clauses (e.g., oblique object relative clauses, indirect object/dative relative clauses), but these will not be considered further, because their frequency was relatively low in Old and Middle English (see Appendix 1). As object relative clauses did not show a dramatic reorganization of the basic constituents, the current study will focus on subject relative clauses. The subject relative clause is especially useful to gain insight into the relative ordering of object and verb in relative clauses, because the subject is fixed in the clause-initial position, independent of what exactly is analyzed as the subject of the clause (a nominal antecedent, a relativizer, or a gap). The subject position can therefore not assert influence over the positioning of verb and object in these clauses.

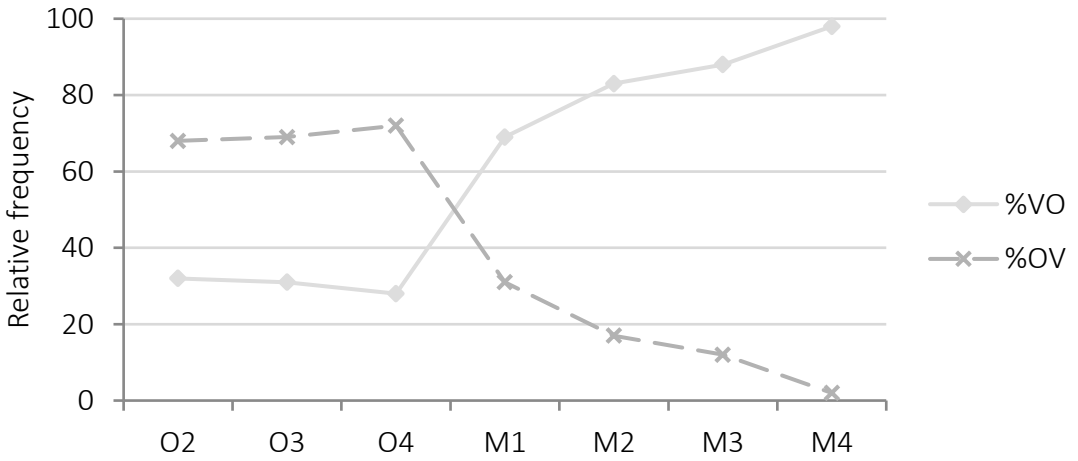

Figure 15: Proportion OV/VO word order in subject relative clauses per manuscript period

Figure 15 shows the distribution of the VO pattern in subject relative clauses with a more fine-grained period division. It indicates that throughout all subperiods of Old English the proportion of VO is roughly 30%. The alternation of OV/VO in Old English was thus stable. Then, in the transition from O4 (1050-1150) to M1 (1150-1250) – from Old English to Middle English, the word order changed drastically. From M1 onwards, the VO order became the most frequently used pattern, covering approximately 69% of the data. The proportion of VO slowly but steadily increased, and in the latest period of Middle English, M4, 98%

of the transitive subject relative clauses exhibited VO word order. For the raw frequencies per period, see Appendix 2.

Since variation between the OV and VO orders is already found in Early Old English, and the distribution of the two patterns remained stable throughout all periods of Old English, it is likely that the OV pattern and the VO pattern had different motivations for use. To identify these motivations, the potential factors influencing the decision between OV and VO word order are tested. The results for Old English are presented in the following section.

5.4.1. Results for Old English

In the current section, I reports the results of the random forests, the variable importance measures, and the partial dependence plots that test the relation of the variables introduced in §5.3.3 to the relative position of object and verb. The results will provide more insight into what underlies the word order alternation in Old English subject relative clauses, and they verify whether general observations concerning the OV/VO alternation in previous studies are relevant for the alternation in subject relative clauses.

In what follows, I will present the general statistics of the model and a more detailed discussion of the individual variables that were identified to be important. The results for Middle English will be presented in §5.4.2.

5.4.1.1. General results

The results for the variable importance measures are presented in a dot-chart in Figure 16. The *C*-index for the random forest underlying the variable importance measures and the partial dependence score is 0.93 and its Somers' D_{xy} is 0.86. This indicates that the model performs well above chance. A confusion matrix shows that the model is more accurate (0.86) than a naïve model (0.70). The difference between the models is significant ($p < 0.001$) with residuals –1.56 and 2.90, meaning that the tested variables contribute to the accurate prediction of OV or VO word order. More specifically, the tested variables have a good explanatory value for the selection of VO word order.

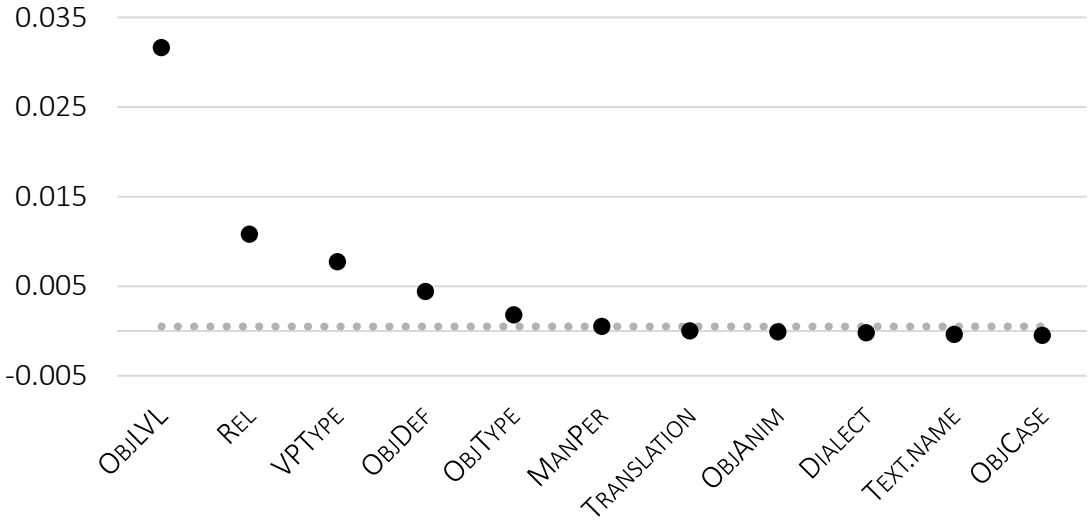

Figure 16: Variable importance measures for Old English (seed = 153168)

In Figure 16, the variables are sorted from most important to least important. The five variables that came out as important are positioned above the dotted line. Unimportant variables vary around zero and are found on or below the dotted line. The relative length of the object (ObjLVL) is identified as the most important variable. Following are the relativizer (Rel), the complexity of the verb phrase (VPType), the definiteness of the object (ObjDef), and the type of object (ObjType). The remainder of the variables are located on or below the dotted line, which means that they do not contribute to the correct prediction of OV or VO word order and thus do not have an effect on the choice between OV and VO.

5.4.1.2. Length of the object

The relative length of the object was identified as the most important variable motivating the Old English OV/VO order. Figure 17 presents the variable's partial dependence plot. This shows the individual effect of this variable on the classification of OV or VO. One finds the categories of the discussed variables on the x-axis. On the y-axis, the yhat (i.e., partial dependence score) is presented. Since the response variable is binary OV/VO, the graph can be interpreted as follows: The higher the value of the category, the stronger it is associated with OV word order.

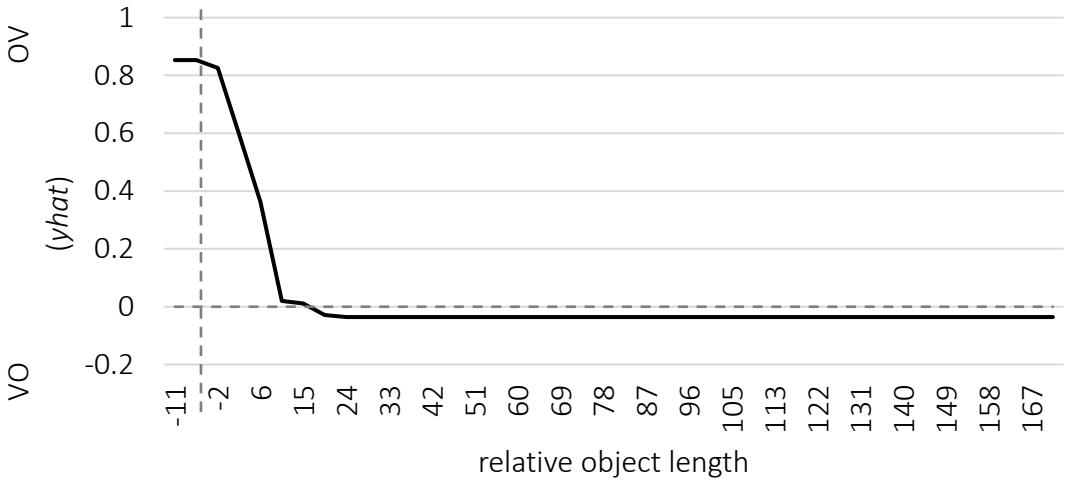

Figure 17: Partial dependence plot of object length minus verb length in Old English

Figure 17 shows that the longer the object is compared to the verb, the more VO order is predicted. Conversely, the shorter the object compared to the verb, the more frequently OV order is found. More precisely, it shows that if the verb is longer than the object, OV word order is strongly predicted, while if the object is six or more characters longer than the verb, VO word order is predicted. These observations are in line with the principle of end-weight (Behaghel 1909; Hawkins 1994; Wasow 1997), which states that "a shorter element precedes a longer one wherever possible" (Hawkins 1994, 118).

The tendency for short constituents to precede longer elements is illustrated by the example (12a). In this clause, the short object *hit* is in a preverbal position. The verb *gesawon* is relatively long, as the object is four character shorter than the verb. This makes it very likely that the object precedes the verb. On a par with the end-weight principle, the longer constituent, the verb, is positioned later in the clause than the shorter constituent, the object.

(12a)	*&*	*we*	*his*	*gelyfað*	*þe*	*hit*	*ne*	***gesawon***
	and	we	it.GEN	believed	REL	it.ACC	not	saw.PL
	'And we who did not see it, believed it.'							(Cocathom 1, 2310)
(12b)	*Se*	*ðegn*	*se*	*ðe*	***wat***	*his*	*hlafordes*	*willan*
	the	servant	REL	REL	know.SG	his	lord	wish.ACC
	'the servant who knows his lord's will'							(Cocura, 3021)

The clause in (12b) is in accordance with the end-weight principle as well, but shows the opposite pattern. The long object *his hlafordes willan* follows the short verb *wat*.

It should be noted that short objects are not limited to the preverbal position, nor are long objects completely banned from it. Patterns going against the principle of end-weight are exemplified in (13).

(13a)	*On*	*þone*	*we*	*eac*	*gelyfað,*	*se*	*ðe*	***alysde***	*us*
	in	him	we	also	believed	REL	REL	freed.SG	us.ACC
	'In him who freed us, we also believed.'								(Coaelhom, 857)

(13b)	*Æfter*	*þæm*	*Perðica,*	*þe*	*þa*	*læssan*	*Asiam*
	after	that	Perdiccas	REL	the	lesser	Asia.ACC
	hæfde	*angan*	*winnan*	*wið*	*Ariarata*	*Capadoca*	*cyninge*
	had.SG	began	fight	with	Ariaretes	Capadoccia	king
	'Thereafter Perdiccas, who had Asia Minor, began to fight against Ariarates, the king of Cappadocia.'						(Coorosiu, 1547)

In (13a), the object *us* is shorter than the verb *alysde*, yet follows it. In (13b), the long object *þa læssan Asiam* precedes the relatively short verb *hæfde*. This demonstrates that, although the relative length of the object is the most important factor determining word order in Old English transitive subject relative clauses, it cannot account for the complete data set. As such, it cannot be the only factor motivating the postverbal position of object. This observation is in line with the expectations based on previous studies, which have shown that although the heaviness of the object is an important factor, other things can motivate VO word order as well (Taylor 2005; Tily 2010; Taylor and Pintzuk 2012a). This is also evident from the variable importance measures, which indicated that four other variables influenced the word order.

5.4.1.3. The relativizer

The second most important variable is the relativizer used to introduce the relativize clause. Figure 18 offers the partial dependence plots for this variable. The figure shows that the invariable relativizer, *þe,* has a strong attraction to the

OV word order, whereas both the demonstrative and complex relativizers are more strongly associated with VO word order.

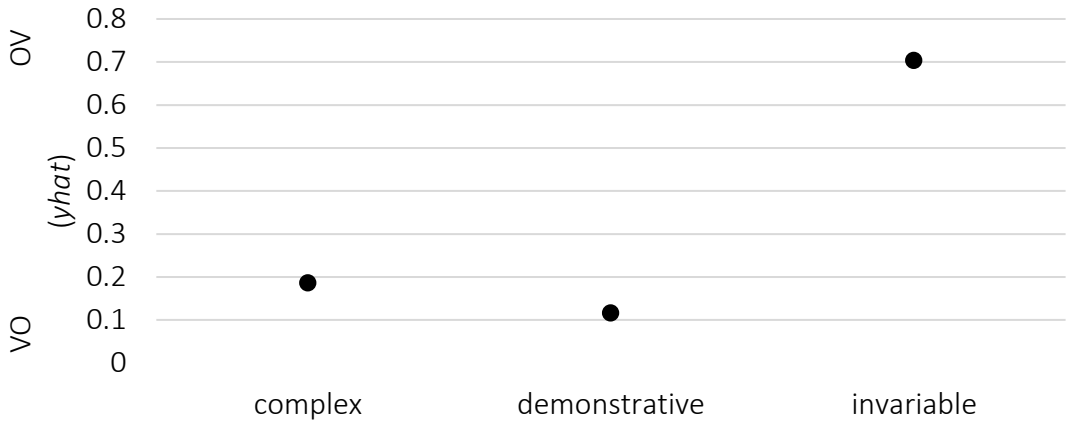

Figure 18: Partial dependence plots of relativizer in Old English

Both invariable *þe* and the demonstrative relativizers (*se, seo, þæt,* and *þa*) occur not only with their preferred word order patterns, but can be found with the alternative as well. This is illustrated in (14) and (15).

(14a)	*se*	*munuc*	*þe*	*þæt*	*hordern*	***heold***
	the	monk	REL	the	treasury.ACC	kept
	'the monk, who kept the treasury'					(Cogredc, 1901)
(14b)	*Ða*	*synd*	*blodiga*	*weras*	*ðe*	***wyrcað***	*manslihtas*
	Then/they	are	bloody	men	REL	work	murders.ACC
	'Then [there]/They are bloody men who commit murder.'						(Coaelive, 3037)

In (14), the invariable relativizer *þe* is exemplified with both word order patterns. The clause in (14a) shows the preferred and most frequent pattern (78.64%): The verb, *heold*, is in clause-final position and follows the accusative object *þæt hordern*. The clause in (14b) is an example of the VO word order, which is less frequently attested with *þe*. Here, the object *manslihtas* follows the finite verb *wyrcað*.

(15a) *Aurelianus* *se* *gesið* *se* *þær* ***cwealde*** *cristne* *men*
Aurelianus the reeve REL there killed.SG Christian men.ACC
'Aurelianus the reeve, who was killing Christians there' (Comart 3, 711)

(15b) *se* *se* *ðæt* *wæter* ***utforlete***
DEM REL the water.ACC let.out.PST.SBJ
'he who would let the water out' (Cocura, 1815)

The demonstrative relativizers occurred mainly with VO word order (65.71%). This is illustrated in (15a), in which the finite verb *cwealde* precedes the object *cristne men*. OV word order occurs as well, as one can see in (15b). In this example, the object *ðæt wæter* precedes the clause-final verb *utforlete*.

The demonstrative relativizer *þæt* did not fully pattern as the other demonstrative relativizers. *Þæt* did not have a strong preference for either OV or VO word order. This might be due to its relatively low frequency of occurrence as a subject relativizer in the current data set. It is attested a mere seven times in transitive subject relative clauses,[13] making it likely that its deviant distribution is an effect of chance. Alternatively, the different behavior of *þæt* might be explained by the fact that it was already on its way to becoming an invariable relativizer (Suárez 2012). This is exemplified in (16), in which the relativizer *þæt* does not have a neuter noun as antecedent, but a masculine one, namely *his pallium*.

(16) *On* *þære* *cyricean* *he* *forlet* ***his*** ***pallium***
In there church he lost his pallium.M.SG
þæt *he* *onfeng* *fram* *þam* *Romaniscan* *papan*
REL he received from the Roman pope
'In that church there, he lost his pallium, which he received from the Roman pope.' (Cobede, 1444)

[13] Cf., in the data set of 1000 relative clauses, *þæt* is attested as a relativizer 83 times. It is most frequently used as an object relativizer (65.06%). It occurs 28 times as a subject relativizer, the majority of which is in with an intransitive relative clause (75.00%).

The complex relativizers – consisting demonstrative relativizer and invariable *þe* – have a 50/50 distribution over the word orders which is a higher proportion of VO word order than expected.

The results are interesting in light of the hypothesis that word order is used to disambiguate syntactic role when case disappears (Marchand 1951). I previously established that Old English object relative clauses already had a quite fixed word order of (O)SV (see the introduction to Section 5.4). For disambiguation to function as a motivation for the fixation of VO in subject relative clauses, clauses in which the relativizer was not marked for case should have been the first ones to change into VO order. The OV order would have posed no problem in the clauses with a case-marked relativizer, since the syntactic roles could be identified by means of their form. On the contrary, relative clauses headed by an invariable relativizer did not disambiguate the function at the start of the clause. Therefore, other means of identifying subject and object would have been needed, and the VO order would have gained ground for this purpose. This is not borne out by the data which in fact shows the opposite of the prediction, thereby providing a strong indication that the VO word order was not employed for syntactic role disambiguation purposes.

In sum, the demonstrative relativizers were more frequently attested with the VO word order than with OV word order. Complex determiners were more strongly associated with VO word order than expected as well, whereas the invariable *þe* typically occurred with the OV pattern.

5.4.1.4. The verb phrase

The third factor of importance is the composition of the verb phrase. The partial dependence scores (yhat) are presented in Table 4. They show that complex predicates were more strongly associated with the VO pattern and that simple verb phrases tended to occur with OV word order. This is evidenced by the high partial dependence score of the category *simple* and the low value of *complex*. For more transparency, I have included the raw frequencies of the categories in the tables.

	OV	*VO*	*yhat*	*Total*
complex	21	26	0.2469	47
simple	183	63	0.6316	246
Total	204	89		293

Table 4: The distribution of OV/VO word order per type of verb phrase in Old English

Because the current study defined V as the finite verb, these results do not negate those of previous studies which found a more prevalent pattern of VO in the clauses with a simple verb phrase than in those with a complex predicate (Fischer et al. 2004). This becomes clear when we zoom in on the specific patterns that are found in the subject relative clauses with a complex predicate. All six possible patterns are attested: i) finite verb – object – main verb (34%); ii) object – main verb – finite verb (28%); iii) finite verb – main verb – object (17%); iv) object – finite verb – main verb (15%); v) main verb – finite verb – object (4%); and vi) main verb – object – finite verb (2%). The most frequent is a so-called brace-construction, in which the object is surrounded by the two verbal elements. The finite verb precedes the object in this construction, and the main verb follows it. This is exemplified in (17).

(17) *se mon se ðe ne* ***mæg*** *his tungan* ***gehealdan***
the man REL REL not may his tongue.ACC keep
'the man who cannot hold his tongue' (Cocura, 1806)

The high frequency of this brace-construction is fully compatible with Fischer et al. (2004)'s findings as well as the findings presented above, as it shows VO word order when V is defined as the finite verb, but OV word order when V is defined as the main verb.

Overall, the data show that there is a general tendency for the object to be placed earlier in the clause than the main verb (76.60%). This is comparable to the frequency of OV in simple verb phrases (73.39%), where the finite verb and the main verb coincide. The results show that the finite verb in complex predicates had a more flexible position than both finite and non-finite main verbs. This suggests that the position of the verb in Old English was not determined by finiteness.

5.4.1.5. The definiteness of object

Whether the object is definite or non-definite is the fourth factor involved in the ordering of object and verb. Table 5 shows the distribution of OV and VO word order for this variable and its partial dependence scores.

	OV	*VO*	*yhat*	*Total*
definite	162	49	0.6568	211
non-definite	42	40	0.3159	82
Total	204	89		293

Table 5: The distribution of OV/VO word order per definiteness of the object

The partial dependence scores indicate that non-definite objects predict more VO word order than definite ones, which strongly predict OV word order. An example of non-definite postverbal object is given in (18).

(18) *Ða* *synd* *blodige* *weras* *ðe* *wyrcað* ***manslihtas***
Then/They are bloody men REL work homicides.ACC
'Then [there]/They are bloody men who commit murders.'
(Coaelive, 3037)

It should be noted that a large portion of the definite objects are pronouns. Within the group of nominal objects a similar inclination is found as is presented in Table 5, albeit not significant on its own (p = 0.07).

5.4.1.6. The type of object

Lastly, the type of object has an effect on the choice between OV/VO word order.

	OV	*VO*	*yhat*	*Total*
clausal	0	9	0.3389	9
nominal	114	70	0.4180	184
pronominal	90	10	0.7244	100
Total	204	89		293

Table 6: Object type and the frequency of OV and VO in Old English

The individual effects of the categories of this variable are presented in Table 6. Clausal objects unequivocally occur in a postverbal position. Due to their low overall frequency, they only have a weak association with VO word order, compared to the previously discussed values that were associated with VO word order. Nominal objects show the largest variation: They tend to occur in preverbal position but are found postverbal as well. Pronominal objects strongly prefer to occur in front of the verb and are only rarely found in postverbal positions, which is evident from its high partial dependence score.

5.4.1.7. Discussion of the results

Three of the factors underlying the OV/VO alternation in Old English can be surmised under the principle of end-weight (Behaghel 1909; Quirk et al. 1992; Wasow 1997). The most important of these is the relative length of the object. The results showed that the longer the object was compared to the verb, the more frequently VO word order was attested. In addition, the definiteness of the object influenced its position. Whereas definite objects tended to be placed in a preverbal position, non-definite objects were more frequently attested in postverbal position. Definite noun phrases are typically shorter than non-definite noun phrases, because they encode referents that are accessible and thus require less material for successfully conveying the intended referent (Hawkins 1994, 112–13). In addition, definite noun phrases typically encode given information, which is comprehended more rapidly than new information (Murphy 1984), showing that they are easier to process. Therefore, the tendency of placing a definite object in a preverbal position may be because definite noun phrases are lighter than non-definite ones on a par with the principle of end-weight. The type of object, whether it was pronominal, nominal, or clausal, neatly fit into this picture as well. Pronominal objects are more frequently found in a preverbal position, nominal objects showed no strong preference for either position, and clausal objects were uniformly postverbal. Typically, pronouns are short and refer to highly accessible entities. As such, they are easier to process and lighter than most nominal objects and all clausal objects and less likely to be postponed. The effect of this variable was, although important, weaker than that of the relative weight of the object and that of definiteness. The variables conspire and are to a large degree interconnected. Nevertheless, the variables could not simply be

reduced to one, since each variable contributes to a different degree to the distinction between OV and VO word order. The type of object in addition represents differences in categorization and the definiteness also codes functional differences.

The effect of the complexity of the verb phrase can also be partially explained by the principle of end-weight: In complex predicates, the finite verb tends to be semantically lighter, since the main verb contributes the type of action that is expressed, while the finite verb contributes tense, modality, and the like. In other words, in most verb phrases, the main verb accesses encyclopedic knowledge, whereas the finite verb provides instruction on the interpretation of the main verb The finite verb is then a relatively light element and thus likely to be placed in an earlier position. As a result, the object tends to follow the finite verb in clauses with a complex predicate. However, this is unlike the other three variables discussed above in that it is not the late positioning of heavy elements, but the early positioning of a light element. Moreover, how the semantic lightness of this type of finite verb exactly relates to the heaviness of an object would need further investigation in order to truly be able to classify this as an effect of the principle of end-weight.

In the history of English, we have seen a development of (S)OV to (S)VO as the preferred structure in subject relative clauses, resulting in a verb-medial pattern that conforms to the overall pattern of English. Object relative clauses, as was discussed previously, did not undergo such a change, and are nowadays anomalous in that they do not have a verb-medial pattern. Consequently, if the principle of end-weight is indeed one of the main motivators for the change from SOV to SVO in subject relative clauses, it would be predicted that this does not lead to a postverbal position of subject in object relative clauses. One indication that the principle of end-weight is indeed not as pervasive in object relative clauses is that the length of objects in subject relative clauses is significantly larger (M = 11) than the length of subjects in object relative clauses (M = 4.33) with t = –6.95 and $p < 0.001$. The four examples in Old English in which the subject follows the verb in object relative clauses have a relatively long subject (9 characters or more), and none of the postverbal subjects are pronominal. Combined, this indicates that although the principle of end-weight could motivate a postverbal position of subjects in object relative clauses, subjects in

object relative clauses were generally lighter than objects in subject relative clauses. This explains why subjects did not become commonly associated with a postverbal slot.

In addition to the factors associated with the principle of end-weight, the relativizer introducing the relative clause turned out to be an important variable underlying the OV/VO alternation. Whereas the invariable relative *þe* strongly preferred OV word order, the demonstrative relativizers frequently occurred with the VO pattern. Fischer et al. (2004, 56) have suggested that the larger number of VO word order (or more specifically, V2) in relative clauses with *se* might be explained by their likely origin as a paratactic structure. This may be the case, but cannot be assumed without evidence. In the earlier texts of Old English, *se*-relatives could be center-embedded and could occur as (S)OV word order, as is exemplified in (19). Therefore, the hypothetical change into a hypotactic structure must have preceded the records.

(19)	*&*	*suelc*	*man*	***se***	***ðisses***	***lands***	***bruce***
	and	such	man	REL	this	land.GEN	use.SBJ.SG
	agebe	*ðis*	*fiah*	*an*	*Godes*	*gewitnesse*	
	give	this	money	in	God's	witness	

'And such a man who should use this land should give this money in God's witness.' (Codocu 1, 78)

One factor raising doubt about Fischer et al.'s hypothesis is that previous studies into the word order predating the records of English have reached no full consensus. If relative clauses with *se* have retained their old word order of main clauses, main clauses must have patterned as V2 for some time. This is by no means a certainty: The development of the word order in main clauses and its timing is thus far unresolved (Hinterhölzl and Petrova 2010; Walkden 2015). What is known is that the majority of Old English main clauses patterned as V2 (see §5.2.2.1) and that the demonstrative relativizers were more argument-like than the invariable *þe*. As a consequence, there was synchronically structural similarity between main clauses and relative clauses with a demonstrative relativizer. This synchronic similarity may have played a role in the development of VO word order in subject relative clauses. More specifically, it may be

indicative of analogical transfer of VO word order from main clause to subject relative clause. This hypothesis will be tested in Section 5.5.

Case-marking on the object was not identified as an important determiner of the OV/VO word order in Old English. This may have been surprising in light of the longstanding hypothesis that the loss of a case system is directly related to the fixation of word order patterns, which was based on the idea that discourse participants require cues to identify the syntactic function of an NP (Kellner 1892, 312–15). However, this hypothesis is quite problematic from a Germanic perspective. On the one hand, both German and Present-Day Dutch have V2 word order in main clauses and verb-final word order in subordinate clauses. Yet, Present-Day Dutch is a case-less language, while German still has a case system. On the other hand, Icelandic and Present-Day English have highly similar word order, even though Icelandic to this day has rich nominal morphological inflection and Present-Day English has completely lost its case system. This speaks against relating disappearing case inflection to fixed word order, since both case-marked and non-case-marked languages exhibit highly similar word orders. Furthermore, there has been no successful attempt of research that shows a direct correlation between loss of case and word order change (Los 2015, 49). This is in agreement with the current results.

Initially, it was surprising that the animacy of the object did not play a role in the OV/VO alternation. After further consideration, the unimportance of this variable can be explained by animacy being a primarily relative factor. For example, Rosenbach (2005) investigated the animacy effect on the genitive alternation in Present-Day English. She showed that animate possessors tend to precede inanimate possessed and that animate possessed precede inanimate possessors more often than not. While objects generally have an animacy status, as they tend to refer to 'things' (Langacker 2008), verbs refer to processes. As such, they are not associated with animacy. The non-effect of animacy of the object in this data set has likely to do with the fact that verbs do not participate in the dimension of animacy, and that the effect of animacy on word order is a relative feature, not an absolute one. Hence, whether the object is animate or inanimate on its own has no effect on its position in the clause.

In sum, Old English had (at least) two schemas to form subject relative clauses. The default and most frequent construction exhibited OV word order.

The second construction, with VO word order, was primarily motivated by the end-weight principle. This reminds of Cappelle (2006)'s notion of allostructions (see §3.1.1). The two subject relative clauses have a highly similar function: They both are clauses that modify a (P)N on the basis of participation of the referent of the (P)N in event or state expressed by the clause. They are individual and independent constructions, each with a different form and distribution. The construction with the OV word order is the default construction and the most frequent member of the pair. The construction with the VO word order is associated with the tendency to postpone lengthy and heavy elements. In addition, the data showed that the likelihood of this construction with the VO pattern increased with demonstrative pronominal relativizers. It was suggested that this might be due to a higher degree of similarity to main clauses, activating an analogous relation. This idea will be further explored in Section 5.5.

5.4.2. Results for Middle English

As was noted in the beginning of this section, Middle English had a different distribution of OV and VO word order in transitive subject relative clauses than Old English. Whereas OV was the most frequent pattern in Old English, the Middle English data show a preference for VO word order (see Figure 15). In the previous section, the factors underlying the alternation in Old English were analyzed. The same potential factors are tested in Middle English to see whether the same variables that were proven to underlie the OV/VO alternation in Old English remain important in Middle English, or whether the motivations for selecting one word order over the other had changed.

The results are presented in Figure 19. These indicate that three out of the five factors that determined the choice between OV and VO order in Old English – the length of the object (OBJLVL), the relativizer (REL), and definiteness of the object (OBJDEF) – no longer play any role in the alternation in Middle English. Instead, the period in which the manuscript was written (MANPER) is identified as the most important variable. Additionally, the type of the object (OBJTYPE), case marking on the object (OBJCASE), the type of verb phrase (VPTYPE), and the text (TEXT.NAME) are identified as having an effect. The results indicate that the other variables were of no relevance.

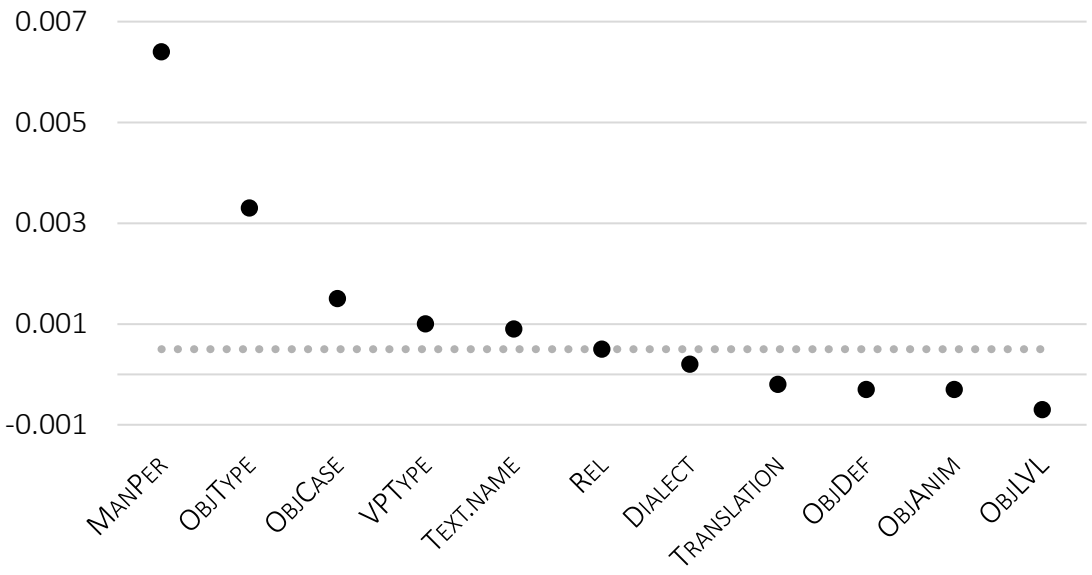

Figure 19: Variable importance measures for Middle English (seed = 39)

The statistics of the random forest underlying the variable importance measures presented in Figure 19 are as follows: The *C*-index is 0.91, Somers' D_{xy} is 0.82 when the seed is specified as 39. This indicates that the random forest performs well above chance. Importantly, a confusion matrix shows that the model predicts the OV/VO order only marginally more accurately (0.85) than a naïve model (0.84), a difference that is non-significant (p = 0.90). This means that the tested variables do not improve the prediction of OV/VO order compared to merely predicting the most frequently used pattern (i.e., VO). The model thus indicates that the VO order is established as the default word order pattern in Middle English. As a consequence, none of the predictor variables can truly account for the variation in Middle English.

	OV	*VO*	*yhat*	*Total*
M1	21	47	−0.60	68
M2	12	58	−0.90	70
M3	7	55	−1.07	62
M4	1	59	−1.27	60
Total	41	219		260

Table 7: The distribution of OV/VO word order per period in Middle English

Nonetheless, the data show some tendencies. First, the amount of clauses containing OV word order declines over time. This is shown in Table 7. Second, pronominal objects more strongly predicted a preverbal position (28.57%, yhat = –0.73) than nominal objects (12.28%, yhat = –1.09). All clausal objects were postverbal (n = 19). Third, objects with some form of remnant case marking had a stronger association with the preverbal position (27.27%, yhat = –0.75) than objects without any case marking (10.93%, yhat = –1.10). All objects that were case marked were marked by an ambiguous case form, meaning that the form was syncretic. After the period, type of object, and case of the object, the most important variable is the type of predicate (VPTYPE). Complex predicates were more slightly more strongly associated with OV word order (25.00%, yhat = –0.86) than simple verb phrases (13.89%, yhat = –1.07). The variable importance model additionally identified one other variable that underlies the choice between OV/VO word order, namely the text from which the relative clause originates (TEXT.NAME). This indicates that there were certain writers that still used OV, while others did not. In particular, *cmpeterb, cmorm, cmkentse,* and *cmayenbi* have a relatively high amount of OV.

5.4.3. Discussion of the results

Interestingly enough, the two variables that were most significant in Old English – the length of the object and the relativizer – do not play any role in the Middle English OV/VO alternation. The unimportance of the length indicates that the principle of end-weight was weakened in Middle English. The unimportance of the relativizer is likely a consequence of the reorganization of the relativizer system.

Most of the Old English relativizer system did not survive in Middle English. The demonstrative relativizer paradigm disappeared and the invariable *þe* fell rapidly out of use. Of the demonstrative relativizers, only the forms *þatt* and *þa* were attested in the earliest period of Middle English. *Þatt*'s functions had expanded, and it had become the default relativizer in this period (Suárez 2012). With the disappearance of the rest of the demonstrative relativizer paradigm, *þatt* did no longer mark case or gender and instead had become an invariable relativizer. The possibility for certain relativizers to be interpreted as the subject of the verb had thus disappeared. Its use as an invariable marker already

sporadically appeared in Old English, where it was sometimes used to relativize non-neuter nouns or neuter nouns with a different case than nominative or accusative (Traugott 1992, 227), which was illustrated in example (16). Some attestations of the Old English *þe* remained in the earliest period of Middle English (M1) but disappeared soon thereafter. From M2 onwards, one sporadically encounters other new relativizers. *Þe which*, *which,* and its variants started to be used as relativizers. Yet, *þatt* is the most frequent relativizer of subject relative clauses in all periods of Middle English. One should be conscious that what is described here only concerns subject relative clauses. The rise of *wh*-words as relativizers started in genitive and prepositional object relative clauses and climbed up, rather than percolated down, Keenan and Comrie's accessibility hierarchy (Keenan and Comrie 1977). The subject relative clause was therefore one of the latest contexts in which *wh*-words were used as relativizer (Romaine 1982; Bergs 2005). It is therefore not surprising that the Middle English data of subject relative clauses lack the relativizer *who*. *Whos* and *whom* are attested in non-subject relative clauses, mainly as genitive or as prepositional object.

Although length was no longer important in Middle English, some effect of the principle of end-weight was maintained in the form of the importance of the variable concerning the type of object (ObjType). Clausal objects were consistently placed in postverbal position, but both nominal and pronominal noun phrases could still occur in preverbal position. Pronominal objects occurred more frequently with the OV order than nominal objects. This might be explained by Van Kemenade (1987)'s clitic analysis of pronouns. As clitics, pronominal objects did not belong to the same category as nominal objects. For this reason, pronouns did not have to undergo the same change at the same time as non-clitic objects. Not all pronominal objects were clitics and certain pronominal objects were more like nominal objects (Koopman 1997). One can, however, object to analyzing Old and Middle English pronouns as clitics, but even if pronouns were not clitics, there is clear distributional evidence that there were pronouns that were categorized differently than nominal noun phrases. These were weak pronouns. For example, unlike nominals, weak pronouns could occur in front of a negation marker (Bergeton and Pancheva 2012). As the slots they filled in constructions were considerable different from other noun phrases, the categories of pronominal and nominal objects were more different from each

other than they are in Present-Day English. Alternatively, these results could be an effect of a given/new word order preference in Middle English. This would, however, also predict an effect of the definiteness of the object on the OV/VO word order, but this variable was not important in Middle English.

More important than the type of object was the period in which the manuscript was written. The older the manuscript, the more OV word order. Whereas in Early Middle English quite some OV word order was still attested, by Late Middle English the OV pattern is only used sporadically. In addition, certain texts had a higher rate of OV word order, which suggests that certain individuals kept the OV and retained a representation of the OV pattern in their constructicon.

Two other variables were identified as having a weak effect on the word order alternation in Middle English: the case of the object and the complexity of the predicate. The use of case marking on the object was characteristic of archaic language and is thus unexpectedly also associated with the old word order. It is to me unclear why complex verb phrases would occur slightly more frequently with OV word order than simple verb phrases. This is the opposite tendency from what we saw in Old English, where complex verb phrases showed more VO word order.

In general, the fitted model was no more accurate than a naïve model. This means that the tested variables do not contribute significantly to the correct prediction of the OV/VO alternation in Middle English, indicating that the VO word order pattern had become established as the default pattern. The VO word order in Middle English was thus no longer motivated by the same principles as it was in Old English.

In what remains of this chapter, one hypothesis of how the VO pattern could have spread in such a way that it had become the default pattern in Middle English subject relative clauses is investigated, namely that it is motivated by influence from the main clause.

5.5. The influence of main clauses

5.5.1. Introduction

In the previous section, the factors underlying the OV/VO alternation found in Old English were identified. These factors no longer determined the word order

in Middle English subject relative clauses. The VO pattern had by then become the default pattern. The change – from 72% OV in O4 (the latest period of Old English) to 31% OV in the earliest period of Middle English – appears to be quite drastic. There are a few things that contribute to this appearance. First, whereas the lion's share of the Old English texts originate from West-Saxon, which roughly corresponds qua area to the Middle English southern dialects; early Middle English data tends to be based on the East- and West-Midland dialects. This roughly corresponds to the dialect area of Anglian Mercian in Old English. The data thus originate from different areas. It might be the case that while West-Saxon was rather conservative, East- and West-Midlands were more innovative. Be that as it may, the change occurred rapidly. Even in only the Old English data from Anglian Mercian, the dialect spoken in the Midlands, OV word order was still preferred (58.62%). In this section, it is hypothesized that this rapid change was driven, at least in part, by the influence of declarative main clauses.

In §5.4.1.3, it was shown that relative clauses that were introduced by a demonstrative pronoun had a higher rate of VO word order than those introduced by a complex relativizer or invariable *þe*. Based on this, it was hypothesized in §5.4.1.7 that the spread of the VO pattern was partially due to the analogical transfer of the VO order from main clauses to subject relative clauses. In the following section, it will be shown that Old English had a subset of transitive subject relative clauses that bore a strong resemblance to main clauses. These clauses were typically not center-embedded, had a supplementary function, and were headed by a demonstrative relativizer. As both constructions are fully schematic, and neither is an instantiation or a type of the other, the two constructions exist at a similar level of abstraction. Hence, they were laterally related, not taxonomically.

This section further explores the hypothesis that the postverbal slot became filled by shorter objects under the influence of main clauses, or, in other words, that the change can be viewed as transfer from a declarative main clause-construction to the subject relative clause-construction. In particular, the current section explores two predictions that follow from the hypothesis.

First, the hypothesis predicts that relative clauses that bore a great similarity to main clauses adopted the VO order at a higher rate than those that did not

resemble main clauses. The reason for this is that the more similar a target construction is to the source construction, the likelier it is that analogical transfer takes place (Holyoak and Koh 1987). This means that the VO pattern would have spread first and fastest to the relative clauses with a high resemblance to main clauses and was initially only marginally attested in the group of clauses without similarity to the main clause.

Second, the hypothesis predicts that the association of the postverbal slot with long objects was weaker in relative clauses resembling main clauses than in relative clauses showing no resemblance. The reasoning behind this prediction is the following. The postverbal position of the object in Old English was – as established in §5.4.1.2 – most significantly motivated by the principle of end-weight. The longer the object was compared to the verb, the more likely it was that the object was placed in a postverbal position. In contexts where the principle of end-weight was the primary motivator of the postverbal position, the postverbal position would have been strongly associated with long objects. In contexts where the relation between main clause and relative clause was highly salient, analogy could function as an alternative motivation for speakers of Old English to place an object in a postverbal position. If the lateral relation to main clauses truly facilitated the spread of the VO-pattern in subject relative clauses, relatively short objects could also occur in postverbal position, as this was possible in main clauses. As a consequence, the postverbal slot could paradigmatically expand as it was no longer strongly associated with long objects. Therefore, if pressure from main clauses played a role in the spread of VO in subject relative clauses, it is expected that the relative length of the object was of lesser importance in contexts in which the VO word order was likely transferred from the main clause, than in contexts in which this was scenario was unlikely. Hence, in subject relative clauses with structural similarity to main clauses, length is expected to have had a weaker effect on the choice between OV and VO than in contexts where there was no structural similarity between main clause and relative clause.

Foreshadowing the results, the relative clauses with a high degree of similarity to main clauses exhibited a higher proportion of VO word order and allowed shorter objects in postverbal position. Both results support the hypothesis,

indicating that strong links to main clauses contributed to the spread of VO word order in subject relative clauses.

5.5.2. Lateral relations between main clause & relative clause

In Old English, there was a set of subject relative clauses that resembled main clauses to a high degree. These did not form a clear-cut category, but instead one can best view this as a continuum from prototypical relative clauses with little similarity to main clauses to completely ambiguous clauses.

Subject relative clauses could have a symbolic relation in common with main clauses. Both could be used to provide supplementary information about a topic that has been previously activated. Sequentially, they could be similar in that they both could be adjoined to a subordinate clause. Moreover, these clauses could have a filler-slot relation in common. The first slot of both clauses was regularly filled by a demonstrative pronoun that could be interpreted as the subject of the verb. This is visualized in Figure 20. In the remainder of this section, these characteristics will be illustrated by means of examples.

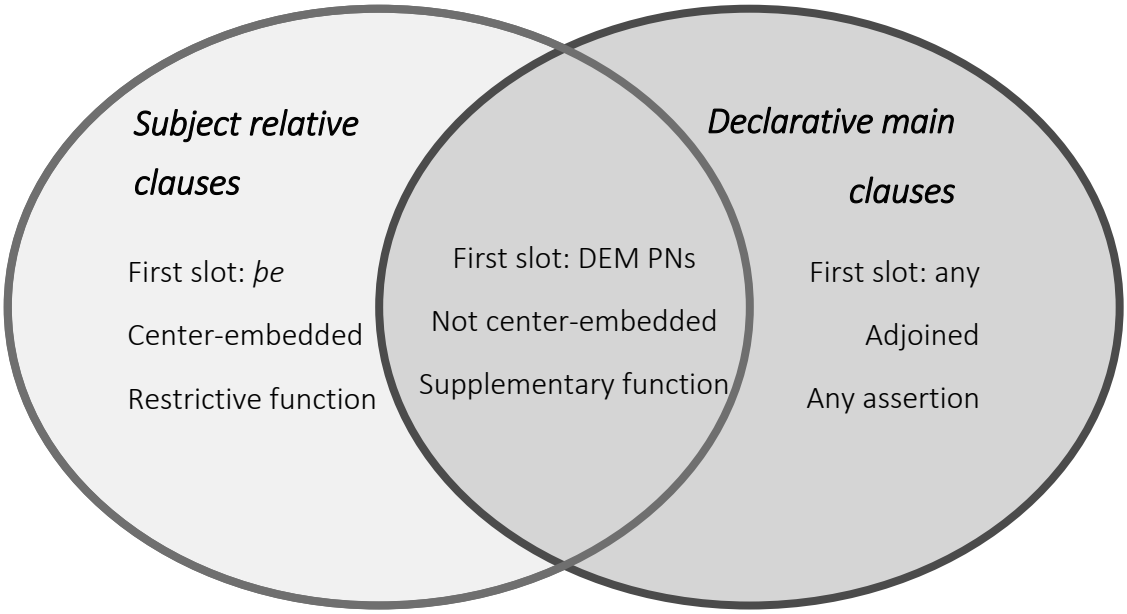

Figure 20: Subject relative clauses at the intersection

Prototypical relative clauses in Old English were center-embedded, were introduced with the invariable relativizer *þe*, and had a restrictive function (Suárez-Gómez 2006). This is exemplified in (20).

(20)

ac	*sio*	*wyrd*	*&*	*eall*	*ða*	*þing*	***þe***
but	the	fate	and	all	the	things	REL
hire	***underðied***	***sint***	*sint*	*underðied*	*ðæm*	godcundan	
her.ACC	subject	are	are	subject	the.DAT	divine	
foreþonce							
providence							

'But fate, and all the things that are subject to her, are subject to divine providence.' (Coeboeth, 2566)

Clauses with these characteristics were not closely related to Old English main clauses. In (20), the bolded clause is center-embedded within the matrix clause; the verb of the main clause – *sint* – follows the relative clause, while the subject precedes it. Main clauses were not embedded within another main clause, but were necessarily adjoined to them, as in example (21).

(21)

Ðeos	*wyrt*	*þe*	*man*	*betonican*	*nemneð*	*heo*
This.NOM	herb.NOM	REL	one	betony	names	it.NOM
biþ	*cenned*	*on*	*mædum*		*&*	*on*
is	grown	on	meadows		and	on
clænum	*dunlandum*		*&*	*on*	*gefriþedum*	
pure	hilly.lands		and	on	protected	
stowum.	***Seo***	***deah***	***gehwæþer***		***ge***	***þæs***
places	DEM	serves	both		also	of.the
mannes	***sawle***	***ge***	***his***	***lichoman***		
man.GEN	soul	also	his	body		

'This herb which people call betony, it is grown on the meadows and on pure hilly lands and on protected places. It serves both the man's soul and his body.' (Coherbar, 3)

This relation of center-embedding is a sequential relation that is not shared between prototypical relative clause and main clause.

Moreover, the prototypical relative clause in (20) restricts the potential referents of the noun phrase antecedent – *eall ða þing* – and as such provides

necessary information about its referent. This function was not part of the network of main clauses in written language; speakers typically used relative clauses or other types of nominal modification strategies to clarify the intended referent of a noun phrase.

Lastly, the clause in (20) has the invariable *þe* occupying its first slot. Although the form *þe* can be used in the first slot of main clauses, it is not the same lexeme. In main clauses, the form *þe* is used as the second person personal pronoun, whereas in relative clauses (and other subordinate clauses), *þe* is a complementizer. As a consequence, the verb forms of main clauses with *þe* are different from those in relative clauses with *þe* in clause-initial position; the verb in main clauses obligatorily agrees with the second person, whereas the verb-agreement of the verb in the relative clause depends on the number and person of the antecedent. The two *þe* forms can therefore not be considered the same lexeme. Thus, the relative clause in (20) does not share this filler-slot relation with main clauses.

There were, however, as illustrated in Figure 20, also relative clauses that did share such relations with main clauses. Consider the example in (22).

(22)	*þa*	*ætywde*	*me*	*þær*	*sum*	*man*	***se***
	then	appeared	me	there	a	man	REL
	brohte	***me***	***þær***	***half***	***to***	***gereordnesse***	
	brought	me.DAT	there	bread.ACC	to	refreshment	

'Then a man appeared to me there, who/he brought me bread there for refreshment.' (CogredC, 5330)

Compare the bolded clause in (22) with the one in (21). In (21), a main clause is exemplified, which provides supplementary information about the referent of the earlier noun phrase *ðeos wyrt*. The contents of this clause are not required in order to identify the referent of *ðeos wyrt,* because this has already been established by the restrictive relative clause *þe man betonican nemneð.* Likewise, the bolded clause in (22) provides supplementary information about the referent of the antecedent *sum man*. The clause is not needed to establish the referred to entity, as the antecedent can do this on its own. Furthermore, the bolded main clause in (21) has *seo* (the feminine form of *se*) as a demonstrative pronoun to

reactivate this referent. Similarly, the bolded clause in (22) is introduced by a demonstrative pronoun. Moreover, the verb in (21) – *deah* – occupies the second slot, and the object follows it. In (22), the verb *brohte* likewise occupies the second slot and exhibits verb-object word order. Lastly, both bolded clauses are not center-embedded but adjoined, and the preceding clause can function on its own as a main clause. In all these aspects, the relative clause in (22) and the bolded main clause in (21) behave similarly. Due to this high degree of similarity, the bolded clause in (22) can be interpreted as an instantiation of a main clause-construction, whereas such a reading is not available for the bolded clause in (20). Thus, the clause in (22) shares symbolic, functional, and filler-slot relations with main clauses and can consequently be ambiguously be interpreted as an instantiation of a main clause.

It should be noted that the relative clauses do not neatly fall into the two categories exemplified by (20) and (22), but relative clauses with only a few similarities to main clauses also existed, as is exemplified in (23).

(23)	*swa*	*þeahhwæþere,*	*nis*	*nan*	*man*	***þe***	***hine***
	as	nevertheless	not.is	no	man	REL	him
	fulfremedne	***æteowe***					
	perfect	reveals					

'Nevertheless, there is no man that reveals himself as perfect.'

(Comary, 35)

In (23), the target clause is not embedded, instead it follows the complete matrix clause; this main clause thus shares one relation with the main clause. Yet, a main clause interpretation is not possible, since the relative clause does not provide supplementary information about the referent of the antecedent, but is needed to restrict the potential set of referents.

The relation between the two clauses is asymmetrical, since main clauses have a wider network than subject relative clauses, in that they are connected to a number of other functions, and have a wide range of potential first slot fillers. Subject relative clauses have additional relations as well, i.e., they can be used with a restrictive function, with invariable *þe* instead of a demonstrative pronoun in their first slot, and can potentially be center-embedded. As such, a group of

ambiguous clauses lived at the intersection of subject relative clauses and declarative main clauses. It is then the lateral relationship between declarative main clauses and subject relative clauses that is hypothesized to facilitate the spread of the VO order into relative clauses.

5.5.3. Methodology

The two predictions presented in the introduction of the current section will be tested by means of the chi-squared test and conditional inference trees. These predictions are repeated below.

i) Relative clauses that bore a great similarity to main clauses adopted the VO order at a higher rate than those that did not resemble main clauses.
ii) The association of the postverbal slot with long objects was weaker in relative clauses resembling main clauses than in those showing no resemblance.

To evaluate the two predictions, the data was divided into two sets. The first set contains ambiguous constructs at the intersection of subject relative clauses and main clauses. These clauses can be interpreted as an instantiation of a main clause-construction. This group is henceforth called 'ambiguous relative clauses'. The second set contains relative clauses that do not show structural similarity to main clauses and are unambiguously relative clauses. This group is named 'unambiguous relative clauses'. In order to classify the data into these two sets, the data was blinded for OV/VO order to avoid any potential bias per word order. This was done by bracketing the object in each clause and moving it to the position immediately following the relativizer. In addition, punctuations and capitalization in the beginning of a sentence were obscured so that these did not influence the possible interpretation of the clause. Lastly, the form of the relativizer was obscured, since this element was tested in the previous analysis and thus yields a bias. An example of a blinded relative clause is presented in (24). The relativizer – originally *þe* – is replaced by the gloss REL, the object is bracketed and positioned immediately following the relativizer – in this case, its original position – and punctuation and capitalization were removed.

(24) seo bær **REL [þone deadan] ferode** is þæt orsorge ingehyd þæs orwenan synfullan

Once the data was blinded, the clauses were categorized. If the clause could be interpreted as an instantiation of a main clause, it was classified as "ambiguous". This interpretation was only possible if the clause could be read as having a supplementary meaning and thus not be needed in order to establish the referent of the antecedent, and if the clause was not center-embedded. If the clause could not be interpreted as an instantiation of the main clause and was unambiguously a relative clause, it was categorized as "unambiguous". The data contained a third set of relative clauses, namely those that are similar to free relative clauses and correlative clauses (Fischer et al. 2004, 60), as exemplified in (25).

(25)	*and*	***þa***	***þe***	***me***	***ne***	***geseoþ***	***hi***
	and	PN/REL	REL	me.DAT	not	see	they
	gelyfaþ		*and*	*libbaþ*			
	believe		and	live			

'And those who do not see me, they will believe and live.'

(Coaelive, 4789)

These types of clauses are excluded from further analysis. They cannot be considered to be unambiguous relative clauses, nor do they form a bridging context with main clauses. Instead, they are a hybrid construction between complement clause and relative clause. This type of clause patterned like unambiguous relative clauses and will here not be further considered.

In addition, a set of main clauses was extracted from the YCOE to compare the results of the subject relative clauses to main clauses. These were restricted to transitive main clauses with a pronominal noun phrase containing *se, seo, þæt, þa,* or *þe* in the first slot of the clause, i.e., main clauses with a first slot slot-filler that corresponded with the first slot of subject relative clauses. They were coded for object-verb and verb-object word order.

5.5.4. Results

The first prediction that follows from the hypothesis was that the VO pattern was most prevalent in clauses with a great resemblance to main clauses. In Table 8, the distribution of OV and VO in the two groups of relative clauses is presented, together with the distribution within transitive main clauses as reference point.

	OV		*VO*		*Total*
	N	*%*	*N*	*%*	
Main clauses	95	23.81	304	76.19	399
Ambiguous RCs	41	47.67	45	52.33	86
Unambiguous RCs	93	78.15	26	21.85	119

Table 8: Word order and clause type

The data show that the group of ambiguous relative clauses mostly patterned as VO (52%), while the unambiguous relative clauses strongly preferred OV word order (78%). The difference between the groups is significant with p <0.001. The relative clauses that showed structural similarity, i.e., that had many relations in common with main clause, thus exhibited more VO word order than those without such resemblance. It can therefore be concluded that relative clauses that were likely to be influenced by main clauses indeed adopted the VO word order at a higher rate than prototypical relative clauses.

The second prediction was that the association of the postverbal slot with long objects was weakened in contexts that were influenced by main clauses. This was tested with conditional inference trees. The results are presented in Figure 21.

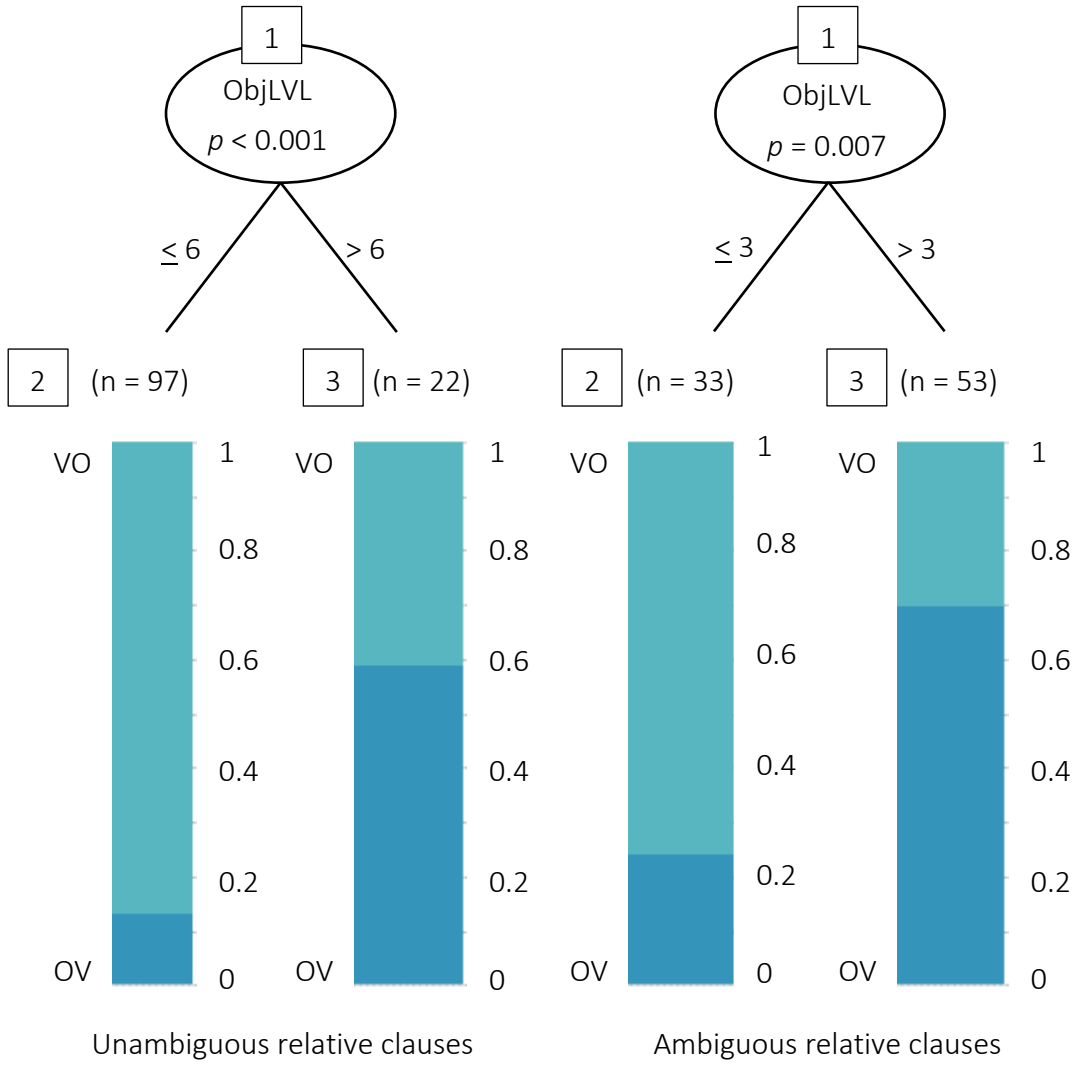

Figure 21: Object length and unambiguous vs. ambiguous relative clauses

Concerning the unambiguous relative clauses, it can be observed in the left panel in Figure 21 that objects that are longer than the verb by six characters or more tend to occur in postverbal position. For the group of ambiguous relative clauses, the cut-off point lies lower, at three characters or more. This is visible in the right panel in Figure 21. Relative clauses that live at the intersection of main clauses and relative clauses more easily allow shorter objects in postverbal position than relative clauses without a high degree of similarity to main clauses.

Moreover, the results show that a lower percentage of VO is found for short objects in unambiguous relative clauses than in ambiguous relative clauses, 13%

versus 24%. Hence, short objects are more likely postverbal in clauses that resemble main clauses.

Additionally, the accuracy of prediction between the two models differs. For unambiguous relative clauses this is 0.82, while the model for ambiguous relative clauses has an accuracy of 0.72. This indicates that the length of the object is a better predictor for OV/VO word order in the subset of unambiguous relative clauses than it is for the group of ambiguous relative clauses. Taking these points together, the results strongly confirm the prediction that the effect of relative length of the object on word order – or the length restriction on the postverbal slot – is weaker in ambiguous relative clauses than in unambiguous ones. The introduction of a new motivator – analogy – thus obscured and reduced the effect of end-weight.

In sum, the results for both predictions provide support for the hypothesis that analogy to the main clause increased the use of VO word order in subject relative clauses. The data confirm that relative clauses that were similar to main clauses had a higher rate of VO word order. Moreover, it was shown that the association of the postverbal slot with heavy objects was weakened in Old English relative clauses when they bore great resemblance to main clauses. Thus, in contexts in which it is likely that the VO word order had transferred from the main clause, the principle of end-weight was no longer as strong a motivator behind the postverbal position of objects, and the postverbal slot allowed for shorter elements. The licensing of shorter elements in this position was needed for the VO word order to become the standard pattern in subject relative clauses. Therefore, it can be argued that main clauses partially motivated the spread of VO word order in subject relative clauses.

5.5.5. Discussion

In the previous section, it was shown that there was a group of Old English subject relative clauses that showed a high degree of similarity to declarative main clauses. These clauses lived at the intersection of the main clause-construction and the relative clause-construction. They had features that were associated with both constructions: They adjoined to another clause, had a demonstrative pronoun in their first slot which could be interpreted as subject of the verb of the target clause, and they had a supplementary function. These

clauses were indicative of a lateral relation between main clause and declarative main clause.

It was hypothesized that the spread of the VO pattern was partially due to the analogical transfer of the VO order from main clauses to subject relative clauses. Due to influence of declarative main clauses which already preferred VO word order, the basic constituent order in subject relative clauses could change. In more detail, the postverbal object position was already available for lengthy objects. This slot paradigmatically expanded to include shorter objects under the influence of main clauses. This happened first and foremost via relative clauses with a lot of similarity to main clauses and later it spread to other relative clauses as well.

The two predictions this hypothesis made, namely that relative clauses that were more similar to main clauses had a higher rate of VO, and their word order was less affected by the relative length of the object, were confirmed. Therefore, it can be concluded that main clauses partially motivated the expansion of the postverbal object slot in subject relative clauses. It should be noted that even in unambiguous relative clauses, the VO order is attested (even with a short object), as in (24).

(24)	*Se*	*cyning*	***þe***	***worhte***	***his***	***suna***	***gifta***
	the	king	REL	made	his	son	marriage
	is	*God*	*fæder*				
	is	God	father				

'The king who made a marriage for his son is God the father.'

(Cocathom1, 6933)

In this example, the bolded clause is center-embedded, it is introduced by an invariable relativizer, and it restricts the referent. As such, this clause does not resemble a declarative main clause in the least, nor are any of the objects particularly long, yet both objects follow the verb. This type of 'seep through' of analogical transfer from the intersection to constructions without similarities to main clauses does not contradict the conclusion, as it has been observed in previous literature with constructional contamination (Pijpops and Van de Velde 2016).

5.6. Conclusion

To summarize, in this chapter I investigated two questions regarding the word order of Old and Middle English subject relative clauses. The first question was what underlies the Old and Middle English alternation of OV and VO word order in subject relative clauses. The results showed that the Old English VO word order was largely determined by variables that can be subsumed under the principle of end-weight, namely the relative length of the object, the definiteness of the object, and the type of object (pronominal, nominal, or clausal). In addition, the complexity of the predicate in the relative clauses influenced the word order, so that clauses with more than one verb exhibited more VO order than those with one finite main verb. This was likely, at least partially, an effect of weight as well, as finite non-main verbs are considered to be lighter constituents than main verbs. There was one variable that did not relate to the constituent weight in any way: the relativizer. Demonstrative relativizers occurred more frequently with VO word order than the invariable relativizer. This was indicative of a lateral relation between main clauses and subject relative clauses, as clauses with a demonstrative pronominal relativizer can alternatively be interpreted as subjects of the verb of the relative clause. In Middle English, the association of the postverbal slot with heavy objects had disappeared. The tendency of weight that clearly remained is that pronominal objects preceded the verb for a longer time than nominal or clausal objects. Length and the definiteness of the object no longer correlated with word order. Moreover, the predictive power of the Middle English model was very weak, whereas the model for Old English predicted at a significantly higher accuracy than a naïve model. This suggests that while VO word order was motivated in Old English subject relative clauses, in Middle English the VO word order had become the default in this context. OV word order remains attested, in particular in the older texts and with pronominal objects.

Second, it was hypothesized that the lateral relation between main clauses and transitive subject relative clauses played a role in the spread of the VO pattern to subject relative clauses. More precisely, I argued that the existence of a group of relative clauses that had characteristics of both main clauses and relative clauses provided the grounds for the analogical transfer of the VO pattern from main clauses to subject relative clauses. Two predictions that follow from this

hypothesis were tested and confirmed, namely that this group of relative clauses with a high degree of similarity to main clauses adopted the VO word order at a higher rate and that this group was less sensitive to the principle of end-weight.

Bringing the results together, we obtain a rather clear, yet complex picture of the spread of the VO pattern in subject relative clauses. The situation can be summarized as follows. Old English subject relative clauses had a postverbal object slot available for heavy objects. Under the influence of the main clause, this slot expanded paradigmatically to include shorter objects, reducing the association of the postverbal slot with heavy objects. The first steps of this path are evidenced in Old English, particularly in the group of relative clauses that have many main clause characteristics and less so in relative clauses that lack such a strong similarity to main clauses.

This change can be framed in terms of lateral relations. Two constructions at a high level of abstraction – the subject relative clause-construction and the main clause-construction – are connected to each other based on formal and functional similarity. Since the two constructions are so tightly connected that there is a group of ambiguous constructs, the postverbal object slot of the subject relative clause could be reanalyzed as being the same type of slot as the postverbal object slot found in declarative main clause-constructions. As a consequence, the postverbal object slot in subject relative clauses became the default.

CHAPTER 6: THE NORWEGIAN *HAN MANNEN*

6.1. Introduction

This chapter presents the second study of the dissertation. This study focuses on the role of multiple source constructions and lateral relations from a synchronic, variationist perspective. The study makes use of the same statistical methods as the previous study, but uses them to gain insight into the lateral relations between constructions. The relations between constructions are considered on the basis of similarity and differences in their form, function, and distribution. In particular, the central construction is instantiated by Norwegian definite noun phrases of the type *han mannen*, as exemplified in (1).

(1)	*det*	*var*	*litt*	*langdrygt*	*med*	***han***	***mannen***
	it	was	little	boring	with	PDD	man.ART
	'It was a bit boring with that man.'						(NoDiaCo, Dalsbygda_03uk)

Noun phrases like *han mannen* in (1) are found in colloquial Norwegian. They are remarkable because their determiner coincides with the third-person personal pronoun *han* (masculine) or *hun* (feminine). The pattern illustrated by the noun phrase in (1) will be called the *han mannen*-construction, or *han mannen* for short (Strahan 2008). In general, *han mannen* is used to establish definite and typically specific reference. Its specialized function has been debated in the literature. Briefly summarized, Johannessen (2006, 2008a, 2008b, 2014) posited that the basic function of *han* and *hun* in determiner position is to signal that the referent of the noun phrase is psychologically distal, meaning that either the speaker and/or the addressee is not personally familiar with the referent, or that the speaker has a negative stance toward the referent. Based on this function, Johannessen named this determiner the psychologically distal demonstrative (henceforth: *PDD*). Lie (2010) disagreed with Johannessen's analysis and instead argued that *han mannen* should be analyzed in terms of background deixis. In

§6.2.1, both points of view will be summarized. Further characteristics of the construction are that the noun slot is restricted to nouns with human reference and can be filled by common nouns, kinship terms or proper names, and the noun generally carries a definite suffix *-en* or *-a*. These characteristics can be captured in the following schema: [*han*/*hun*$_{\text{DET}}$ N$_{\text{SG}}$ *-en*/*-a*$_{\text{ART}}$] | definite human reference].

In this study, the *han mannen*-construction is considered in the constructional neighborhood of definite human referring expressions. *Han mannen* is hypothesized to be motivated by three other constructions and lives at the intersection of these constructions. The three relevant constructions are i) noun phrases with a preproprial article, e.g., *n Per* (lit. 'he Per'); ii) noun phrases that are marked for definiteness by the suffixed definite article, as in *mannen* (lit. 'man.the'); and iii) noun phrases with a prenominal determiner *den*, e.g., *den mannen* (lit. 'that man.the/the man.the'). All examples and data in this chapter originate from the Nordic Dialect Corpus (Johannessen et al. 2009) unless otherwise specified.

In the remainder of this section, the three Norwegian definite human referring expressions will be introduced (§6.1.1), and the outline of the chapter will be presented (§6.1.2).

6.1.1. Norwegian definite human referring expressions

The focus in the chapter lies on human referring expressions that are marked for definiteness, that is, on constructions that indicate that a human referent is identifiable (Lyons 1999) and signal a relatively low accessibility of a discourse referent (Ariel 1991). This section will introduce three such constructions, which are hypothesized to be laterally related to *han mannen* and function as source constructions. In §6.1.1.1, noun phrases of the type *mannen* will be introduced. The *den mannen*-construction will be presented in §6.1.1.2, and §6.1.1.3 will elaborate on noun phrases with a preproprial article, i.e., *n Per*.

6.1.1.1. *Mannen*: The suffixed definite article

In Norwegian, definiteness can be realized in various ways. The unmarked and most frequent way to mark definiteness is with a suffixed definite article. This is exemplified by the bolded noun phrase in (2).

(2) Context: The speaker is talking about a conversation that he once had with one of the general good's merchants.

så	*det*	*tykte*	***mann-en***	*var*	*en*	*god*	*handel*
so	that	thought	man-ART	was	a	good	trade

'So the man thought that that was a good trade.' (Eiken_ma_01)

The form of the suffix depends on the number and the gender of the noun it attaches to. The different forms of the suffix are presented in Table 9.

	Bokmål	*Nynorsk*
-en	masculine/feminine/non-neuter singular	masculine singular
-a	feminine singular; neuter plural	feminine singular; neuter plural
-et	neuter singular	neuter singular
-ene	all genders plural	feminine plural
-ane	NA	masculine plural

Table 9: The forms of the Norwegian definite suffix

Table 9 displays the written forms of the definite suffix. Norwegian has two written standards: Bokmål and Nynorsk. The Bokmål writing system developed out of the Danish writing system (Torp and Vikør 1993; Bandle et al. 2005). Reflecting the Danish common gender marking, Bokmål originally had only one definite suffix form for both the masculine and the feminine singular. The feminine singular suffix *-a* became part of the official system in 1917. Initially, this was the officially accepted form for only a small group of feminine nouns, but since 2005 both *-a* and *-en* are accepted endings for all definite feminine singular nouns (Holmes and Enger 2018, 98). The forms in Table 9 do not necessarily reflect the forms attested in spoken Norwegian (Dahl 2015, 43). For example, the *e* in the *-en* suffix is typically not pronounced and the *-a* suffix can be realized as any rounded back vowel. Moreover, although most of the spoken varieties distinguish three genders, there are a few in which feminine and masculine

gender merged into one more general common gender, e.g., in Bergen (Perridon 2003).[14]

The pattern N-ART is used for object reference and for human reference. In this study, the focus lies on the latter. The study is thus concerned with a subschema of the [N-ART]-schema: [$N_{human, SG}$ *-en*/*-a*(/*-et*)]. In the remainder of the study, this will be called the *mannen*-construction, or *mannen* for short. The prototypical definite suffixes of the *mannen*-construction are *-en* and *-a*. The definite form *-et* is not common with human reference, but it is possible, e.g., *barnet* 'the child' (Bull and Swan 2002, 225). The subschema does not contain the suffix forms *-ene* and *-ane*, because those are plural forms.

The suffix is also often found when the noun phrase is additionally marked for definiteness by a prenominal determiner. This is called double determination or overdefiniteness (Dahl 2003). Noun phrases with double determination are here not analyzed as instantiations of the *mannen*-construction, as they have a different form and different functions, depending on their prenominal determiner.

6.1.1.2. *Den mannen*: *den* as determiner

Definiteness can also be marked by prenominal determiners. The most common set of prenominal determiners consists of *den* (M/F/NON-NEUT.SG), *det* (NEUT.SG), and *de* (PL.). This is exemplified in (3).

(3)	*var*	*en*	*guttunge*	*prata*	*med*	***den***	***mannen***
	was	a	boy	talk	with	that	man.ART
	'[So there] was a boy talking with that man.'						(Kvamsøy_ma_02)

In the example, *den* combines with a noun with human reference and a suffixed definite article. The suffixed definite article is not obligatory in the construction, but it is prototypically present. It is thus a construction that typically exhibits double determination.

[14] Increasing consensus is reached that the suffixed definite article does not reflect gender, but instead marks the noun's declension class (Enger 2004). As this discussion complicates matters and is not directly relevant for the upcoming analysis, the traditional picture of the system is presented here.

The specific subschema the study focuses on is [*den*$_{\text{DET}}$ N$_{\text{SG}}$ (*-en*/*-a*$_{\text{ART}}$) | definite human reference]. This is what is here called the *den mannen*-construction, or *den mannen* for short. Although *den, det,* and *de* often combine with nouns denoting non-humans, the focus in this study lies on singular human referring expressions. Thus, *de* is excluded from the subschema. Moreover, as was mentioned in the previous section, neuter is fairly rare with human reference. Therefore, *den* is the prototypical determiner in this schema. With *den* in prenominal determiner slot, the suffixed definite article can only take the forms *-en* or *-a*, as it agrees in number and gender with the prenominal determiner and the noun. Hence, the suffix forms *-et, -ene,* and *-ane* are omitted.

Den has a dual function as determiner. It can be used as a neutral/distal demonstrative or as a definite article. The definite article function of *den* is most prominent when the noun phrase contains a prenominal adjective; sometimes, *den* is even called 'the adjectival article' (Perridon and Sleeman 2011, 8). As article, *den* does not occur without prenominal modification. A segment like *den store mannen* can receive both a demonstrative and definite reading. That is, the phrase can have the meaning 'that big man' or 'the big man'. The two interpretations are often distinguished in spoken language. While the definite article can be internal to the previous accent unit (Fretheim 1987), the demonstrative cannot (Fretheim and Amfo 2008, 350–55). This leads to a perceptual difference between the two interpretations, which has regularly been interpreted as a difference between stressed and unstressed forms of the determiner (Johannessen and Garbacz 2014), or has been referred to as accentuated and unaccentuated *den* (Halmøy 2016).

Den is traditionally a distal demonstrative, but it is nowadays also used demonstratively in contexts without distance contrast. As a demonstrative, *den* can be used as a determiner or as a pronoun. Its proximal counterpart is *denne* (M/F/NON-NEUT.SG). *Denne* is a lot less frequent than *den*. In the Nordic Dialect Corpus (Johannessen et al. 2009), *denne* has a frequency of 0.22 times per 1000 words, while *den* has a frequency of 5.39 per 1000 words. A potential reason for the relatively low frequency of *denne* as compared to *den* is that *den* is not only multifunctional as determiner but as pronoun as well. Pronominal *den* can also be used as a personal pronoun, referring to highly accessible entities. *Denne* is

not multifunctional in either context: As determiner and as pronoun, it is only used as a demonstrative.

In its pronominal use, *den* is comparable to the English *it*. Unlike English *it*, Norwegian *den* is used to refer to non-human entities that are associated with masculine or feminine gender (or non-neuter). The demonstrative and personal pronoun function are usually distinguishable in speech. The personal pronoun *den* tends to be unaccentuated. Differently, demonstrative *den* is typically accentuated, or it combines with a deictic intensifying adverb (e.g., *der* 'there') (Halmøy 2016, 210).

Denne will not be further considered in the current study. Its adnominal use within human referring expressions is too infrequent (0.02 times per 1000 words) for it to be considered as an important motivation of the more frequent *han mannen*-construction (0.10/1000 words).

6.1.1.3. *N Per*: The preproprial article

In the majority of the Norwegian varieties, proper names can be marked for definiteness (Delsing 2003, 20–25). Most varieties use a preproprial article, which will be discussed here.[15] This article is prenominal and takes the form of the third-person human pronouns *han* (M.) or *hun* (F.). When they function as preproprial articles, *han* and *hun* typically have a clitic form, [ɳ] and [ɑ] (Dahl 2015, 97).

(4a)	*så*	*sa*	*jeg*	*dette*	*åt*	***han***	***Leiføgen***
	so	said	I	this	to	PA	Leiføgen
	'So, I said this to Leiføgen.'						(Engerdal_ma_01)
(4b)	*og*	*da*	*reiste*	***han***	***far***	*til*	*Elverum*
	and	then	travelled	PA	father	to	Elverum
	'And then my father travelled to Elverum.'						(Åsnes_ma_02)

The example in (4a) illustrates the use of the preproprial article with proper names. This article can combine with both first and last names, but first names

[15] A few varieties, such as the variety spoken in Bergen, have a postproprial article in the form of the definite suffix that is attached to proper names (Perridon 2003).

are more common. In addition, it combines with kinship terms, as in (4b) (Lie 2010, 70). The preproprial article typically signals familiarity or givenness (Sigurðsson 2006), although the degree of familiarity associated with the preproprial article varies from variety to variety (Johnsen 2016, 202). In the vernaculars in which the article is normally obligatory with first names and kinship terms, there is no implication of familiarity (Dahl 2015, 97).

The form and the meaning of noun phrases with a preproprial article are captured by the following schema [*hun*/*ho*/*a*/*han*/*n̩*$_{\text{DET}}$ KIN/NAME$_{\text{SG}}$ | definite human reference]. KIN is here an abbreviation of kinship term and NAME of proper name. This schema is what will here be called the *n Per*-construction, or *n Per* for short.

The form of the preproprial article resembles the PDD (the determiner in *han mannen*) in that they both are a form of *han*/*hun*, but there are some notable differences between the two. Johannessen and Garbacz (2014) have identified six characteristics that distinguish the preproprial article from the PDD:

i) The preproprial article can be inflected for case, while the PDD has an invariable form independent of the syntactic function of the noun phrase it belongs to.
ii) The preproprial article is never stressed, while the PDD is always stressed.
iii) The preproprial article often has a reduced, clitic form, while the PDD has an unreduced, full form.
iv) The preproprial article is obligatory, while the PDD is not.
v) The preproprial article carries no meaning in most dialects, while the PDD is "loaded with meaning".
vi) The preproprial article only attaches to names and "name-like nouns", while the PDD combines with any kind of human noun.

Most of these characteristics require some elaboration and evaluation. First, concerning (i), it should be noted that the non-subject form of the third-person pronoun is overall rare in spoken language. This is shown in Table 10, which is based on a lemma search of *han* and *hun* in the Nordic Dialect Corpus.

	subject	*non-subject*	*unclear*	*Total*
han	21726	50	137	21913
hun	8886	157	107	8150

Table 10: Frequency of the object forms of *han* and *hun*

The results indicate that less than 1% of the instances of *han* correspond phonologically to a non-subject form, which it is more rare than unclear forms (e.g., *na* and *a*). *Hun* occurs more frequently than *han* in non-subject form, but it is still rare with 1.9%. What is more, in the three corpora of spoken Norwegian (TAUS, NoTa, and NoDiaCo), only the feminine non-subject form of the pronoun, *henne*, is found in adnominal position; the masculine non-subject form *ham* or *honum* are not attested in this position at all.

Zooming in on the phonological form of the pronoun furthermore reveals that 5 of the 11 attestations in the NoDiaCo cannot unambiguously be classified as instantiations of *henne*. The forms *enni* (2 occurrences); *ne* (3); *na* (1) reflect *henne*, whereas *a* (3); *o* (1); *n* (1) do not. In the TAUS corpus, all five attestations are uttered by the same speaker (a43). The object form is thus extremely rare in determiner slot and can therefore not reliably distinguish the preproprial article from the PDD.

Concerning (ii), it is not the stress per se that distinguishes between the PDD and the preproprial article. Instead, the difference is that the preproprial article is part of the previous accent unit, while the psychologically distal demonstrative is external to this accent unit, which is sometimes perceived as stress (Fretheim and Amfo 2008, 350–55). This phonological distinction is found with the different functions of *den* as well, as was discussed in the previous section.

Concerning (iii), it should be noted that while there is a strong preference for the full form of *han* and *hun* in *han mannen*, both the special clitic forms of *han* and *hun* and the simple clitic form are possible in front of a common noun with human reference, albeit rare. *Han mannen* occurs with simple clitic form of *han* in (5a) and a special clitic form in (5b). These cannot be instantiations of the preproprial article, because the preproprial article does not combine with common nouns, only with names and kinship terms (see point (vi)).

(5a)	*(...)*	*før*	***han***	***parkeringsvakten***	*var*	*der*
	(...)	før	ann	parkeringsvakkt'ne	var	dær
	'(...) because that parking attendant was there.'					(Bergen_04gk)
(5b)	***han***	***frisøren***	***der***			
	n	frissørn	der			
	'that hairdresser there'					(Stokkøya_33)

Lastly, concerning (iv), it is important to note that while the use of the PDD is not obligatory throughout Norway, the degree of obligatoriness of the preproprial article varies per dialect (Håberg 2010). As such, it is not a criterion that can be used to distinguish the two determiners on the population level. That is, when looking at the population level, the use of the preproprial article is likewise optional.

There is an additional distinction between *han mannen* and *n Per:* The definite suffix is very common in the *han mannen*-construction, but does not occur in *n Per*. Although a few vernaculars have a postproprial article, meaning they definiteness on proper names is marked with a definite suffix, double determination is not attested with proper names (Dahl 2015, 99). Since kinship terms can readily be pre- and postnominally marked for definiteness and can occur in both *n Per* and *han mannen* (as opposed to common nouns which cannot be used with the preproprial article), the presence of a definite suffix is distinctive when comparing kinship terms in both constructions.

(6a)	*nei*	*hva*	*han*	*heter*	*for*	*noe*	***han***
	næi	ke	n	hete	får	no	hann
	no	what	he	is.called	for	something	PDD
	faren	*til*	*han*				
	faren	te	hann				
	father.ART	to	he				
	'No, what was it he was called again, that father of him.'						
							(Sømna_01um)

(6b)	*og*	*det*	*var*	*nå*	*faktisk*	*vi*	*ungene*
	å	de	va	now	fakktisk	vi	onngan
	and	it	was	now	actually	we	young.ART.PL
	som	*fikk*	*den*	*løa*	*hos*	***han***	***far***
	så	fækk	den	lao	hoss	n	far
	who	got	that	barn	at	PA	father

'And it was actually us kids that got the barn at dads.'

(Hattfjedal_04gk)

The sentence in (6a) shows an example of *han mannen* which is evident from the full form of *han* and the recognitional function of the noun phrase. In this case, the noun *far* 'father' combines with the definite suffix *-en*. In (6b), *far* does not combine with a definite suffix. The use of the noun phrase for a familiar referent – the referred to person is the father of the speaker – and the special clitic form of the determiner – *n* – signal that this is an instantiation of *n Per*.

In sum, the criteria that can be reliably used to distinguish the PDD from the preproprial article are the type of noun it occurs with, to a large degree the form of the determiner, and the presence or absence of a definite suffix. This is important as these criteria will be used in the data selection process.

6.1.1.4. Summary

To conclude, the constructions that will be analyzed in this chapter are *han mannen, mannen, den mannen,* and *n Per*. All four constructions are used to establish reference to a person, and they mark definiteness. The proposed schemas for the constructions are repeated below.

han mannen:	[*han/hun*$_{DET}$	N_{SG}	*-en/-a(/-et)*$_{ART}$	]
mannen:	[	N_{SG}	*-en/-a(/-et)*$_{ART}$	]
den mannen:	[*den*$_{DET}$	N_{SG}	(*-en/-a*$_{ART}$)	]
n Per:	[*hun/ho/a/han/ŋ*$_{DET}$	$KIN/NAME_{SG}$		]

6.1.2. Outline

After this introduction, the chapter will provide some background to the study in Section 6.2. In this section, the function of the *han mannen*-construction as has

been debated in the literature will be presented, and the spread of the *han mannen*-construction will be discussed. Section 6.3 will present a primarily qualitative analysis of the form of the *han mannen*-construction. This section will discuss both the determiner and the types of nouns that occur in the construction. Subsequently, the analysis is expanded to other aspects of the construction, and a more quantitative take on *han mannen*'s position in the constructional network will be taken. Section 6.4 will elaborate on the precise methodology. This section contains an explanation of the data selection process, a brief overview of the statistical methods used, and individual discussions of each of the coded variables. The differences between and characteristics of the *den mannen, mannen,* and *n Per* constructions will be presented in Section 6.5. Section 6.6 will explore the position of the *han mannen*-construction in relation to the other three expressions and it will be shown that most of its traits are shared with either *den mannen* or *mannen*. However, the construction turns out to be unique in its use as an appositional construction. The chapter will end with a conclusion in Section 6.7.

6.2. Background

6.2.1. The meaning of *han mannen*

In the introduction to this chapter, it was mentioned that there is a discussion in the literature about the meaning of *han mannen*. It is agreed that the noun phrase is used in definite contexts and that it is typically used to refer to a specific person (Johannessen 2006, 2008b; Strahan 2008; Lie 2010). But there are two different analyses of the meaning of the determiner in the *han mannen*-construction. On the one hand, there is Johannessen who has argued that its function is to mark psychological distance. On the other hand, there is Lie, who views the determiner as a marker of background deixis. In this section, the two analyses will be presented.

Johannessen was the first to bring attention to this particular use of *han*/*hun* and named the determiner the psychologically distal demonstrative (*PDD*) after the function she ascribes to it: to denote psychological distance. With psychological distance, Johannessen (2006, 2008b, 2014) refers to contexts in which the speaker and/or the addressee are not personally familiar with the

referent of the noun phrase, as in (7), and/or the speaker has a negative attitude toward the referred to person, which is exemplified in (8).

(7)	*det*	*var*	***hun***	***kjerringa***	*der*	*som*	*skulle*
	it	was	PDD	woman.ART	there	who	would
	– var	*det*	*mikroen*		*eller*	*var*	*det*
	– was	it	microwave.ART		or	was	it
	stekovn –	*var*		*hun*	*skulle*	*torka*	*katta*
	oven –	where		she	would	dry	cat.ART

'It was that woman there who would – was it in the microwave or oven – where she would dry her cat.' (Karlsøy_01um)

(8)	*fordi*	***han***	***idioten***	*vi*	*hadde*	*leid*	*som*
	because	PDD	idiot.ART	we	had	hired	as
	sjåfør	*(...)*					
	chauffeur						

'Because that idiot we had hired as chauffeur (...).' (NoTa, Oslo)

In (7), *hun kjerringa der* (lit. 'she women-the there') is used to refer to a person both the speaker and addressee are not personally familiar with. This is evident from the fact that 'the woman who microwaved her cat to dry it' is a legend that is sometimes also told as 'the woman who microwaved her poodle to dry it' (Belanus 1981). This woman does not truly exist. Consequently, a personal connection to the referent is not even possible. The discourse participants are not aware of the fictional nature of the referent and assume that the referent is real and that the reference is specific. This is clear from the conversation that follows the utterance in (7):

Karsløy_02uk:	*var ikke det borte i USA?*
	'Wasn't that over there in the USA?'
Karlsøy_01uk:	*ja ja så klart*
	'Yes, yes, of course.'

In (8), the speaker expresses a negative stance toward the referent. This is apparent from the use of the noun *idioten* 'the idiot'.

The two uses of the PDD in (7) and (8) illustrate its basic meaning according to Johannessen, which she surmises under the term *psychological distance*.

Lie (2010) proposes an alternative analysis. He argues that psychological distance is not one of the PDD's core meanings. The creation of distance is seen as a byproduct of the way in which the *han mannen*-construction establishes reference. According to Lie, the determiner is best analyzed in terms of background deixis. The term background deixis covers both recognitional demonstratives (Diessel 1999; Himmelmann 1996) and a particular function of the definite article, namely to signal identifiability through shared communal knowledge.

Recognitional demonstratives signal that a discourse-new referent can be identified through private shared knowledge of the speaker and addressee (Diessel 1999). This is different from other demonstrative uses in that it focuses the speaker's attention on their knowledge of shared experiences and not on the surrounding situation or the previous discourse. To ensure that the addressee is able to correctly identify the referent, recognitional demonstratives regularly occur with additional anchoring information, often in the form of relative clauses or elements that allow the addressee to give feedback to the speaker (Himmelmann 1996, 332; Diessel 1999, 107). This can take the form of a pause after the referring expression, or linguistic elements like *vet du* 'you know', or *husker du* 'do you remember'. When an addressee reacts affirmatively, a speaker knows that reference was successful. When an addressee does not react affirmatively, a speaker can provide additional identifying information. The recognitional use of *han mannen* is illustrated in (9).

(9)	*og*	*i_mellomtida*		*da*	*så*	*kom*	*jeg*	*i*
	and	in.the.meantime		then	so	came	I	in
	kontakt	*med*	#	***hun***	***dama***	***som***	***var***	***her***
	contact	with	HES	PDD	lady.ART	who	was	here
	##							
	HES							

'And in the meantime, I came into contact with that lady who was here.'

(Røros_03gm)

In example (9), the referent of *dama* is new in the discourse. The speaker and addressee have had a shared experience with the referred to person. By making explicit reference to their shared experience in the relative clause, the speaker facilitates the identification of the referent by the addressee. The speaker pauses after the entire referring expression, which is indicated by ## in the example. This gives the addressee time to respond. In this case, the addressee responds affirmatively by saying *ja* 'yes', indicating that she knows about whom the speaker is talking.

The recognitional function of demonstratives is different from the familiar use of definite articles. The recognitional demonstrative "draws on specific, 'personalized' knowledge that is assumed to be shared by the communicating parties due to a common interactional history or to supposedly shared experiences" (Himmelmann 1996, 233). Differently, the definite article has a referent that is identifiable through communal knowledge, i.e., knowledge that is shared amongst members of a given speech community (Himmelmann 1996, 233). This is the second aspect of Lie's background deixis. In example (10), *han mannen* is used with reference to a person identifiable through communal knowledge.

(10) Context: The speaker has been asked some questions about a couple of dialects. She explains that one of these dialects is easy to recognize on the radio or on TV.

spesielt	***han***	***landsbruksministeren***	*han*	*holder*	*veldig*	
especially	PDD	agriculture.minister.ART	he	hold	very	
på	*dialekten*	*sin*	*og*	*det*	*hører*	*du*	*godt*
on	dialect.ART	his	and	that	hear	you	well

'Especially that minister of agriculture, he really has kept his dialect and you can hear that well.' (Langesund_04gk)

To identify the intended referent in (10), one does not need to have a previous connection to the person who utters this sentence, nor does one need previous knowledge of the discourse. As it can reasonably be assumed that Norwegians have some knowledge about their minister of agriculture, the knowledge required to understand the reference made in example (10) is shared with a wider

community. It requires substantially less familiarity between speaker and addressee than one would need to identify the referent of *hun dama* in (9).

The determiner in (10) has a function that is generally associated with definite articles, namely to refer to an entity that is familiar through communal shared knowledge, whereas the determiner in (9) has the recognitional referential function that is typically associated with demonstratives. Both functions have in common that they point out a referent who is familiar or identifiable through a common background between speaker and addressee, and they hence have a background-deictic function.

Johannessen's proposal would be able to account for the use of *han mannen* in (10) by the lack of personal relation between the speaker and addressee and the referent. But in (9), both discourse participants have met the referent of the *han mannen*-construction. Moreover, there is no clear indication that the speaker has a negative attitude toward the referent of *hun dama*. Hence, the use of the construction in (9) does not support a meaning of psychological distance.

Johannessen (2020) rejects Lie's analysis. She argues that if the main function of the PDD is to evoke background deixis, it should be used more frequently, because many referents are identifiable through the common ground. For this reason, she finds background deixis too general Furthermore, she argues that Lie's account predicts that the PDD can only be used once per discourse. Repeatedly picking out a referent would be redundant and impolite. Yet, subsequent mention is attested without it becoming rude, according to Johannessen. As a case in point, Johannessen refers to the conversation presented in (11).

(11) Context: The two discourse participants are talking about when they quit playing in a band.

Stamsund_03gm *jeg slutta her e # jeg slutta i ##* front-click_ *trur det var i f- sjuogåtti # seks-sjuogå- # ja*

'I quit here, I quit here in I think it was eighty-seven, eighty-six- seven, yes.'

Stamsund_04gk	** oi sjuogåtti?*
	*var ikke du med da **han dansken** var her og # starta opp*
	'Oh eighty-seven?
	Weren't you there when **that Dane** was here and started up?'
Stamsund_03gm	** _front-click_ jo var det ja*
	jeg slutta da han var # jeg var med et # et par år
	'Yeah, [I] was, yes.
	I quit when he was, I was with [the band] a few years.'
Stamsund_04gk	*ja jeg var med de to første årene etter_at **han dansken** starta opp igjen etter det hadde ligget nede*
	'Yes, I was with [the band] the first two years after **that Dane** started [it] up again after it had been paused.'

The second mention of *han dansken* shortly follows after the first mention. However, this example and the other examples Johannessen discusses are not prototypical cases of subsequent mention. In this particular case, Stamsund_03gm interrupts Stamsund_04gk before she starts talking about the Dane restarting the orchestra after some time of no activity. The second mention of *han dansken* is used when she goes back to what she wanted to communicate earlier. Her train of though was interrupted. To restart, the speaker does what she did previously, namely picking out a specific referent about whom she wants to say something. Hence, it is not a very convincing case of subsequent mention to the same referent. The conversation between the discourse participants continues as shown in (12). At the end of this part of the conversation, the referring expression *han dansken* is used for a third time.

(12)	Stamsund_04gk	*det var ennå han far din som kom inn i i i leiligheten åt oss # og lempa inn en en kornett og ropt det herre det er til kjerringa n- må du bare ha henne til å øve*

	'It was at that time that your father came in in our apartment and heaved in a cornet and shouted 'this here, it is for the woman, you just must have her practice'.'
Stamsund_03gm	*mm* 'mm-hmm'
Stamsund_04gk	*da bodde vi utafor* 'We lived further away then.'
Stamsund_03gm	*mm * mm ja* 'mm-hmm mm-hmm yes'
Stamsund_04gk	*og e # for at jeg har jo ikke av meg sjøl i det hele tatt og men det var jo # måtte jo begynne å trene opp* 'And, because I did not have anything of myself at all, and but it was, well, [I] had to start to practice.' *men der utafor veit du i den gamle nordlandsbanken gikk jo ikke an å holde på øve det var jo # seks leiligheter* 'But over there, you know, in the old Nordlandsbank, it wasn't possible to practice. There were six apartments.'
Stamsund_03gm	*nei* ***han dansken*** *han e han var da jeg var* 'No, **that Dane** he e he was [there] when I was.'

Again, in this case, the construction is not used in a prototypical subsequent mention. There is a clear topic change, Stamsund_04gk starts talking about someone bringing in a cornet and about her own difficulties with practicing. Stamsund_03gm's utterance comes a bit out of the blue, and he returns to the topic the discourse participants were talking about before.

The reason that these two subsequent uses of *han dansken* are not very rude, is not because they do not pick out a referent identifiable through a common background, but because they do so non-redundantly: In the first example, the speaker finishes a thought she had previously but was interrupted. In the second example, the speaker abruptly switches the topic.

In sum, there are two approaches to the meaning of the *han mannen*-construction in the literature: Johannessen's psychological distance, and Lie's background deixis. These two approaches are, however, not as incompatible as they might have been represented in the literature. In the analyses that will be presented in this chapter, we will see that both meanings are associated with the *han mannen*-construction. In addition to its use as an anaphoric referring expression, *han mannen* is used for reference to private shared and communal knowledge. Psychological distance is inferential and not conventionalized.

6.2.2. The geographical spread of *han mannen*

Here, we will consider the spread of *han mannen* in the speech population, considering its acceptability and use. This is based on data from the Nordic Dialect Database (Lindstad et al. 2009) and Nordic Dialect Corpus (Johannessen et al. 2009). As one might be aware, the term *Norwegian* does not refer to one standardized language but covers a wide range of varieties. Norway forms a dialect-continuum, with dialects that are, by and large, mutually intelligible. Norwegian has two – mutually intelligible – written standards, Bokmål and Nynorsk. Bokmål is the most widespread written variant, and Nynorsk is primarily used in the Western regions (Vikør 2015).

In spoken language, there is no official standard. Certain norms have emerged though, and there is nowadays an unofficial spoken standard in the Oslo area: Standard Østnorsk (Kristoffersen 2000, 7). Outside of the Oslo area, speakers still use their own dialects and typically have not adopted Standard Østnorsk. As a consequence, Norwegian is a language that exhibits a lot of variation on the population level. For this reason, it is important to consider the geographical distribution of *han mannen* to exclude the possibility that it is an artifact of one or a small number of dialects.

6.2.2.1. Acceptability judgements

This section reports the results of an acceptability judgement test by the Nordic Dialect Database (Lindstad et al. 2009) in light of geographical variation. From these acceptability judgments, one can gain insight into the felicitous use of *han mannen*. Native speakers were asked to rate sentences on a scale from 1 to 5, with

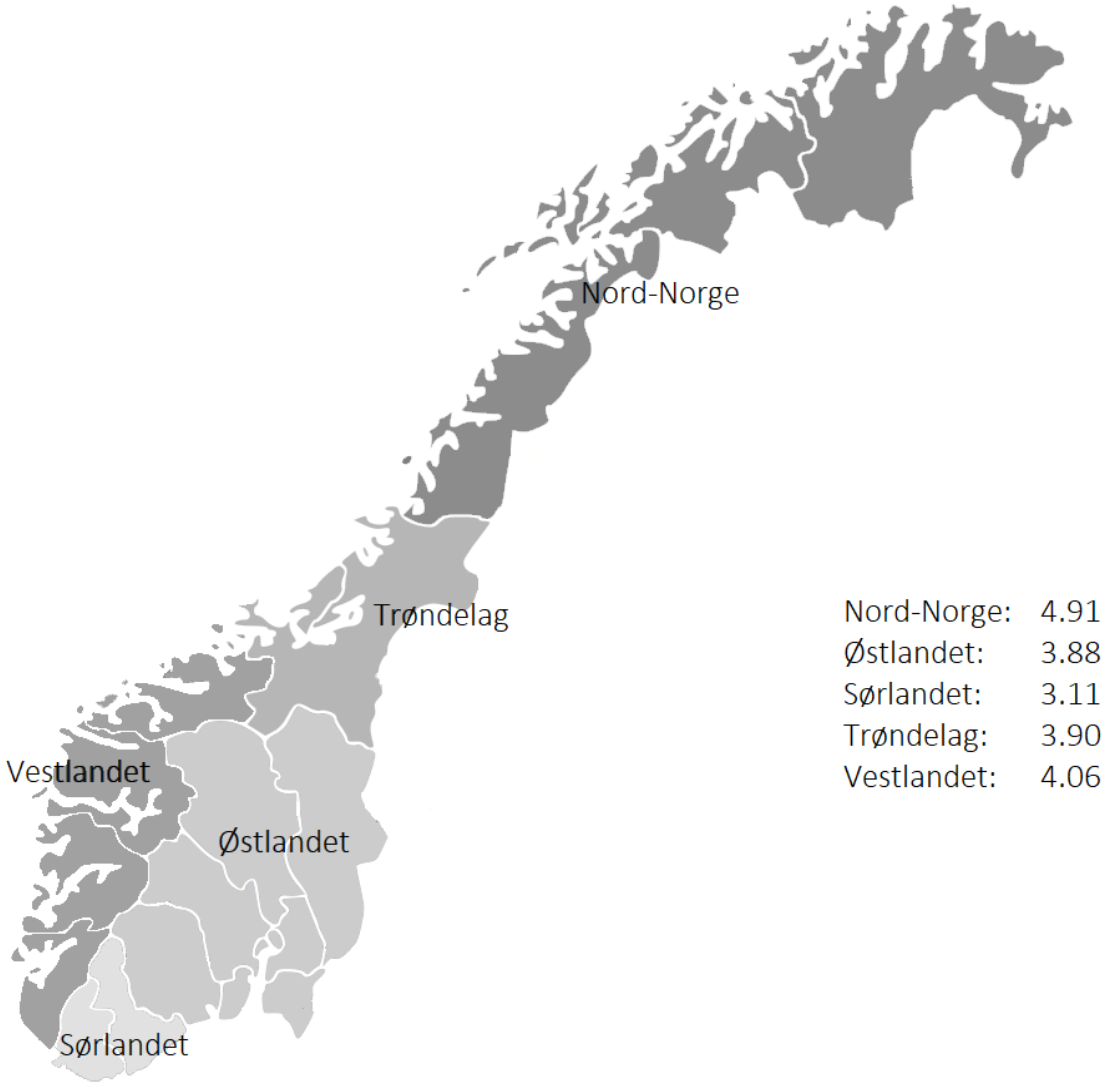

Figure 22: Averaged acceptability rating *han typen* per region

1 being not acceptable at all and 5 corresponding to completely acceptable. The relevant sentence for this study is presented in example (13). It illustrates the *han mannen*-construction with the common noun *type* 'type'

(13)	*dette*	*stedet*	*er*	*fullt*	*av*	*rare*	*personer.*
	this	place.ART	is	full	of	weird	people
	Husker	*du*	***han***	***typen***	*vi*	*traff*	*i går?*
	remember	you	PDD	type.ART	we	met	yesterday

'This place is full of strange people. Do you remember that guy we met yesterday?' (NoDiaSyn, 99)

The responses were coded for location, which makes it possible to investigate a potential regional effect. Figure 22 shows the averaged acceptability rating per region. The darker the color of the area, the more acceptable speakers judged the sentence to be.

Throughout most of Norway, the sentence presented in (13) was judged as acceptable, but there were a few municipalities in which the majority of the speakers found it unacceptable.[16] In general, it was more accepted in the Nord-Norge and Vestlandet than it was in Østlandet and Sørlandet. In total, 80 out of 408 (19.61%) speakers gave the sentence a low acceptability score (i.e., 1 or 2), 3.68% a medium rating (3), and 76.72% a high score (4 or 5).

Why about 20% of the speakers do not accept the sentence in (13) cannot be determined, because the sentence tests a multitude of things at the same time. On the one hand, speakers may find the sentence unacceptable, because the *han mannen*-construction is used to express a negative stance toward the referent of the noun phrase. The use of *rare personer* 'weird people' in the preceding context signals this negative attitude, and the use of the general noun *typen* reinforces this negative stance. On the other hand, the noun phrase is modified by a relative clause and the sentence contains the phrase *husker du* 'do you remember'. Both signal background deixis, or more specifically, recognitional reference. Thus, compatibility of *han mannen* with negative stance is tested at the same time as the use of this noun phrase for recognitional reference. Moreover, it might be the case that responders judged the sentence as unacceptable because they simply do not accept the adnominal use of *han* in combination with a common noun. It remains unknown what underlies the acceptability judgements.

In sum, the sentence has rather high acceptability rating, on average 4.02, but people are more reluctant to accept the use of *han typen* in the southern and south-eastern parts of Norway.

6.2.2.2. Relative frequency

Socially, *han mannen* is a highly colloquial phenomenon (Faarlund, Lie, and Vannebo 1997, 247). It is only attested in informal conversational language and

[16] Namely, in Bud, Kvam, Kom, Sirdal, Vestre Slidre, and Brunlanes, Eidfjord, Fusa, Kvinnherad and Langesund.

not in the Norwegian written standards. As such, *han mannen* is restricted to a particular register and not diffused in social context nor in genre.

Within colloquial speech, there is high geographical diffusion of the construction, but the construction is not equally spread in each region, as can be seen in Figure 23. The darker the color, the more the *han mannen*-construction is used. The corresponding table can be found in Appendix 3.

Figure 23: Relative frequency of *han mannen* per region

The geographical differences are small. On average, the *han mannen*-construction has a frequency of 0.10 per 1000 words. In Vest-Agder, the construction is least frequent, 0.04/1000w. The low frequency of use in the south overlaps with the

area in which *han typen* had a lower acceptability rating. The lower frequency combined with the relatively low acceptability rating indicates that *han mannen* is not a fully established construction in Vest-Agder. *Han mannen* has the highest relative frequency in Troms, 0.18/1000w, which still is rather infrequent. This also was an area in which the construction was deemed more acceptable.

The spread of *han mannen* is not regionally bound. Although the construction was only recently paid attention to and is highly restricted in genre and register, the construction is geographically well-diffused. As such, the construction itself is unlikely to be new. Yet, its frequency is low and its meaning is not characterized by strong conformity. This makes it unlikely that all speakers of Norwegian have entrenched *han mannen* and that it is fully conventionalized (Schmid 2020, 176). The existence on the population level must therefore be motivated or supported by other constructions.

6.3. *Han mannen*'s form

This section deals with the question what motivates the form of the *han mannen*-construction. What makes the *han mannen*-construction remarkable at first glance is that it has a determiner whose form coincides with the third-person human pronoun *han* (M.) or *hun* (F.). As the construction is highly infrequent on the population level, this form must be motivated. I will first focus on the likely source of the determiner in *han mannen*, relating it to the Norwegian pronominal paradigm.

Second, the lexemes that occur in the *han mannen*-construction will be investigated. These will be shown to fall roughly into two categories: On the one hand, there is a group of relational nouns, and on the other hand, there is a group of nouns that describe the referent in a broad terms, e.g., by their profession. It is argued that the lexemes occurring in the construction are primarily responsible for the effect of 'psychological distance' (Johannessen 2006, 2008a, 2008b, 2014, 2018), which was introduced in §6.2.1.

6.3.1. Prenominal determiner

This section aims to answer the question what motivates the form of the determiner in the *han mannen*-construction. It is argued that this is a case of multiple source constructions: Both the third-person personal pronominal

paradigm and the determiner paradigm support the determiner use of *han*/*hun* in the *han mannen*-construction.

Let me first briefly introduce the relevant players. Central in the discussion is the determiner in the *han mannen*-construction, the psychologically distal demonstrative (PDD). The PDD typically is a full form of the third-person human pronoun, *han* 'he' or *hun* 'she'. Two other determiners are relevant for the discussion: i) the adnominal use of *den*, as in the *den mannen*-construction. This determiner varies in form depending on whether it has a deictic function. And ii) the preproprial article, i.e., the determiner in the *n Per*-construction. This determiner typically occurs as reduced form of the *han* or *hun*. The preproprial article in the *n Per*-construction is of particular interest in this section, because the preproprial article and the PDD come from the same lexeme, *han*/*hun*. This resemblance in form is the likely reason why PDDs "have been confused with the preproprial articles" (Johannessen 2014, 34) and are sometimes difficult to distinguish.

Although the determiner slot in *n Per* and *han mannen* are filled by the same lexeme, it is unlikely that the determiner in *n Per* is the sole source for the determiner in *han mannen*. If the preproprial article were to be the source of the PDD, the trajectory would go against the unidirectional hypothesis of grammaticalization, which predicts that items grammaticalize from a full form to a reduced form and expand from restricted uses to less restricted uses (Traugott and Heine 1991; Haspelmath 1999). A development from the preproprial article into the PDD would entail a phonological development from an unstressed and often cliticized form of *han* and *hun* to the stressed and full form. Moreover, it would semantically oppose the expected path of grammaticalization. The preproprial article is a type of definite article restricted to names and kinship terms, but the PDD has apparent characteristics of demonstrative determiners: As was discussed in §6.2.1, *han mannen* can be used to refer to entities that are new in the discourse but identifiable through private shared knowledge, which is a characteristic of recognitional demonstratives. In addition, it can combine with a deictic intensifying adverb, as in (14), which is also characteristic of demonstratives.

(14)	*nei*	*da*	*får*	*jeg*	*hente*	***hun***	***der***
	no	then	get	I	pick.up	PDD	there
	blondinen	*da*	*sier*	*jeg*			
	blonde.ART	then	say	I			

'No, then I get to pick up that blonde there, I say.' (Stavanger_03gm)

A change from the preproprial article into PDD would go against the known path of grammaticalization of demonstratives: Instead of an adnominal demonstrative developing into a definite article (Diessel 1999, 128), the change of preproprial article to PDD would constitute a gain of some demonstrative features by an article. It could of course be the case that the development of this determiner is a counterexample to the unidirectionality of grammaticalization, but a more likely scenario is that the form of the determiner in *han mannen* is motivated by multiple source constructions. This is what I propose.

6.3.1.1. Norwegian third-person pronouns

Before it is argued that the form of *han mannen* is motivated by multiple source constructions, it is useful to first briefly introduce the Norwegian third-person personal pronominal paradigm. This is presented in Table 11.

	Bokmål		*Nynorsk*	
	subject	*non-subject*	*subject*	*non-subject*
human, m., sg.	han	han/ham	han	han/honom
human, f., sg.	hun/ho	henne/ho	ho	ho/henne
non-neuter, sg.	den		den	
neuter, sg.	det		det	
all genders, pl.	de/di:	dem		dei

Table 11: Norwegian third-person personal pronouns (Based on Askedal 1994, 233)

Han and *hun* are primarily used to refer to masculine and feminine humans respectively. *Den* and *det* – as pronouns – normally refer to non-human entities (Halmøy 2016, 212). There is no distinction between human and non-human referring pronouns in the plural. Plural *de* is used to refer to all entities with whatever animacy or gender. Though there are certain vernaculars in the western

dialect area in which *han* and *hun* are used to refer to objects (Bull and Swan 2002, 226–27; van Gelderen 2011, 25).

All third-person personal pronouns are frequently phonologically reduced in spoken contexts and encliticize (Askedal 1994, 233–34). In Standard Østnorsk, the third-person singular pronouns are phonologically realized by the forms presented in Table 12.

	full form	*simple clitic*	*special clitic*
human, m., subject	[ˈhɑn]	[ɑn]	[ɳ]
human, m., non-subject	[ˈhɑm]	[ɑm]	[ɳ]
human, f., subject	[ˈhʉ̶n], [ˈhʉ̶ː]	[ʉ̶n]	[ɑ]
human, f., non-subject	[ˈhɛn.nə]	[ɛ.nə]	[ɑ]
non-neuter	[ˈdɛn]	[dɳ]	[ɳ]
neuter	[ˈdeː]	[də]	[rə]

Table 12: The different forms of third-person singular pronouns (Kristoffersen 2000, 333)

In general, the simple clitic and special clitic forms are interchangeable, but the special clitic forms are more common in vernacular varieties, while simple clitic forms are associated with more formal registers and prestige varieties (Kristoffersen 2000, 334–35).

There are some considerable differences between the full form paradigm and the special clitic paradigm of third-person pronouns. First, as special clitics, there is no distinction between subject and non-subject forms. Moreover, the singular forms for human masculine and non-human non-neuter are identical. The feminine pronoun and the plural form remain distinct. Thus, differently from the full form pronouns, the special clitic forms of *den* and *han* are indistinguishable in all regards: Neither has a distinction between subject/non-subject form, and their pronunciation is identical.

In sum, Norwegian has non-human and human referring third-person personal pronouns with different genders in the singular, but only one common form in the plural. In spoken language, each pronoun is attested in three different forms: a full form, a simple clitic form, and a special clitic form. In the special

clitic form, there is much syncretism. Most importantly, *den* and *han* are indistinguishable in this paradigm.

6.3.1.2. Motivating the form of the determiner

Den, *han*, and *hun* are thus, as pronouns, attested in three different forms: They might be realized in their full form, as simple clitics, or as special clitics. All third-person pronouns can be used as determiners. The determiners can take any of the forms represented in Table 12, although the non-subject forms are tremendously rare. This was shown in §6.1.1.3.

As determiner, *den* (as in *den mannen*) has a different form when it has the function of a definite article than when it is used as an adnominal demonstrative. While *den* gets attached to the previous accent unit as a definite article, it is fully pronounced and external to the preceding accent unit when it functions as a demonstrative (Fretheim and Amfo 2008). As such, *den* as a definite article is a phonological clitic and is typically realized by the simple clitic or the special clitic forms, whereas *den* as adnominal demonstrative is not a clitic and is realized in its full form.

The preproprial article (i.e., the determiner in the *n Per*-construction) is like the article *den*: It is typically incorporated in the previous accent unit and takes the form of a special clitic, although it is also occasionally attested as simple clitic or in the full form. The PDD (i.e., the determiner in *han mannen*) strongly prefers the full form of *han* and *hun*. The special clitic forms are attested as well, but they are very rare.[17]

Thus, in the pronominal paradigm, *han*/*hun* and *den* occur as a clitic and in their full form. This is reflected in the adnominal use of these elements. In the adnominal paradigm, the full form and the special clitic form of *den* are associated with different functions. *Han* and *hun* also occur in adnominal position both in special clitic and in full form. The special clitic form is associated with a specific function, namely that of the preproprial article. For a symmetrical system and the completion of the paradigm, the adnominal use of the full form

[17] In the Nordic Dialect Corpus, thirteen common nouns are preceded by a special clitic form of *han* or *hun* ([ɳ] and [ɑ]).

should likewise be associated with a specific function: the PDD. This is illustrated in Table 13.

		pronominal	*adnominal*
special clitic	*den*	yes	definite article
	han/hun	yes	preproprial article
full form	*den*	yes	demonstrative
	han/hun	yes	PDD

Table 13: Adnominal and pronominal *den* and *han/hun*

Note that this paradigmatic representation is merely another way of representing lateral relations and multiple source constructions: The adnominal use of the full form of *han* and *hun* is motivated by the use of the full form of *den* in adnominal position (as demonstrative), the adnominal use of the clitic form of all three, and the existence of a context in which all four forms are in paradigmatic relation (the pronominal system).

The analogical inference of the PDD is contingent on the frequency of the forms in their respective uses. If the full form of *den* in adnominal position is highly infrequent, it is unlikely to serve as a motivation for the use of the full form of *han* and *hun*. All other things being equal, the more frequent an expression is, the more likely it is to affect other – less frequent – expressions. Therefore, the frequency of the forms in the different positions has to be considered. To do this, all instances of *han*, *hun*, and *den* were extracted from the corpus, combined with their phonological transcription made by the corpus annotators, the following word, and the part-of-speech tagging of word that follows *han*, *hun*, and *den*. Taking into account the vowel variation and the use of 'r' instead of 'd' in the eastern regions (Engdahl and Lindahl 2014), the frequency of the different forms in the particular contexts is presented in Table 14. *Den* is likely a determiner when it is followed by an adjective or a noun. When the form is immediately followed by a verb, *den* is used pronominally. These are rough measures, I admit, but sufficient for the current objective.

	determiner		*pronoun*		*Total*
	n	χ^2-*res.*	*n*	χ^2-*res.*	
full den	3845	20.28	2148	-18.84	5993
full han	1762	-2.61	2286	2.43	4048
full hun	1086	-24.19	3723	22.47	4809
special clitic han/den	924	3.65	845	-3.39	1769
special clitic hun	456	4.22	352	-3.92	808
Total	8073		9354		17427

Table 14: Forms of *han*, *hun*, and *den*

Table 14 shows that, overall, the full forms are more frequent than their special clitic forms. While the full form of *den* is significantly more frequent as determiner than expected, the determiner uses of the full form of *han* and *hun* are less frequent. This supports the idea that the adnominal full form of *den* can serve as an exemplary for the full form of *han* and *hun* in determiner position. Moreover, all special clitic forms are more frequently used as determiners than as pronouns, contrary to the full form of *han* and *hun*. Hence, the determiner use of the special clitics can serve as an exemplary for the full form of *han* and *hun* in determiner position. Thus, these results support that the PDD is motivated by these constructions to which it is laterally related.

There are two factors aiding the lateral motivation of the adnominal use of the full forms of *han* and *hun*. First, the use of each of the forms – full form, simple clitic, and special clitic – in the pronominal domain sets a precedent for the paradigmatic relation between these forms. This increases the likelihood of completing the paradigm with the same members in the adnominal position. This was discussed above. A second factor is that *han* and *den* are indistinguishable in form as special clitics.

When the special clitic [ŋ] is used as a pronoun, disambiguation is usually rather straightforward. But, there are few things that complicate disambiguation. First, although *han* and *hun* mainly refer to human entities, they are occasionally used to refer to non-human entities as well. There are even certain vernaculars that lack a pronominal use of *den* alltogether and instead use *han* and *hun* to refer to inanimate objects (Holmes and Enger 2018, 143). Second, *den* can be used with

reference to humans, especially with non-specific reference, e.g., ***den*** *som tror at nordmenn er født med ski på beina, kjenner nok ikke så mange nordmenn* ('Those (lit. 'that/it') who think that Norwegians are born with skis on their feet, probably do not know many Norwegians') (Holmes and Enger 2018, 144). Thus, when one encounters [ɳ] in or as a referring expression with inanimate reference, it would represent *den* for most of the Norwegian speakers, but it is often compatible with *han* as well. In the same vein, when [ɳ] is used in human-referring expressions, it is likely interpreted as an instance of *han*. Yet, one cannot exclude the possibility that it instantiates *den* with absolute certainty. Often, this potential ambiguity between *den* and *han* is non-problematic. When the distinction between human and non-human reference is important, the full form of the pronoun is used. This non-conflicting situation of overlap between *han* and *den* is indicative of a tight relation between the two, making it more likely that the two will move further toward each other in other aspects as well.

In conclusion, the form of *han mannen* is motivated by multiple source constructions, among which the human referring expression *n Per*. *N Per*'s existence in the paradigm of adnominal determiners has set a precedent for using forms of *han*/*hun* in determiner position. The paradigmatic relation between *han, hun,* and *den* in the pronominal domain further strengthens the likelihood of the use of the full forms of *han* and *hun* as determiner. Since the full form of *den* as determiner is strongly associated with a demonstrative function, the full forms of *han* and *hun* have, in analogy, more demonstrative characteristics than the clitic forms.

6.3.2. Nouns

This section deals with the question what types of nouns do occur in the *han mannen*-construction, and does this affect its meaning. To answer this, the study will look at the nouns that are particularly frequent in the *han mannen*-construction. It is argued that psychological distance is a byproduct of the nouns that occur in the construction.

To get insight into the nouns that are typically attracted to *han mannen*, a collostructional analysis was conducted (Stefanowitsch and Gries 2003; Gries and Stefanowitsch 2004). Collostructional analysis investigates the likelihood of a certain slot-filler to occur with a given construction in relation to other slot-fillers

and to other constructions. The twenty nouns that are most strongly attracted to the construction are presented in Table 15 from strongest attraction to weakest. The nouns are presented in their definite form, i.e., with a suffixed definite article. Complete results of the collostructional analysis can be found in Appendix 4.

Words	*Translation*	*Collostructional strength*
læreren	'the teacher'	28.143
mannen	'the man'	22.760
venninna	'the friend F.'	16.820
dama	'the woman'	15.345
gubben	'the old man'	12.742
kompisen	'the friend'	12.456
dansken	'the Dane'	11.214
gutten	'the boy'	11.123
karen	'the guy'	10.637
kona	'the woman'	10.352
minstekaren	'the youngest guy'	8.478
kjerringa	'the old lady'	7.642
naboen	'the neighbor'	6.532
jenta	'the girl'	6.195
flis(e)fyren	'the tiler'	6.051
bakeren	'the baker'	5.961
lederen	'the leader/manager'	5.479
nabogutten	'the boy next door'	4.605
fyren	'the fellow'	4.399
bestevenninna	'the best friend'	4.313

Table 15: Collostructional analysis *han mannen*

Semantically, these twenty nouns can be divided into four groups. First, there are nouns that refer to a person by means of their occupation, i.e., *bakeren* 'baker', *flisefyren* 'tiler', *lederen* 'leader/manager', and *læreren* 'teacher'. Second, there is a group of nouns that refers by means of a social relation, the so-called

'relational nouns' (Löbner 1998), i.e., *venninna* 'friend (F.)', *gubben* 'old man', *kompisen* 'friend', *kona* 'wife', *mannen* 'husband', *naboen* 'neighbor', and *bestevenninna* 'best friend (F.)'. The third group comprises broad gendered terms (Jackson 2013), such as *dama* 'lady', *fyren* 'fellow', *gubben* 'old man', *gutten* 'boy', *jenta* 'girl', *karen* 'guy', *kjerringa* '(old) woman', *kona* 'woman', *mannen* 'man', *minstekaren* 'youngest guy', and *nabogutten* 'neighbor boy'. The last group contains only *dansken* 'Dane' and is used to refer to someone by their nationality. When this categorization is attempted on all nouns that are attested in the *han mannen*-construction, there are only two types of nouns that cannot be classified. The first one is a group of nouns referring to humans by means of age, e.g., *gamlingen* 'the old one' and *treåringen* 'the three-year-old'. The second is the broad non-gendered term *typen* 'the type'.

That *han mannen* combines with these four categories of nouns is interesting in light of Johannessen's analysis of the function of *han mannen*, who argued that the main function of *han mannen* is to denote psychological distance. The strong associations between *han mannen* and *venninna* 'friend.F.' and *kompisen* 'friend' are especially remarkable, as these nouns unequivocally express a close relation, most frequently between speaker and referent (63.64%). This suggests that *han mannen* can, rather easily, express close relations. This speaks *contra* Johannessen, as the expression of a close relation between speaker and referent is incompatible with the absence of a relation between them. It might be the case that the speaker wants to highlight the close relation between them and the referent, while simultaneously highlighting the absence of such a relation between addressee and referent, but such a reasoning seems highly unlikely in most of the examples. Take as an example the conversation in (15).

(15) Context: The speaker, Vegårshei_02uk, is talking to a family member, Vegårshei_01um, about clothes and how expensive they are.
Vegårshei_02uk *ja # men men N1-kjeden er faktisk genial jeg har ei venninne i Bergen hun jobber # på for N1-kjeden har jo veldig mange butikker* (...)

'Yes, but the N1-chain is actually genius. I have a friend in Bergen she works for [it] because the N1-chain has very many stores.' (...)

Vegårshei_02uk ***hun ene venninna mi*** *hun jobba jo # på en N2-butikk eller noe sånn som er en del av N1-kjeden*
'**That one friend of mine,** she works in a N2-store or something like that, which is a part of the N1-chain.'

Whether the addressee knows the referent of *hun ene venninna mi* is not relevant for the discussion. As the referent has been introduced previously by means of the indefinite noun phrase, *ei venninne i Bergen* 'a friend in Bergen', the relation of the addressee and referent does not need to be considered by the speaker when she wants to ensure successful reference.

Nonetheless, the proposal of the meaning of psychological distance is founded, but may be better viewed as an inference that is grounded in the second group of nouns that occur in the construction: broad gendered terms and reference to someone by their occupation or nationality. These are all noun types that typically indicate some form of distance between speaker/addressee and referent. The default way to talk about people when they are new in the discourse is with their name. The choice for a descriptive referring expression like *nabogutten* 'the boy next door' or *karen* 'the guy' contrasts with the default referring expression of a first name (Levinson 2007, 69).[18] Since names of people are generally difficult to remember and easy to forget (Stivers, Enfield, and Levinson 2007, 3–4), especially when one does not have regular contact with said person, the use of a name to establish reference normally happens when the speaker personally knows the referent and thinks the addressee is able to identify the referent on the basis of his/her name (Jackson 2013, 300). When speakers are not familiar with a person and/or do not think that the addressee knows their name, they typically avoid names and instead use definite descriptions to establish reference. Both these scenarios are reflected in the use of *han mannen* with a broad gendered term. Consider the following example.

[18] NB. The reference is for American English, but a similar scale is assumed for Norwegian.

(16) *så* *er* *hun* *litt* *rar* ***hun*** ***dama*** ***der***
so is she little weird PDD lady.ART there
'So, she is a bit odd, that lady there.' (Namdalen_02uk)

The context in which (16) is uttered is the following. The two discourse participants are talking about a particular anime series that the addressee has not yet seen. The speaker is recommending the series and explains something about the main character. Since the speaker knows that the addressee is not familiar with the series, she deems it likely that the addressee cannot identify the referent by name and therefore uses the broad term *dama* 'lady.ART'. The selection of nouns of this kind happens mainly when either the speaker or the addressee(s) do not have a personal connection to the referred to person. This is true for occupational and nationality terms as well, as is illustrated in (17).

(17) Context: The discourse participants are talking about the Melodi Grand Prix (i.e., the Norwegian selection process for the Eurovision Song Contest). The addressee asks who it was that won.

var	*det*	*jo*	***han***	***e***	***norsken***	*som*
was	it	DM	PDD	HES	Norwegian.ART	who
vant	#	*han*	*med*	*fela*	*si*	
won	#	he	with	fiddle	his	

'It was that Norwegian who won, the one with the fiddle.'
(Hattfjelldal_02uk)

Differently from (16), in (17), it is the speaker who seems unable to identify the referent by their proper name. The speaker's difficulty with selecting a referring expression is indicated by the hesitation marker *e*. The resulting noun phrase containing a nationality term is deemed insufficient, and the referent is further specified by the appositional phrase 'the one with the fiddle'. This kind of noun is primarily selected when either the speaker or addressee cannot identify the person by name. When encountering such a definite description of a person, an addressee can draw the conclusion that they and/or the speaker is not very familiar with the referent. The pragmatic inference is then one of so-called psychological distance.

The expression of negative stance is the second aspect of Johannessen's definition of psychological distance. This is also one of the possible pragmatic implications of using a noun with a broad categorical reference. The implication arises in particular when the referring expression is used for a referent that both speaker and addressee are personally familiar with, or at least know by name (Jackson 2013). When a speaker uses a descriptive noun instead of a proper name when the name is available to both discourse participants, the addressee can infer that the speaker wants to do more than just achieve reference to the person (Stivers, Enfield, and Levinson 2007, 9). The addressee infers the speaker wants to create distance between themselves and the referent, especially when a definite description with a demonstrative is used (Stivers 2007). The speaker wanting to create distance can be due to various reasons, among which a dislike of the person or a disapproving attitude toward them. The construction then expresses negative stance. Alternative implications are possible, e.g., an emphatic stance or humoristic expressive intentions (R. T. Lakoff 1974; Vindenes 2017a, 130).

Logically, a reading of negative stance also arises when the noun itself has a derogatory meaning, as is the case in (18). This is infrequent in the corpus data, which may be due to the speakers' awareness of being recorded. In these cases, it is not the construction or the determiner that contributes the negative meaning, but the lexeme filling the noun-slot.

(18)	***han***	***idioten***	*vi*	*hadde*	*leid*	*som*	*sjåfør*
	PDD	idiot.ART	we	had	hired	as	chauffeur
	'that idiot we had hired as chauffeur'						(NoTa, Oslo, m34)

I suggest that the central contentful lexeme in the *han mannen*-construction is – at least partially – responsible for the meaning that is associated with the construction. This would also account for the apparent disagreement in the literature about the functions of the construction. As the *han mannen*-construction itself is rather infrequent and is primarily used between speakers that are familiar with each other, speakers are likely to have a skewed experience with the different lexemes in the construction. A skewed experience with the *han mannen*-construction in favor of nouns with a pejorative meaning and broad

gendered terms would lead to an association of *han mannen* with the various aspects of psychological distance.

To conclude, psychological distance is a likely byproduct of the type of lexeme that fill the noun slot in the *han mannen*-construction; nouns with derogatory meaning enforce a negative stance reading, and non-anchored broad gendered nouns (e.g., *girl*) invite the inference that either the speaker or addressee is unfamiliar with the referent. Over repeated use, these associations can become an aspect of the meaning of the construction as a whole. Although it is evident that this is the case within the constructicons of specific speakers of Norwegian (e.g., Johannessen), psychological distance is not (yet) a part of the sense of the construction on the population level. This is evident from its frequent co-occurrence with nouns that typically express a close relation between the speaker and the referent, which does not raise the implicature of negative stance.

6.3.3. Summary

In the preceding section, the form of the determiner of the *han mannen*-construction was argued to be the result of multiple source constructions. In particular, it was argued to be motivated by the close relation between the paradigms of Norwegian determiners and pronouns. This explains as well why the *han mannen*-construction is restricted to human reference: The division of labor between human and non-human reference in the pronominal domain is transferred to the adnominal domain.

The nouns that occur in the *han mannen*-construction were shown to be restricted. They broadly fall into two groups: On the one hand, *han mannen* combines regularly with relational nouns, which typically express a close relation between the speaker and the addressee. These nouns are usually incompatible with what Johannessen called psychological distance, and hence it cannot be the construction's core meaning. On the other hand, the *han mannen*-construction takes nouns that are normally selected in contexts in which either the speaker is not familiar with the name of the referent or when the speaker assumes the addressee is not able to identify the intended referent by name. The use of these nouns in the *han mannen*-construction provide a cue for the pragmatic inference of psychological distance. As such, psychological distance is related to the lexeme that fills the noun-slot in the construction.

6.4. Methodology

Thus far, the chapter has focused on the form of the *han mannen*-construction. In what follows, *han mannen* is investigated in relation to three closely related constructions. These three were:

- *Den mannen* (lit. 'the/that man-the'): human referring noun phrases that contain an adnominal *den*, which can function as either a definite article, a neutral demonstrative, or a distal demonstrative.
- *Mannen* (lit. 'man-the'): human referring noun phrases that are marked for definiteness by the suffixed definite article and lack a prenominal determiner.
- *N Per* (lit. 'he Per'): human referring noun phrases that contain a preproprial article.

The three constructions have in common that they are all used to establish definite reference to human referents and are, by and large, in paradigmatic relation to each other. *Han mannen* is hypothesized to be partially motivated by each of these three constructions. It was argued in Section 6.3 that both *n Per* and *den mannen* motivated *han mannen*'s determiner. This section extends the investigation of the relations to other characteristics of the constructions: their sequential behavior, their function, and the social setting in which they are used. The analysis includes a third construction, *mannen*, as this is the central and most frequent construction when it comes to definite reference. It is hypothesized that *han mannen* is partially motivated by all three constructions. To test this hypothesis two questions need to be answered:

i) In which ways are *den mannen, mannen,* and *n Per* similar, and in which ways does each construction set itself apart from the other two constructions?
ii) How does *han mannen* fit into this neighborhood? Or in other words, in which ways is *han mannen* similar to *den mannen, mannen,* and *n Per,* and in which ways does it contrast with them?

In what follows, the data set that will be used for the analyses will be discussed. Thereafter follows a brief summary of the statistical methods. Finally, this section presents the variables that will be tested.

6.4.1. The data

The data of the current study is collected from the Norwegian section of the Nordic Dialect Corpus, version 3.0 (Johannessen et al. 2009). This contains spoken data from 165 places in Norway. The motivation for choosing this corpus is twofold. First, the use of *han mannen* is restricted to colloquial usage and is not generally accepted in written language. For this reason, a corpus that consists of informal spoken data is required. Second, the speech situation in Norwegian is such that there is not one official standard for spoken language (Kristoffersen 2000, 4–6) and a large part of the population speaks their own dialects. A corpus reflecting these dialects provides a more reliable abstraction over actual language use of the individual speaker.

A transcription of the speech recordings is provided by the corpus, both phonetically and orthographically. The orthographic transcription provided by the corpus will be used in this study to present the examples. The phonological transcription will only be presented when it is relevant or informative. Where it is relevant for the analysis or discussion, pauses, and vocal hesitations will be represented in the transcription by # and *e*.

To extract instances of *han mannen* and *n Per*, the corpus is searched for nouns preceded by *han*/*hun*/*ho*/*n*/*a*. Up to two elements are allowed to intervene between *han*/*hun*/*ho*/*n*/*a* and the noun. The resulting data is cleaned up manually to remove duplicate observations. This results in 4103 observations.

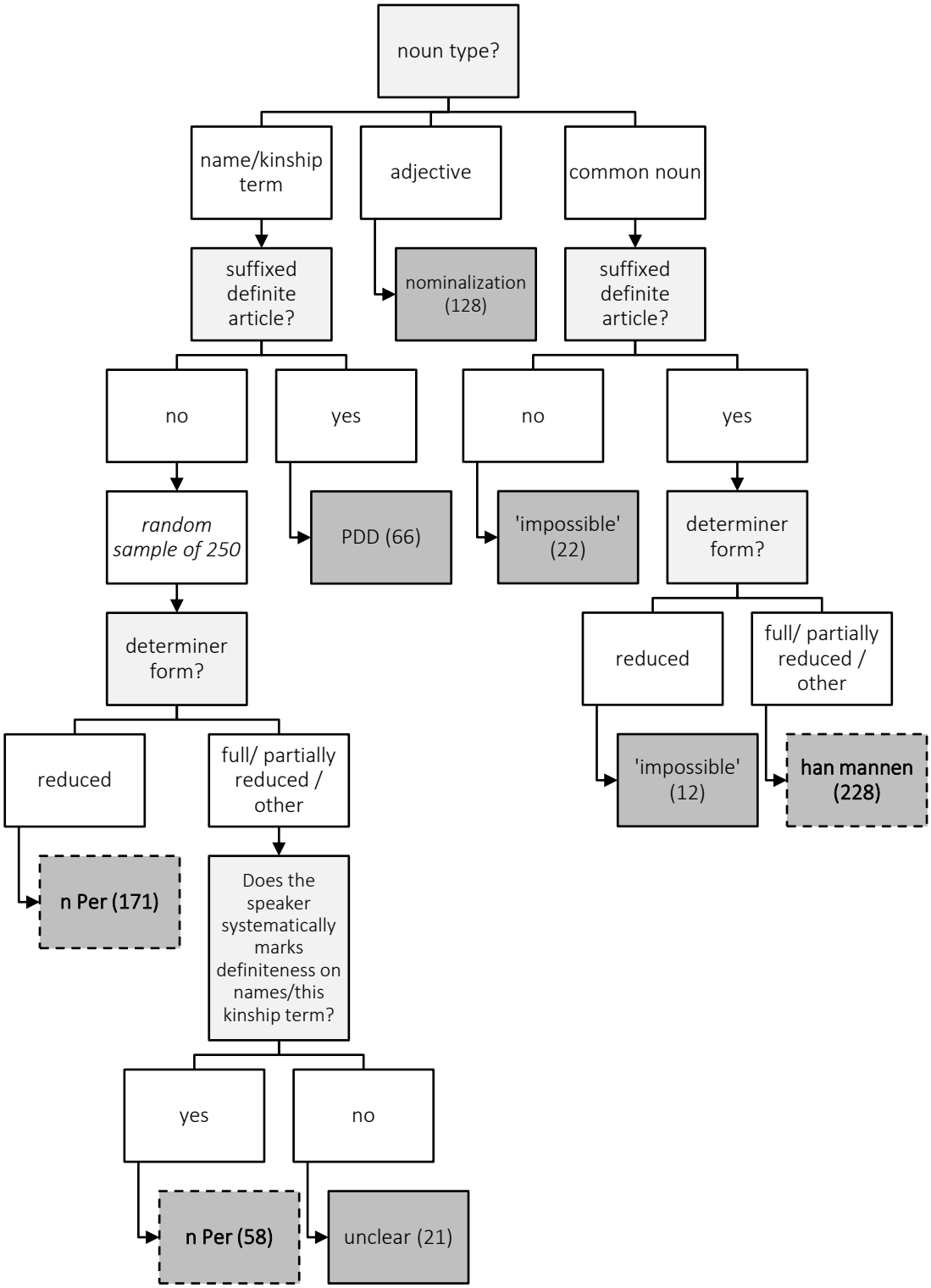

Figure 24: Classification of *n Per* vs. *han mannen*

In §6.1.1.3, it was explained that noun phrases with a preproprial article (PA) may be difficult to identify, and the different criteria for distinguishing between the PDD and the PA (Johannessen and Garbacz 2014) were evaluated. Based on this, I have developed a process of classification. This is illustrated in Figure 24. The first step is coding whether the noun in the construction was a name, kinship term, or common noun. 128 observations had an adjectival head noun (e.g., *han yngste* 'the youngest [one]'). In these constructions, the determiner signals a nominalization-construction. Noun phrases of this type generally prefer the full and partially reduced forms (*han*/*ann* or *hun*/*ho*/*hu*). Moreover, 124 were complex referring expressions, e.g., contain both a name and a kinship term. For reasons of coherence, these noun phrases will not be further studied here.

The investigation of the *han mannen*-construction is restricted to those with a common noun. The data contains 264 definite noun phrases with a common noun. 22 of those have no suffixed definite article and 12 noun phrases with a suffixed definite article had a fully reduced form of *han* or *hun* in determiner slot. Both situations are technically impossible and are not included in the final data set, leaving 230 observations. These are carefully coded. During the coding process another two observations had to be removed: one noun phrase that has a fully reduced form of *hun* as determiner which is not accurately represented by the transcription, and another that has a determiner that is phonetically ambiguous between *den* and *han*. The final data set contains 228 instantiations of the *han mannen*-construction.

To extract a sample of noun phrases that contains only observations of the preproprial article (*n Per*), I cannot simply rely on the type of noun that occurs in the construction, because some observations of *han*/*hun* with a name or kinship term are instances of the PDD (Johannessen 2006, 2014). Kinship terms with a suffixed definite article (e.g., *han faren* lit. 'he father-the') are classified as PDD, but not further considered in the analysis, as the *han mannen*-construction is restricted to noun phrases with common nouns. From the remaining set, a sample of 250 is taken. The determiner form of these 250 observations is manually investigated: If it is fully reduced, the observation is kept as an instantiation of *n Per*. For the observations in which the determiner form is not reduced, the wider context of the referring expression is considered in order to verify whether the speaker systematically marks definiteness of this type of

kinship term or on names. If they do, this is taken as an indicator of the preproprial article, if they do not, the observation is classified as unclear. This results in a set of 229 instantiations of the *n Per*-construction.

To extract instances of *den mannen*, the corpus is searched for nouns preceded by *den*. Up to two elements are allowed to intervene between determiner and noun. The noun phrases are then manually classified as human referring or non-human referring. Only data that is classified as the latter category is used in this study. This set contains 203 observations.

The data extraction of the *mannen*-construction follows a slightly different process, since this construction is extremely frequent with both non-human referring and human referring nouns, and the search string cannot exclude noun phrases that contains a prenominal determiner consistently. Therefore, specific frequent nouns with human reference are searched, these are *dama, gubben, gutten, karen, kompisen, læreren, mannen,* and *venninna*. The results are then manually classified as containing or not containing a prenominal determiner. Subsequently, a random sample of 225 is taken to ensure comparable class sizes.

Thus, it should be noted that both *n Per* and *mannen* are overall more frequent as human-referring constructions than *den mannen* and *han mannen*. Moreover, *den N-en* and *N-en* are also used for marking definiteness with non-human referents, whereas *n Per* and *han mannen* are generally not, although there are a few instances of these constructions referring to pets and non-human cartoon characters (e.g., Bamse, the world's strongest bear). These are excluded from the data. Overall, *han N-en* is the least frequent of the constructions, while *den N-en* is least frequent as a human referring expression.

6.4.2. Statistical methods

The first question dealt with in the study is, in which ways *den mannen, mannen,* and *n Per* are similar, and in which ways each construction sets itself apart from the other two constructions. To answer this, a number of variables are formulated on the basis of previous literature. The first group of variables are concerned with the constructions' sequential relations, i.e., elements that they co-occur with; the second group captures the constructions' functional features; and the third group of variables encode social information. These variables will be introduced in more detail in the next section of this chapter.

It is first tested whether the variables can be reliably used to distinguish one construction from the other. This is done by means of random forests. More specifically, to test whether these variables can reliably predict either *den mannen, mannen,* or *n Per*, three random forest models are computed, each with a binary response variable. Model 1 is fitted on a subset of the data of *den mannen* and *mannen* only; Model 2 on the subset with *den mannen* and *n Per*; and Model 3 contains only observations of *mannen* and *n Pe*r. The random forests are computed in R with the function CFOREST in the 'party'-package. NTREE is specified as 1000 (meaning that each forest contains 1000 conditional inference trees), and MTRY as 3 (meaning that three random predictor variables are considered at each split in a tree). The models are run five times with different seeds in order to confirm the models' stability.

Variable importance measures show which variables can reliably distinguish between *den mannen* and *mannen* (Model 1), *den mannen* and *n Per* (Model 2), and *den mannen* and *n Per* (Model 3), and which ones do not. In other words, this method shows in which respects the construction behave differently and suggests in which ways they behave similarly. Variable importance measures are computed with the function VARIMP of the 'party'-package.

To get a better picture of how the constructions are different with respect to the important predictor variables, partial dependence plots are computed with the PARTIAL function of the 'pdp'-package. Partial dependence plots show the effect on the prediction of the response variable for each value of a particular predictor variable. The direction of prediction for the value in the three models can then be compared to each other.

If a particular value is a strong predictor of one of the three constructions over the other two, the value is viewed as a characteristic of the construction it is most strongly associated with. For example, if the value 'associative anaphoric reference' of the variable 'type of reference' predicts *mannen* over *den mannen* in Model 1 and *mannen* over *n Per* in Model 3, this function is considered to be a characteristic feature of *mannen*.

A value of a variable can also be associated with two of the three constructions. If that is the case, it predicts both these constructions over the third. In the model with the two constructions with which the value is associated, the value has no particular effect. To illustrate, if the hypothetical value *X* predicts *mannen*

over *den mannen* in Model 1 and *n Per* over *den mannen* in Model 2, but has no effect on the prediction of *mannen* vs *n Per* in Model 3, X is associated with both *mannen* and *n Per*.

If there is a clear effect of the value in all three models, there is a complex situation in which all three constructions are dissimilar. The feature is then primarily associated with one construction and to a lesser degree with a second construction and potentially the third.

Lastly, it can be the case that a value of a variable does not predict one construction more strongly than the other in any of the models. If this is the case and the value of the variable is relatively frequent, the feature is likely shared between all three constructions. If the value is infrequent, it is considered unimportant for defining the make-up of the constructional relations between the three constructions.

The results of this analysis show which features are characteristic of one of the three constructions and suggest in which regards the constructions behave similarly. A construction's ecological location in the network is determined by the construction's lateral relations, which can be characterized by similarity and contrast (Diessel 2019, 200). Identifying the overlapping and contrastive features of the three constructions can then provide evidence of their position in the constructional neighborhood of definite human referring expressions. Where relevant, in particular in context of quantitative similarity, the data will be analyzed qualitatively, since the random forests and partial dependence plots can show prove of contrast but only suggest similarity.

The second question is how *han mannen* fits into this neighborhood. This is defined in terms of similarity and contrast. Thus specifically, the question is in which ways *han mannen* is similar to *den mannen, mannen,* and *n Per*, and in which ways it contrasts with them. This will be answered with the same methodology as described above. Three random forests are plotted, each with the observations of *han mannen* and of one of the other three constructions. Model 4 contains the observations of *han mannen* and *n Per*; Model 5 is fitted on the data of *han mannen* and *den mannen;* and in Model 6, *han mannen* and *mannen* are compared. By means of random forests, variable important measures, and partial dependence plots, it is investigated which traits can be reliably used to distinguish *han mannen* from each of the other three constructions and in which

ways *han mannen* behaves similarly to the one or multiple of the other constructions.

6.4.3. The variables

In order to get a clear picture of the position of *han mannen* in relation to other definite constructions with human nouns, various variables pertaining to the noun phrase are investigated. These variables can be grouped into three lines of argumentation. The first group of variables is concerned with sequential information, that is, elements that occur with the referring expressions. The specific elements I looked at were co-occurrence with adjectival modification (ADJ), deictic intensifying adverbs (INT), possessive pronouns (POSS), and relative clauses (RC). The second type of variables is functional. This captures the type of reference (TYPANA) and type of knowledge required to identify the referent (TYPKNOW). The last group is social information, that is, the relation between speaker and addressee (RELATION), and the speaker (SPEAKER). At the end of this section, the predictor variables are summarized in for easy reference in Table 16.

6.4.3.1. The response variable: CONSTRUCTION

The response variable codes whether an observation is an instantiation of *den mannen, mannen, n Per,* or *han mannen*. The final data set contains 228 observations of *han mannen,* 229 observations of *n Per,* 203 *den mannen,* and 225 *mannen.* It should be noted that the data contains a sample of the occurrences for both *n Per* and *mannen,* whereas the instances of *den mannen* and *han mannen* that are analyzed here are the total number of observations of the constructions as human referring expressions in the corpus. I chose to do this in order to have a categories with comparable class sizes.

For the analyses, six different models are plotted. In each model, the response variable is binary and contains only two of the four constructions. Model 1 has *den mannen* and *mannen* as binary predictor values, Model 2 *den mannen* and *n Per*, Model 3 *mannen* and *n Per,* Model 4 *han mannen* and *n Per,* Model 5 *han mannen* and *den mannen,* and Model 6 *han mannen* and *mannen.*

6.4.3.2. Co-occurrence with adjectival modification (ADJ)

ADJ codes whether the noun phrase is modified with an adjective or not. The variable is binary: A noun phrase is either adjectivally modified (*adj*) or not (*no_adj*).

The motivation behind this variable is the described tendency of adnominal *den* to occur with adjectival modification (Strandskogen and Strandskogen 1995, 45–55; Halmøy 2016, 249ff.), whereas such a suggestion has not been made for *mannen* or *n Per*. Therefore, this variable is thought to make a reliable distinction between *den mannen* on the one hand and *mannen* and *n Per* on the other.

6.4.3.3. Co-occurrence with deictic intensifying adverbs (INT)

INT stands for co-occurrence with deictic intensifying adverbs and deals with the sequential relation between the constructions and these adverbs (*her, der, herre*, or *derre*). The adverbs *her* and *herre* have a proximal meaning, comparable to the English 'here'. *Der* and *derre* have a distal meaning like the English 'there'. The variable contains two categories: A noun phrase either contains a deictic intensifying adverb (*int*) or not (*no_int*).

The short form of the deictic adverbs can occur before and after the noun. When used postnominally, *her* and *der* generally mark a situational use of the demonstrative or are used with a contrastive function. Prenominal deictic adverbs typically signal an anaphoric or recognitional referential function (Vindenes 2017a, 107). The long forms *herre* and *derre* are restricted to a prenominal position. Functionally, *herre* and *derre* are mostly restricted to the recognitional function of demonstratives (Vindenes 2017a, 135–37), whereas the *her* and *der* are used with all demonstrative functions (Diessel 1999).

The use of deictic intensifying adverbs is expected to be associated with *den mannen* and not with *n Per* nor with *mannen*, as the determiners in these constructions are definite articles which resist deictic reinforcement (Lie 2010, 73).

6.4.3.4. Co-occurrence with possessive pronouns (POSS)

POSS is the variable that covers the presence or absence of a postnominal possessive pronoun. POSS contains two categories: *poss* or *no_poss*.

Under possessive pronoun the following postnominal items are captured: *mi, min, mitt* (1.SG); *di, din, ditt* (2.SG); *si, sin, sitt* (3.SG); *hans, hennes/hennar* (3.SG); and *deres/deira* (3.PL). These constitute two groups of pronouns. The first one is a group of reflexive pronouns. This group consists of *mi, min, mitt, di, din, ditt,* and *si, sin, sitt*. The forms *mi, di,* and *si* mark feminine gender of the possessed item, and *min, din* and *sin* are the corresponding non-neuter or masculine forms, depending on whether the particular vernacular distinguishes between feminine and masculine on this pronoun. *Mitt, ditt, sitt* combine with neuter nouns. The second group are the non-reflexive third-person pronouns. *Hans*, *hennes/hennar*, and *deres/deira* mark the gender and number of the possessor. *Hans* is masculine singular, *hennes* feminine singular, and *deres* plural.[19] The two sets of pronouns differ in form in that the first group expresses the gender of the possessed, whereas the second group marks the gender of the possessor.

Norwegian has two positions for a possessive pronoun: prenominal, e.g., *min bil* 'my.M/NON-NEUT car', and postnominal, e.g., *bilen min* 'car-the my.M/NON-NEUT'. The variable only covers postnominal possessive pronouns, because prenominal possessive pronouns do not combine with any of the three constructions. If a noun combines with a prenominal possessive pronoun, it takes no definite suffix nor is it combined with another determiner. There is a pattern that might appear to contradict this, namely noun phrases of the type *han sin bil* (lit. 'he his car') 'his car'. This is the so-called 'garpe-genitive' (Perridon 2003, 248–53) in which the possessive pronoun must be reflexive (Perridon 2003, 250). Personal pronouns such as *han* occur only in colloquial language in this construction (Lødrup 2011, 386). More typical are names, e.g., *Ole sin greie* (lit. 'Ole his thing'). *Han* thus not functions as a determiner in this construction.

The hypothesis is that postnominal possessives more frequently combine with *mannen* than with *den mannen* and *n Per*. Although nothing blocks postnominal possessives from any of the constructions, demonstrative noun phrases and noun phrases with a preproprial article are more accessible than definite noun phrases (Ariel 1990). Hence, they require anchoring of the referent to one of the

[19] In addition, Norwegian has the plural forms *mine, dine,* and *sine*, but these were not attested in the current data set, because the focus here lies on singular referring expressions. *Dykkar* – the Nynorsk second person plural form was not attested, nor were the Bokmål third person non-neuter and neuter forms, *dens* and *dets* respectively.

discourse participants or a salient third-person less frequently, since demonstrative reference and reference to a person by name is sufficient for successful reference.

6.4.3.5. Co-occurrence with relative clauses (RC)

With RC, the presence (*rc*) or absence (*no_rc*) of a following relative clause is coded.

Relative clauses are postnominal modifiers that place the referent to another event than the one talked about in the main clause. The use of relative clauses can aid the addressee in identifying or establishing the referent. They are therefore associated with referents that are new in the discourse and very low in accessibility. As a consequence, relative clauses are often combined with definite and indefinite descriptions and recognitional demonstratives. In previous literature, it has been observed – for Swedish – that both *den mannen* and *mannen* can function as determinatives (Perridon 1989, 151; Diessel 1999, 108). Determinatives are the result of further grammaticalized recognitional demonstratives, which in turn have developed from situational demonstratives (Diessel 1999, 113). Interestingly, when *den mannen* is used as a determinative in Swedish, it may lack the definite suffix (Diessel 1999, 135–37). Under the assumption that Norwegian patterns as Swedish in this regard, it is expected that co-occurrence with a relative clause is a characteristic of both *den mannen* and *mannen*. The typical referent of the *n Per*-construction is of higher accessibility and does not require postnominal modification for identification, given that the construction only combines with names and kinship terms. As such, it is expected that *n Per* is not associated with relative clauses.

6.4.3.6. Type of knowledge (TYPKNOW)

TYPKNOW stands for the type of mutual knowledge required for identifying the referent. The variable contains five categories: discourse (*d*), communal (*c*), private shared knowledge (*priv*), situational (*sit*), and not referential (*not_ref*).

Definite noun phrases are used when the speaker thinks that the addressee is able to identify the referent. The speaker must thus be aware of the addressee's capabilities to do so. This is possible due to mutual knowledge (Clark and Marshall 1981, 16). Mutual knowledge can be reached through a number of ways.

First, the discourse participants can be members of the same community in which something is well known, i.e., communal knowledge. For example, people living in Jena can reasonably assume that other members of that small community can uniquely identify the referent of the noun phrase *der Turm*, as Jena has one prominent tower in the city center. Second, mutual knowledge can be based on copresence, [20] i.e., situational knowledge. When discourse participants are in a shared situation in which they can perceive each other, they are aware that the other discourse participant(s) can perceive the same things. Third, mutual knowledge can be established by linguistic copresence, which arises when discourse participants have established a referent through the discourse (Clark and Marshall 1981, 41), i.e., discourse knowledge. There is a fourth type of mutual knowledge that can ensure felicitous definite reference, namely private shared knowledge. That is, when discourse participants have had shared experiences (including earlier conversations) that are not shared with a larger community (Diessel 1999, 106). One might argue that this type of mutual knowledge can be surmised under communal knowledge, saying that this is specifically a community of two people, and there is some truth to that. Importantly, however, private shared knowledge requires some form of prior previous connection between discourse participants. Speakers can refer to elements that are identifiable through shared communal knowledge without prior experience with the other discourse participants.

If a person was referred to in the prior discourse, the addressee was assumed to be able to identify the intended referent through discourse knowledge. This includes a specific type of anaphoric reference, in which the person was not referred to directly, but the person was a clearly identifiable part of a previous reference. For example, when reference to 'the neighbor boy' is preceded by a referring expression as 'our neighbors'. When a person was referred to by name and was new in the discourse, the reference was classified as communal. Anchored relationship terms (e.g., *mannen min* 'my husband', *broren hans* 'his

[20] Note that the term originally used was *physical copresence*. The word *physical* has been intentionally left out. In this day-and-age, human bodies do not need to be in a shared space, but only need to share a perceptual space so that they are able to perceive each-other's point of view. Such situations without true physical copresence occur, for example, when people are playing an online-game together whilst chatting with each other.

brother') are coded as communal as well, since no private knowledge is necessary in order to identify the referent. In addition, kinship terms that were used in a proper name-like fashion were deemed to be communal knowledge as well (Dahl and Koptjevskaja-Tamm 2001). Moreover, job titles were considered as identifiable through communal knowledge, unless it was evident from further context that the reference was anchored in a shared experience between speaker and addressee. For example, 'that teacher we had last year'[21] would be categorized as private knowledge, but 'the butcher on Fifth Avenue' would be classified as communal knowledge. A referring expression was coded as identifiable through situational knowledge when the referent was copresent. An observation was coded as not referential when it was apparent that the speaker did not intend to pick out a person, but instead was, for example, talking about the word itself or about the pronunciation of the word.

The different domains of mutual knowledge can be signaled by different linguistic elements. Reference to elements that are identifiable in the immediate situation or through private shared knowledge are generally associated with demonstratives, whereas reference to elements that are familiar through communal knowledge is established by the use of definite articles (Himmelmann 1996, 233), provided that the language has a definite article. Based on this, it is hypothesized that reference to entities retrievable from private shared knowledge or the immediate situation are typically expressed by the *den mannen* construction, whereas familiarity through communal knowledge is expected to be associated with *mannen* and *n Per*. Reference to a person that is identifiable through the discourse is expected to be found with all three constructions.

6.4.3.7. Type of anaphoric reference (TYPANA)

With TYPANA, the type of anaphoric reference is coded. The referring expressions that have not been previously mentioned in the discourse were coded as new (*new*). For the cases in which the discourse referent is identifiable through the discourse, a further specification has been given: subsequent mention (*subsequent*), non-continuing reference (*non-continuing*), or associative anaphoric reference (*associative*). In addition, a category of OTHER is made up of

[21] Provided that 'we' has an inclusive meaning.

the following types of reference: cataphoric reference, discourse deictic, indirect speech, and non-specific. These are grouped together due to their extremely low frequencies.

Elements that have been previously mentioned in the discourse can either be referred to subsequently (*subsequent*) or non-continuously (*non-continuing*). Subsequent reference is when the referent is continuously referred to. There is no intervening referring expression that refers to a different third-person, nor is there another third-person activated and highly salient in the discourse. With non-continuous anaphoric reference, another third-person is highly salient or has been made salient after the most recent mention, i.e., there is a competing entity available for reference. The reason for distinguishing between subsequent mention and non-continuing reference in this way is that I have previously found in my master's thesis that competition distinguishes the double determination-construction (*den mannen*) from the suffixed definite article-construction (*mannen*) in Swedish. More precisely, when there is competition on which entity is the intended referent, the double determination-construction is more frequently used (Bloom 2016). Competition is one of the four mechanisms behind accessibility (Ariel 1990). The other mechanisms – distance, unity, and salience – were not found to influence the choice of definite construction in Swedish. Therefore, it is hypothesized that in Norwegian, as in Swedish, *den mannen* and *mannen* differ in their degree of accessibility by the mechanism of competition.

Den mannen is thus expected to be used when other third-person entities are mentioned in between the previous mention and target expression. *Mannen* is hypothesized to prefer contexts without another recently activated third-person referent. All patterns are definite descriptions and thus have an overall low degree of accessibility.

An observation has been coded as *associative* when the reference made by the target expression is technically new in the discourse but has been indirectly activated by a previous noun phrase. This indirect activation of the referent is facilitated by general world knowledge, usually by highly frequent meronymic relations (Hawkins 1978, 123ff.). Speakers make use of their discourse knowledge to identify the referent as the referent is an intrinsic part of a salient, recently mentioned referent. It has been remarked that this part-whole or member-of relation between the two referents is not a sufficient nor a necessary

characteristic of associative anaphora (Löbner 1998). In the current data set, there are a few cases in which there is no meronymic relation which I have coded as associative anaphors. An example is given in (19).

(19)	*bestemor*	*mi*	*hun*	*er*	*nitti*	*år*
	grandmother	mine	she	is	ninety	years
	gammel	*og*	***den***	***andre***	***bestemor***	*mi (...)*
	old	and	DET	other	grandmother	mine

'My grandmother, she is 90 years old, and my other grandmother (...)'

(Lavangen_02uk)

The reason for coding referring expressions of this type as associative anaphora is that both referring expressions – *bestemor mi* 'my grandmother' and *den andre bestemor mi* 'my other grandmother' – are members of a very small set. This particular set most likely only has two members, as people typically have just two grandmothers. The association between the set members is therefore very strong. As such, one member of the set can be activated indirectly by the mention of the other. Nevertheless, the meronymic relation is the prototypical and most frequent relation.

Associative anaphoric reference has been described as the most frequent anaphoric function of the definite article in English (Hawkins 1978, 123) and has been proposed to be one of the factors that distinguish a definite article from an adnominal demonstrative (Himmelmann 1996, 210). Therefore, it is expected to be a function of *mannen* and not of *den mannen*.

6.4.3.8. Syntactic function (SYNFUN)

SYNFUN codes the syntactic function for which the referring expression is used. Six categories are included: *App, O, Other, Po, S,* and *Spc*. *S, O, Po,* and *Spc* are straightforward and stand for subject, object, prepositional object, and subject-oriented predicative complement. *App* is an abbreviation for appositional, and it covers those cases in which the noun phrase does not have an argument role in the clause but is coreferential with another noun phrase. This captures both appositive phrases, which are positioned directly adjacent to the noun phrase they are coreferential with, and dislocated noun phrases, which are often but not

necessarily adjacent to their associated noun phrase. The category *Other* consists of noun phrases whose function in the clause is not clear and that are a constituent of a clause without a verb.

This variable is coded to investigate the slots each of the constructions fill. It is expected that *den mannen*, *mannen*, and *n Per* overall behave similarly in this regard.

6.4.3.9. Relation between discourse participants (RELATION)

With the variable RELATION, the level of familiarity between speaker and addressee is coded. This is based on the corpus annotation and contains five categories: *acquaintances, family, friends, strangers,* and *unknown*.

This variable was included, because people are inclined to use different referring expressions depending on whom they are talking to (Fussell and Krauss 1989; Arnold 2008). The better the discourse participants know each other, the more accurate and precise their mutual knowledge is. Speakers that do not know each other draw mainly from more general knowledge.

As a consequence, it is expected that the *n Per*-construction is more frequently used when the discourse participants know each other. Reference to people with a proper name, as is typical for the *n Per*-construction, requires specific knowledge of shared background: A speaker usually chooses a name when they know that the addressee can identify the intended referent by that name (Downing 1996). Unless the referent is famous, the speaker must have rather specific knowledge of the addressee's social network and know to which the speech communities the addressee belongs. No expectations are made for *den mannen* and *mannen*.

6.4.3.10. Speaker (SPEAKER)

The final variable is SPEAKER. This represents the speaker who uttered the observation. The coding was directly based on the corpus annotation. This variable was included to control for individual variation.

Variable	*Levels*	*Explanation*
Adj	*adj; no_adj*	Co-occurrence with adjectival modification
Int	*int; no_int*	Co-occurrence with deictic intensifying adverb.
Poss	*poss; no_poss*	Co-occurrence with possessive pronouns.
Rc	*rc; no_rc*	Co-occurrence with relative clauses.
Typknow	*d; c; priv; sit; not_ref*	The type of mutual knowledge required for identifying the referent. Discourse (*d*), communal (*c*), private shared knowledge (*priv*), and situational (*sit*), and not referential (*not_ref*).
Typana	*new; subsequent; non-continuing; associative; other*	The type of anaphoric reference.
Synfun	*App; O; Other; Po; S; Spc*	The syntactic function of the construction. Appositional (*App*), object (*O*), other (*Other*), prepositional object (*Po*), subject (*S*), and subject oriented predicative complement (*Spc*).
Relation	*acquaintances; family; friends; strangers; unknown*	The relation between speaker and addressee.
Speaker		The speaker who uttered the construction.

Table 16: Summary of the predictor variables and their values

The predictor variables and their categories are summarized in Table 16.

6.5. *Den mannen, mannen*, and *n Per*

To verify that the variables that are considered in the analysis can reliably distinguish between the three referring expressions *den mannen*, *mannen*, and *n Per*, the overall model statistics for each of the three models without *han mannen* are presented in Table 17. Their variable importance analyses are visualized in Figure 25, Figure 26, and Figure 27. The variables are ranked from most

important (the variable with the highest value) to least important (the variable with the lowest value). In the following sections, a more in depth discussion of the individual variables that were identified as the best distinctors between the three constructions will be provided, and the characteristic features of each construction will be summarized at the end of the section.

model	*tested patterns*	*C-index*	*Somers' D_{xy}*	*n*	*% correct*
1	den mannen – mannen	0.9849	0.9698	428	94.86
2	den mannen – n Per	0.9926	0.9852	432	95.37
3	mannen – n Per	0.9920	0.9840	454	94.49

Table 17: Statistics for random forests without *han mannen* (seed = 2317)

Overall, the models have a high accuracy. All three models have predicted more than 94% of the observations correctly. They have a *C*-index and Somers' D_{xy} higher than 0.9, as can be read off Table 17. With a *C*-index of 0.5 indicating random prediction and 1 indicating a perfect prediction, a *C*-index of more than 0.9 is outstanding.

The first model is fitted on a subset containing instances of *den mannen* and *mannen*. The results of the variable importance measures are visualized in Figure 25.

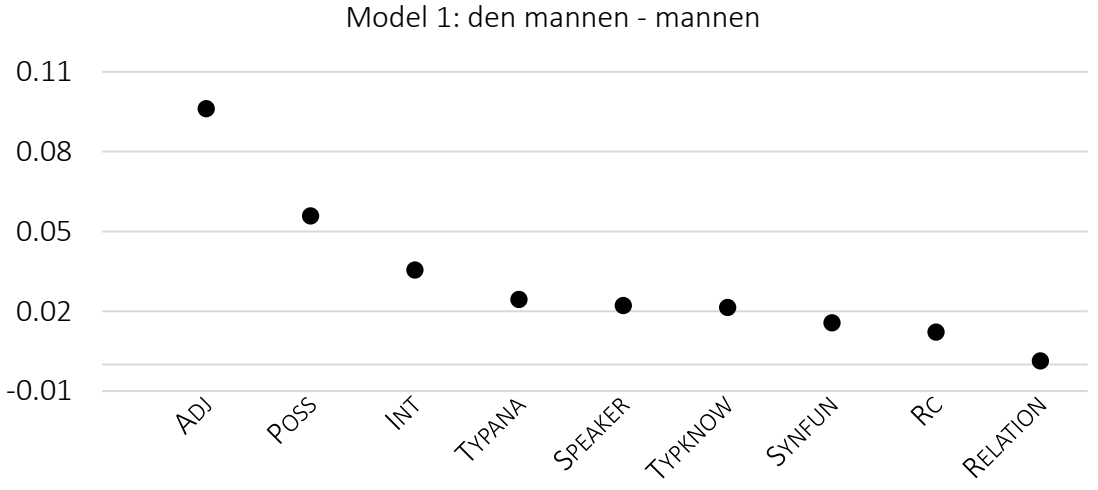

Figure 25: Variable importance measures *den mannen – mannen*

The variables that best distinguish between the *den mannen* and *mannen* are three sequential relations: the co-occurrence with adjectives (ADJ), possessive pronouns (POSS), and deictic intensifying adverbs (INT). After this follows the type of anaphoric reference (TYPANA) and the individual variation (SPEAKER). The remainder of the variables do have some effect on the prediction of *den mannen* versus *mannen* but are only marginally important. The least influential variables are co-occurrence with a relative clause (RC) and the relation between the discourse participants (RELATION).

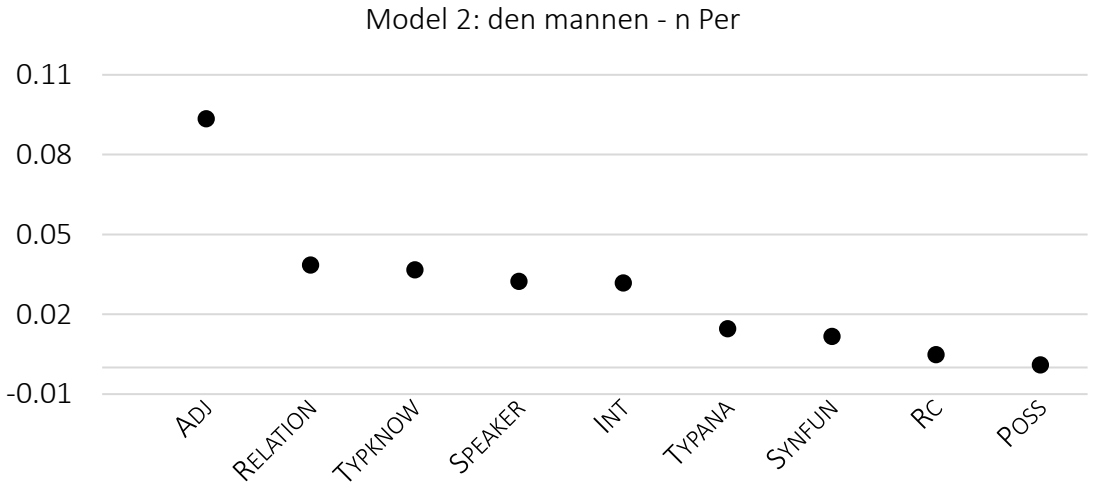

Figure 26: Variable importance measures *den mannen – n Per*

The second model deals with *den mannen* and *n Per*. Figure 26 shows that co-occurrence with adjectives (ADJ) is the most important variable distinguishing the two constructions. This was also the case in Model 1 with *den mannen* and *mannen*. This demonstrates that *den mannen* exhibits different behavior than the other two constructions regarding adjectives. This was as expected. The discourse participants (RELATION), the type of knowledge (TYPKNOW) required to identify the referent, and SPEAKER follow. As in the first model, almost all variables in Model 2 have some effect on the accurate prediction of *den mannen* and *n Per*. The co-occurrence with a possessive pronoun (POSS) and relative clause (RC) are least important.

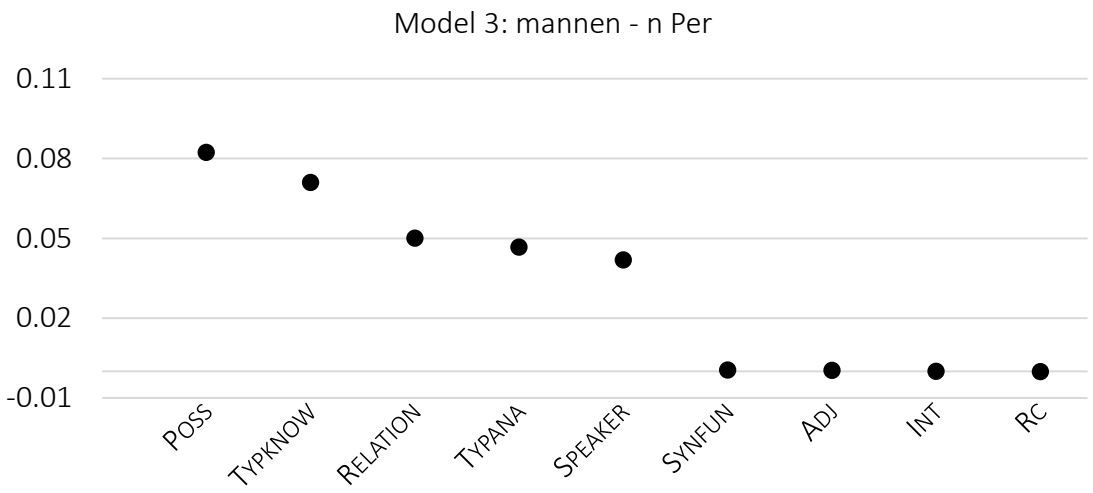

Figure 27: Variable importance measures *mannen – n Per*

Third, a model was fitted on the observations of *mannen* and *n Per*. The constructions are best predicted by the variable concerning occurrence with possessive pronouns (POSS), as can be seen in Figure 27. Subsequently, the type of knowledge (TYPKNOW) is an important distinguishing factor. The relation between the discourse participants (RELATION) and the type of anaphoric reference for which the noun phrase is used (TYPANA) follow. SPEAKER is an important variable in this model as well. Not all variables are deemed important. In particular, the noun phrase's syntactic function (SYNFUN), co-occurrence with adjectives (ADJ), deictic intensifying adverbs (INT), and relative clauses (RC) do not play a role in distinguishing *n Per* from *mannen*.

Overall, the variables dealing with the co-occurrence with relative clauses (RC) and the syntactic function the noun phrase fulfills (SYNFUN) are relatively unimportant variables, which suggests that the three constructions behave similarly in these regards.

The general picture that has emerged is thus that these three human referring expressions can be well-distinguished from each other on the basis of the hypothesized variables. However, the question what characterizes each of the constructions has not been satisfactorily answered yet. The variable importance measures show which variables are relevant, but they do not provide any direction of prediction. For this purpose, partial dependence plots were calculated. In the following sections, the important variables will be discussed

individually, and the traits that are characteristic of each construction will be summarized.

6.5.1. Adjectival modification

In the previous section, it was shown that the absence or presence of adjectives is the most important variable distinguishing *den mannen* from *n Per* (Figure 25) and *den mannen* from *mannen* (Figure 26). This section provides more detailed presentation of this variable.

	adjective	*no adjective*	*Total*
den mannen	79	124	203
mannen	8	217	225
n Per	1	228	229
Total	88	569	657

Table 18: Frequency of adjectival modification per construction

Table 18 shows the raw frequency for each construction with and without an adjective. *Den mannen* combines with adjectives more frequently than the other two constructions. This is as expected. Both *mannen* and *n Per* occur in combination with adjectives as well, but rarely.

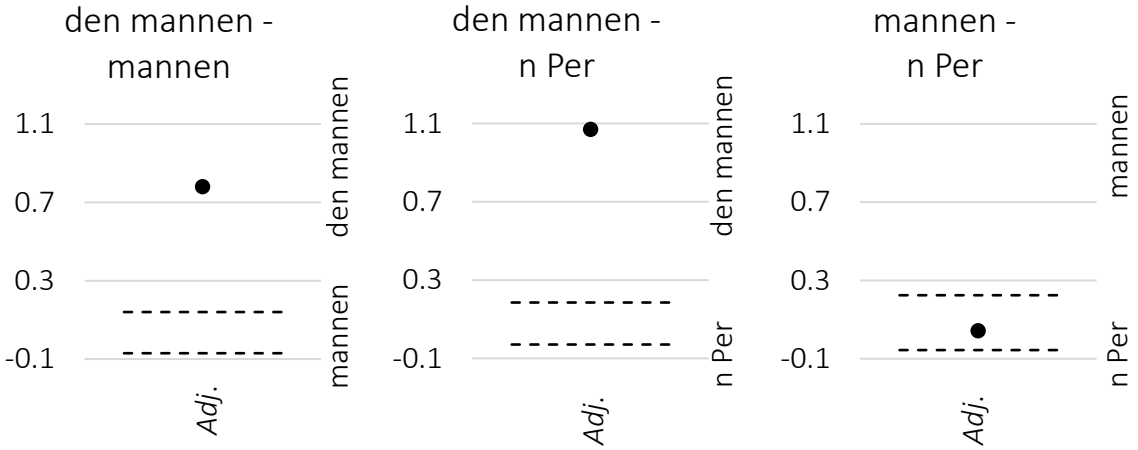

Figure 28: Partial dependence plots for adjective (Model 1, 2 & 3)

Figure 28 presents the partial dependence plots for each of the three models. The partial dependence score, i.e., the yhat, is set on the y-axes. The dotted lines represent the first and third quartile of the partial dependence scores of the entire model. The closer the dots are to the middle of the area in between the lines, the more similar the constructions are quantitatively regarding this category. Likewise, the further away the dots are, the more dissimilar the constructions.

Figure 28 shows that the value *Adj* has a high partial dependence score in the two models with *den mannen*. This means that co-occurrence with adjectives is primarily associated with *den mannen* and not with *mannen* and *n Per*. The right panel in Figure 28 presents the partial dependence plot of Model 3 with *mannen* and *n Per*. Neither construction is predicted over the other. Hence, the two constructions are quantitatively indistinguishable when it comes to adjectives. As the frequency of occurrence is low, it can be concluded that co-occurrence with adjectives is not a characteristic feature of *mannen* and *n Per*.

The category of adjectives might be too abstract a level of analysis. Constituent structure, which is essentially what is investigated here – the strength of the occurrence of a certain slot within the noun phrase – is emergent from the sequential relation of lexical items (Bybee 2002a). Although it is generally assumed that noun phrases have a slot for adjectival modification, it is not a certainty that this category is uniform across the constructions (Croft 2013b). Therefore, it is beneficial to investigate this in more detail.

N Per combines with an adjective only once, in *han storebror* 'that big brother', which is a lexicalized adjective-noun compound. Unlike *den mannen* and *mannen*, *n Per* does not have a parent construction that might have an adjective slot. There is thus no indication that *n Per* has an available adjective slot at any level of abstraction.

The hypothesized adjectival slot of the *den mannen*-construction has a type/token ratio of 0.38[22] and a potential productivity[23] of 0.23. This is relatively low and cannot be viewed as evidence for the existence of a schematic

[22] This is calculated by dividing the type frequency by the token frequency (30/79).

[23] This is calculated by dividing the frequency of hapaxes by the tokens (18/79) (Norde and Goethem 2014).

representation of the adjective slot at this level of abstraction (Lyngfelt 2018, 8). *Mannen* is less frequently adjectivally modified, only eight times in the data. It occurs with five different adjectives and has a relatively high type/token frequency (0.63) but a rather low potential productivity (0.39). In combination with its low overall frequency, it is unlikely that a schematic slot for adjectives exists at this level of abstraction.

Although there is no evidence of an adjective slot in both the *mannen*-construction and *den mannen*-construction, both patterns are instantiations of a construction that is not restricted to human reference. *Mannen* is an instantiation of the schema [N-ART] and *den mannen* of [DET N-ART]. These more abstract schemas have an adjective slot. [DET N-ART] combines with all types of adjectives, while [N-ART] is typically restricted to so-called 'selectors' (Dahl 2003, 153). These are inherently definite adjectives that provide the addressee with information on how to identify the referent and presuppose that there is a referent to pick out. Selectors thus share a function with the prenominal determiner (Halmøy 2016, 301). Examples are *samme* 'same', *andre* 'second/other', and *første* 'first'. *Mannen* and *den mannen* can each inherit these adjective slots from their parent construction, and hence, can combine with adjectives. In the data, it is reflected that *mannen* combines primarily with selectors, while *den mannen* combines with descriptive adjectives as well.

In sum, there is a strong relation between adjectives and the *den mannen*-construction, while no such relation exists between *mannen* or *n Per* and adjectives. Co-occurrence with adjectives is thus a feature in which *den mannen* contrasts with *mannen* and *n Per*. Quantitatively, *n Per* and *mannen* are similar, but the *mannen*-construction stands out, because of its co-occurrence with selectors, which is likely inherited from its parent construction.

6.5.2. Possessive pronouns

The co-occurrence of the constructions with a possessive pronoun is an important distinguishing feature for the model with *mannen* and *n Per* and for the model with *mannen* and *den mannen*. This was shown with the previously discussed variable importance measures.

	possessive pronouns	*no possessive pronouns*	*Total*
den mannen	18	185	203
mannen	69	156	225
n Per	2	227	229
Total	89	568	657

Table 19: Frequency of possessive pronoun per construction

Table 19 shows that possessive pronouns most frequently combine with *mannen*. *N Per* only sporadically occurs with a possessive pronoun. *Den mannen* occurs less frequently with a possessive pronoun than *mannen*, but the combination of *den mannen* and a possessive pronoun is not as rare as the combination of *n Per* and a possessive pronoun. All three constructions can thus combine with a possessive pronoun.

(20)	*å*	***den***	***andre***	***bestefaren***	***min***	*er*	*veldig*
	DM	DET	other	grandfather.ART	my	is	very
	glad	*i*	*Latin*				
	fond	in	Latin				
	'My other grandfather is very fond of Latin.'						(Bodø_02uk)

At first glance, it is remarkable that prenominal definite determiners can combine with possessive pronouns, which is exemplified in (20). In other Germanic languages, noun phrases in which a possessive pronoun combines with another determiner are not very frequent, yet there is nothing that directly prevents this. In Old English, the combination of these elements was possible, e.g., *þæt min murnede mod* (lit. 'that my sad spirit') (Traugott 1992, 173). A similar construction is attested in Present-Day German (Plank 1992, 455), e.g., *von dieser meiner Wirklichkeit* (lit. 'from this my reality'), and in Danish, e.g., *mine de røde vanter* (lit. 'my the red gloves') (Delsing 2003, 26–27). In Old English, the combination of determiner and possessive pronoun was very infrequent (Traugott 1992, 173), and this appears to be the case in Present-Day German and Danish as well. The Norwegian patterns with both a determiner and a possessive

pronoun is different from the Old English, German, and Danish patterns, because Norwegian has both a prenominal and a postnominal slot for possessive pronouns. With a postnominal possessive, the prenominal determiner does not compete for the same slot in Norwegian, and hence, there is no structural conflict in the realization of both. This may explain why this construction appears to be more frequent than in the other languages, although further research is needed. Of course, the Germanic languages have the option of expressing the possessive in a prepositional phrase, e.g., *een broer van hem* (nlTenTen14), *ein Bruder von ihm* (deTenTen13), *en bror til ham* (daTenTen17). This is possible in Norwegian as well, e.g., *ei bror til han* (Ål_04gk), but this is a different construction.

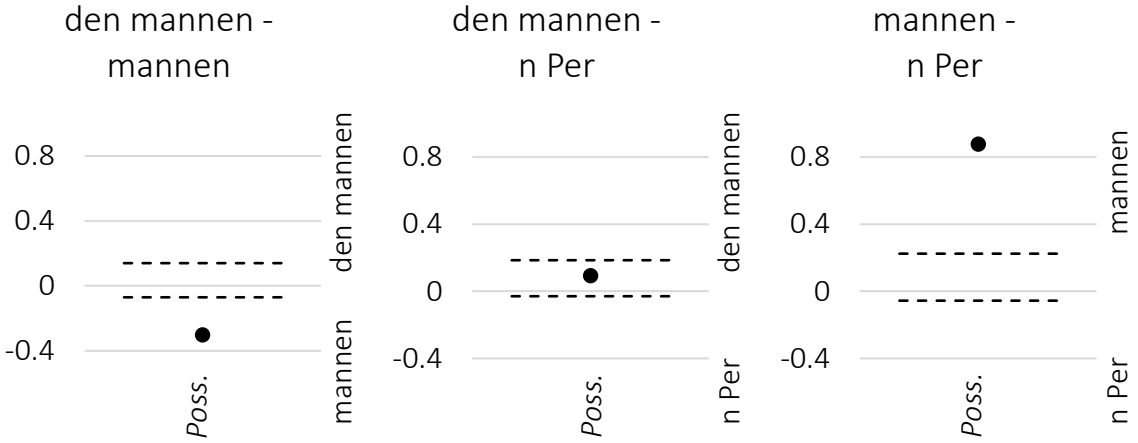

Figure 29: Partial dependence plots for possessive pronoun (Model 1, 2 & 3)

Figure 29 presents the partial dependence plots for each of the three models. These show that in both models with *mannen* (right and left panel), the presence of a possessive pronoun predicts the *mannen*-construction over *den mannen* and *n Per*. This indicates that the association between the possessive pronouns and *mannen* is stronger than with the other two constructions. An example of *mannen* with a possessive pronoun is exemplified in (21).

(21) *men* *jeg* *har* *jo* *vært* *på* *havet* *nå* *for*
but I have DM been on sea.ART now for
mannen ***min*** *har* *båt*
man.ART my has boat
'But I have been at sea now, because my husband has a boat.'
(Kjøllefjord_04gk)

Although *den mannen* and *n Per* both can occur with possessive pronouns, they are not particularly associated with them. *Den mannen* and *n Per* behave highly similarly in this regard, while *mannen* has contrastive behavior. Occurrence with postnominal possessive pronouns is thus a characteristic of *mannen*.

6.5.3. Deictic intensifying adverbs

This section presents the three constructions and their co-occurrence with the deictic intensifying adverbs *her, herre, der,* and *derre,* or in other words, their relation with deictic reinforcement.

	Deictic adverb	*No deictic adverb*	*Total*
den mannen	30	173	203
mannen	2	223	225
n Per	1	228	229
Total	33	624	657

Table 20: Frequency of deictic intensifying adverbs per construction

Table 20 shows that deictic reinforcement of the human referring expressions is quite rare. A mere 5% of the observations are with a deictic adverb. As expected, *den mannen* is the construction that most frequently combines with deictic adverbs.

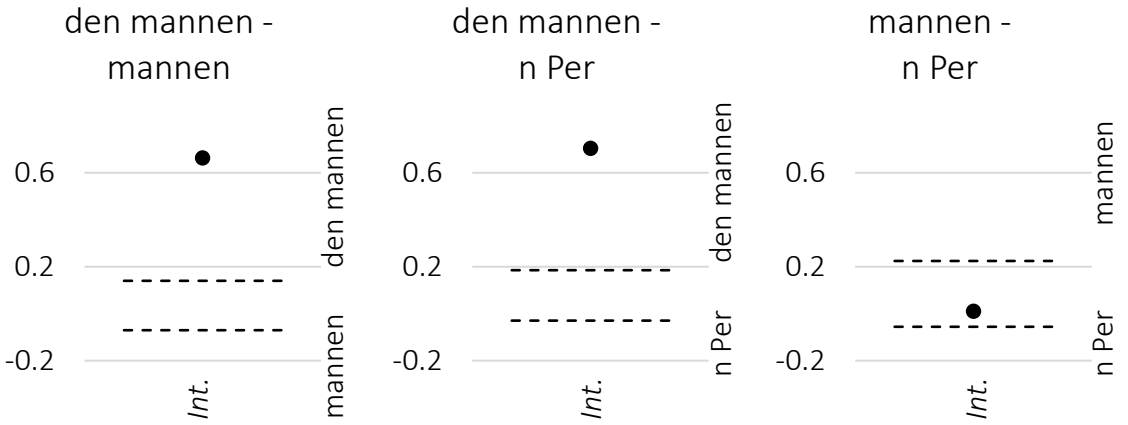

Figure 30: Partial dependence plots for deictic intensifying adverb (Model 1, 2 & 3)

In the left and middle panels in Figure 30, one can see that the partial dependence scores are high, which signifies a higher prediction of *den mannen* in both models. In the right panel, the partial dependence score falls in between the first and third quartile, which indicates that *n Per* and *mannen* behave similarly regarding the presence of deictic intensifying adverbs. Their frequencies with these adverbs is low, it can be concluded that deictic intensifying adverbs are strongly associated with *den mannen* and not so much with *n Per* and *mannen*.

6.5.4. Mutual knowledge

For the variable concerned with the type of mutual knowledge required to identify the referent (TYPKNOW), the hypothesis was based on Himmelmann (1996)'s distinction between demonstratives and definite articles. He argued that definite articles are generally used to refer to entities identifiable through shared communal knowledge, whereas demonstrative reference makes use of either situational or 'personalized' knowledge, also called private shared knowledge. The expectations for Norwegian were likewise: Noun phrases with a definite article – *n Per* and *mannen* – were expected to be more frequently used for reference to elements that are familiar through communal knowledge. Moreover, it was expected that situational reference is expressed by *den mannen* only and that private shared reference is more commonly found with *den mannen* than with the other two constructions. The reason for this is that *den mannen* can contain a demonstrative determiner, whereas *n Per* and *mannen* combine with determiners that function as definite articles only. Table 21 shows the frequency

distribution of the three constructions per type of knowledge. *C* stands for communal knowledge, *d* for discourse, *not* for not referential, *priv* for private shared, and *sit* for situational.

	c	*d*	*not*	*priv*	*sit*	*Total*
den mannen	51	124	7	19	2	203
mannen	58	134	2	31	0	225
n Per	123	102	2	2	0	229
Total	232	360	11	52	2	657

Table 21: Frequency of type of knowledge per construction

Table 21 shows that all three constructions are used as expressions referring to persons that are identifiable through communal knowledge. Most frequent in this context is *n Per*, i.e., noun phrases with a preproprial article. Reference to elements previously introduced in the discourse, i.e., anaphoric reference, is realized by all three constructions, but there is no clear preference for any specific referring expression. Non-referential noun phrases are rare. Surprisingly, reference to private shared knowledge is most frequent with *mannen*. Finally, reference to a third-person that is identifiable through shared situational knowledge is very infrequent. This is likely due to setting of recording of the corpus: For the vast majority of the data, the discourse participants are sitting together in a room with the only potential third-persons being the corpus-recorders. As there are almost no third-persons present in the discourse situation, it is rare that the circumstances ask for reference to a third-person that is identifiable through shared situational knowledge. Because the frequencies for both noun phrases that are not referential and situational reference are very infrequent, these will not be further considered here.

Figure 31 presents the partial dependence scores for *c* (communal knowledge), *d* (discourse knowledge), and *priv* (private shared knowledge) for the three relevant models.

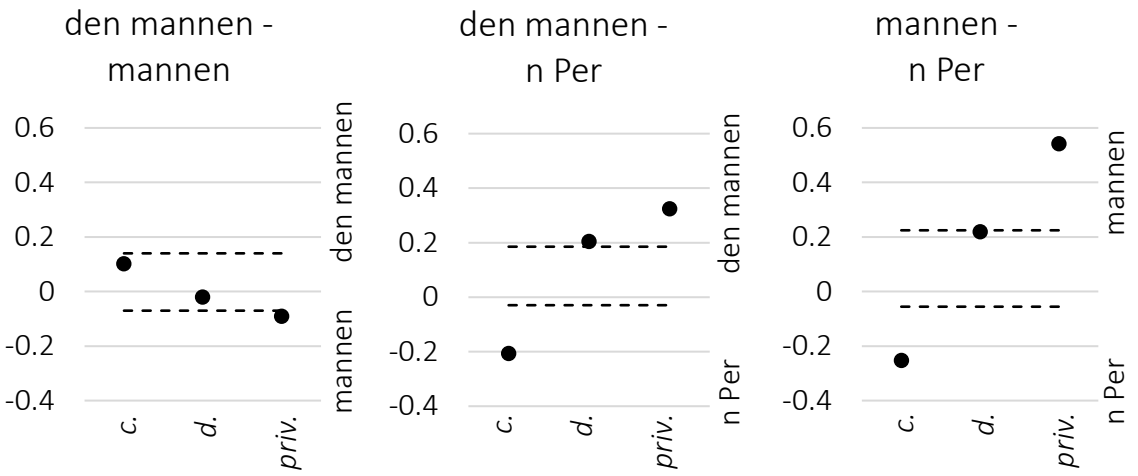

Figure 31: Partial dependence plots for type of knowledge (Model 1, 2 & 3)

Communal knowledge (*c*) does not show a strong preference for *den mannen* or *mannen* in Model 1. In Model 2, with *den mannen* and *n Per*, the partial dependence score is low. Communal knowledge is thus more strongly associated with *n Per* than with *den mannen*. In Model 3, communal knowledge again has a low value, indicating a stronger association with *n Per* than with *mannen*. Thus, based on these plots, it can be concluded that communal reference is a characteristic of *n Per*. While the other two constructions can also be used with this function, their association to it is weaker. The likely explanation for this are the types of nouns that occur in *n Per*, namely kinship terms and proper names. Proper names are accessible to anyone familiar with the referent. This is often small-scale communal knowledge depending on how famous the referent is.[24]

All three constructions are often used to refer to a person identifiable through the discourse (*d*). In the model with *den mannen* and *mannen*, the partial dependence score falls in between the first and the third quartile. This indicates that this category does not strongly favor one construction over the other. In the other two models, the value slightly biases against *n Per*, that is, it is somewhat more strongly associated with *den mannen* and *mannen* than with *n Per*. The

[24] Note, this cannot be shared private knowledge as no familiarity between speaker and addressee is needed, only between speaker and referent and addressee and referent.

effect is rather weak. *N Per* thus has a somewhat weaker link with the function of discourse reference than the other two constructions.

Reference to private shared knowledge (*priv*) is unexpectedly most strongly associated with *mannen*, to a lesser extend with *den mannen*, and not with *n Per*. This can be concluded because the partial dependence plots show that in the first model with *den mannen* and *mannen*, private shared knowledge is not strongly associated with only one of the constructions, but it tends toward *mannen*. The second and the third model indicate that it is not a function of *n Per*. This shows that reference to private shared knowledge is most strongly associated with *mannen* and slightly weaker with *den mannen*, but not with *n Per* at all.

In general, both *den mannen* and *mannen* are highly similar regarding the type of reference they are used for, while *n Per* has a stronger association with communal reference.

6.5.5. Anaphoric reference

In the previous section, it was shown that all three constructions are used frequently for referring to an entity that is identifiable through discourse knowledge (TYPANA). However, not all anaphoric reference is the same, instead it includes a number of distinctive functions. This section dissects these uses of the constructions and investigates the type of anaphoric reference the constructions are used for.

This variable contains five categories: associative anaphoric reference (*as.ana*), subsequent mention (*subseq.*), non-continuing anaphoric reference (*non-c.*), new in the discourse (*new*), and other (*other*). The focus will lie on the first three types, as the noun phrases in the category *new* are new in the discourse and were discussed in the previous section, and *other* is rather infrequent. Table 22 shows the frequency distribution of the type of anaphoric reference per construction.

	as.ana	*non-c.*	*subseq.*	*other*	*new*	*Total*
den mannen	27	68	23	14	71	203
mannen	46	49	38	3	89	225
n Per	7	70	25	2	125	229
Total	80	187	86	19	285	657

Table 22: Frequency of type of anaphor per construction

When used to refer to an entity that has been introduced in the previous discourse, all three constructions are most frequently used with non-continuing anaphoric reference. This was when another third-person referent has been made salient in between the last mention of the referent and the target referring expression. The introduction or reference to such other entities reduces the accessibility of the target referent by competition (Ariel 1990, 29). When the same person was repeatedly referred to in the discourse without intervening expressions referring to someone else and without the presence of a competing salient person, an observation was classified as subsequent anaphoric reference. All three constructions were used with this function. Associative anaphoric reference relies on a meronymic relation between the referring expression and an element previously mentioned in the discourse instead of a straightforward coreferential relation. Associative anaphoric reference is most frequent with *mannen*, occurs frequently with *den mannen* as well, and only sporadically with *n Per*.

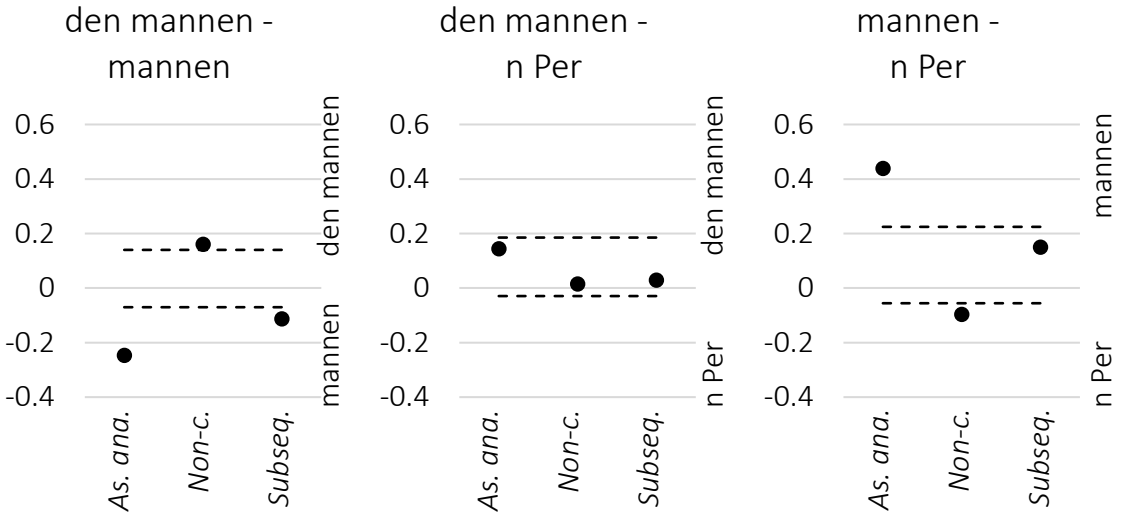

Figure 32: Partial dependence plots for type of anaphoric reference (Model 1, 2 & 3)

In the left panel in Figure 32, it is shown that non-continuing anaphoric reference predicts *den mannen* over *mannen*. The right panel indicates that it

predicts *n Per* over *mannen*. In the model with both *den mannen* and *n Per,* no particular preference is apparent. This indicates that *n Per* and *den mannen* have a similar strong relation to this function, whereas *mannen*'s relation to this function is weaker. Non-continuing anaphoric reference is not a characteristic of *mannen*.

Subsequent anaphoric reference presents a bit a complex situation, as it has no preference for *den mannen* or *n Per* in Model 2, nor for *mannen* or *n Per* in Model 3, but it does predict *mannen* over *den mannen* in Model 1. This is because association is a matter of degree. The difference in the strength of association between *n Per* and *mannen* is not sufficient to say that it is important, but subsequent anaphoric reference still slightly favors *mannen* over *n Per*. In the model with *den mannen* and *n Per*, subsequent anaphoric reference predicts slightly more *n Per*, but the difference is also not large enough to rely on. These slight differences between constructions add up in Model 1, in which when *den mannen* and *mannen* are opposed, which proves that *mannen* has a stronger association with subsequent anaphoric reference than *den mannen*. Thus, the three constructions vary in strength of association, but rather weakly, with *mannen* having the tightest link and *den mannen* the weakest. This indicates that it is not clearly a characteristic of only one of the three constructions. In the literature, subsequent anaphoric reference is mainly thought to be a property of pronouns, although there is a variety of circumstances that can increase the likelihood of a different referring expression (e.g., Givón 1983; Arnold 2010, 189ff.). In the current data set, the vast majority of the observations that refer subsequently refer to elements whose accessibility has been reduced for some reason, e.g., topic changes or a change of speaker. Moreover, with *den mannen* and *n Per*, second mention use is also attested. This use is not found with *mannen*. Interestingly is that prototypical subsequent mention is also found, most notably with *den mannen* as exemplified in (22). With subsequent anaphoric reference, *den mannen* is typically used emphatically, specifically when it is used in combination with a deictic intensifying adverb, as is seen in (22), where the speaker emphasizes the positive emotion he has toward the teacher.

(22)

hun	*var*	*ikke*	*noe*	*gammel*	*var*	*ei*
she	was	not	some	old	was	a
fin	*lærerinne*	*søkkfin*		*langt*	*lyst*	*hår*
fine	teacher.F	hollow.nice		long	light	hair
og	*jeg*	*har*	*så*	*goda*	*minner*	*om*
and	I	have	such	good	memories	about
den	***der***	***lærerinna***				
DET	there	teacher.F.ART				

'She was not someone old, was a good teacher, supernice, long light hair. And I have such good memories of that teacher'. (Selbu, 03gm)

Associative anaphoric reference has been described as a distinguishing function between demonstratives and definite articles (Himmelmann 1996, 210f.): Definite articles can be used for associative anaphoric reference, while demonstratives are not. As such, it was expected to be associated with *mannen* and not with *den mannen*. Figure 32 shows that this is borne out: Associative anaphoric reference is more strongly associated with *mannen* than with *den mannen* and favors *mannen* over *n Per*. This use of *mannen* is exemplified in (23), in which the referent of the noun phrase *læreren* 'the teacher' is an inherent part of the school and the class. It is indirectly activated in the discourse by the noun *klassen* 'the class'.

(23) Context: The speaker is talking about this school and mentions that there is poor discipline in the class.

det	*er*	*sånn*	*spektakkel*	*i*	*klassen*	*at*	
it	is	such	spectacle	in	class.ART	that	
mange	*ganger*	*så*	*kan*	*de*	*snaut*	*høre*	*hva*
many	times	so	can	they	scantly	hear	what
læreren		*sier*					
teacher.ART		says					

'It is such a spectacle in the class that often times, they can hardly hear what the teacher says.' (Evje, 04gk)

To summarize, *den mannen* and *n Per* are very similar in the type of anaphoric reference they are used for. First, both are not associated with associative anaphoric reference, although they can be used with it. Second, they both have a strong relation with non-continuing anaphoric reference. Third, they have a similar link with the function subsequent anaphoric reference. *Mannen* is clearly distinct from the other two, particularly regarding its associative anaphoric use.

6.5.6. Relation between discourse participants

The variable importance measures showed additionally that the relation between the discourse participants was of some significance in the two models containing *n Per*. This section zooms in on this variable.

In Table 23, the raw frequencies of each of the constructions per relation is presented.

	den mannen	*mannen*	*n Per*	*Total*
Acquaintances	49	55	85	189
Family	6	5	25	36
Friends	20	17	45	82
Strangers	10	22	5	37
Unknown	118	126	69	313
Total	203	225	229	657

Table 23: Frequency of relation per construction

Table 23 shows that *n Per* is more frequent than the other two constructions when the discourse participants are acquaintances. The same is true when the discourse participants are family or are self-reported friends. When they are strangers or the relation is unknown, *mannen* is the most frequent construction.

In Figure 33, the partial dependence plots for this variable are presented. In the first model, with *den mannen* and *mannen,* none of categories had a strong effect on the prediction of construction. In Model 2 and 3, the categories *family, friends,* and *acquaintances* predict *n Per* over *den mannen* and *mannen*. This is shown by their low partial dependence scores in the middle and right panel in Figure 33. Of these three, *family* has the lowest values, *friends* follows, and *acquaintances* has the highest value.

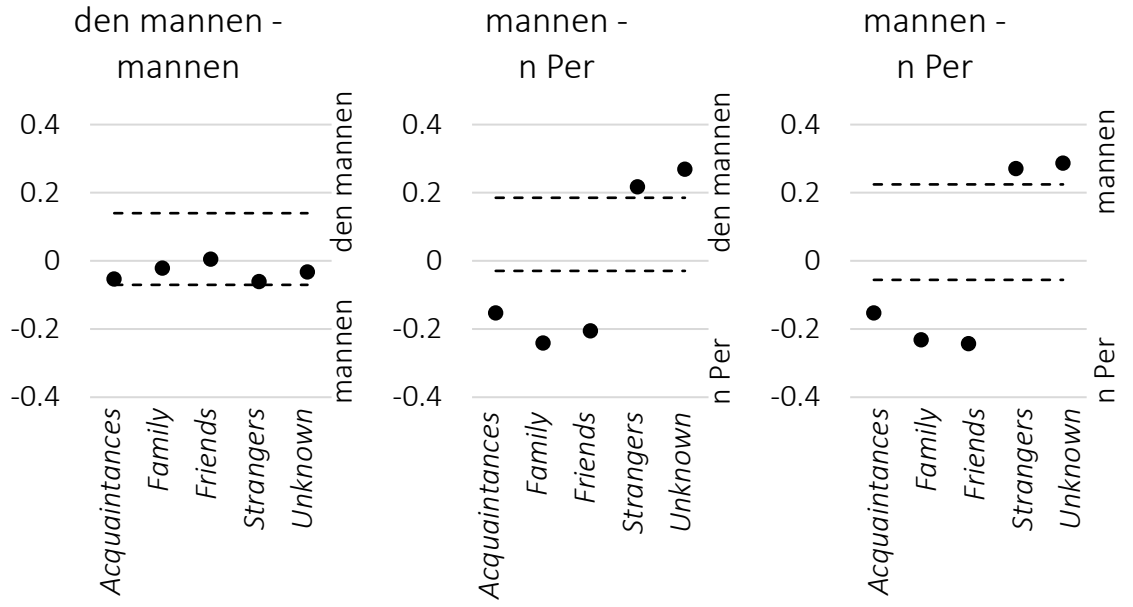

Figure 33: Partial dependence plots for relation (Model 1, 2 & 3)

Moreover, both models have a negative association between the category *strangers* and *n Per*, and between *unknown* and *n Per*. Thus, *n Per* is strongly associated with contexts of speech in which the discourse participants know each other and thus have a more specific mutual knowledge. Such a link to a specific social setting is not found with the other constructions and is a trait of *n Per* alone.

6.5.7. Individual variation

In each of the three tested models, the variable SPEAKER was identified as an important factor.

As the data contain 357 different speakers in total, it is not very insightful to present a frequency table or partial dependence plots for each speaker. Moreover, many speakers only contribute one or two utterances, which cannot show any clear preference and do not have a strong effect on the outcome. For this reason, I have selected the speakers that contributed more than five observations and present the distribution of the constructions for these speakers only.

	den mannen	*mannen*	*n Per*	*Total*
råde_ma_01	11	0	0	11
holt_ma_01	6	0	0	6
sørdalen_ma_01	6	2	0	8
øvresirdal_ma_01	6	1	1	8
flå_ma_01	7	1	2	10
bardu_ma_03	11	6	0	17
stonglandseidet_47	4	4	0	8
eiken_ma_01	3	6	0	9
åseral_ma_01	2	6	0	8
røros_ma_01	0	8	4	12
oppdal_02	0	2	5	7
lesja_ma_01	1	1	9	11
jevnaker_03gm	0	1	6	7
rauma_04gk	0	1	6	7

Table 24: Frequency of the construction per prominent speaker

As can be seen in Table 24, there are a couple of speakers that use the *den mannen*-construction considerably more than other constructions and other speakers. In particular, Råde_ma_01 and Holt_ma_03 use the *den mannen*-construction very frequently and they do not appear to use the *mannen*-construction with human referring nouns, nor use the *n Per*-construction. In addition, Sørdalen_ma_01, Øvresirdal_ma_01, Flå_ma_01, and Bardu_ma_03 appear to overuse *den mannen* in comparison to the other speakers. These speakers are not centered geographically: Bardu and Sørdalen are in Nord-Norge, while Holt and Øvre Sirdal are located in Sørlandet, and Råde and Flå in Østlandet. What the speakers have in common is that were born before 1920. Interestingly, there is a general trend in the corpus that the later the birth year of the speaker, the less frequent *den* is as a determiner per 1000 words, as is shown in Figure 34.

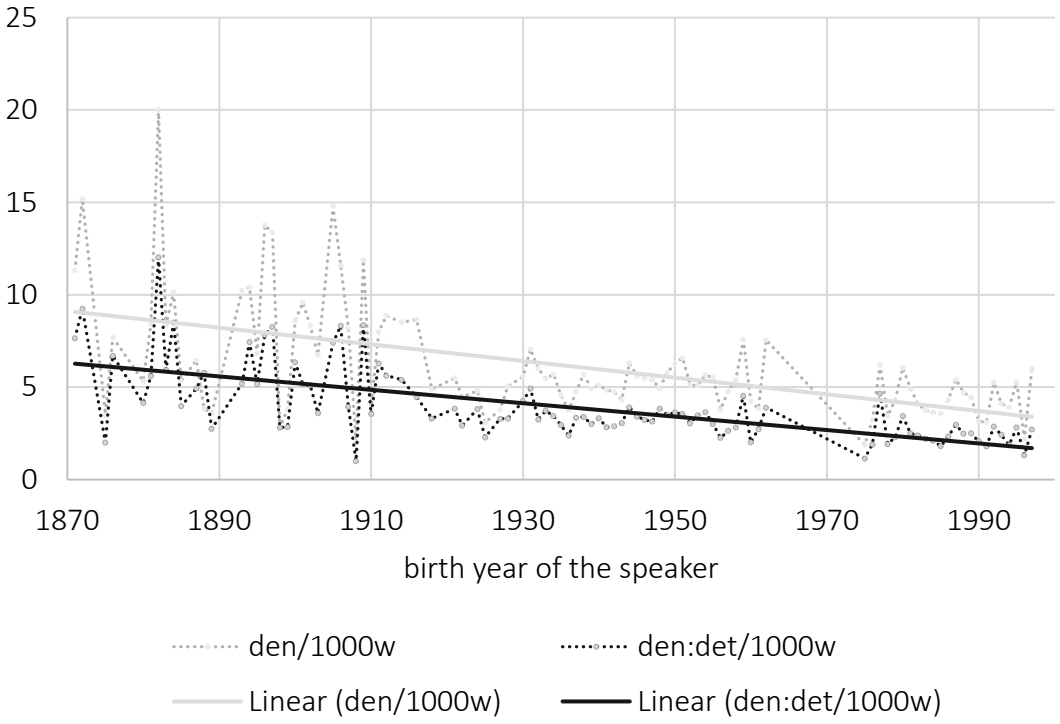

Figure 34: Relative frequency of *den* per speaker's birth year

The dark lines indicate the frequency of *den* as a determiner per 1000 words. The dotted line is the observed frequency and the solid line presents the general trend. This decrease of *den* as determiner mimics the overall reduction of *den*, both as determiner and as pronoun, which is indicated by the lighter solid and dotted lines in the plot. It is thus far unknown what underlies this decrease in frequency, but it reminds of observations that have been made for other languages where the use of the prenominal definite determiner shows a decreasing frequency as well (Liberman 2016).

The *n Per*-construction is particularly frequently used by four speakers, Rauma_04gk, Jevnaker_03gm, Lesja_ma_01, and Oppdal_02. There is no identifiable commonality between the speakers.

6.5.8. Summary

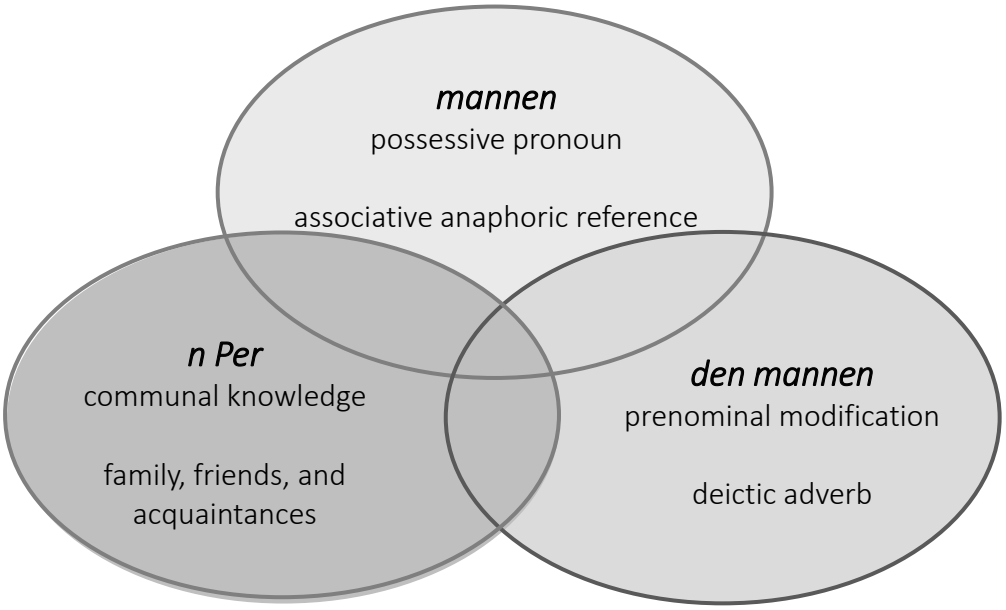

Figure 35: Characteristics of *den mannen*, *mannen* & *n Per*

The results of the preceding section indicate that, although *den mannen, mannen,* and *n Per* are indistinguishable in certain aspects, each of the three constructions has its own characteristics. These are summarized in Figure 35. The *mannen*-construction often combines with a possessive pronoun and is associated with the function of associative anaphoric reference. *Den mannen* has a strong relation with adjectival modification and deictic intensifying adverbs. *N Per* is characterized by making reference to communal knowledge. Moreover, *n Per* is strongly socially associated with a close personal relation between the discourse participants, that is, this construction is more frequently used when the discourse participants are familiar with each other than when they do not know each other. In what follows, the *han mannen*-construction is considered in relation to this neighborhood of human referring expressions.

6.6. *Han mannen* in the neighborhood

In the previous section, the constructional neighborhood with *den mannen*, *mannen*, and *n Per* was described. The similarity between the constructions and their contrasting characteristics were presented. This section investigates how *han mannen* fits into this neighborhood and focuses on the relations *han mannen*

has with each of the three constructions. The hypothesis is that they combined motivate the *han mannen*-construction.

The section begins with an overview of the general model statistics of the random forests. These random forests are the basis for the partial dependence scores which will be referred to throughout the chapter. Then, the results for the variable importance measures will be presented. Thereafter, the individual important variables will be discussed.

model	*tested patterns*	*C-index*	*Somers' D_{xy}*	*n*	*% correct*
4	n Per – han mannen	0.9826	0.9651	457	92.12
5	den mannen – han mannen	0.9792	0.9584	431	91.65
6	mannen – han mannen	0.9805	0.9612	453	93.82

Table 25: Statistics for random forests with *han mannen* (seed = 2317)

The statistics of the three random forests with *han mannen* are shown in Table 25. The accuracy of the models containing *han mannen* is overall slightly lower than those without *han mannen* (see Table 17), which suggests that *han mannen* is more alike the three other constructions than any of the other three constructions are to each other. Of the three models testing *han mannen*, the accuracy of Model 6 is most accurate, which indicates that *han mannen* is best distinguishable from *mannen*. *Han mannen* is most difficult to distinguish from *den mannen*, as is evident from the relatively low accuracy of Model 5. The individual variables will be discussed in the following sections. First, a general overview of which variables are important in distinguishing *han mannen* from *n Per, den mannen,* and *mannen* and which ones are not important will be given. Figure 36, Figure 37, and Figure 38 present the variable importance measures of three models.

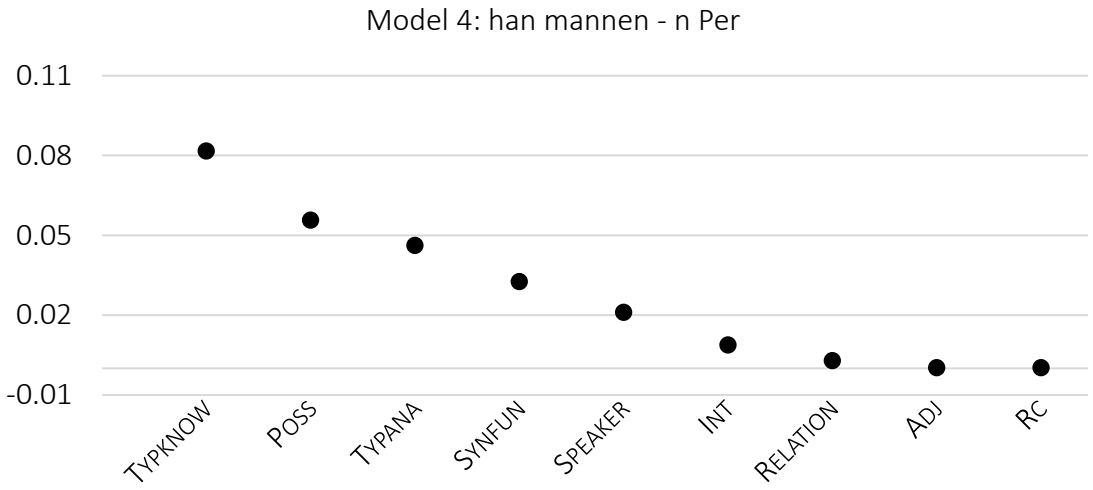

Figure 36: Variable importance measures *han mannen – n Per*

The variable importance measures of Model 4 are shown in Figure 36. They indicate that the most important factor that distinguishes *han mannen* from *n Per* is the type of mutual knowledge (TYPKNOW). This is followed by co-occurrence with possessive pronouns (POSS), and the type of anaphoric reference (TYPANA). The syntactic functions for which the constructions are used (SYNFUN) and the speaker (SPEAKER) are important factors as well. Co-occurrence with a deictic intensifying adverb (INT) and the relation between the discourse participants (RELATION) are only weakly relevant and co-occurrence with adjectives (ADJ) and relative clauses (RC) are not important.

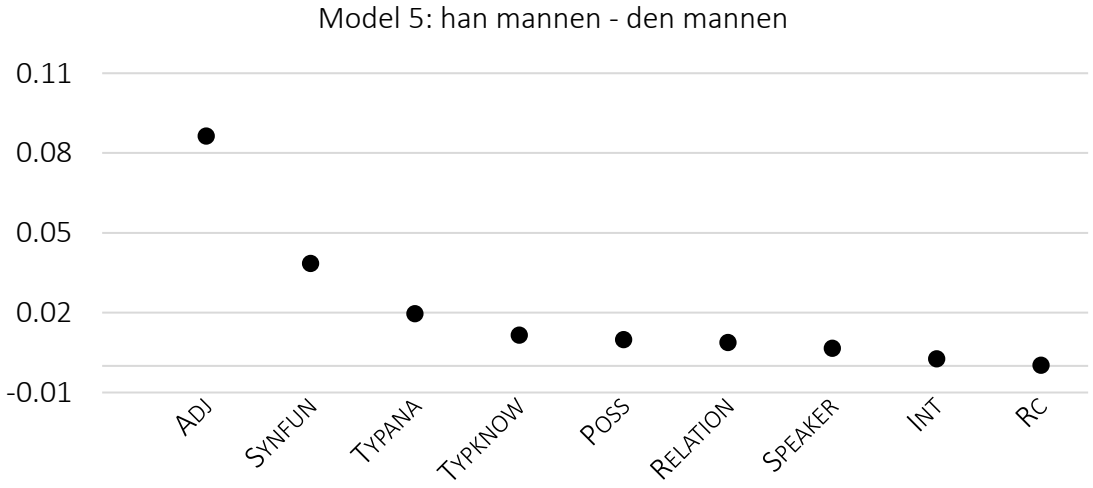

Figure 37: Variable importance measures *han mannen – den mannen*

Figure 37 shows that co-occurrence with adjectives (ADJ) and the constructions' syntactic functions (SYNFUN) are important variables for distinguishing *han mannen* from *den mannen*. The type of anaphoric reference (TYPANA) and the type of knowledge required to identify the referent (TYPKNOW) have an effect as well. Co-occurrence with possessive pronouns (POSS), the relation between discourse participants (RELATION), individual variation (SPEAKER) and co-occurrence with deictic intensifying adverbs (INT) are weakly relevant and co-occurrence with relative clauses (RC) has no effect.

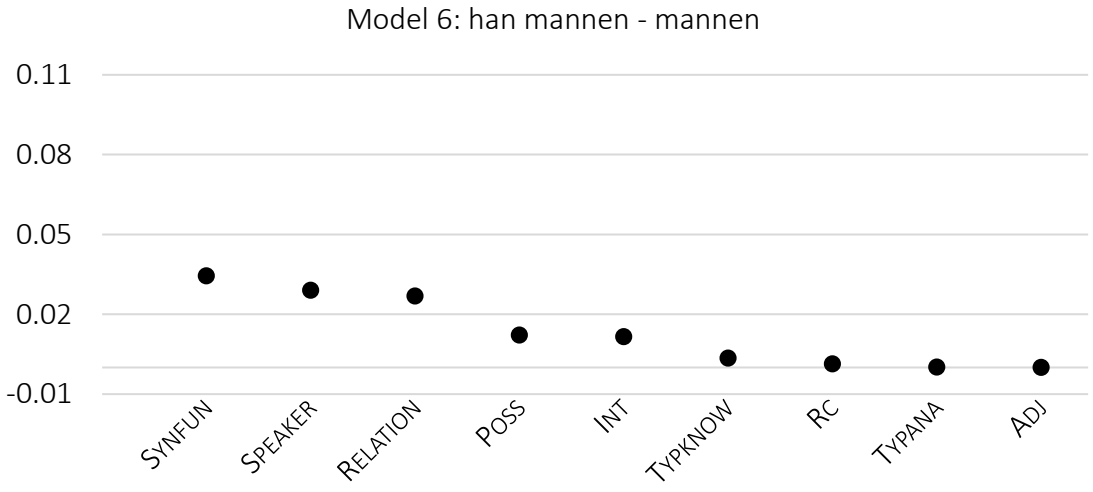

Figure 38: Variable importance measures *han mannen – mannen*

The most important variables that come up in Model 6 with *han mannen* and *mannen* are the syntactic function (SYNFUN), the speaker (SPEAKER), and the relation between discourse participants (RELATION). Co-occurrence with possessive pronouns (POSS) and deictic intensifying adverbs (INT) are of marginal importance. The type of knowledge (TYPKNOW), co-occurrence with relative clauses (RC), the type of anaphoric reference (TYPANA), and co-occurrence with adjectives (ADJ) are all four unimportant variables.

As was the case in the three models without *han mannen* (see the introductory section in §6.5), each of the models with *han mannen* identifies co-occurrence with a relative clause (RC) as non-distinctive. All constructions thus combine with relative clauses equally often. Differently from the three models without *han mannen*, the syntactic function of the construction is important in each three

models with *han mannen*. This indicates that the *han mannen*-construction behaves in this regard unlike any of the other constructions.

A general picture of which variables are important in distinguishing *han mannen* from *mannen, den mannen,* and *n Per* has now been provided. The sections that follow will deal with the individual variables that have been shown to be relevant, which will show more precisely how *han mannen* is similar and how it contrasts with the three neighbors.

6.6.1. Adjectival modification

The results presented in Section 6.5 showed that adjectival modification is characteristic of the *den mannen*-construction. *N Per* only combined with an adjective once in a lexicalized compound *storebror* 'big brother', and *mannen* did occasionally occur with adjectives, in particular with so-called selectors (e.g., *samme* 'same', *ene* 'one', *første* 'first'). If *han mannen* is strongly associated with adjectives, it shares this sequential relation with *den mannen*.

(24)	***han***	***gamle***	***bestyreren***	*her*	*på*	*Vegårshei*
	PDD	old	administrator.ART	here	on	Vegårshei
	'that old administrator here on Vegårshei'					(Vegårshei_04gk)

Although the example in (24) demonstrates that adjectival modification with *han mannen* is possible, it is very infrequent: Of the 228 observations of *han mannen*, only 10 occur with adjectival modification. The variable importance measures already indicated that the variable concerned with this was only important in the Model 5 with *den mannen*. Figure 39 presents the partial dependence plots for the presence of adjectival modification.

The middle panel verifies that adjectival modification is much more strongly associated with *den mannen* than with *han mannen*. The left and right panels in Figure 39 indicate that the presence of the adjective has no strong effect on predicting *han mannen* vs. *n Per* and *han mannen* vs. *mannen*. Hence, *han mannen* is in this regard quantitatively similar to *n Per* and *mannen*. Although the three constructions have some relation to adjectives – as was shown in §6.5.1 – they occur with adjectives a lot less frequently than *den mannen*.

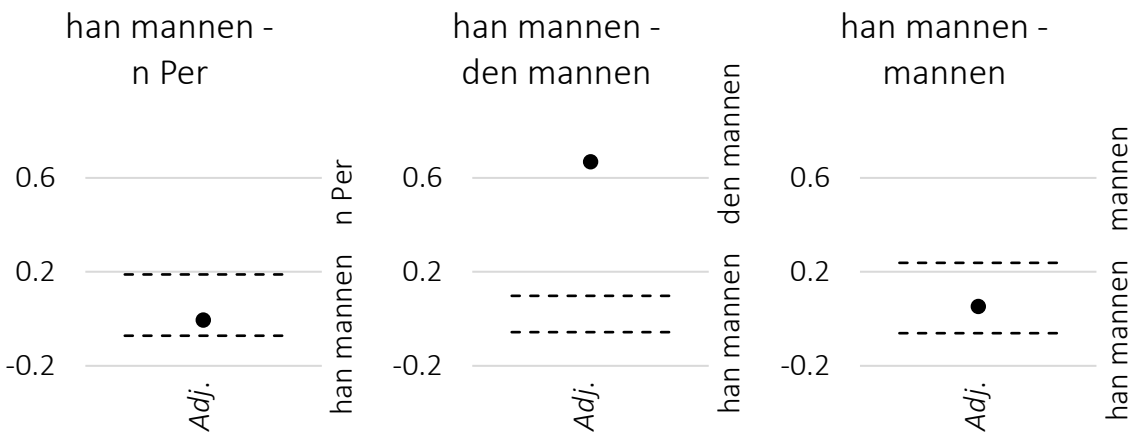

Figure 39: Partial dependence plots for adjective (Model 4, 5 & 6)

Co-occurrence with an adjective is a characteristic feature of *den mannen* which is not shared with *han mannen*. As was mentioned in §6.5.1 this may be a too abstract level of analysis. Therefore, let us zoom in on the particular lexemes that occur in the *han mannen*-construction.

In the data set, *han mannen* occurs 10 times with adjectival modification and with five different adjectives. These are *minste* 'smallest', *beste* 'best', *ene* 'one', *gamle* 'old', and *eldre* 'older'.This is a very low potential productivity (0.1) and a medium type token/frequency (0.5). It is therefore unlikely that there is an adjective slot at this level of representation.

In §6.5.1, it was shown that the *mannen*-construction primarily combined with selectors if it combined with adjectives at all. *Minste, beste,* and *ene* are selectors, but *gamle* and *eldre* are not (Dahl 2003, 153–55). *Han mannen* appears to have a preference for selectors as well. Two selectors, however, occur in fixed collocations only, namely *minste + karen* 'the youngest guy' and *beste + venninna* 'the best friend'. Accordingly, there is no evidence of a more abstract prenominal selector slot in the *han mannen*-construction.

The data show five more adjective-noun combinations. Of these, the combination *gamle + karen* is a rather interesting case. This pattern is found in the *mannen*-construction as well. In *mannen*, there is no inflection on the adjective in two of the three cases. Instead of *gamle*, the indefinite form of the adjective, *gammel* [gɑmˌl] is used. The lack of inflection on the adjective is a sign of adjectival incorporation. Incorporation of adjectives on the noun is known

from various Swedish vernaculars in which the default way of forming a definite noun phrase with adjectival modification is not *den mannen*, but instead the adjective becomes part of the noun. This strategy is productive in certain vernaculars and can even be used when there is more than one adjective, as in *lill-vit-katt-n* 'little-white-cat-ART' (Dahl 2015, 147). In Norwegian vernaculars where adjectival incorporation is found, it is typically only possible with a restricted set of adjectives, most frequently with *ny-* 'new' (Dahl 2015, 143–44). This is the case with *gamle* 'old' in *han gammel karen* 'that old guy' in the *han mannen* construction, but not with *han gamle bestyreren* 'that old manager', nor with the four cases of *gamle* with *den mannen*. The potential incorporation of *gamle* is shared between *mannen* and *han mannen*.

In sum, the current section showed that *han mannen* has a similar relation to adjectives as *mannen*. Quantitatively, it does not differ from *n Per* either, but *n Per* only occurred with adjectival modification once, which was the lexical compound *storebror* (see §6.5.1). Moreover, it was shown that it is possible for *han mannen* to occur with incorporated adjectives, which is a noun phrase forming strategy that further only occurs with *mannen*.

6.6.2. Possessive pronouns

In §6.5.2, it was shown that a strong sequential relation to possessive pronouns is a characteristic of *mannen*, but not of the *den mannen* or *n Per*. In this section, *han mannen*'s relation to possessive pronouns is compared to the other constructions.

Han mannen quite frequently combines with a postnominal possessive pronoun; 20.61% of the observations of *han mannen* contains a possessive pronoun. This is exemplified in (25).

(25)	*og*	***han***	***kameraten***	***min***	*han*	*var*	*jo*	*en*	*skikkelig*
	and	PDD	friend.ART	my	he	was	DM	a	proper
	skiløper								
	skier								
	'And that friend of mine, he was a good skier.'								(Lardal_03gm)

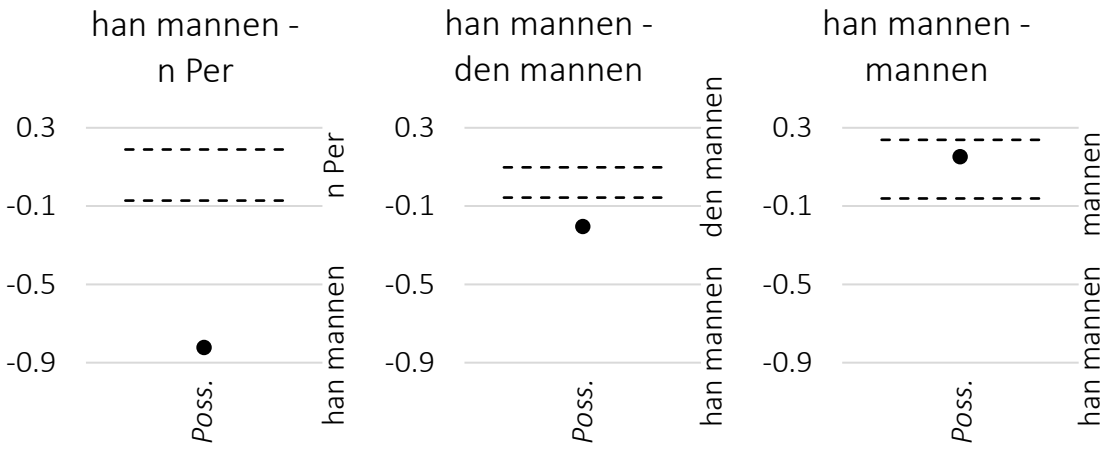

Figure 40: Partial dependence plots for possessive pronoun (Model 4, 5 & 6)

Figure 40 shows that possessive pronouns predict *han mannen* over *den mannen* and over *n Per*. As such, *han mannen* does not resemble these two constructions in this regard. The left panel shows that the presence of a possessive pronoun slightly predicts the *mannen*-construction more than *han mannen*, but not considerably.

As we know from §6.5.2, *den mannen* was occasionally used in combination with a possessive pronoun. Interestingly, the majority – 67% – of *den mannen* with a possessive pronoun contains a prenominal selector (i.e., *ene* 'one', *andre* 'other', *yngste* 'youngest', *eldste* 'oldest'). These contrast the referent of the noun phrase to other members of its set. In the case of *ene* and *andre,* the referent is contrasted to one other member of the set, whereas the superlatives contrast it to all potential members of the set. The possessive pronoun reduces the potential members of the set. Moreover, the vast majority of the nouns occurring in *den mannen* + possessive pronoun are kinship terms. In the current data set, only one exception is found (namely *den vennen din* 'that friend of yours'). *Han mannen* + possessive pronoun does not show any tendency to occur with selectors, which indicates that *han mannen* not only qualitatively, but also quantitatively is unlike *den mannen.*[25]

[25] A preference for kinship terms was per definition impossible for the *han mannen*-construction, see §6.4.1.

N Per only combined with a possessive pronoun twice, once as *han far hennes* and ones with *hun mor mi*. No qualitative comparison can be based on two observations.

When it comes to the types of possessive pronouns that *han mannen* and *mannen* occur with, no clear differences are observed between the two. Even the distribution of particular pronouns is comparable. Both constructions combine most frequently with first person singular possessive pronouns (*min* 'my.F/M' and *mi* 'my.F'). Second most frequent are the third-person singular form *hans* ('his') and *hennes* ('her'). There are no apparent interactions. Hence, both *han mannen* and *mannen* are very similar in this regard, except that *han mannen* combines less frequently with possessive pronouns than *mannen*.

In sum, *han mannen* is in this regard very much like *mannen*, although the strength of association between construction and possessive pronoun is slightly weaker in *han mannen* than in *mannen*.

6.6.3. Deictic intensifying adverbs

In §6.5.3, it was shown that the co-occurrence with deictic intensifying adverbs is a characteristic of *den mannen*, but not of *mannen* or *n Per*. *Han mannen* combines relatively frequently with deictic adverbs (10.5%), which is comparable to *den mannen* (14.8%).

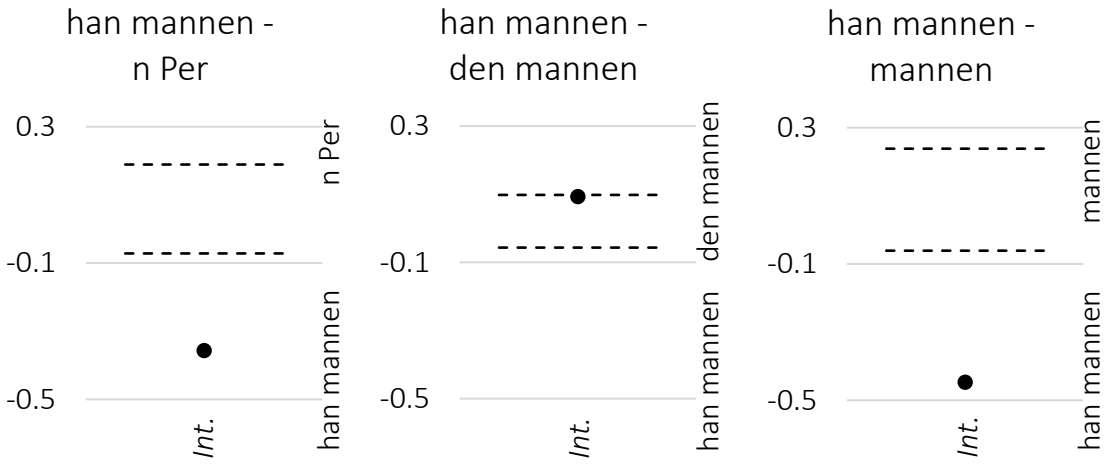

Figure 41: Partial dependence plots for deictic intensifying adverb (Model 4, 5 & 6)

Figure 41 presents the partial dependence plots of this variable. The left panel shows that the presence of a deictic intensifying adverb predicts *han mannen* over *han mannen* vs. *n Per*. The middle panel shows that deictic reinforcement slightly predicts *den mannen* over *han mannen*, and the right panel indicates it predicts *han mannen* over *mannen*. Thus, the co-occurrence with deictic intensifying adverbs is more strongly associated with *han mannen* than with *n Per* and *mannen*, but its link to them is slightly weaker than that of *den mannen*.

Interestingly, both *den mannen* and *han mannen* can combine with deictic adverbs that express distality, i.e., *der* and *derre* 'there', and proximity, i.e., *her* and *herre* 'here' (Halmøy 2016, 209). Faarlund, Lie and Vannebo (1997, 211) mention that deictic intensifying adverbs are primarily used with the exophoric function of the demonstrative. That is, they combine with demonstratives that are used to refer to entities in the surrounding situation (Diessel 1999, 6). The co-occurrence of *den* – traditionally a distal demonstrative – with *her* is not compatible with a reinforcement of the demonstrative's exophoric function, since it yields conflicting semantics. Previous literature has however shown that *den* with a prenominal deictic adverb is strongly associated with the recognitional function of demonstratives. These are used to refer to a discourse-new but hearer and addressee-old referent. Demonstratives with a recognitional function differ from those with an exophoric function in that they lack contrastive distance (Diessel 1999, 105–9). This lack of contrastive distance makes it possible for *den* to combine with a deictic adverb of proximity without a conflict of meaning.

Nevertheless, previous literature has shown that *den* has a preference for deictic adverbs of distality, i.e., *der(re)* (Vindenes 2017a, 84–85). *Han* has the same preference (Vindenes 2017a, 86). This is also is observed in the current data set, as visualized in Table 26.

	prenominal		*postnominal*		*unclear*
	der(re)	*her(re)*	*der*	*her*	*der*
den mannen	17	5	6	0	1
han mannen	4	1	11	8	0
Total	21	6	17	8	1

Table 26: Frequency of the different types of deictic intensifying adverbs

The deictic intensifying adverb can occupy two different positions in the noun phrase in Norwegian. It can either be prenominal, immediately following the prenominal determiner, e.g., *den* ***der*** *mannen*, or it can appear in a postnominal position, e.g., *den mannen* ***der***. Vindenes (2017a, 84–86) showed that both *den mannen* and *han mannen* more frequently combine with prenominal deictic intensifying adverbs than with postnominal ones. This is not fully reflected by the current data set. On a par with Vindeness' analysis, *den mannen* most frequently occurs with prenominal *der*. Contrarily, *han mannen* is more frequently accompanied by a postnominal deictic adverb than by a prenominal one (19 vs. 5) in the current data. This is exemplified in (26).

(26)	***han***	***karen***	***der***	*han*	*spør*	*nå*	*om*	*alt*
	PDD	guy.ART	there	he	asked	now	about	everything
	'That guy there, he asked about everything.'							(Aukra_ma_01)

Even though the numbers are low, the difference with Vindenes' data is significant ($p < 0.001$, $\chi^2 = 55.20$). What underlies this difference is unclear.

Thus, in the current data set, *han mannen* prefers to occur with postnominal deictic intensifying adverbs, whereas *den mannen* combines more frequently with prenominal ones. Although these numbers are low, the difference between the constructions is significant ($p < 0.001$, $\chi^2 = 12.02$). In this light, the functional difference between the prenominal and postnominal deictic intensifier in *den mannen* is relevant.

The use of a postnominal deictic intensifying adverb, especially when it is stressed, signals situational distance (Lie 2010, 66). Although a prenominal intensifier can likewise be used to signal situational distance, it is also often used with a recognitional function (Vindenes 2017b). These functions – recognitional and situational – are part of a grammaticalization cline of demonstratives. Typically, exophoric demonstratives – which are used for situational reference – develop an endophoric function, for example recognitional reference (Diessel 1999, 109–13). This grammaticalization process has previously been argued to involve the intersubjectification of the demonstrative (Traugott 2010; Carlier and Mulder 2010). Intersubjectification is the recruitment of a subjectified linguistic element "to encode meanings centered on the addressee" (Traugott 2010, 6).

Subjective elements have a meaning that is centered around the speaker, and they are used to "encode and regulate attitudes and beliefs" (Traugott 2010, 6). It can be argued that all types of demonstratives – including exophoric ones – are inherently intersubjective. The basic function of demonstratives is to create joint attention (Diessel 1999, 93–114), which involves the addressee per definition. Hence, demonstratives can be seen as inherently intersubjective. Although this is true, I agree with Breunesse (2019, 139) that the establishment of joint attention cannot be a sufficient criterion to classify demonstratives as intersubjective in the sense in which Traugott (2010) intended the concept. Almost all human communication is centered around joint attention, or, as Traugott has formulated it "almost everything we say is intersubjective in the sense that it is addressed to someone and therefore creates joint attention" (Cezario and Nunes 2013, 11–12). This is thus not what Traugott intended with intersubjectivity. Instead, demonstratives can differ in their degree of intersubjectivity. More specifically, recognitional demonstrative are here viewed as more intersubjective than exophoric demonstratives. While demonstratives are by default centered on the speaker (Levinson 1983, 64), recognitional demonstratives refer to entities that are identifiable through private shared knowledge between the speaker and the addressee and thus have an origo (deictic center) that includes the addressee. Therefore, they are more centered on the addressee.

In previous research, it has been noted that subjective and intersubjective elements prefer peripheral positions. Subjective elements typically go for left-edge positions, and intersubjective elements favor right-edge positions (Degand 2011). Keeping this in might, it might be somewhat surprising that it is *den der mannen* and not *den mannen der* that is used for recognitional reference, as this entails that it is the less intersubjective construction that positions the deictic adverb in the right-edge of the noun phrase. However, it is likely that intersubjectivity is a characteristic of the collocation *den der(re)* and that it is not merely associated with the deictic intensifying adverb. This would also account for the preference for adjacency of the two elements, because "das geistig eng Zusammengehöriges auch eng zusammengestellt wird" (Behaghel 1932, 4). Different from *den mannen, han mannen* is itself already highly (inter)subjective (Vindenes 2017a, 125–26). Further support for this will be presented in §6.6.4 and §6.6.8. As (inter)subjectivity is a characteristic of the entire *han mannen-*

construction and not associated with pattern determiner + deictic intensifying adverb only, the recognitional function is not associated with the sequence *han* + *der* in the same way it is with *den* + *der*. As such, *han* is more loosely connected to *der* than *den*. Therefore, *han* and *der* not necessarily belong together, while *den* and *der* typically do. As a consequence, *den* and *der* are likely adjacent, following Behaghel's law. *Han* and *der* are less likely to be adjacent, as their association with each other is weaker. This would explain why the *den mannen*-construction prefers prenominal deictic intensifying adverbs, which is not mimicked by *han mannen*.

Although quantitatively similar, *han mannen* has a different relation to deictic intensifying adverbs than *den mannen*. In particular, the relation between *den mannen* and the prenominal item *der* is further grammaticalized and associated with a recognitional function, whereas *han mannen* plus *der* have not undergone grammaticalization. The discussion of the co-occurrence and functions of the different deictic intensifying adverbs in the two constructions makes it clear that this feature does not find its source in *han mannen* and is subsequently transferred to *den mannen,* but that it is the other way around. *Den mannen* is the construction with the stronger sequential association, and *den der* shows signs of further intersubjectification and grammaticalization than *han der*. In addition, *mannen* and *n Per* do not arise as potential sources for this function as their association with deictic intensifying adverbs is weak.

6.6.4. Mutual knowledge

In the previous sections, it was shown that *han mannen* shares sequential relations with *mannen* and *den mannen.* In this section and the next, the focus lies on the constructions' functions.

Table 27 shows the raw frequencies of *han mannen* with the different types of mutual knowledge. *C* stands for communal mutual knowledge, *d* for discourse, *not* for not referential, *priv* for private shared, and *sit* for situational.

	c	*d*	*not*	*priv*	*sit*	*Total*
han mannen	54	127	0	44	3	228

Table 27: Frequency of type of knowledge with *han mannen*

Han mannen is frequently used for reference to private shared (*priv*) and communal (*c*) knowledge. This is in line with Lie (2010)'s analysis of the functions of the PDD in terms of background deixis, with which he captured both reference to communal and private shared knowledge. Lie's analysis is only relevant when the referent has not been mentioned in the previous discourse, given that *han mannen* is most frequently used for reference to persons identifiable through the discourse (*d*). Like *den mannen*, *han mannen* is occasionally used to make reference to a person that can be identified by situational knowledge. As this is rare, assumably because of the setting of the corpus-recordings (see §6.5.4), this factor is only suggestive. *Han mannen* is not used non-referentially.

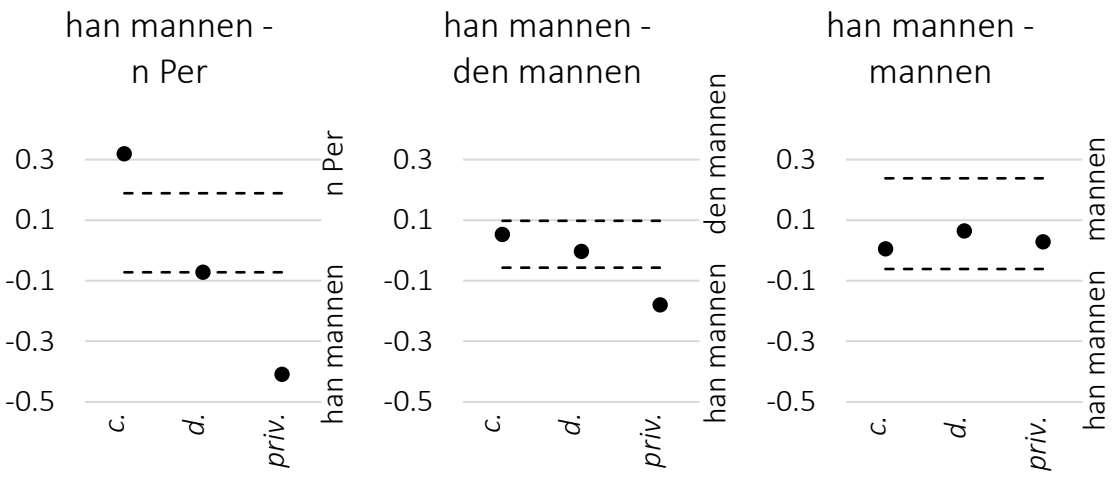

Figure 42: Partial dependence plots for type of knowledge (Model 4, 5 & 6)

In §6.5.4, it was shown that *den mannen*, *mannen*, and *n Per* all had a strong link with the function of referring to entities that are retrievable through discourse knowledge (although *n Per* was slightly less strongly associated with this function than the other two constructions). *Han mannen* is not different in this regard, as is evident from Figure 42. The plots show that *d* is not more strongly associated with any of the constructions, with the exception of the model with *n Per*, which shows a slight preference for *han mannen* with this value.

Communal knowledge was primarily associated with *n Per* and not as much with *mannen* and *den mannen*. The left panel of Figure 42 indicates communal knowledge also predicts *n Per* over *han mannen*. The other two panels show that communal knowledge does not predict *han mannen* over *den mannen* or *mannen* or vice versa. From this, it can be concluded that *han mannen* is unlike *n Per* in this regard.

From §6.5.4, we moreover know that private shared knowledge was most strongly associated with *mannen*. Figure 42 shows that private knowledge predicts *han mannen* over *den mannen*. Likewise, this function predicts *han mannen* over *n Per*, but *mannen* does not differ from *han mannen* in this regard. It can therefore be concluded that reference to private shared knowledge is a characteristic function of *han mannen* and *mannen*.

Quantitatively, *han mannen* and *mannen* are thus highly similar in their use as a recognitional referring expression, i.e., to make reference to information that is discourse new, but hearer old and private. The question is now whether this similarity holds up qualitatively as well. Recognitional referring expressions characteristically occur with additional anchoring information, often in the form of relative clauses, or elements that allow the addressee to give feedback to the speaker (Himmelmann 1996, 332; Diessel 1999, 107). Eliciting a response from the addressee is characteristic of elements that show responsive intersubjectivity. Responsive intersubjectivity is addressee oriented in the sense that it elicits a certain reaction from the addressee (Ghesquière, Brems, and Van de Velde 2014, 134). Both *han mannen* and *mannen* can combine with elements that elicit a response of the addressee, but *han mannen* does so more frequently than *mannen*. While private shared *han mannen* and *mannen* are approximately as frequently followed by a pause (15.91% and 16.13% respectively), private shared *han mannen* differs from private shared *mannen* in that it is more frequently postnominally modified by a prepositional phrase or a relative clause (34.10% vs. 6.45%). *Han mannen* is thus more responsive intersubjective than *mannen*.

Interestingly, *han mannen* often combines with some type of speaker hesitation, for example in the form of a pause before the referring expression, or a repetition of the noun phrase, while this is not frequent with *mannen*. This type of use of *han mannen* is exemplified in (27).

(27) *var* *det* ***hun*** *#* ***hun*** ***trettenåringen*** *#*
was it she HES PDD thirteen.year.old HES
som *de* *snakka* *om* *i* *media?*
who they talked about in media
'Was it her # that thirteen year old # that they were talking about in the media?' (Hof_02uk)

In this example, the *han mannen*-construction is used to provide some more information about a person the speaker has trouble naming. Himmelmann captures this use under recognitional reference. He mentioned that recognitional demonstratives can be used when the speaker is "momentarily unable to come up with an adequate expression for the intended referent" (Himmelmann 1996, 238). Taking a different stance, Hayashi and Yoon (2006) argue that demonstratives used in contexts of hesitation should be analyzed in their own right. The type of usage of *han mannen* in (27) is an example of the placeholder use of demonstratives. A demonstrative used in this fashion "creates a prospective link to a subsequent specification of the referent and focuses the hearer's attention on it" (Hayashi and Yoon 2006, 515). Although placeholder demonstratives have much in common with recognitionals, they are different in that they invite the hearer to be involved in establishing successful transfer of intended information. Depending on the form of the demonstratives, the degree of invited hearer participation can vary. This highly pragmaticalized function likely develops out of recognitional demonstratives (Hayashi and Yoon 2006). *Mannen* is, in the current data set, not found with this function. Thus, although both *mannen* and *han mannen* can be used to refer to private shared knowledge, *han mannen* is more intersubjective than *mannen* in that it more frequently asks for addressee feedback and involvement in aiding the successful understanding of the intended reference.

In sum, *han mannen* is quantitatively very much like *mannen* and is most unlike *n Per*. *Han mannen* and *mannen* are very much alike, but when the constructions are used to refer to a person who is identifiable through private shared knowledge, *han mannen* shows clear signs of being more intersubjective than *mannen*.

6.6.5. Anaphoric reference

It was shown in §6.5.5 that associative anaphoric reference is a characteristic of *mannen*. To a lesser degree, *mannen* was more strongly associated with subsequent anaphoric reference and more weakly with non-continuing anaphoric reference than *n Per* and *den mannen*.

	as.ana	*new*	*non-c.*	*other*	*subseq.*	*Total*
han mannen	45	99	62	2	20	228

Table 28: Frequency of anaphoric reference with *han mannen*

Similar to the other three constructions, *han mannen* is used with each of the types of anaphoric reference, as is shown in Table 28. *Han mannen* is often used with associative anaphoric reference, but is more frequently attested with non-continuing anaphoric reference, i.e., when another referent intervenes in between the previous mention and the target expression. As reference to entities that are not identifiable through discourse knowledge have been discussed in the preceding section and the category *other* is very infrequent, the current discussion focuses on associative, non-continuing, and subsequent anaphoric reference.

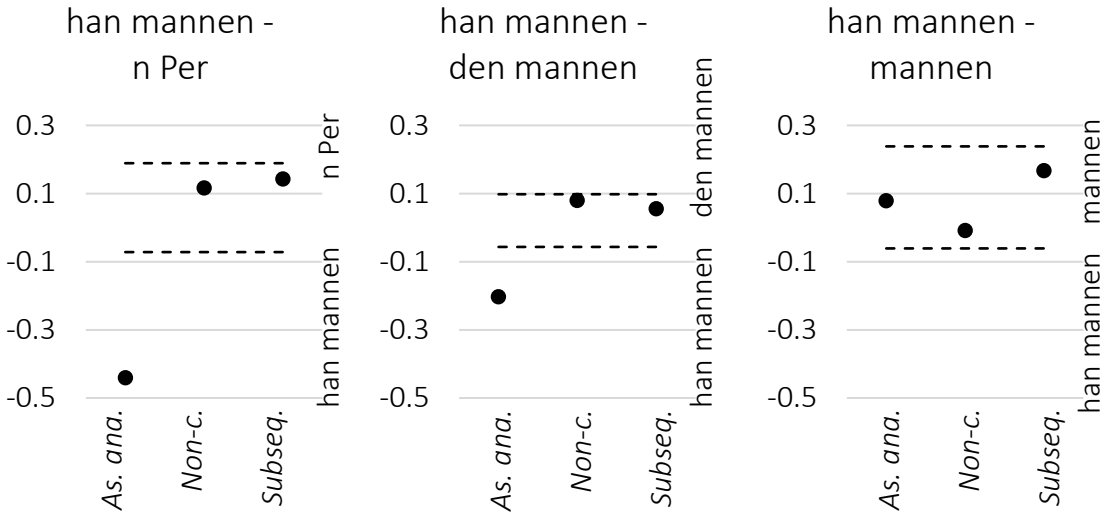

Figure 43: Partial dependence plots for type of anaphor (Model 4, 5 & 6)

Figure 43 presents the partial dependence plots of associative, non-continuing, and subsequent reference for three of the models testing *han mannen*. They show that *han mannen* is only clearly distinguishable from *n Per* and *den mannen* in its use as an associative anaphor. In this regard, it is like *mannen*, which also has a strong link to the associative anaphoric reference. An example of this use of *han mannen* is given in (28).

(28)	*kom*	*vi*	*ti*	*minuter*	*for*	*seint*	*på*
	came	we	ten	minutes	too	late	at
	<u>skolen</u>	*(...)*	*og*	*da*	*husker*		*jeg*
	school.ART	(...)	and	then	remember		I
	han	***læreren***		*glante*	*fælt*	*på*	*oss*
	PDD	teacher.ART		glimpsed	bad	at	us

'We came ten minutes too late at school (...) and then, I remember, the teacher glared at us.' (Lardal_03gm)

Although this is the first time that the discourse participant directly refers to the teacher, the teacher is an intrinsic part of the previously activated *skolen* 'the school'. The referent is thus identifiable through this discourse knowledge. Discourse knowledge alone is however insufficient. In addition, one needs general world knowledge, as one needs to know that teachers are part of the school. This makes the bolded referring expression in (28) associative anaphoric.

With respect to non-continuing anaphoric reference and subsequent anaphoric reference, *han mannen* does not diverge from *mannen* enough to indicate that the constructions clearly behave differently, nor does *han mannen* show adequate differences to *n Per* and *den mannen*. It thus behaves like all three constructions.

In sum, these results provide support in favor of the associative anaphoric function being a shared characteristic of *han mannen* and *mannen*. Regarding subsequent anaphoric reference and non-continuing anaphoric reference, *han mannen* is like the other three constructions.

6.6.6. Relation between discourse participants

In §6.5.6, it became apparent than *n Per* is associated with conversations in which the discourse participants are familiar with each other, i.e., are self-reported family, friends, or acquaintances (*acq.*).

	acq.	*family*	*friends*	*strangers*	*unknown*	*Total*
han mannen	66	22	38	12	90	228

Table 29: Frequency of relation with *han mannen*

Table 29 shows that *han mannen* is most frequently used when the relation between the discourse participants is unknown. Subsequently, acquaintances are the group using *han mannen* most frequently.

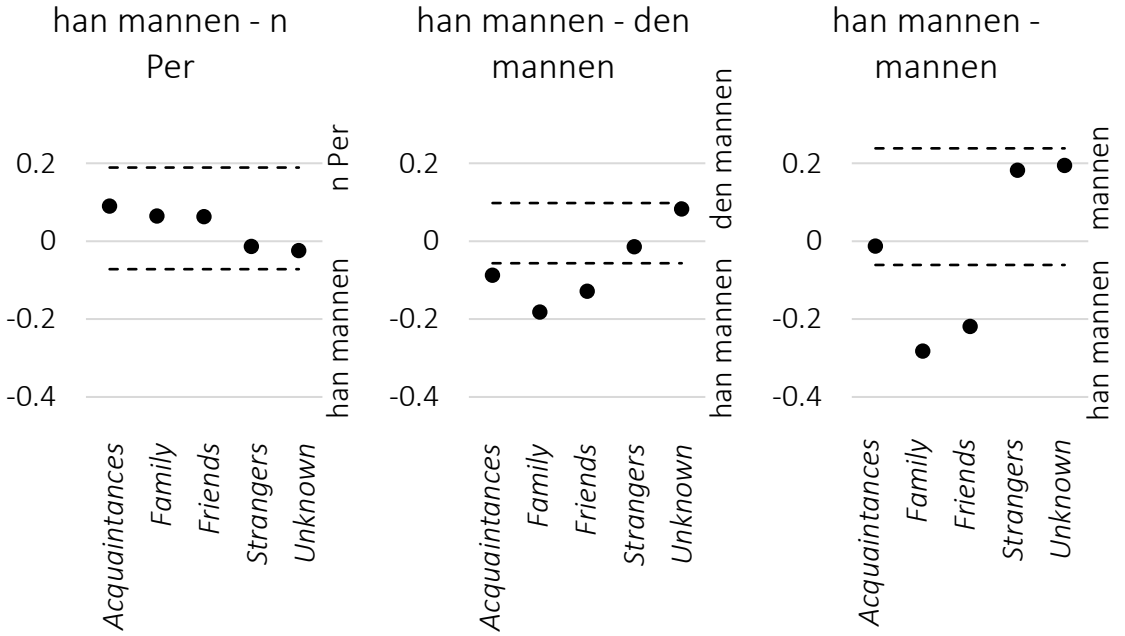

Figure 44: Partial dependence plots for relation (Model 4, 5 & 6)

Looking at the first partial dependence plot in Figure 44, it becomes apparent that *han mannen* and *n Per* behave similar regarding each of the categories. *Den mannen* and *han mannen* show clear differences. In particular, the categories *acquaintances, family,* and *friends* predict *han mannen* over *den mannen*. The

partial dependence plot in the right panel indicates that the categories of *family* and *friends* are more strongly associated with *han mannen* than with *mannen*. Regarding this social factor, *han mannen* is thus very much like *n Per*. Only the contrast between *han mannen* and *mannen* and *han mannen* and *den mannen* is weaker than between *n Per* and these constructions.

6.6.7. Individual variation

The variable importance measures showed that SPEAKER was an important variable in all models with *han mannen*. This indicates that there are individual preferences, and particular speakers use the construction more or less frequently than others.

As the data contains a large number of different speakers, I have selected the speakers that contributed more than ten observations only, in line with the presentation of the SPEAKER variable in §6.5.7.

	den mannen	*mannen*	*n Per*	*han mannen*
Tromsø_03gm	0	4	0	8
Stonglandseidet_47	4	4	0	3
Bardu_ma_03	11	6	0	4
Råde_ma_01	11	0	0	1
Røros_ma_01	0	8	4	1
Flå_ma_01	7	1	2	0
Lesje_ma_01	1	1	9	0

Table 30: Frequency of the constructions per prominent speaker

In Table 30, it is shown that there is one speaker who used the *han mannen* construction considerably more than the other speakers, namely Tromsø_03gm. This speaker did not come up in §6.5.7, because he used the *mannen*-construction only four times and has not used *n Per* or *den mannen* with human referring expressions. Tromsø_03gm was 62 at the time of recording (2008). There are two conversations with this speaker in the corpus: One with a friend, Tromsø_04gk, and one with an interviewer, kb. These were analyzed in their entirety. It is unknown whether Tromsø_03gm knows the interviewer, but based on the conversation, if they do know each other, it is only superficially. When

speaking to Tromsø_04gk, Tromsø_03gm uses *han* more frequently in determiner position (either as *han mannen* or *n Per*) than when he is talking to the interviewer, kb (see Appendix 5). This reflects the results in the previous section on the population level within one individual, namely that speakers are more inclined to use *han mannen* and *n Per* when they are familiar with the addressee.

Interestingly, this speaker frequently makes use of the *han* and *hun* to refer to objects. This is exemplified in (29), where the speaker uses *han* to refer to the non-human referent of 'that whooping cough'.

(29)	*men*	*den*	*kikhosten*	***han***	*gikk*	*nå*	*over*	
	but	DET	whooping.cough.ART	he	went	now	over	
	'But that whooping cough, it had now passed,'							(Tromsø_03gm)

Den is not used to refer to humans by the speaker, neither as a determiner nor as a pronoun (see Appendix 6). Compared to the other speakers, Tromsø_03gm's use of *den* is more narrowed, while *han* is more generalized. Other speakers did use the *han mannen*-construction frequently enough to discover any patterns of use.

6.6.8. Syntactic function

The previous sections dealt with the various variables that were identified as important factors distinguishing *den mannen, mannen,* and *n Per*. This section is concerned with a variable that was not distinctive for the three constructions, namely the syntactic function of the construction in the clause. To present a complete picture of *han mannen* this variable needs to be discussed, because *han mannen* deviates from *den mannen, mannen,* and *n Per* in this regard.

There are six categories of syntactic function: appositional (*App*), object (*O*), prepositional object (*Po*), subject (*S*), subject-oriented predicative complement (*Spc*), and unclear or undefined (*unclear*). The distribution of the four construction with these different syntactic functions is found in Table 31.

Overall, all four constructions are attested with all syntactic functions. Subjects are in general most frequent, and objects are least frequent.

	S	*O*	*Spc*	*Po*	*App*	*Unclear*	*Total*
den mannen	35	22	31	48	47	20	203
mannen	88	17	20	45	36	19	225
n Per	88	14	18	53	25	31	229
han mannen	68	10	10	29	90	21	228
Total	279	63	79	175	198	91	885

Table 31: Frequency of syntactic function per construction

In comparison to the other constructions, it appears that *den mannen* is relatively frequently used as a subject oriented predicative complement. This is exemplified in (30a).

(30a) *naboen er jo **den beste kameraten** jeg har hatt*
neighbor.ART is DM DET best friend.ART I have had
'The neighbor is surely the best friend I have had.' (Aremark_03gm)

(30b) *å **n** **M2** ja*
DM PA M2 yes
'Oh, M2, yeah' (Lom_03gm)

N Per is relatively frequently found with an unclear function, as in (30b). The context of the utterance presented in (30b) is the following. The speaker – Lom_03gm – asks his discourse partner – Lom_04gk – a question concerning someone ('M1'). Lom_04gk answers him saying that it was someone else ('M2'). The speaker then repeats the referring expression, as shown in (30b). M1 and M2 are anonymized forms of two different first names. The noun phrase does not have a clear syntactic function, as the utterance in which it is uttered does not constitute a clause and lacks a verb.

Most noteworthy, however, is the high frequency of *han mannen* as an apposition. That this is a characteristic of *han mannen* is evident from the partial dependence plots for this variable, which are presented in Figure 45.

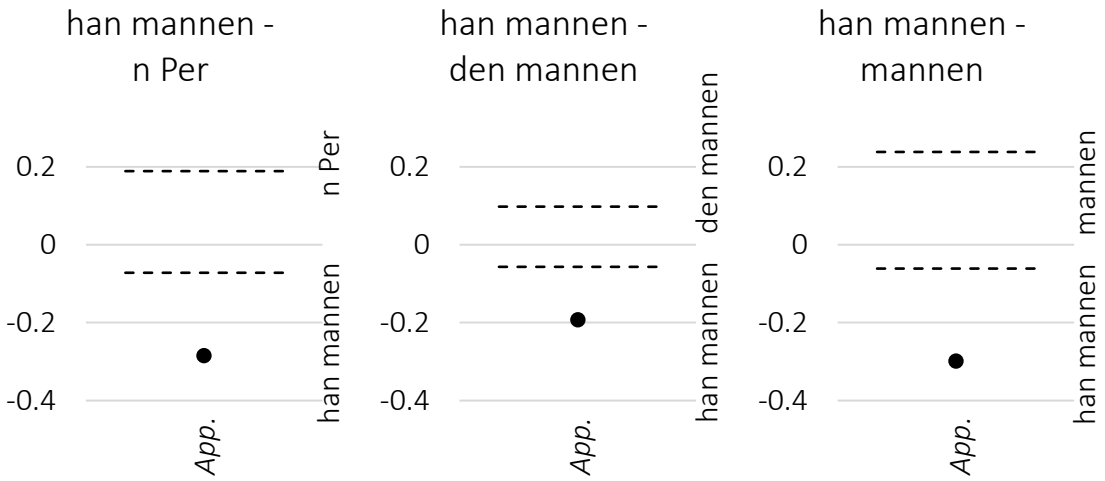

Figure 45: Partial dependence plots for appositional (Model 4, 5 & 6)

In each of the three panels, the appositional function predicts *han mannen* over all alternative constructions, indicating that *han mannen* is in this regard unlike any of the other constructions.

Appositional noun phrases can occur in three different positions: i) they can occur in the left periphery of the clause, as in (31a), ii) they can occur in the right periphery of the clause, as in (31b), and iii) they can occur within the clause, as in (31c).

(31a) ***han*** ***treåringen*** ***han*** *fikk* *jo* *sin* *første*
PDD three-year-old.ART he got DM his first
fisk *på* *treårsdagen* *sin*
fish on three.birthday.ART his
'That three-year-old, he got his first fish on his third birthday.'
(Kirkesdalen_04gk)

(31b) ***han*** *var* *fryktelig* *flink* *i* *geografi* *ja*
he was terribly adept in geography yes
han ***læreren***
PDD teacher.ART
'He was terribly adept in geography, yes, that teacher.'
(Skaugdalen_37)

(31c)	*så*	*kom*	***hun***	*da*	***hun***	***jenta***	*da*
	so	came	she	then	PDD	girl.ART	then
	dit	*og*	*banka*	*på*	*døra*		
	there	and	knocked	on	door.ART		

'So she then, that girl then came there and knocked on the door.'

(Kautokeino, 04gk)

Previous literature has argued that the peripheral positions are associated with (inter)subjectivity (Degand 2011). The left-edge has been associated with subjectivity, whereas the right-periphery is allied with intersubjectivity. The right-edge in particular is used for responsive intersubjectivity (Traugott 2014, 24). In the section on deictic adverbs (§6.6.3) and the type of knowledge (§6.6.4), it was suggested that *han mannen* may be more intersubjective than the other three constructions. The high frequency of *han mannen* as an apposition might also be a symptom of the intersubjective nature of the *han mannen*-construction, as this syntactic function is unlike the others (except *unclear*) in that it does not have a more or less fixed position within the clause. Therefore, appositional noun phrases are more often found in clause-peripheral positions than the other syntactic functions (72.4% vs. 8.4%). It is nevertheless possible for other syntactic functions to have a peripheral position.

If *han mannen* is generally more (inter)subjective than *den mannen*, *mannen*, and *n Per,* it is expected that it is more frequently attested in the edges of the clause. More specifically, a high frequency of the construction in the left-edge would suggest a subjective function of the construction, while the right periphery would be indicative of an intersubjective function.

	left-edge	*neutral*	*right-edge*	*unclear*	*Total*
den mannen	32	81	14	76	203
mannen	23	151	5	46	225
n Per	12	142	14	61	229
han mannen	40	110	34	44	228
Total	107	484	67	227	885

Table 32: The position of the constructions in the clause

For all constructions, the neutral positions are the most common, as one can see in Table 32. The differences between the constructions is significant ($p < 0.001$). In particular, *n Per* is less frequently found in the left-edge of the clause and *den mannen* more frequently than expected. *Mannen* avoids the right periphery. *Han mannen* is found more frequently in both peripheral positions than expected and less often has a neutral position in the clause. This indicates that *han mannen* is indeed more (inter)subjective than the other three constructions. The highest chi-square residual is found with *han mannen* in the right-edge, which indicates that, although *han mannen* occurs more frequently in a left-edge position than in any other position, its association with the right-edge is most contrastive compared to the other three constructions.

Zooming in on the observations of *han mannen* in the left periphery, there is no indication that these referring expressions are subjective. Instead, most of them are a specific type of left-dislocated construction whose function is to refocus and comment on a referent that was mentioned in the preceding discourse (directly or indirectly), but no longer is the most salient referent (Faarlund, Lie, and Vannebo 1997, 907–8; Grohmann 2000; Eide 2011). This is the case for the example in (32).

(32)	Darbu_01um	*ja # det var det han # som jeg jobber hos gjorde da når han sykla Trondheim Oslo* 'Yes, that was what the man (lit. 'he') who I worked for did, when he cycled [from] Trondheim [to] Oslo.' *(...)*
	Darbu_01um	*sykla sammen med <u>en kamerat</u> og da måtte han # drive og lede # hele tida* '[He] cycled together with a friend, and then he had to drive and lead the whole time.'
	Darbu_02uk	** han kan* 'He can' *ja # og det gikk ikke bra så da* 'Yes, and it didn't go well like that.'

Darbu_01um	** nei*
	'No'
	så da var det noen som tok dem igjen så hørte de om # de kunne ## ja he- henge på dem
	'So, then there were some people who overtook them again. So, they heard if they could hang onto them.'
Darbu_02uk	** _uninterpretable_*
	uninterpretable
Darbu_01um	*og så **han kameraten hans** # han hadde # m # når de var s- rett foran mål da så hadde han sykla forbi alle de*
	'And so **that friend of his** # he had # mm # when they were just before the goal, then he cycled past all of them.'

In (32), the referent of *han kameraten hans* has been introduced previously by the indefinite noun phrase *en kamarat*. In between the first mention and target referring expression, the speaker starts talking about another group of people *noen som tok dem igjen* 'some people who overtook them again'. Subsequently, the speaker uses the *han mannen*-construction in the left-edge of the clause to refocus the referent, and he provides new information about this person.

Den mannen is primarily used for this function as well when it occurs in the left-edge, but *mannen* more frequently introduces a new referent into the discourse when it is used in this position.

In the right-edge, *han mannen* is typically used intersubjectively, more precisely to express responsive intersubjectivity. A characteristic example of *han mannen* in the right-edge is given in (33).

(33) Context: The speakers are thinking about what they should talk about next. One of them suggests that they could talk about celebrities from around Myre. They laugh and are silent for a bit. Then Myre_02uk starts talking about the community hall that will be finished on Wednesday.

Myre_02uk	*onsdagen hun skal ha konsert hun derre # **hun kjendisen** # hva var hun he- ...*

	'On Wednesday, she will have a concert, she there # **that celebrity** # what was her na-...'
Myre_01um	** hun Kari*
	'Kari'
	Bremnes
	'Bremnes'
Myre_02uk	**Kari*
	'Kari'
	Bremnes ja # ja det er på onsdagen da skal de være ferdig med utvendig og innvendig og alt
	'Bremnes, yes. Yes, it is on Wednesday when they will be done with the outside and inside and everything.'

In (33), the speaker, Myre_02uk, fails to remember the name of the intended referent. While the first mention of the referent is clause-internal, with a pronoun *hun*, this does not successfully establish reference. Instead of functioning as an anchor, the pronoun is used as a means to postpone the actual referring expression. At the end of the clause, the speaker first attempts to establish reference by means of a deictically intensified pronoun *hun derre* 'she there'. The speaker pauses briefly, but the addressee shows no signs of recognition. The speaker choses another referring expression that contains a bit more information, *hun kjendisen* (lit. 'she celebrity-the'). After a brief pause, she expresses that she does not remember the name at a much lower volume, but the other discourse participant already has started responding during the last syllable of *kjendisen*. With the right-dislocated referring expression, Myre_02uk invites Myre_01um to respond to the referring expression and to aid the successful establishment of reference. After Myre_01um finishes speaking, Myre_02uk repeats what he said and continues talking about what she was talking about before, that is, the completion of the community hall. The use of *hun kjendisen* is therefore a clear case of responsive intersubjectivity, which elicits an action of the other discourse participant facilitating discourse continuity (Ghesquière, Brems, and Van de Velde 2014).

In sum, the syntactic function in which *han mannen* occurs differs from that of the other three constructions, as it was strongly associated with an appositional

function. The appositional function cannot be traced back to any of the three other constructions and is a unique feature of *han mannen*. This was proposed to be a consequence of the construction's intersubjective nature.

6.6.9. Summary

In the previous sections, the relation of *han mannen* to *den mannen*, *mannen,* and *n Per* was discussed on the basis of seven variables that were shown to be important to distinguish *den mannen*, *mannen*, and *n Per* from each other in Section 6.5: co-occurrence with adjectives (ADJ), co-occurrence with deictic intensifying adverbs (INT), co-occurrence with postnominal possessive pronouns (POSS), the type of knowledge used to identify the referent (TYPKNOW), the type of anaphoric reference (TYPANA), the relation between discourse participants (RELATION), and lastly the individual variation (SPEAKER). In addition, an eighth variable was discussed which was relevant for the models with *han mannen* only, namely the syntactic function of the noun phrase (SYNFUN). The relations between the Norwegian human definite expressions can be defined in terms of similarity and contrast.

It was shown that *han mannen* was like *n Per* regarding the social situation in which it is used. Both *den mannen* and *mannen* do not have this. In addition, *han mannen* behaved like *n Per* in its use as a referring expression for entities that are identifiable through discourse knowledge and, more specifically, for non-continuing anaphoric reference and subsequent anaphoric reference. These two functions are also shared with *mannen* and *den mannen* and are thus characteristic of the whole neighborhood. The second characteristic of *n Per* – its frequent use to refer to communal knowledge – was not shared with *han mannen*.

Han mannen showed a similar association to deictic intensifying adverbs as *den mannen,* albeit slightly weaker. As the co-occurrence with this element was more frequent with *den mannen* and showed signs of further grammaticalization than with *han mannen,* it is likely that the co-occurrence with deictic intensifying adverbs originates in the *den mannen*-construction. As this is not characteristic of any of the other constructions, this relation is uniquely shared between the two constructions.

Overall, *han mannen* was shown to be most like *mannen*. Not only do the two constructions share the features that were characteristic of *mannen* and not

associated with *den mannen* and *n Per* – co-occurrence with postnominal possessive pronouns and use for associative anaphoric reference – *han mannen* also mimicked *mannen* in other regards. The two constructions were similar regarding their co-occurrence with adjectives, concerning the type of mutual knowledge, and the type of anaphoric reference. In these uses, *han mannen* is more intersubjective than *mannen*.

Han mannen contrasts with all construction regarding its syntactic function. More frequently than the other three constructions, *han mannen* was coreferential with a noun phrase within the clause and was more frequently found in peripheral positions of the clause. This was related to the construction's intersubjectivity.

To conclude, concerning the sequential relations, *han mannen* lives at the intersection of *mannen* and *den mannen*. Functionally, *han mannen* mostly resembles *mannen*, but it is more intersubjective than all three other constructions. Lastly, in the social dimension, *han mannen* has the same tendency as *n Per* to be used more, the better the discourse participants know each other.

6.7. Conclusion

In this chapter, four definite human referring expressions were investigated. The focus was on the *han mannen*-construction, whose function and use have not reached full consensus (yet). The central question was what motivates the existence of *han mannen*.

The first part of the analysis was qualitative and focused on the form of the *han mannen*-construction. The determiner and the nouns that occur in the construction were considered. The determiner in the *han mannen*-construction – the PDD – was argued to be motivated by multiple source constructions. Not only *n Per* and *den mannen* were involved, but also the pronominal use of *han*, *hun*, and *den*. This also accounts for why *han mannen* (and *n Per*) are primarily used for human reference, as it is a reflection of the distribution of labor between *han*, *hun*, and *den* in the pronominal paradigm: Pronominal *han* and *hun* are – in most vernaculars – used for human reference, whereas *den* is typically used for non-human referents.

The nouns that occurred in the *han mannen*-construction are rather restricted. By and large, they fall into four categories: i) relational nouns, which indicate some close relation between the referent and the speaker, addressee, or overtly expressed third-person; ii) broad gendered terms (e.g., *jenta* 'the girl'); iii) job-titles (e.g., *læreren* 'the teacher'); and iv) nationalities (e.g., *dansken* 'the Dane'). The last three categories all imply unfamiliarity between the speaker and the referent or the addressee and the referent. This filler-slot relation of *han mannen* affects the meaning of the construction, and it was argued to be responsible for the pragmatic effect of psychological distance, which has been claimed to be the construction's core meaning in the previous literature (Johannessen 2006).

This discussion showed that the form of the determiner in the *han mannen*-construction is a result of multiple source constructions, in which two other definite referring expressions are central: *n Per* and *den mannen*. There was thus some clear indication that the *han mannen*-construction lives at the intersection of these two constructions. But a construction is more than its form. In the analysis that followed, functional and distributional properties of the *han mannen*-construction were studied and the construction's position in the neighborhood of definite human referring expressions was investigated. Three specific constructions were considered: *den mannen*, *n Per*, and *mannen*. *Mannen* was included in addition to *den mannen* and *n Per*, because it is the most frequent and central construction for definite reference.

To investigate *han mannen*'s position in the neighborhood systematically, one first needs to understand how these three constructions are related to each other. Therefore, the first question asked was in which ways *den mannen*, *mannen*, and *n Per* are similar and in which ways each construction sets itself apart from the other two constructions.

Four of these variables – co-occurrence with relative clauses, co-occurrence with adjectives, co-occurrence with deictic intensifying adverbs, and co-occurrence with possessive pronouns – were concerned with sequential relations of the constructions. Co-occurrence with relative clauses did not have an effect and was not further considered. *Den mannen* characteristically has a strong sequential relation with adjectives and deictic intensifying adverbs, and *mannen* frequently combines with postnominal possessive pronouns. *N Per* was not characterized by a particular sequential relation.

Two variables dealt with the constructions' functions: the type of mutual knowledge required to successfully establish reference (TYPKNOW) and the type of anaphoric reference (TYPANA). Functionally, all three constructions were shown to be most frequently used to refer to discourse knowledge. *N Per* had the strongest association with reference to entities identifiable through communal knowledge and *mannen* was characterized by private shared knowledge. Concerning their use as anaphoric referring expressions, all three constructions had rather strong association with non-continuing anaphoric reference. None of the three was particularly frequent with subsequent anaphoric reference, although all three could – sporadically – be used with this function. Lastly, only *mannen* was often used with an associative anaphoric function.

The variable dealing with the social setting (RELATION) showed that *n Per* is different from the other two constructions in this regard, in that it is more frequently used, the more familiar the discourse participants are with each other.

Each of these three constructions thus has its own characteristics, but there are also many aspects in which the constructions are similar. As such, they can be viewed as a constructional neighborhood, in which each construction has its own unique relations with particular other nodes – functions, slot-fillers, and other constructions – and relations they have in common.

The second part of the analysis explored the position of the *han mannen*-construction in relation to this constructional neighborhood of definite human referring noun phrases. The general question underlying this part of the analysis was how *han mannen* fits into this neighborhood. More specifically: In which ways is *han mannen* similar to *den mannen*, *mannen*, and *n Per*, and in which ways does it contrast with them? This was investigated by comparing the use of *han mannen* with respect to various factors to the use of *den mannen*, *mannen*, and *n Per*.

It was shown that *han mannen* is like *mannen* in its co-occurrence with adjectival modification. *Han mannen*'s association with postnominal possessive pronouns was weaker than that of *mannen* but stronger than that of the other two constructions. Hence, this trait has likely transferred from *mannen* to *han mannen*. Something similar is true for the co-occurrence with deictic intensifying adverbs, but instead of *mannen* being the source construction, it originates from *den mannen*. The results for the sequential relations are illustrated in Figure 46.

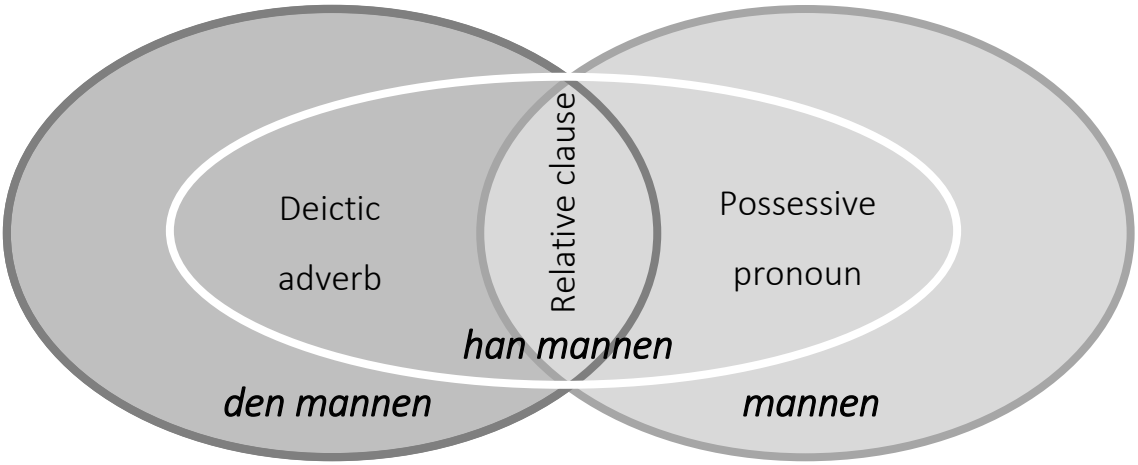

Figure 46: Shared sequential relations

Functionally, all four constructions are most frequently used to refer to a person who is identifiable through discourse knowledge. *Han mannen* resembles *mannen* in its use as a referring expression for entities retrievable through private shared knowledge. Reference to communal knowledge is a characteristic of *n Per*, and although the three other constructions can be used in this way, they do so less frequently. *Han mannen* was shown to lack a strong association with subsequent anaphoric reference and mirrors *den mannen* and *n Per* in its use as a non-continuing anaphoric referring expression. This is summarized in Figure 47.

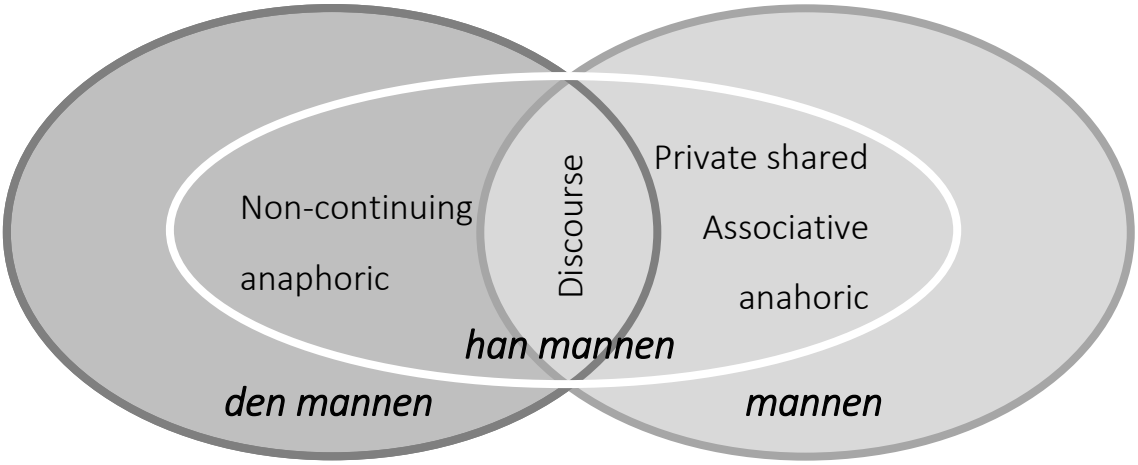

Figure 47: Shared functions

What is unique about the *han mannen* construction is its strong association with the appositional function in the clause, that is, it is more frequently coreferential with an argument of the predicate of the clause than the other three constructions, and less frequently used as an argument of the clausal predicate. It was argued that this is a reflection of the more intersubjective character of the *han mannen* construction. This was supported by its frequent occurrence in the peripheral positions in the clause.

In sum, this chapter showed that, sequentially and functionally, *han mannen* lives at the intersection of *den mannen* and *mannen*. The association with *n Per* is primarily social. *Han mannen* is a construction on its own, prototypically used as an apposition with an intersubjective function.

CHAPTER 7: CONCLUSIONS

The aim of the thesis was to contribute to the knowledge of lateral relations, in particular regarding multiple source constructions. It was hypothesized that constructions can be motivated by more than one construction, and that this phenomenon is not restricted to taxonomically related constructions. In this final chapter, I will summarize the findings of the two case studies that were conducted in this dissertation. Subsequently, the section discusses the insights gained from these studies for the phenomenon of lateral relations and multiple source constructions.

7.1. Findings of the first study

The first study focused on the spread of the verb-object word order in the Old and Middle English subject relative clause. Two subquestions were asked in order to begin answering the third, general research question. These are repeated below.

i) What underlies the object-verb/verb-object word order alternation in Old English subject relative clauses?
ii) What underlies the object-verb/verb-object word order alternation in Middle English subject relative clauses?
iii) How did subject relative clauses change from preferring object-verb word order in Old English to having mainly verb-object word order in Middle English?

The first question was answered by making use of the method of variable importance measures based on random forests. Drawing on data from Old English, multiple variables were shown to underlie the initial existing word order alternation (§5.4.1). The choice between object-verb and verb-object word order in Old English subject relative clauses was primarily determined by the length of the object relative to the length of the verb. In accordance with the principle of end-weight (i.e., constituents will occur in order of increasing weight), the longer

the object was compared to the verb, the more likely it was that verb-object order occurred. The two relative clauses – OV and VO – are two formally independent constructions that are related to each other via a parent construction whose word order is not specified. Depending on the constituents' heaviness, one construction was preferred over the other. But, the situation was a bit more complex, and the principle of end-weight did not present the full story. In addition, the model proved that the relativizer played an important role on the choice between object-verb and verb-object order in Old English. The invariable relativizer *þe* was associated with the object-verb word order and the demonstrative relativizers (*se*, *seo*, and *þæt*) with verb-object order.

To answer the second question, the same methodology was applied to a data set of Middle English subject relative clauses. The results showed that the majority of the variables no longer played a major role in the word order alternation (§5.4.2). Overall, the model was no more accurate than a naïve model, meaning that the variables did not significantly contribute to the correct prediction of either word order. This suggested that the most frequent word order – verb-object – had become established as the default pattern. It was no longer motivated as in Old English. The object-verb word order decreased over time and appears to be, by and large, a historic artifact. Object-verb word order lingered longest with pronominal objects. This was probably not a symptom of the principle of end-weight, since the major factor of end-weight – length – was no longer relevant. Instead, I suspect that it may be a consequence of pronominal objects and nominal objects being two different constructions (§5.4.3). While the two are associated with each other, as they can fulfill the same functions within a clause, pronouns are typically more resistant to change due to their higher token frequency (Bybee and Thompson 1997). An in-depth argumentation of this went beyond the scope of this thesis.

The results of the two analyses indicated that the change from the default object-verb word order in Old English to default verb-object word order in Middle English was motivated by the principle of end-weight and the relativizer. Demonstrative relativizers could be interpreted as an argument of the verb of the relative clause. For this reason, relative clauses with a demonstrative relativizer showed structural similarity to declarative main clauses. Based on this, it was hypothesized that the lateral relation between main clauses and transitive subject

relative clauses played a role in the spread of the VO pattern to subject relative clauses. Two predictions that followed from this hypothesis were tested and confirmed (Section 5.5). First, the group of relative clauses with a high degree of similarity to main clauses adopted the VO word order at a higher rate. This showed that the patterns that were more likely to retrieve the main clause as a source construction were also the ones that showed signs of analogical transfer. Second, this group was less sensitive to the principle of end-weight. These results supported the hypothesis that the expansion of the postverbal slot to shorter objects was motivated by main clauses. Thus, the existence of a group of relative clauses with characteristics of both main clauses and relative clauses supported analogical transfer of the VO pattern from main clauses to subject relative clauses.

In sum, English subject relative clauses could change to VO word order because of both the principle of end-weight and their relation to main clauses. The principle of end-weight motivated the existence of the postverbal slot in both *þe* and *se*-relative clauses. Under the influence of the main clause, this post-verbal slot expanded paradigmatically to include shorter objects, reducing the association of the postverbal slot with heavy objects.

7.2. Findings of the second study

This study investigated the *han mannen*-construction. In particular, it focused on its ecological location in the neighborhood of definite human referring expressions. The three neighbors that were considered were i) the *n Per*-construction, ii) the *den mannen*-construction, and iii) the *mannen*-construction. The first analysis presented in this study dealt with the following questions:

i) What motivates the form of the *han mannen*-construction?
    a. What motivates the form of the determiner in the *han mannen*-construction?
    b. What types of nouns do occur in the *han mannen*-construction, and does this affect its meaning?

Concerning the determiner, it was argued that the determiner in *han mannen* is motivated by multiple source constructions: the preproprial article (i.e., the

determiner in the *n Per*-construction), the adnominal demonstrative use and definite article us of *den* (i.e., the determiner in the *den mannen*-construction), and the pronominal use of *han*, *hun*, and *den* (§6.3.1).

The nouns that were found to occur in the *han mannen*-construction fall into four categories: broad gendered terms, job titles, nationalities, and relational nouns. The first three categories all signal that the speaker and/or addressee is not very familiar with the referent. These were argued to be responsible for the pragmatic effect of psychological distance (§6.2.1).

The second part of the study was concerned with the following two questions:

ii) In which ways are *den mannen*, *mannen*, and *n Per* similar, and in which ways does each construction set itself apart from the other two constructions?
iii) How does *han mannen* fit into this neighborhood? Or in other words, in which ways is *han mannen* similar to *den mannen*, *mannen*, and *n Per*, and in which ways does it contrast with them?

To answer question (ii), the method of partial dependence plots based on random forests was used. This method identified which features characterized the *den mannen*-construction, the *mannen*-construction, and the *n Per*-construction (Section 6.5). The results indicated in which ways the constructions contrast with each other and in which ways they are indistinguishable.

The constructions were found to be similar in general terms: They are human referring expressions that are overtly marked for definiteness. They very often refer to persons that are identifiable through discourse knowledge, and are in particular used when the referent is of rather low accessibility.

The results showed that *den mannen* is unlike *mannen* and *n Per* in its sequential relation with adjectives and deictic intensifying adverbs. *Mannen* is unlike the other two constructions regarding its strong sequential association with postnominal possessive pronouns and functionally in its use as associative anaphoric referring expressions. *N Per* refers more frequently than the other constructions to a person who was identifiable through mutual communal knowledge. Moreover, *n Per* has a preference for being used in a particular social

setting, that is, *n Per* is used more, the better the discourse participants know each other.

Subsequently, *han mannen*'s position in this network of definite human referring expressions was analyzed (§6.6). The same methodology was used as for the analysis of the characteristics of *den mannen, mannen,* and *n Per*. Where relevant, in particular in context of quantitative similarity, the data were also analyzed qualitatively, since the random forests and partial dependence plots can show prove of contrast but only suggest similarity.

The results indicated that *han mannen* was most similar to the *mannen*-construction. Deceptively contradictory was that the random forest with these two construction was the most accurate one of the six models, meaning that *han mannen* and *mannen* were the constructions that were easiest to distinguish from each other. The reason for this apparent discrepancy was the importance of the variable of speaker, which was the second most important variable in this model. With the constructions behaving functionally and sequentially in much the same manner, it comes down to the individual preference which construction was selected. *Han mannen* and *mannen* are highly similar in their co-occurrence with adjectives and relative clauses, the type of anaphoric reference they are used for, and the type of mutual knowledge. Moreover, *han mannen* shares the characteristics of *mannen* that set it aside from *den mannen* and *n Per:* associative anaphoric reference and co-occurrence with possessive pronouns. Though *han mannen*'s association with these factors was weaker than that of *han mannen*. There was one variable that was more important for the prediction of *han mannen* vs. *mannen* than speaker, namely the syntactic function. In particular, *han mannen* was more strongly associated with the appositional function than *mannen.*

The *han mannen*-construction and the *den mannen*-construction also showed considerable similarity. In the section on the form of the *han mannen*-construction (§6.3.1), it was argued that the use of the full form (as opposed to the special clitic form) was related to the functional distinction between the full and clitic form of *den* as determiner. The two constructions also had in common a strong sequential association with deictic intensifying adverbs. But, *den mannen*'s connection to deictic intensifying adverbs was stronger and further grammaticalized than that of *han mannen.* The constructions are also quite

similar regarding co-occurrence with relative clauses, reference to persons identifiable through communal and discourse knowledge, and in their use as non-continuing and subsequent anaphoric referring expressions. These factors were found not to be characteristics of *den mannen,* as they were shared with either *mannen* and/or *den mannen.*

Lastly, *han mannen* and *n Per* both take the same lexeme as determiner: a form of the third-person personal pronoun *han* 'he' or *hun* 'she'. Like the other definite constructions, *han mannen* and *n Per* are both used as non-continuing and subsequent anaphoric referring expressions. Distinct from *mannen* and *den mannen, n Per* and *han mannen* are both strongly associated with a particular social setting: The more familiar the discourse participants are with each other, the more frequent the construction.

In sum, it was shown that the *han mannen*-construction shows structural similarity to the *mannen*-construction and to the *den mannen*-construction, and more weakly to *n Per*. This structural similarity and contrast encompassed more than merely similarity in form and meaning, but was applied considering the constructions' sequential associations with specific elements, filler-slot relations and their social setting (see Schmid 2020's pragmatic relations).

7.3. Theoretical implications

On a theoretical level, the aim of this thesis was to shed light on the phenomenon of lateral relations and multiple source constructions. In construction grammar, language has traditionally been viewed as an inheritance network in which constructions can be motivated by multiple constructions, i.e., multiple inheritance. Recent studies have shown that constructions can be related laterally in addition to taxonomically. That is, constructions at the same level of abstraction are associated with each other. By extension, it was hypothesized that constructions might be motivated by multiple constructions to which they are laterally related. This was the central thesis of the dissertation: Multiple source constructions can motivate the existence of, or changes in, a target construction at the same level of abstraction. This notion was explored in two studies, whose findings were summarized above. These will now be related to the theoretical aim of the dissertation.

The first study took a diachronic perspective on lateral relations and multiple source constructions. It was shown that the new word order in subject relative clauses was the result of multiple source constructions: i) The old subject relative clause, which had default OV word order but did occur with VO word order when the object was heavy; and ii) the declarative main clause, which normally had VO word order. This is summarized in Figure 48.

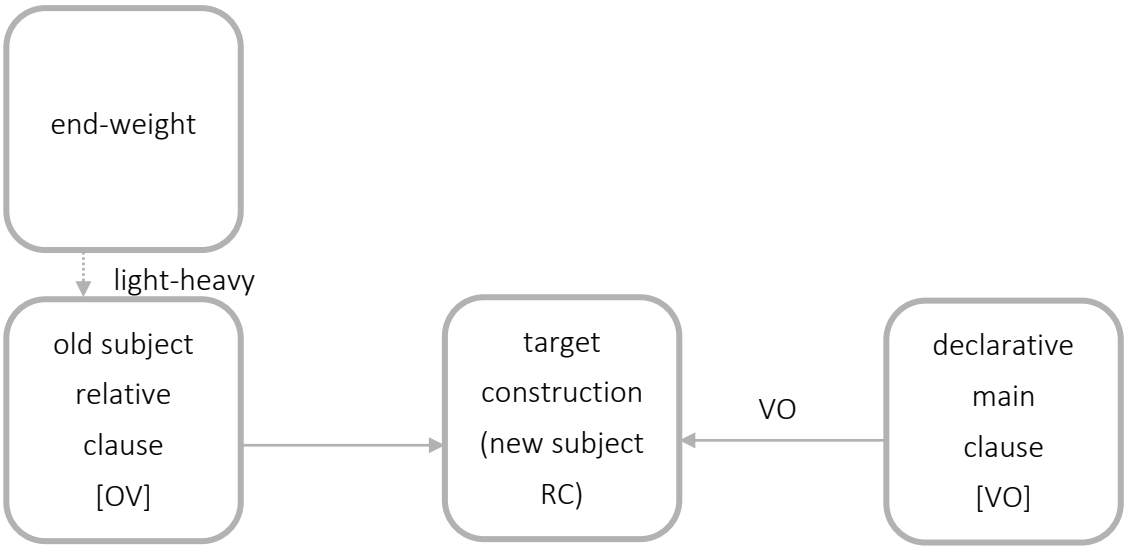

Figure 48: The development of the subject relative clause as lateral relations & multiple source constructions

Important was a group of non-prototypical subject relative clauses, e.g., *Estas is sumor, se hæfþ sunstede* 'Estas is [the] summer, which/it has solstice' that bore formal and functional similarity to declarative main clauses. These bridging contexts are indicative of a lateral relation between the constructions, as it demonstrates that the constructions are in certain contexts formally and functionally similar to a very high degree. This group of relative clauses is thought to have facilitated the retrieval of a main clause-construction by individual speakers resulting in the analogical transfer of the main clause word order to the subject relative clause, even when the object was not heavy.

In this scenario of language change, the old subject relative clause is the main source of the target construction, but not the sole one. Therefore, we observe change. For a similar scenario, see the development of the English epistemic modal that was discussed in §3.2.5. The constructions involved are not primarily

related by means of taxonomic relations, but they exist at the same level of abstraction. They are fully schematic with a highly abstract meaning. As such, this is a clear case of a change that is motivated by multiple source constructions at the same level of abstraction.

The second study looked at the topic from a synchronic, variationist perspective. First, it was argued that the form of the Norwegian *han mannen*-construction is motivated by the use of *han* and *den* as pronouns and as determiners. This is visualized in Figure 49.

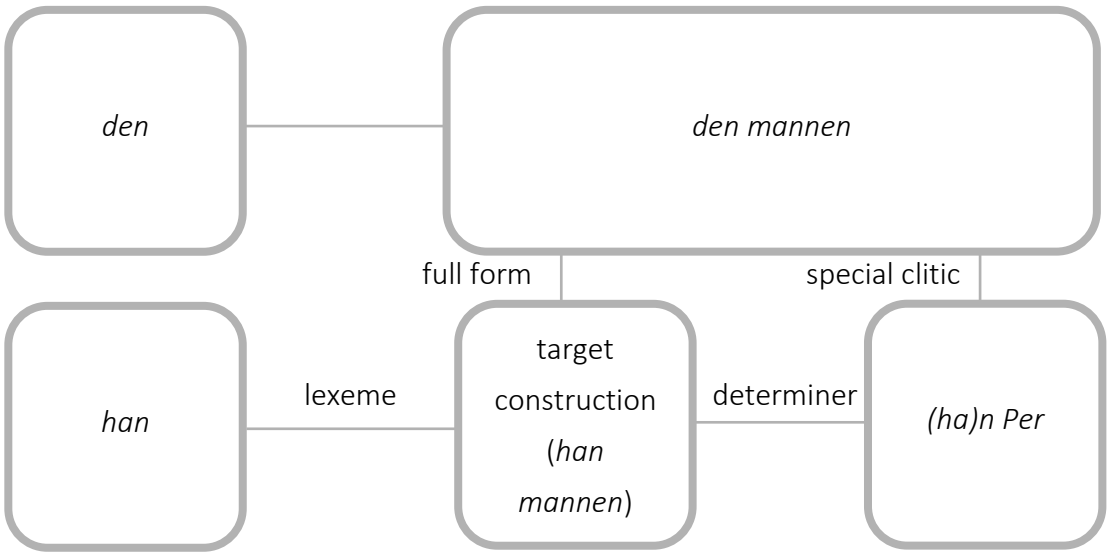

Figure 49: The form of the determiner in *han mannen*

As in the study of the subject relative clauses, bridging contexts here supported the hypothesis that lateral relations are involved in the motivation of the target construction. Bridging contexts are found between the *han mannen*-construction and the *n Per*-construction (§6.4.1), between *den* and *han* and consequently between *han mannen* and *den mannen* (§6.3.1).

Second, *han mannen*-construction's position in the neighborhood of definite human referring expressions was investigated by means of random forests and partial dependence plots. In addition to the *n Per*-construction and the *den mannen*-construction, the *mannen*-construction was considered, as it is the most prominent inhabitant of the neighborhood of definite human referring noun phrase constructions. This part of the study looked at structural similarity and contrast between constructions not only from a form-function perspective (De

Smet and Fischer 2017, 241) but incorporated other types of relations as well, in accordance with the nested-network approach. These gave insight into the lateral relations between the constructions by evaluating their differences and similarities. Regarding the similarities between the constructions, additional evidence had to be be presented, because even if constructions are quantitatively indistinguishable in a domain, this does not necessarily entail that they are also qualitatively the same. The results indicated that the *han mannen*-construction shows structural similarities with all three of its neighbors, that is with *den mannen, mannen,* and *n Per*. This is summarized in Figure 50.

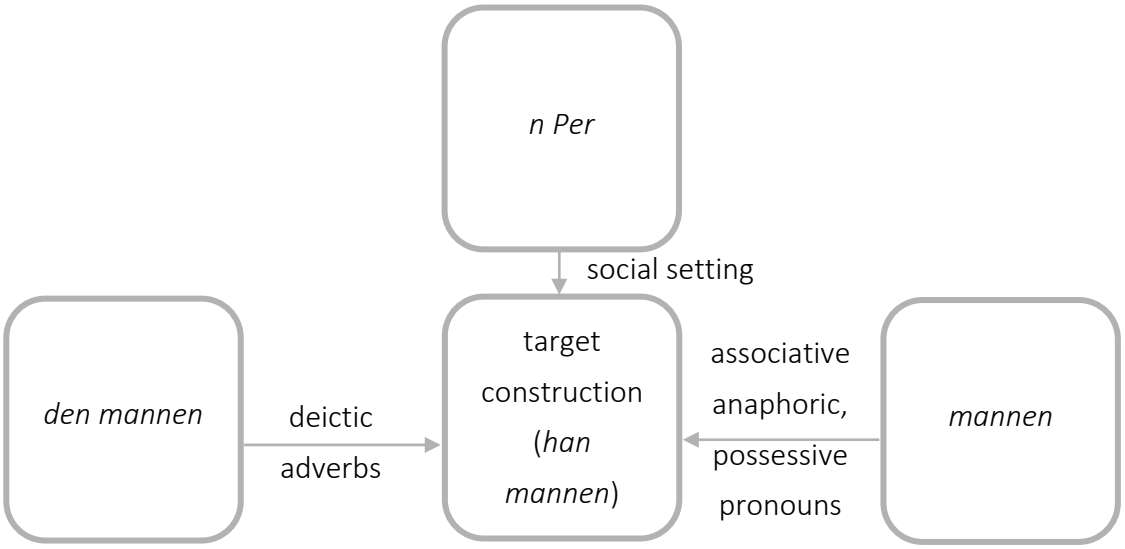

Figure 50: *Han mannen* supported by lateral relations & multiple source constructions

The *han mannen*-construction contrasts with all three neighbors in that it is frequently an apposition and is more intersubjective than the other three constructions.

These relations between the constructions in the neighborhood are not primarily taxonomic, but they are in essence reflections of analogical relations, based in the recognition of contrast and structural similarity. In a nested-network model of language, structural similarity is not restricted to an overlap of form and meaning, i.e., to symbolic relations, but can also involve similarity in other dimensions of constructions. The recognition of lateral relations and the consideration of multiple sources has been proven to be useful in the analysis of

scenarios of language change and variation and foregrounds that language is an intricate network of connected constructions.

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APPENDICES

1. Word order in Old and Middle English relative clauses

		Old English		*Middle English*	
		n	*%*	*n*	*%*
Subject RCs	*(S)V*	350	54.35	419	61.62
	(S)OV	201	31.21	41	6.03
	(S)VO	86	13.35	217	31.91
	misc.	7	1.09	3	0.44
Object RCs	*(O)SV*	244	92.42	199	88.44
	(O)SOV	13	4.92	7	3.11
	(O)SVO	2	0.76	11	4.89
	misc.	5	1.89	8	3.56
Oblique object RCs	*(X)SV*	38	58.46	61	66.30
	(X)VS	9	13.85	10	10.87
	(X)SOV	8	12.31	1	1.09
	(X)SVO	6	9.23	18	19.57
	misc.	4	6.15	2	2.17
other	*(X)SV*	20	74.07	1	33.33
	misc.	7	25.93	2	66.67

2. OV/VO word order in subject relative clauses per manuscript period

	OV		*VO*		*Total*	*p-value*[26]
	Raw	*%*	*Raw*	*%*		
O2	44	67.69	21	32.31	65	NA
O3	118	69.41	52	30.59	170	0.875
O4	42	72.41	16	27.59	58	0.741
M1	21	30.88	47	69.12	68	<0.001
M2	12	17.14	58	82.86	70	0.073
M3	7	11.29	55	88.71	62	0.457
M4	1	1.67	59	98.33	60	0.062

[26] Compared to the preceding period, calculated with Fisher's exact test.

3. Relative frequency of *han mannen* per region

Region	*frequency*	*tokens*	*freq./1000w*
Akershus	7	71414	0.10
Aust-Agder	9	96849	0.09
Buskerud	8	110151	0.07
Finnmark	18	177094	0.10
Hedmark	9	161224	0.06
Hordaland	9	140300	0.06
Møre og Romsdal	20	155997	0.13
Nordland	21	243891	0.09
Nord-Trøndelag	4	69620	0.06
Oppland	11	152435	0.07
Østfold	7	66914	0.10
Rogaland	11	132906	0.08
Sogn og Fjordane	7	99820	0.07
Sør-Trøndelag	21	151150	0.14
Telemark	5	96640	0.05
Troms	48	263910	0.18
Vest-Agder	4	101210	0.04
Vestfold	9	65494	0.14

words	*word freq.*	*obs. freq.*	*exp. freq.*	*faith*	*coll. strength*
læreren	457	21	0.432	0.046	28.143
mannen	470	18	0.444	0.038	22.76
venninna	164	11	0.155	0.067	16.82
dama	149	10	0.141	0.067	15.345
gubben	10	5	0.009	0.5	12.742
kompisen	117	8	0.111	0.068	12.456
dansken	18	5	0.017	0.278	11.214
gutten	544	11	0.514	0.02	11.123
karen	306	9	0.289	0.029	10.637
kona	125	7	0.118	0.056	10.352
minstekaren	4	3	0.004	0.75	8.478
kjerringa	177	6	0.167	0.034	7.642
naboen	273	6	0.258	0.022	6.532
jenta	503	7	0.475	0.014	6.195
flis(e)fyren	2	2	0.002	1	6.051
bakeren	21	3	0.02	0.143	5.961
lederen	30	3	0.028	0.1	5.479
nabogutten	8	2	0.008	0.25	4.605
fyren	68	3	0.064	0.044	4.399
bestevenninna	11	2	0.01	0.182	4.313
samboeren	20	2	0.019	0.1	3.777
ordføreren	20	2	0.019	0.1	3.777
handelsmannen	23	2	0.022	0.087	3.654
tyskeren	127	3	0.12	0.024	3.594
arkeologen	1	1	0.001	1	3.025
avaldsnestreneren	1	1	0.001	1	3.025
blondinen	1	1	0.001	1	3.025
bygningsjefen	1	1	0.001	1	3.025
skuspilleren	1	1	0.001	1	3.025

stuerten	1	1	0.001	1	3.025
tårnmannen	1	1	0.001	1	3.025
vokalisten	1	1	0.001	1	3.025
gymnaslæreren	1	1	0.001	1	3.025
hovmesteren	1	1	0.001	1	3.025
kompanjongen	1	1	0.001	1	3.025
konservatoren	1	1	0.001	1	3.025
kordirigenten	1	1	0.001	1	3.025
landbruksministeren	1	1	0.001	1	3.025
menighetssekretæren	1	1	0.001	1	3.025
nabodråken	1	1	0.001	1	3.025
Nord-spilleren	1	1	0.001	1	3.025
båtbyggeren	2	1	0.002	0.5	2.724
biskopen	2	1	0.002	0.5	2.724
danseren	2	1	0.002	0.5	2.724
tjenestepika	2	1	0.002	0.5	2.724
treåringen	2	1	0.002	0.5	2.724
klassevenninna	2	1	0.002	0.5	2.724
nabodama	2	1	0.002	0.5	2.724
befalingsmannen	3	1	0.003	0.333	2.548
femåringen	3	1	0.003	0.333	2.548
føreren	3	1	0.003	0.333	2.548
franskmannen	3	1	0.003	0.333	2.548
kavaleren	3	1	0.003	0.333	2.548
kommentatoren	3	1	0.003	0.333	2.548
parkeringsvakten	3	1	0.003	0.333	2.548
kameraten	84	2	0.079	0.024	2.531
ektemannen	4	1	0.004	0.25	2.423
kjørekaren	4	1	0.004	0.25	2.423
organisten	4	1	0.004	0.25	2.423
sakføreren	4	1	0.004	0.25	2.423
sjømannen	5	1	0.005	0.2	2.326

forfatteren	5	1	0.005	0.2	2.326
drosjesjåføren	6	1	0.006	0.167	2.247
trettenåringen	6	1	0.006	0.167	2.247
kjempekaren	6	1	0.006	0.167	2.247
vaskeren	7	1	0.007	0.143	2.181
madamen	7	1	0.007	0.143	2.181
norsken	7	1	0.007	0.143	2.181
politimesteren	8	1	0.008	0.125	2.123
bestyreren	10	1	0.009	0.1	2.026
selgeren	10	1	0.009	0.1	2.026
frisøren	10	1	0.009	0.1	2.026
polakken	10	1	0.009	0.1	2.026
guiden	15	1	0.014	0.067	1.851
sjåføren	17	1	0.016	0.059	1.797
utlendingen	18	1	0.017	0.056	1.773
kjæresteen	18	1	0.017	0.056	1.773
kollegan	18	1	0.017	0.056	1.773
frøken	19	1	0.018	0.053	1.749
kjendisen	20	1	0.019	0.05	1.727
russeren	21	1	0.02	0.048	1.706
vaktmesteren	22	1	0.021	0.045	1.686
smeden	23	1	0.022	0.043	1.667
gamlingen	25	1	0.024	0.04	1.631
rektoren	29	1	0.027	0.034	1.568
lærerinna	49	1	0.046	0.02	1.344
sjefen	50	1	0.047	0.02	1.336
samen	52	1	0.049	0.019	1.319
doktoren	62	1	0.059	0.016	1.245
snekkeren	64	1	0.06	0.016	1.231
svensken	64	1	0.06	0.016	1.231
guttungen	74	1	0.07	0.014	1.17
bonden	108	1	0.102	0.009	1.013

typen	151	1	0.143	0.007	0.876
samisken	259	1	0.245	0.004	0.663
vennen	270	1	0.255	0.004	0.647

5. The frequency of Tromsø_03gm's use of *den* and *han*

	tromsoe_04gk		*kb*	
	raw	*χ^2- residual*	*raw*	*χ^2- residual*
den_det	17	0.33	13	−0.35
han_det	32	2.42	8	−2.54
den_pn	9	−1.58	20	1.66
han_pn	55	−0.79	62	0.83

6. The frequency of Tromsø_03gm's use of *den* and *han* is pronouns or determiners with human or non-human reference

	den		*han*		*Total*
	pronoun	*determiner*	*pronoun*	*determiner*	
human	0	0	97	40	137
animal	0	0	9	0	9
object	25	30	9	0	64
total	25	30	115	40	210

DECLARATION OF ACADEMIC HONESTY

Ich versichere hiermit, dass ich die vorliegende Dissertation selbst angefertigt habe. Alle von mir verwendeten Hilfsmittel und Quellen sowie unterstützende Personen sind in der Arbeit angegeben. Alle Textabschnitte fremder Autoren sind als solche kenntlich gemacht. Die Hilfe eines Promotionsberaters wurde nicht in Anspruch genommen; Dritte haben weder unmittelbar noch mittelbar geldwerte Leistungen von mir für Arbeiten, die im Zusammenhang mit dem Inhalt der vorgelegten Dissertation stehen, erhalten. Ich versichere weiterhin, dass die Dissertation noch nicht als Prüfungsarbeit für eine wissenschaftliche Prüfung eingereicht wurde. Weder wurde eine gleiche, eine in wesentlichen Teilen ähnliche oder eine andere Abhandlung bei einer anderen Hochschule als Dissertation eingereicht. Die geltende Promotionsordnung der Friedrich-Schiller-Universität Jena ist mir bekannt.

Jena,

B.T.M. Bloom