

Case competition in headless relatives

Fenna Bergsma

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List of abbreviations

1	first person
3	third person
ABS	absolute
ACC	accusative
AN	animate
AUX	auxiliary
COMP	complementizer
DAT	dative
DEF	definite
ERG	ergative
EXT	external case
F	feminine
GEN	genitive
INAN	inanimate
INT	internal case
M	masculine
MG	Modern German
N	neuter
NOM	nominative
OBJ	object

OHG	Old High German
OPT	optative
PASS	passive
PL	plural
PRES	present tense
PRET	preterite
PROG	progressive
PTCP	participle
REL	relative
SG	singular
SUBJ	subject

Chapter 1

Introduction

This dissertation is about case competition, a situation in which two cases are assigned but only one of them surfaces. One of the constructions in which case competition appears is relative clauses that lack a head, i.e. headless relatives.

In this introduction I first introduce what I mean exactly with case competition in headless relatives. Then I introduce the topics I discuss in this dissertation.

1.1 Introducing the title

Languages can use case to mark the grammatical role of a noun phrase in a clause (cf. Moravcsik, 2009). Consider the two Modern German sentences in (1). What can descriptively be called the subject of the predicate *mögen* ‘to like’ is marked as nominative. What can be described as the object of *mögen* ‘to like’ is marked as accusative. The case marking of the noun phrases is reflected on the determiner in the noun phrase. In (1a), *der* in *der Lehrer* ‘the teacher’ appears in nominative case, because it is the descriptive subject in the clause. *Den* in *den Schüler* ‘the pupil’ appears in accusative case, because it is a descriptive object of *mögen* ‘to like’. In (1b), the grammatical roles are reversed: *der* in *der Schüler* ‘the pupil’ appears in nominative case, because it is the descriptive subject in the clause. *Den* in *den Lehrer* ‘the teacher’ appears in accusative case, because it is the descriptive object of *mögen* ‘to like’.

- (1) a. Der Lehrer mag den Schüler.
 the.NOM teacher likes the.ACC student
 ‘The teacher likes the pupil.’
 b. Der Schüler mag den Lehrer.
 the.NOM student likes the.ACC teacher
 ‘The pupil likes the teacher.’

Not only full noun phrases, but also other elements can be marked for case, such as relative pronouns. Modern German marks relative pronouns, just like full noun phrases, for the grammatical role they have in the clause. Consider the two sentences in (2). These two sentences both contain a main clause that is modified by a relative clause. In (2a), the relative clause *der nach draußen guckt* ‘that looks outside’ modifies *den Schüler* ‘the pupil’. *Schüler* ‘pupil’ is called the head (noun) or the antecedent of the relative clause. *Den* in *den Schüler* ‘the pupil’ appears in accusative case, because it is the descriptive object of *mögen* ‘to like’ in the main clause. The relative pronoun *der* ‘REL.NOM.SG.M’ appears in nominative case, because it is the descriptive subject of *mögen* ‘to like’ in the relative clause.

In (2b), the relative clause *den er beim Verstecktspiel sucht* ‘that he is searching for playing hide-and-seek’ modifies *den Schüler* ‘the pupil’. *Den* in *den Schüler* ‘the pupil’ appears again in accusative, because it is the descriptive object of *mögen* ‘to like’ in the main clause. The relative pronoun *den* ‘REL.ACC.SG.M’ appears in accusative case, because it is the descriptive object of *suchen* ‘to search’ in the relative clause.

- (2) a. Der Lehrer mag den Schüler, der nach draußen
 the.NOM teacher likes the.ACC student REL.NOM.SG.M to outside
 guckt.
 looks
 ‘The teacher likes the pupil that is looking outside.’
 b. Der Lehrer mag den Schüler, den er beim
 the.NOM teacher likes the.ACC student REL.ACC.SG.M he at the

Versteckspiel sucht.
 hide-and-seek game searches
 ‘The teacher likes the pupil that he is searching for playing hide-and-seek.’

Compare the two sentences in (2). In both sentences the head is marked as accusative because it is the descriptive object in the main clause. The case of the relative pronoun in (2b) is also accusative, because it is the descriptive object in the relative clause. The case of the relative pronoun in (2a) is nominative, because it is the descriptive subject in the relative clause. So, the case of the relative pronoun in (2a) differs from the case of the head.

The focus of this dissertation lies on headless relatives. As the name suggests, this type of relative clause lacks a head.¹ Even though Modern German also has case competition in headless relatives, I turn to Gothic now. The patterns among the two languages differ slightly, and the first part of the dissertation can be illustrated best with Gothic.

I give an example of a headless relative in Gothic in (3). There is no head that this relative clause modifies, because it is a headless relative. This is different from the examples from German I gave above, which each had a head. The predicate *arman* ‘to pity’ takes accusative objects, as indicated by the subscript on the gloss of the verb. The predicate *gaarman* ‘to pity’ also takes accusative objects, indicated again by the subscript. The relative pronoun *þan(a)* ‘REL.ACC.SG.M’ appears in accusative case.²

- (3) gaarma þan -ei arma
 pity.PRES.1SG_[ACC] REL.ACC.SG.M -COMP pity.PRES.1SG_[ACC]
 ‘I pity him whom I pity’

¹This ‘missing noun’ has been interpreted in two different ways. Some researchers argue that the noun is truly missing, it is absent, cf. Citko 2005; Van Riemsdijk 2006. Others claim that there is actually a head, but it is phonologically zero, Bresnan and Grimshaw 1978; Groos and van Riemsdijk 1981; Grosu 2003. At this point in the discussion this distinction is not relevant. I return to the issue in Chapter 5.

²The relative pronoun without the complementizer *-ei* is *þana*. Therefore, I refer to the relative pronoun as *þan(a)*.

(Gothic, Rom. 9:15, adapted from Harbert 1978: 339)

Where does this accusative case come from? Logically speaking, there are two possible sources: the predicate in the main clause *gaarman* ‘to pity’, the predicate in the relative clause *arman* ‘to pity’. From now on, I use the terms internal and external case to refer to these two possible case sources. Now there are three logical possibilities for the source of the accusative case on *þan(a)* ‘REL.ACC.SG.M’ in (3): the internal case, the external case, or both.

Internal case refers to the case associated with the relative pronoun internal to the relative clause. More precisely, it is the case, which is associated with the grammatical role that the relative pronoun has internal to the relative clause. In (3), the relative pronoun is the descriptive object of *arman* ‘to pity’. The predicate *arman* ‘to pity’ takes accusative objects. So, the internal case is accusative.

External case refers to the case associated with the missing head in the main clause, which is external to the relative clause. Concretely, it is the case which is associated with the grammatical role that the missing head has external to the relative clause. In (3), the missing head is the descriptive object of *gaarman* ‘to pity’. The predicate *gaarman* ‘to pity’ takes accusative objects. In (3), the external case is accusative.

Now I return to the question where *þan(a)* ‘REL.ACC.SG.M’ in (3) got its case from. In the remainder of this section I show evidence for the claim that the relative pronoun is sensitive to both the internal and the external case. This is easy to imagine for the internal case: the internal case reflects the grammatical role of the relative clause. It is a bit more complicated for the external case. The external case is associated with the grammatical role of the missing head in the main clause. The idea is going to be that the external case cannot be reflected on a non-existing head. Indirectly, it appears on the relative pronoun.³ This means that the internal and external case come together on the relative pronoun. In other words, there is case competition going on in headless relatives. (3) is indeed the first example I gave of case competition in a headless relative. It is an uninteresting one, because the two competing cases are identical.

Consider the example in (4), in which the internal case is accusative and the

³Later on I will argue that this indirect process is actually a deletion operation.

external case is nominative. The internal case is accusative. The predicate *frijon* ‘to love’ takes accusative objects, as indicated by the subscript on the predicate. The external case is accusative. The predicate *wisan* ‘to be’ takes nominative subjects, indicated by the subscript on the predicate. The relative pronoun *pan(a)* ‘REL.ACC.SG.M’ appears in accusative. This accusative can only come from the predicate *frijon* ‘to love’, which is the internal case here. The relative pronoun is marked in bold, just as the relative clause, showing that the relative pronoun patterns with the relative clause.

- (4) **pan -ei frijos** siuks ist
REL.ACC.SG.M -COMP love.PRES.2SG._[ACC] sick be.PRES.3SG_[NOM]
'the one whom you love is sick'
(Gothic, John 11:3, adapted from Harbert 1978: 342)

The conclusion that follows is that the relative pronoun can take the internal case. At this point it remains unclear what happened to the external nominative case.

Now consider the example in (5), in which the internal case is nominative and the external case is accusative. The internal case is nominative. The predicate *wisan* ‘to be’ takes nominative subjects, as indicated by the subscript on the predicate. The external case is accusative. The predicate *ussiggwan* ‘to read’ takes accusative objects, as indicated by the subscript on the predicate. The relative pronoun *þo* ‘REL.ACC.SG.N’ appears in the accusative case. This accusative can only come from the predicate *ussiggwan* ‘to read’, which is the external case here. The relative pronoun is not marked in bold, just like as the main clause, showing that the relative pronoun patterns with the main clause.

- (5) jah þo -ei ist us Laudeikaion jus
and REL.ACC.SG.N -COMP be.PRES.3SG_[NOM] from Laodicea you.PL
ussiggwaid
read.?._[ACC]
'and you read the one which is from Laodicea'
(Gothic, Col. 4:16, adapted from Harbert 1978: 357)

The conclusion that follows is that the relative pronoun can take the external case.

At this point it remains unclear what happened to the internal nominative case.

The examples in (4) and (5) have shown that the relative pronoun in headless relatives can take either the internal or the external case. In the examples, the predicates take nominative and accusative, and in both cases, the relative pronoun appeared in accusative case. In other words, there was a competition between nominative and accusative, and accusative won.

In the next section, I discuss the content of this dissertation. Before that, I comment on two notational conventions I use throughout this dissertation. First, I place subscripts on the glosses of the predicates. They indicate what the internal or external case is. The subscript on the predicate in the relative clause indicates the internal case. The subscript on the predicate in the main clause indicates the external case. This subscript can mean different things. For *frijon* ‘to love’ in (4) the subscript indicates which case the complement of the verb appears in. The subscript on *wisan* ‘to be’ in (4) refers to the case the descriptive subject appears in. A subscript can also refer to the case of the indirect object of a predicate, a possibility that arises in the next chapter. In other words, the subscript can refer several elements: a subject, direct object or indirect object of a predicate. There is no overarching theoretical notion that the subscript makes reference to. The subscript simply indicates which case is required within the (main or relative) clause.

Second, I write the relative clause in bold. When the relative pronoun takes the internal case, I mark it in bold as well, as shown in (4). When the relative pronoun takes the external case, I leave it black, indicating it patterns with the main clause. An example of that is (5).

1.2 The content of this dissertation

In the previous section I introduced the notion of case competition, and I illustrated how it appears in headless relatives. This dissertation discusses two question regarding this phenomenon. The first one is which case is going to win the case competition, i.e. which case surfaces. I discuss this in Part I. The second question is whether both competitors are able to compete in the competition, i.e. whether one of the cases is surfacing or both are ungrammatical. I discuss this in Part II. For

both I will show that morphology is leading. What we observe in syntax is a reflex of the morphology.

Part I

The case facts

Chapter 2

A recurring pattern

This chapter introduces the pattern that forms the focus of the first part of the dissertation. In Section 2.1 I show that case competition in headless relatives adheres to the case scale in (1).

- (1) $\text{NOM} < \text{ACC} < \text{DAT}$

Then I show that this pattern is not unique to headless relatives. It appears in more syntactic and morphological phenomena. Section 2.2 discusses two implicational hierarchies that show the same case ordering. The hierarchies concern agreement and relativization across languages. Section 2.3 shows that the case scale also appears in morphological patterns. It can be observed in patterns of syncretism and in morphological containment.

2.1 In headless relatives

As the name suggests, headless relatives are relative clauses that lack an (overt) head. The internal case, the case from the relative clause, and the external case, the case from the main clause, compete to surface on the relative pronoun. It has been argued in the literature that the two competing cases always adhere to a particular case scale (cf. Harbert, 1978; Pittner, 1995; Vogel, 2001; Grosu, 2003; Bergsma, 2019; Caha, 2019). This is the scale I gave in the introduction, repeated here in (2).

Elements more to the right on this scale win over elements more to the left on this scale.¹

(2) NOM < ACC < DAT

This can be reformulated as follows. In a competition, accusative wins over nominative, dative wins over nominative, and dative wins over accusative. In this section I illustrate this scale with examples. When two cases compete, the relative pronoun always appears in the case more to the right on the case scale. It does not matter whether it is the internal or the external case. I illustrate this with examples from headless relatives in Gothic.

The description of Gothic is mostly based on (Harbert, 1978). The spelling of the examples follows the Wulfila Project website.² The glossing comes from the detailed tagging on that same website. The translations are my own.

I start with the competition between accusative and nominative. Following the case scale in (2), the relative pronoun appears in accusative case and never in nominative.

Consider the example in (3), repeated from the introduction. In this example, the internal case is accusative and the external case is nominative. The internal case is accusative. The predicate *frijon* ‘to love’ takes accusative objects. The external case is nominative. The predicate *wisan* ‘to be’ takes nominative subjects. The relative pronoun *þan(a)* ‘REL.ACC.SG.M’ appears in the internal case: the accusative. The relative pronoun is marked in bold, just like as the relative clause, showing that the relative pronoun patterns with the relative clause. Examples in which the internal case is accusative, the external case is nominative and the relative pronoun appears in nominative case are unattested.

¹In the literature about headless relatives, the genitive is often discussed together with the nominative, accusative and dative (cf. Harbert, 1978; Pittner, 1995). In this dissertation I do not discuss the genitive. The reason is that I restrict myself to cases that appear in all possible case competition combinations. As the genitive does not fulfill that requirement, it is therefore excluded. In Chapter 9 I briefly return to the issue.

²<<http://www.wulfila.be>>

- (3) **pan** **-ei** **frijos** siuks ist
 REL.ACC.SG.M -COMP love.PRES.2SG._[ACC] sick be.PRES.3SG_[NOM]
 ‘the one whom you love is sick’
 (Gothic, John 11:3, adapted from Harbert 1978: 342)

Consider the example in (4), repeated from the introduction. In this example, the internal case is nominative and the external case is accusative. The internal case is nominative. The predicate *wisan* ‘to be’ takes nominative subjects. The external case is accusative. The predicate *ussiggwan* ‘to read’ takes accusative objects. The relative pronoun *þo* ‘REL.ACC.SG.N’ appears in the external case: the accusative. The relative pronoun is not marked in bold, just like as the main clause, showing that the relative pronoun patterns with the main clause. Examples in which the internal case is nominative, the external case is accusative and the relative pronoun appears in nominative case are unattested.

- (4) jah þo **-ei** **ist** **us** **Laudeikaion** jus
 and REL.ACC.SG.N -COMP be.PRES.3SG_[NOM] from Laodicea you.PL
 ussiggwaid
 read.?_[ACC]
 ‘and you read the one which is from Laodicea’
 (Gothic, Col. 4:16, adapted from Harbert 1978: 357)

I continue with the competition between dative and nominative. Following the case scale in (2), the relative pronoun appears in dative case and never in nominative.

Consider the example in (5), in which the internal case is dative and the external case is nominative. The internal case is dative. The predicate *fraletan* ‘to forgive’ takes dative objects. The external case is nominative. The predicate *frijon* ‘to love’ takes nominative subjects. The relative pronoun *þamm(a)* ‘REL.DAT.SG.M’ appears in the internal case: the dative. The relative pronoun is marked in bold, just as the relative clause, showing that the relative pronoun patterns with the relative clause. Examples in which the internal case is dative, the external case is nominative and the relative pronoun appears in nominative case are unattested.

- Consider the example in (7), in which the internal case is dative and the external case is accusative. The internal case is dative. The preposition *ana* ‘on’ takes dative

complements.^{3,4} The external case is accusative. The predicate *ushaffan* ‘to pick up’ takes accusative objects. The relative pronoun *ḥamm(a)* ‘REL.DAT.SG.N’ appears in the internal case: the dative. The relative pronoun is marked in bold, just like as the relative clause, showing that the relative pronoun patterns with the relative clause. Examples in which the internal case is dative, the external case is accusative and the relative pronoun appears in accusative case are unattested.

- (7) ushafjands **ana** **þamm** **-ei** **lag**
pick up.PRES.PTCP_[ACC] on_[DAT] REL.DAT.SG.N -COMP lie.PRET.3SG
‘picking up that what he lay on’
(Gothic, Luke 5:25, adapted from Harbert 1978: 343)

Consider the example in (8), in which the internal case is accusative and the external case is dative. The internal case is accusative. The predicate *insandjan* ‘to send’ takes accusative objects. The external case is dative. The predicate *galaubjan* ‘to believe’

³The example in (7) differs from the other examples of headless relatives. In this example, it is a preposition that assigns a particular case to the relative pronoun. So far, I have only given examples in which it is a verbal predicate that assigns a case to the relative pronoun (or the absent head). The reason for that is to keep the data set as homogenous as possible. Harbert (1978) reports there is no such example with the dative as internal case and the accusative as external case. My own research reaches the same conclusion. The absence of a headless relative with an internal dative case and an external accusative case (both assigned by verbal predicates) is not surprising, mainly for two reasons. First, the headless relative construction is infrequent to begin with. Harbert reports of some case competition combinations only a single or a few occurrences. Second, Gothic only has a few verbs that take dative complements.

There is reason to believe that this missing occurrence is due to the above mentioned reasons rather than a meaningful gap in the paradigm. Datives often appear after prepositions. There are instances in which the internal dative case is assigned by a preposition and the external accusative case is assigned by a verbal predicate. In each of these instances, the relative pronoun surfaces in the internal dative case and not in the external accusative case (as in (7)). For the other way around holds the same: with an accusative internal case assigned by a verbal predicate and a dative external predicate assigned by a preposition, the relative pronoun surfaces in the dative and not in the accusative. Therefore, the system that I set up later in this dissertation is able to generate the dative as internal case and accusative as external case which are both assigned by verbal predicates.

⁴*Ana* 'on' takes dative complements when the PP is interpreted as locational. *Ana* 'on' takes accusative complements when the PP is interpreted as directional. *Ana pammei* 'on that' in (7) refers to a location.

takes dative objects. The relative pronoun *þamm(a)* ‘REL.DAT.SG.M’ appears in the external case: the dative. The relative pronoun is not marked in bold, just like as the main clause, showing that the relative pronoun patterns with the main clause. Examples in which the internal case is accusative, the external case is dative and the relative pronoun appears in accusative case are unattested.

- (8) *ei* *galaubjaiþ* *þamm* **-ei** **insandida**
 that believe.OPT.PRES.2PL_[DAT] REL.DAT.SG.M -COMP send.PRET.3SG_[ACC]
 jains
 DEM.NOM.3SG.M
 ‘that you believe in him whom he sent’ (Gothic, John 6:29)

A summary of the Gothic data as a whole is given in Table 2.1. The left column shows the internal case between square brackets. The upper row shows the external case between square brackets. The other cells indicate the case of the relative pronoun. The diagonal is left blank, because these are instances in which the internal and external case match. The remaining six cells show instances where the internal and external case differ. Within the cells, two cases are given. The case in the lower left corner stands for the relative pronoun in the internal case. The case in the upper right corner stands for the relative pronoun in the external case. The grammatical examples are marked in gray. The unattested examples are marked with an asterix and are unmarked.⁵

⁵Throughout this dissertation * stands for ‘not found in natural language’. For extinct languages this means that there are no attested examples. For modern languages it means that the examples are ungrammatical.

Table 2.1: Summary Gothic headless relatives

^{EXT} INT	[NOM]	[ACC]	[DAT]
[NOM]		ACC *NOM	DAT *NOM
[ACC]	*NOM ACC		DAT *ACC
[DAT]	*NOM DAT	*ACC (DAT)	

Table 2.1 can be simplified a step further as Figure 2.2. The data can be divided into two set: a set of three instances in the lower left corner and a set of three instances in the upper right corner. In the three instances in the lower left corner, the relative pronoun appears in the internal case. They correspond to the examples (4), (5) and (8). In the three instances in the upper right corner, the relative pronoun appears in the external case. They correspond to the examples in (5), (6) and (7).

Table 2.2: Simplified summary Gothic headless relatives

^{EXT} INT	[NOM]	[ACC]	[DAT]
[NOM]		ACC	DAT
[ACC]	ACC		DAT
[DAT]	DAT	(DAT)	

To sum up, case competition in headless relative is subject to the case scale, repeated in (9).

- (9) NOM < ACC < DAT

If two cases compete, dative wins over accusative and nominative, and accusative wins over nominative. In this section I gave examples from Gothic that illustrate this. As I mentioned in the introduction of this section, this case scale is not specific for Gothic, but it holds across languages (cf. see Pittner 1995 for Modern, Middle High and Old High German, Grosu 2003 for Ancient Greek and Daskalaki 2011 for Modern Greek).⁶

In the remainder of this chapter I show that headless relatives are not the only place where the case scale appears. Instead, it appears with more syntactic phenomena. Moreover, exactly this scale is also reflected in morphology.

2.2 In syntax

In this section I discuss two additional syntactic phenomena that reflect the $\text{NOM} < \text{ACC} < \text{DAT}$ scale. The first one is an implicational hierarchy that concerns agreement. The second one is an implicational hierarchy about relativization.

2.2.1 Agreement

Agreement can be seen as “a systematic covariance between a semantic or formal property of one element and a formal property of another” (Steel, 1978). Put differently, the shape of one element changes according to some properties of an element it relates to. In this section I discuss the agreement between a predicate and its arguments.

It differs per language with how many of its arguments a predicate agrees. However, it is not random with which agreement takes place. Instead, there is an implicational hierarchy that is identical to the one observed for headless relatives: $\text{NOM} < \text{ACC} < \text{DAT}$. First I formulate the implicational hierarchy in terms of grammatical

⁶Some of these languages differ from Gothic in that they are subject to an additional constraint. That is, they not allow both the internal or the external case to win case competitions. If the other case is more to the right on the case scale (9), the result is ungrammatical. Modern German is an example of a language that only allows the internal case to win the case competition. If the external case is more to the right on the case scale, the headless relative is ungrammatical. This topic is the main focus of Part II of this dissertation.

function (following Moravcsik 1978). Later I show that a reformulation in terms of case is actually more accurate (following Bobaljik 2006).

Moravcsik (1978) formulated the implicational hierarchy in terms of grammatical functions subject, direct object and indirect object.⁷ The hierarchy is schematically represented in Figure 2.1. It should be read as follows: if a language allows the predicate to agree with the argument in a particular circle, it also allows the predicate to agree with the argument in the circle around it.

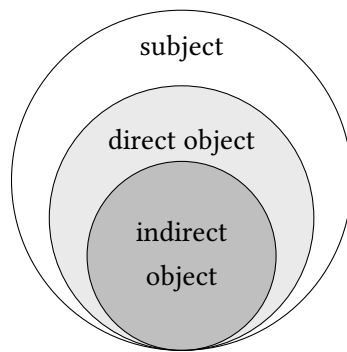


Figure 2.1: Agreement hierarchy

Then, there are four types of languages possible: first, a language that does not show any agreement; second, a language that shows agreement only with the subject and not with the direct and indirect object; third, a language that shows agreement with the subject and direct object but not with the indirect object; and fourth, a language that shows agreement with the subject, the direct object and the indirect object.

The implicational hierarchy holds for languages, not for sentences. That is, it is not the case that in a language of a particular type all instances of the grammatical function show agreement. To be more precise, in a language of the second type that only shows agreement with the subject, not all subjects have to show agreement. Particular types of subject, such as experiencer subjects often do not show any agreement.

⁷Moravcsik (1978) also included adverbs on the lowest end of the hierarchy. I leave them out here, because they are not relevant for the discussion.

Japanese is an example of a language that does not show any agreement on the predicate. An example is given in (10). The predicate *okutta* ‘sent’ does not agree with the subject *Tarooga* ‘Taro’, with the direct object *nimotuo* ‘package’ or with the indirect object *Hanakoni* ‘Hanako’.

- (10) Taroo-ga Hanako-ni nimotu-o okutta.
 Taro-NOM Hanako-DAT package-ACC sent
 ‘Taro sent Hanako a package.’ (Japanese, Miyagawa and Tsujioka 2004: 5)

German is an example of a language that shows agreement with the subject of the clause. An example is given in (11). The predicate *gibst* ‘give’ contains the morpheme *-st*, marked in bold. This morpheme is the agreement morpheme for second person singular subjects (in the present tense). The predicate *gibst* ‘give’ agrees in person and number with the subject *du* ‘you’. There is no agreement with the direct object *das Buch* ‘the book’ or the indirect object *mir* ‘me’.

- (11) Du gib **-st** mir das Buch.
 you.NOM give -PRES.2SG I.DAT the book.ACC
 ‘You give me the book.’ (German)

Hungarian is an example of a language that shows agreement with the subject and the direct object of a clause. An example is given in (12). The predicate *adom* ‘give’ contains the morpheme *-om*, marked in bold. This is a portmanteau morpheme for a first person singular subject and a third person object agreement. The predicate *adom* ‘give’ agrees with the subject *én* ‘I’ and the direct object *a könyvet* ‘the book’. There is no agreement with the indirect object *neked* ‘you’. Agreement with the first person singular subject *én* ‘I’ and second person singular indirect object *neked* ‘you.DAT.SG’ is ungrammatical, as indicated by the ungrammaticality of *-lak*.

- (12) (Én) neked ad **-om** **-lak* a könyv-et
 I you.DAT give -1SG.SUBJ>3.OBJ -1SG.SUBJ>2.OBJ the book-ACC
 ‘I give you the book.’ (Hungarian, András Bárány p.c.)

Basque is an example of a language that shows agreement with the subject, the direct object and the indirect object. Basque is an ergative-absolutive language,

so in transitive clauses subjects are marked as ergative and objects are marked as absolutive. An example from the Bizkaian dialect is given in (13). The stem of the auxiliary *aus* combines with the morphemes *d-*, *-ta* and *-zu*, marked in bold. The morpheme *d-* is the agreement morpheme for third person singular as direct objects, which is here *liburua* ‘the book’. The morpheme *-ta* is the agreement morpheme for first person singular indirect objects, which is here *niri* ‘me’. The morpheme *-zu* is the agreement morpheme for second person singular ergative subjects, which is here *zuk* ‘you’.

- (13) Zu-k ni-ri liburu-a emon **d** -aus **-ta** **-zu**.
 you-ERG I-DAT book-DEF.ABS given ABS.3SG -AUX -DAT.1SG -ERG.2SG
 ‘You gave me the book.’

(Bizkaian Basque, adapted from Arregi and Molina-Azaola 2004: 45)

Putting the languages in Moravcsik’s (1978) schema gives the result as shown in Figure 2.2.

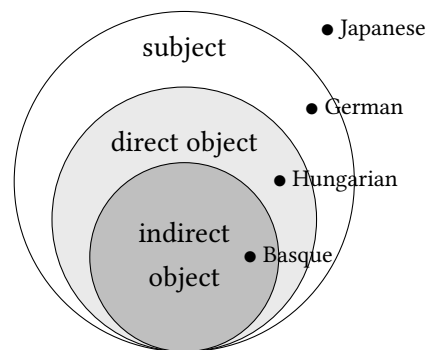


Figure 2.2: Agreement hierarchy with languages

Gilligan (1987) performed a typological study among 100 genetically and areally diverse languages, which confirms the picture. The results are shown in Table 2.3. There are 23 languages that do not show any agreement, like Japanese. There are 31 languages that show agreement only with the subject and not with the direct and indirect object, like German. There are 25 languages that show agreement with the subject and direct object but not with the indirect object, like Hungarian. There

are 23 languages that show agreement with the subject, the direct object and the indirect object, like Basque.

Table 2.3: Typological picture for agreement hierarchy (Gilligan, 1987)

agreement with			number of languages	example
subject	direct object	indirect object		
*	*	*	23	Japanese
✓	*	*	31	German
✓	✓	*	25	Hungarian
✓	✓	✓	23	Basque
✓	*	✓	(1)	-
*	✓	✓	0	-
*	X	*	0	-
*	*	✓	0	-

So far I have discussed the implicational hierarchy in terms of grammatical function. In what follows, I discuss how it actually should be formalized in terms of the case scale that has also been observed for case competition in headless relatives.

Bobaljik (2006) argues that the implicational hierarchy is more accurate if it is stated in terms of case rather than grammatical function. In these situations, case seem to capture the facts for the implicational hierarchy, and grammatical function does not. It is often the case that subjects appear in nominative case, and that direct objects appear in accusative. However, this is not always the case. Subjects can be non-nominative and direct objects can be non-accusative. Bobaljik gives examples of two types of situations in which this is the case: non-nominative subjects in Icelandic and ergative-absolutive languages. In these situations, case seem to capture the facts for the implicational hierarchy, and grammatical function does not. I go through both situations Bobaljik describes.

(14) *Morgum studentum líka verkið.
 many students.DAT like.PL job.NOM
 ‘Many students like the job.’ (Harley 1995: 208)

(15) Um veturinn voru konunginum gefnar ambáttir
In the.winter were.PL the.king.DAT given slaves.NOM
'In the winter, the king was given (female) slaves.'
(Zaenen, Maling, and Thráinsson 1985: 112)

In ergative-absolutive languages, the alignment is different. The subject of an intransitive verb (S) has the same marking as the object of the transitive verb (O), namely absolutive. The subject of the transitive verb (A) has its own marking,

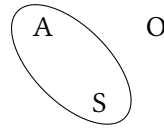


Figure 2.3: Nominative-accusative alignment

namely ergative. This is schematically shown in 2.4.



Figure 2.4: Ergative-absolutive alignment

Note here that nominative-accusative languages use the same case marking for the same grammatical function (nominative for subjects, accusative for objects), but ergative-absolutive languages do not (absolutive for objects in transitive clauses or subjects in intransitive clauses, ergative for subjects in transitive clauses).

Bobaljik (2006) describes how absolutes and ergatives behave with respect to whether they show agreement. There are languages that show agreement with both absolutes and ergatives. There are also languages that show only agreement with absolutes. Crucially, there is no language that shows only agreement with ergatives. Absolutes are a heterogeneous set with respect to grammatical function, i.e. they are subjects of intransitive verbs and objects of transitive verbs. However, with respect to showing agreement absolutes behave the same, and this behavior is different from ergatives. This indicates that it is morphological case and not grammatical function that is the decisive factor.

Bobaljik (following Marantz 2000) combines nominative-accusative and ergative-absolutive languages in the following way: accusative and ergative are dependent cases, and nominative or absolutive are unmarked case. Reformulating Figure 2.2 in terms of case instead of grammatical function gives the schema in Figure 2.5.

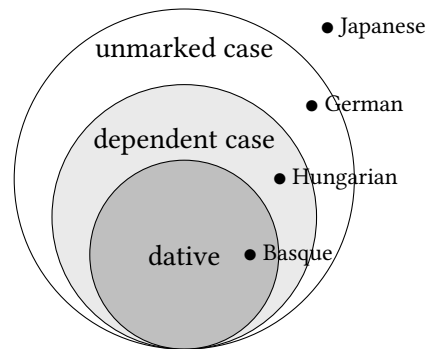


Figure 2.5: Agreement hierarchy (case)

This formulation in terms of case rather than grammatical function works as follows for the examples I gave earlier. First, Japanese is a language that does not show any agreement, as shown in (10). There is no agreement with the unmarked case (here the nominative), not with the dependent case (here the accusative) and not with the dative case. Second, German is a language that shows agreement only with the unmarked case, as shown in (11). The morpheme *-st* on the predicate agrees with the element in unmarked nominative case *du* ‘you’. There is no agreement with the dependent accusative case or with the dative case. Third, Hungarian is a language that shows agreement with the unmarked and the dependent case, as shown in (12). The portmanteau morpheme *-om* on the predicates agrees with the element in unmarked nominative case *én* ‘I’ and the element in dependent accusative case *a könyvet* ‘the book’. Last, Basque is a language that shows agreement with the unmarked, the dependent and the dative case, as shown in (13). The morpheme *-zu* on the auxiliary agrees with the element in dependent ergative case *zuk* ‘you’. The morpheme *d-* on the auxiliary agrees with the element in unmarked absolutive case *liburua* ‘the book’. The morpheme *-ta* on the auxiliary agrees with the element in dative case *niri* ‘me’.

In the languages I discuss in this dissertation, I focus on languages that have nominative as unmarked case and accusative as dependent case, so Figure (15) suffices.

In sum, this section has shown that agreement follows the same implicational hierarchy as the case scale in headless relatives: NOM < ACC < DAT.

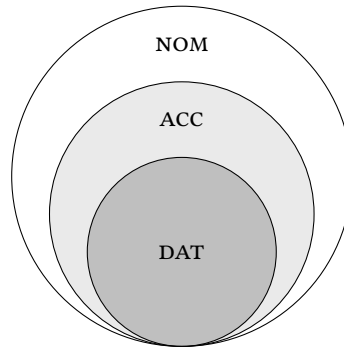


Figure 2.6: Agreement hierarchy (NOM/ACC/DAT)

2.2.2 Relativization

Relativization refers to the process in which a relative clause is derived from a non-relative clause. An example of the non-relative clause is given in (16a). The relative clause derived from that is shown in (16b). The head of the relative clause is *woman* and precedes the clause. The relative pronoun follows the head. The head of the head does not appear in the relative clause anymore.

- (16) a. You like the woman.
 b. **the woman**, who you like

In (16b), it is the object of the clause that is relativized. It differs per language which elements can be relativized with a particular strategy. Just like the distribution was not random for agreement, it is not random which elements can be relativized. Instead, there is an implicational hierarchy that is identical to the one observed for the case scale: $NOM < ACC < DAT$.

Keenan and Comrie (1977) formulated the implicational hierarchy in terms of the grammatical functions subject, direct object and indirect object.⁸ The implicational hierarchy is schematically represented in Figure 2.7. It should be read as follows: if a language allows a particular relativization strategy of the grammatical function in a particular circle, it also allows this relativization strategy of the gram-

⁸Keenan and Comrie (1977) also included obliques, possessives and objects of comparison on the lowest end of the hierarchy. I leave them out here, because they are not relevant for the discussion.

matical function of the circle around it. The languages in the figure give examples of the circles they are in.



Figure 2.7: Relativization hierarchy

There are four types of languages possible: first, a language that allows only the subject to be relativized with a particular strategy and not the direct and indirect object; second, a language that allows the subject and direct object to be relativized with a particular strategy but not the indirect object; and third, a language that allows the subject, the direct object and the indirect object to be relativized with a particular strategy.

Malagasy is an example of a language that allows subjects to be relativized using a particular strategy, but not direct and indirect objects. (17) is an example of a declarative sentence in Malagasy. It is a transitive sentence that contains the subject *ny mpianatra* ‘the student’ and the direct object *ny vehivavy* ‘the woman’.

- (17) Nahita ny vehivavy ny mpianatra.
 saw the woman the student
 ‘The student saw the woman.’ (Malagasy, Keenan and Comrie 1977: 70)

In (18), the subject from the declarative sentence, marked in bold, is relativized. The subject *ny mpianatra* ‘the student’ appears in the first position of the clause. It is followed by the invariable relativizer *izay* ‘that’. After that, the rest of the relative clause follows, in this case *nahita ny vehivavy* ‘saw the woman’.

- (18) **ny mpianatra** izay nahita ny vehivavy
 the student that saw the woman
 ‘the student that saw the woman’

(Malagasy, Keenan and Comrie 1977: 70, my boldfacing)

The object of (17) cannot be relativized in the same way, as shown in (19). Here the object *ny vehivavy* ‘the woman’, marked in bold, appears in the first position of the clause. It is again followed by the relativizer *izay* ‘that’ and the rest of the relative clause, which is here *nahita ny mpianatra* ‘saw the student’. This example is ungrammatical.

- (19) ***ny vehivavy** izay nahita ny mpianatra
 the woman that saw the student
 ‘the woman that the student saw’

(Malagasy, Keenan and Comrie 1977: 70, my boldfacing)

Later in this section I draw the parallel between subject and nominative, direct object and accusative and indirect object and dative (after Caha, 2009). As Malagasy does not have any overt morphological system, it does not hold that the subject corresponds to the nominative in this case. German is another example of a language that allows subjects to be relativized using a particular strategy, but not direct and indirect object. This strategy is the participle construction (Keenan and Comrie, 1977). This strategy is a secondary strategy that exist besides the main strategy that can be used to relativize direct and indirect objects. (20) is an example of a declarative sentence in German. It is a transitive sentence that contains the subject *die Frau* ‘the woman’ and the object *der Mann* ‘the man’.

- (20) Die Frau küsst den Mann.
 the woman kisses the man
 ‘The woman is kissing the man.’

(German)

The subject from the declarative in (20), sentence *die Frau* ‘the woman’, is relativized in (21). The predicate from the declarative clause *küsst* ‘kisses’ is turned in into the participle *küssende* ‘kissing’. The participle appears at the end of the reduced

Indirect objects cannot be relativized using the same strategy. (24) is an example of a ditransitive sentence in Malay. The indirect object *kapada perempuan itu* 'to the woman' cannot be relativized using *yang*.

- (24) Ali beri ubi kentang itu kapada perempuan itu.
 Ali give potato the to woman the
 ‘Ali gave the potato to the woman.’ (Malay, Keenan and Comrie 1977: 71)

This is illustrated by the examples in (25). In (25a), the direct object *perempuan kapada* ‘to the woman’, marked in bold, appears in the first position of the clause. It is followed by the relativizer *yang* ‘that’ and the rest of the relative clause *Ali beri ubi kentang itu kapada* ‘Ali gave the potato to’. This example is ungrammatical. The example in (25b) differs from (25a) in that the preposition *kapada* ‘to’ has been moved such that it precedes the relativizer *yang* ‘that’. This example is ungrammatical as well, indicating this was not the reason for the ungrammaticality.

- (25) a. ***perempuan** yang Ali beri ubi kentang itu kapada
 woman that Ali give potato the to
 b. ***perempuan kapada** yang Ali beri ubi kentang itu
 woman to who Ali give potato that
 (Malay, Keenan and Comrie 1977: 71, my boldfacing)

Later in this section I draw the parallel between subject and nominative, direct object and accusative and indirect object and dative (after Caha, 2009). As Malay does not have any overt morphological system, it does not hold that the subject corresponds to the nominative and the object to the accusative.

Finnish is another example of a language that allows subjects and direct objects to be relativized using a particular strategy, but not indirect objects. This strategy places the relative clause prenominal, does not use a relativization marker, and puts the predicate in the relative clause in the non-finite form (Keenan and Comrie, 1977).

(26) shows how examples of relativized subjects and direct objects. (26a) is an example of a subject relative: *poika* ‘boy’ has been relativized from the clause in which it was the subject of *tanssinut* ‘danced’. The head of the relative clause is *poika* ‘boy’, marked in bold, is preceded by the relative clause *pöydällä tanssinut* ‘who had danced on the table’. The predicate of the relative clause appears in the non-finite form: *tanssinut* ‘having danced’. (26b) is an example of a subject relative: *poika* ‘boy’ has been relativized from the clause in which it was the subject of *näkemäni*

(26) a. Pöydällä tanssinut **poika** oli sairas.
on-table having-danced boy was sick
'The boy who had danced on the table was sick.'

b. Näkemäni **poika** tanssi pöydällä.
I-having-seen boy danced on-table
'The boy that I saw danced on the table.'

(Finnish, Keenan and Comrie 1977: 71)

(27) Gizon-a-k emakume-a-ri liburu-a eman dio.
man-DEF-ERG woman-DEF-DAT book-DEF.ABS give has
'The man has given the book to the woman.'
(Basque, Keenan and Comrie 1977: 72)

¹⁰The absolutive direct object *liburua* ‘the book’ does not have an additional overt absolutive

The head *emakumea* ‘the man’, marked in bold, has lost its dative marker *-ri*, and follows the relative clause *gizonak liburua eman dio-n* ‘that the man has given the book to’. The suffix *-n* is attached to the relative clause.

- (28) a. emakume-a-ri liburua-a eman dio-n **gizon-a**
 woman-DEF-DAT book-DEF.ABS give has-REL man-DEF
 ‘the man who has given the book to the woman’
- b. gizon-a-k emakume-a-ri eman dio-n **liburu-a**
 man-DEF-ERG woman-DEF-DAT give has-REL book-DEF
 ‘the book that the man has given to the woman’
- c. gizon-a-k liburua-a eman dio-n **emakume-a**
 man-DEF-ERG book-DEF.ABS give has-REL woman-DEF
 ‘the woman that the man has given the book to’

(Basque, Keenan and Comrie 1977: 72, my boldfacing)



Figure 2.8: Relativization hierarchy with languages

Caha (2009) argues that the implicational hierarchy is more accurate if it is stated in terms of case rather than grammatical function. The main argument comes from ergative-absolutive languages, which was also one of Bobaljik’s (2006) argument with the implicational hierarchy for agreement.

According to Keenan and Comrie (1977), ergative-absolutive languages form a counterexample to their hierarchy. It turns out that in some languages ergative marker, so this difference cannot be observed when it is relativized.

subjects cannot be relativized, while absolutive subjects and absolutive objects can. This indicates that absolutive subjects and objects form a natural class to the exclusion of ergative subjects. In other words, it is not the grammatical function that is decisive, but morphological case. Dyirbal is an example of a language in which absolutive subjects and objects can be relativized, but ergative subjects cannot (Dixon 1972: 100).

(29) shows an intransitive and transitive sentence in Dyirbal. In the intransitive sentence in (29a), the subject *balan dugumbil* ‘the woman’ is marked absolutive. In the transitive sentence in (29b), the subject *naða* ‘I’ is marked ergative, and the object *balan dugumbil* ‘the woman’ is marked absolutive.

- (29) a. *balan dugumbil pina-nu*
 DET.ABS woman.ABS sit-PASS
 ‘The woman is sitting down.’
 b. *naða balan dugumbil buṛa-n*
 I.ERG DET.ABS woman.ABS see-PRES/PAST
 ‘I am watching the woman.’ (Dyirbal, Dixon 1972: 100, my boldfacing)

A relative clause in Dyirbal follows its head, and marks the predicate of the relative clause with the relative suffix *-nu*. In (30a), the absolutive subject *dugumbil* ‘woman’ from (29a) is relativized. The head *dugumbil* ‘woman’, marked in bold, precedes the relative clause *pina-nu* ‘who is sitting down’. The predicate in the relative clause *pina* ‘sit’ is followed by the relative suffix *-nu*. In (30b), the absolutive object *dugumbil* ‘woman’ from (29b) is relativized. The head *dugumbil* ‘woman’, marked in bold, precedes the relative clause *naða buṛa-nu* ‘whom I am watching’. The predicate in the relative clause *buṛa* ‘see’ is followed by the relative suffix *-nu*.

- (30) a. *naða balan **dugumbil** pina-nu buṛa-n*
 I.ERG DET.ABS woman.ABS sit-REL see-PRES/PAST
 ‘I am watching the woman who is sitting down.’
 (Dyirbal, Dixon 1972: 100, my boldfacing)
 b. *balan **dugumbil** naða buṛa-nu pina-nu*
 DET.ABS woman.ABS I see-REL sit-PASS
 ‘The woman whom I am watching is sitting down.’

(Dyirbal, Dixon 1972: 100, my boldfacing)

Ergatives (for instance the ergative subject *ɲaɖa* ‘I’ in (29b)) cannot be directly relativized. They have to be promoted to absolutes first, creating a passive-like structure. In other words, only relativization of absolutes is possible, ergatives cannot be relativized.

In conclusion, just like the agreement hierarchy, the relativization hierarchy is formalized best in terms of morphological case (cf. Caha, 2009). Reformulating Figure 2.2 in terms of case instead of grammatical function gives the schema in Figure (15).

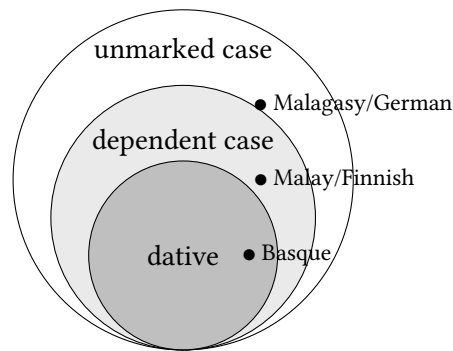


Figure 2.9: Relativization hierarchy (case)

This formulation in terms of case rather than grammatical function works as follows for the examples I gave earlier.

First, German is a language that has a particular relativization strategy for the unmarked case, as shown in (21). The unmarked nominative case can be relativized with a reduced relative clause, but the dependent accusative case and the dative case cannot. Second, Finnish is a language that has a particular relativization strategy for unmarked and dependent case, as shown in (26). The unmarked nominative case and the dependent accusative case can be relativized with a reduced relative clause, but the dative case cannot. Last, Basque is a language that has a particular relativization strategy for unmarked, dependent and dative case, as shown in (28). The unmarked ergative, dependent absolutive and dative case can be relativized by extraposing the head, and marking it with the invariable marker *-n*.

In the languages I discuss in this dissertation, I focus on languages that have nominative as unmarked case and accusative as dependent case, so Figure 2.10 suffices.



Figure 2.10: Relativization hierarchy (NOM/ACC/DAT)

In sum, this section has shown that relativization follows the same implicational hierarchy as agreement and as the case scale in headless relatives: $NOM < ACC < DAT$.

2.3 In morphology

In the two previous sections I showed that the case scale $NOM < ACC < DAT$ can be observed in three syntactic phenomena. First, it appears in case competition in headless relatives. Second, the case scale forms the basis for the implicational hierarchy observed in agreement across languages. Third, the same implicational holds for relativization strategies cross-linguistically.

In this section, I show that this same case scale can be observed in morphology. First, syncretism only targets continuous regions on the case scale. Second, several languages show formal containment that mirrors the case scale.

2.3.1 Syncretism

Syncretism refers to the phenomenon whereby two or more different functions are fulfilled by a single form (cf. Baerman, Brown, and Corbett, 2002). In this section I discuss literature that shows that syncretism patterns among nominative, accusative

and dative are not random. Instead, they pattern along the case scale $\text{NOM} < \text{ACC} < \text{DAT}$.

It has widely been observed that syncretism is restricted by the linear sequence $\text{NOM} - \text{ACC} - \text{DAT}$ (Baerman, Brown, and Corbett, 2005; Caha, 2009; Zompì, 2017) (and see McFadden 2018; Smith et al. 2019 for similar claims concerning root suppletion). That is, if one orders cases in this linear sequence, only contiguous regions in the sequence turn out to be syncretic. Following that, four possible patterns are attested crosslinguistically. First, all three cases are syncretic. Second, nominative and accusative are syncretic and the dative is not. Third, the accusative and the dative are syncretic and the nominative is not. Fourth, all cases are non-syncretic.

There is one pattern that is not attested crosslinguistically. This pattern does not target continuous regions, but non-contiguous ones: nominative and dative are syncretic and accusative is not. In other words, what does not exist is an ABA pattern, in which a form B intervenes between the two identically formed As (Bobaljik, 2012).

Table 2.4 shows examples for each of these possible patterns. I give an example of three distinct forms from Faroese. The second person singular is *tú* ‘you’ for nominative, *teg* ‘you’ for accusative and *tær* ‘you’ for dative (Lockwood 1977: 70). I give an example of a complete syncretism for nominative, accusative and dative from Dutch. The second person plural pronoun is *jullie* ‘you.PL’ is syncretic between all three cases. I give an example of a syncretism between accusative and dative but not nominative from Icelandic. The first person singular plural is *okkur* ‘us’ is syncretic between accusative and dative. The nominative has a separate form: *við* ‘we’ (Einarsson 1949: 68). I give an example of a syncretism between nominative and accusative but not dative from German. The third person singular feminine *sie* ‘she/her’ is syncretic between nominative and accusative. The dative has a separate form: *ihr* ‘her’. Crucially, to the best of my knowledge, there is no language in which the nominative and the dative are syncretic but the accusative is not.

In sum, case syncretism follows the ordering of the case scale in headless relatives: $\text{NOM} < \text{ACC} < \text{DAT}$.

Table 2.4:

pattern			NOM	ACC	DAT	translation	language
A	B	C	tú	teg	tær	2SG	Faroese
A	A	A	jullie	jullie	jullie	2PL	Dutch
A	B	B	við	okkur	okkur	1PL	Icelandic
A	A	B	sie	sie	ihr	3SG.F	German
A	B	A					not attested

2.3.2 Formal containment

This section shows a second way in which $NOM < ACC < DAT$ is reflected in morphology: formal containment (cf. Caha, 2010; Zompì, 2017; Smith et al., 2019). In some languages, the form that is used for the accusative literally contains the form that is used for the nominative. In turn, the forms for the dative contains the form for the accusative. I illustrate this phenomenon with examples from Khanty.

Khanty (or Ostyak) shows formal containment in some of its pronouns (Nikolaeva 1999: 16 after Smith et al. 2019). Three examples are given in Table 2.5.

The nominative form for the first person singular is *ma* ‘I’. The form for the accusative is *ma:ne:m* ‘me’. This is the form for the nominative *ma* plus the accusative marker *-ne:m*. The form for the dative is *ma:ne:mna* ‘me’. This is the form for the accusative *ma:ne:m* plus the dative marker *-na*. So, dative formally contains the accusative, and the accusative formally contains the nominative.

The third person singular and first person plural show the same pattern. The accusative forms *luwe:l* ‘him/her’ and *muŋe:w* ‘us’ contain the nominative forms *luw* and the *muŋ* plus the accusative marker *-e:l* or *-e:w*. The dative forms *luwe:lna* ‘him/her’ and *muŋe:wna* ‘us’ contain the accusative forms *luwe:l* and *muŋe:w* plus the dative marker *-na*. Again, the dative formally contains the accusative, which in turn contains the nominative.

Other languages that show this phenomenon are West Tocharian (Gippert, 1987) and Vlach and Kalderaš Romani (respectively Friedman 1991 and Boretzky 1994).

In sum, some languages morphologically look like $NOM-ACC-DAT$. This exactly

Table 2.5: Case containment in Khanty

	1SG	3SG	1PL
NOM	ma	luw	muŋ
ACC	ma:- ne:m	luw- e:l	muŋ- e:w
DAT	ma:- ne:m-na	luw- e:l-na	muŋ- e:w-na

reflects the case scale $\text{NOM} < \text{ACC} < \text{DAT}$.

2.4 Summary

Case competition in headless relatives adheres to the case scale in (31). If the internal and external case differ, cases more on the right of the scale win over cases more to the left on the case.

(31) $\text{NOM} < \text{ACC} < \text{DAT}$

This case scale is not only found in case competition in headless relatives. Implicational hierarchies regarding two syntactic phenomena appear across languages. The first one concerns agreement. If a language shows agreement with datives, it also shows agreement with accusatives and nominatives. If a language shows agreement with accusatives, it also shows agreement with nominatives. The second implicational hierarchy concerns relativization. If a dative in a language can be relativized with a particular strategy, an accusative and a nominative can be too using the same strategy. If an accusative can be relativized with a particular strategy, so can a nominative with this strategy.

The case scale can also be observed in morphological patterns. First, if the cases are ordered according to the case scale, syncretism only target continuous forms, no ABA pattern appears. Second, some languages show that the dative formally contains accusative, and that the accusative formally contains the nominative.

These phenomena show that the pattern observed in headless relatives is not something that stands on itself. The scale is a pattern that recurs across languages

and across phenomena. Therefore, it should not be treated as an special process with its own stipulated rule. Instead, it is something general that should also follow from general processes in languages.

The next chapter shows how features of the nominative, accusative and dative are organized. The syntax fact presented in this chapter can be derived from the organization of these features.

Chapter 3

Case decomposition

At the beginning of the previous chapter I showed that the case scale $\text{NOM} < \text{ACC} < \text{DAT}$ appears in headless relatives. In most accounts for headless relatives (cf. Harbert 1978; Pittner 1995; Vogel 2001; Grosu 2003, an exception to this is Himmelreich 2017) the case scale is stipulated. Headless relatives simply obey to that hierarchy. Pittner (1995: 201:fn.4) makes this explicit: “One of the reviewers notes that an explanation in terms of a Case hierarchy is rather stipulative. However, as far as I know, nobody has suggested a nonstipulative explanation for these facts.”

What I showed as well in the previous chapter is the case scale $\text{NOM} < \text{ACC} < \text{DAT}$ is a wide-spread phenomenon: it recurs. The scale can be observed in at least two more syntactic phenomena: agreement en relativization.¹ The case scale also appears within morphology in syncretism patterns and formal containment. Pittner (1995: 201:fn.4) makes this link to morphology as well: “Furthermore, the Case hierarchies receive some independent support by morphology as shown by the various inflectional paradigms.”

I am not after a theory in which the case hierarchy is something construction specific, and syntax and morphology both have their own case hierarchy. I argue that there is a single trigger that is responsible for the case scale in different subparts of language (cf. Caha, 2019, on numeral constructions). Specifically, I show that the observed case scale naturally follows on the assumption that the case hierarchy is

¹In this dissertation I do not work out accounts for these two syntactic phenomena. They merely serve as an illustration that the pattern is reflected in other syntactic phenomena as well.

deeply anchored in syntax. The case scale in morphology and syntax are merely reflexes of how case is organized in language.²

This chapter is structured as follows. First, I introduce a specific case decomposition (Caha, 2009). In the two following sections, I show how this case decomposition is able to derive the syncretism and formal containment facts from the previous chapter. I make this concrete in the framework Nanosyntax (Starke, 2009). Finally, I show how the case decomposition translates to the case scale observed in headless relatives.

3.1 The basic idea

Caha (2009, 2013) (followed by cf. Starke 2009; Bobaljik 2012; McFadden 2018; Van Baal and Don 2018; Smith et al. 2019) has extensively argued that case should be decomposed into privative features. Specifically, the decomposition is cumulative: each case has a different number of case features, and the number grows monotonically. This is illustrated in Table 3.1. Accusative has all the features that nominative has (here F1) plus one extra (here F2). Dative has all the features accusative has (F1 and F2) plus one extra (F3).

Table 3.1: Case decomposed

case	features
NOM	F1
ACC	F1, F2
DAT	F1, F2, F3

So, the case scale, repeated in (1), actually indicates containment. Nominative corresponds to a set of features (namely F1) that is contained in the set of features of accusative (which is namely F1 and F2). Similarly, nominative corresponds to a set of features that is contained in the set of features of dative (which is namely F1,

²Himmelreich (2017) works this intuition out in a different way.

F2 and F3). Lastly, accusative corresponds to a set of features (F1 and F2) that is contained in the set of features of dative (F1, F2 and F3).

- (1) $NOM < ACC < DAT$

The decomposition in Table 3.1 forms the basis to derive the case scale effects observed in the previous chapter. The next sections show how case containment and syncretism effects follow naturally. After that, I show how the decomposition also derives the case competition facts in headless relatives.

3.2 Deriving syncretism

Case syncretism follows the ordering of the case scale $NOM < ACC < DAT$. Along this scale, only contiguous regions in the sequence are syncretic. In this section I show how case syncretism patterns can be derived from the case decomposition in Table 3.1. I repeat an example that shows the possible and impossible syncretism patterns in Table 3.2.

Table 3.2: Syncretism pattern

pattern			NOM	ACC	DAT	translation	language
A	B	C	tú	teg	tær	2SG	Faroese
A	A	A	jullie	jullie	jullie	2PL	Dutch
A	B	B	við	okkur	okkur	1PL	Icelandic
A	A	B	sie	sie	ihr	3SG.F	German
A	B	A					not attested

The syncretism facts follow in a system in which the case is decomposed as in Table 3.1 and in which lexicalization relies on containment. The latter means that a phonological form is not only inserted when the lexical specification is identical to the syntax, but also when the syntactic features are a subset of the lexical specification.

The intuition is the following. Syncretic forms are realized by a single ‘lexical entry’ from the ‘lexicon’.³ A lexical entry can be applied if it contains all features, as long as there is no more specific one. This system can generate the patterns ABC, AAA, ABB and AAB, but not ABA.

Before I show how the four attest patterns can be derived (and the one unattested not), I need to make some theoretical assumptions explicit about Nanosyntax, the framework in which this dissertation is worked out. First, I show how the Nanosyntactic system is set up in such a way that morphological patterns (like syncretism, but also morphological containment) can inform us about the way syntax is structured. Therefore, I briefly discuss the general architecture of Nanosyntax, its postsyntactic lexicon, and the content and shape of lexical entries. Lastly, I discuss how multiple features (like F1, F2 and F3 from Table 3.1) can be spelled out by a single phonological element, i.e. phrasal spellout.

The architecture of Nanosyntax is schematically shown in Figure 3.1 (from Caha, 2019; Vanden Wyngaerd et al., 2020). In Nanosyntax, syntax starts with atomic features, and it builds complex syntactic trees. Specifically, there are no ‘feature bundles’ (from a pre-syntactic lexicon) that enter the syntax. The only way complex feature structures come to exist is as a result of merge. After syntax (actually, each instance of merge), the syntactic structure is matched against the lexicon for pronunciation. The lexicon ‘translates’ between syntactic representations on the one hand and phonology (PF) and concepts (CF) on the other hand. So, Nanosyntax is a late insertion model: (lexical) insertion takes place late, namely after syntax.



Figure 3.1: Nanosyntactic model of grammar

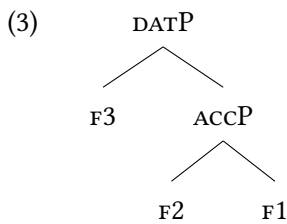
³I return to the terms lexical entry and lexicon shortly.

In Nanosyntax, the lexicon contains lexical entries: links between syntactic representations, phonological representations and conceptual representations (Starke, 2014).⁴ I leave the conceptual representation out of discussion for now, as it not relevant for the discussion here. The fact that only syntax can create complex feature structures also has a consequence for lexical entries in the lexicon.⁵ Syntactic structures are constrained by certain principles, such that only well-formed syntactic structures exist. Since lexical entries in the lexicon link lexical trees to phonological and conceptual representation, these lexical trees are constrained by the same principles as syntactic structures are. As a result, the lexicon only contains well-formed lexical trees. The lexicon does not contain unstructured ‘feature bundles’, because they could never be created by syntax.

Following this logic, the syntactic representation for a lexical entry as in (2) cannot exist. The feature bundle cannot have entered syntax, because syntax starts with atomic features. It can also not be created by syntax, because complex structures can only be created with merge.

(2) [F1, F2, F3]

Instead, a possible lexical tree looks as in (3). The features are merged one by one in a binary structure.



This structure leads to the concept of phrasal spellout: not terminals but multiple

⁴The syntactic representation does not have to correspond to both a phonological and a conceptual representation. Syntactic representations that only correspond to a conceptual representation and not to phonological representations are (phrasal or clausal) idioms. Syntactic representations that only correspond to phonological representations but not to conceptual representations are for instance irregular plurals.

⁵Throughout the dissertation I call the syntactic representations in the lexicon ‘lexical trees’ in order to distinguish them from syntactic structures in the syntax.

syntactic heads (phrases) are realized with a single piece of phonology (i.e. a single morpheme). A necessary requirement is that these multiple syntactic heads form a constituent.

Let me illustrate all of the above with the Faroese pronouns from Table 3.2. I simplify the situation in two respects. First, I do not show the internal complexity of the pronouns, including person and number features. Instead, I give a triangle, indicating that this is a complex syntactic structure. I refer to it as the person-number phase it refers to, so e.g. 2sgP. Second, in this simplified representation I consider the Faroese pronouns to be monomorphemic. I ignore the fact that all three pronouns clearly have the stem *t* with a suffix following it.

The lexical entry for *tú* is given in (4). The syntactic representation consists of the complex lexical tree that corresponds to the second person singular pronoun (the 2sgP), and F1, making it a NOMP. The phonological representation that is linked to the lexical tree is *tú*.⁶



The lexical entry for *teg* is given in (5). The syntactic representation contains all the features of the lexical tree in (4), plus F2, making it an ACCP. The linked phonological representation is *teg*.

⁶Throughout the dissertation, I use lexical trees and phonological forms connected by a double arrow (\Leftrightarrow) to refer to a lexical entry.



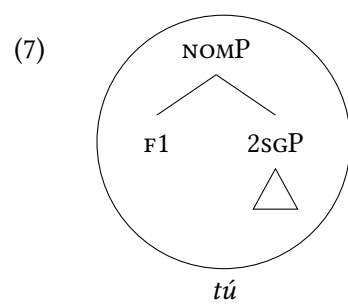
The lexical entry for *tær* is given in (6). The syntactic representation contains all the features of the lexical tree in (5), plus *f3*, making it an *DATP*. The linked phonological representation is *tær*.



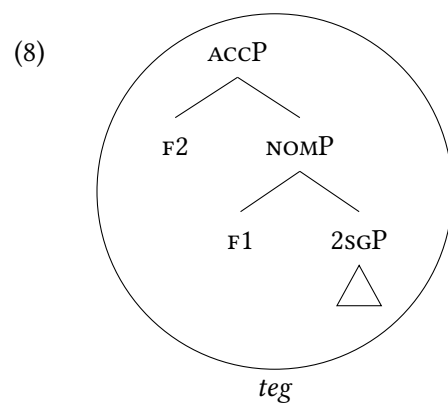
The lexical trees and their phonological counterparts I gave in (4) to (6) are lexical entries. These lexical entries are used to spell out syntactic structures. I give examples of syntactic structures in (7) to (9).

The lexical tree in (4) is identical to the syntactic structure in (7). Therefore, this syntactic structure is spelled out as *tu*.⁷

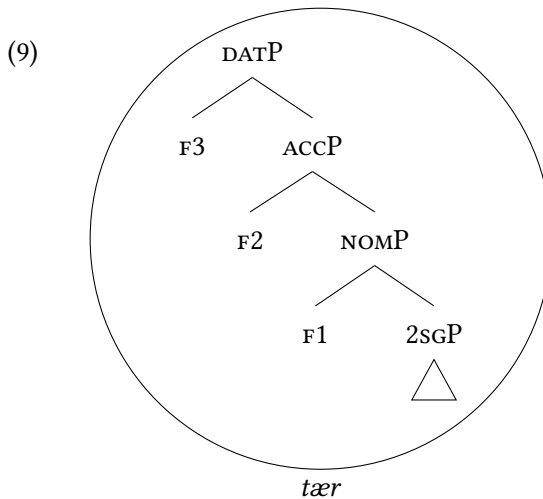
⁷Throughout this dissertation I circle the part of the structure that corresponds to a particular lexical entry, and I place the corresponding phonology under it.



The lexical tree in (5) is identical to the syntactic structure in (8), and it is spelled out as *teg*.



The lexical tree in (6) is identical to the syntactic structure in (9), and it is spelled out as *tær*.

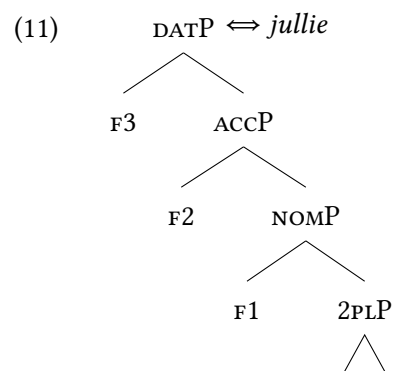


In the Faroese examples above, the syntactic structure are all identical to the lexical trees. However, to be a successful match, identity is not a necessary requirement. Instead, matching relies on a containment relation. A lexical entry applies when it contains all features. This is formalized as in (10).

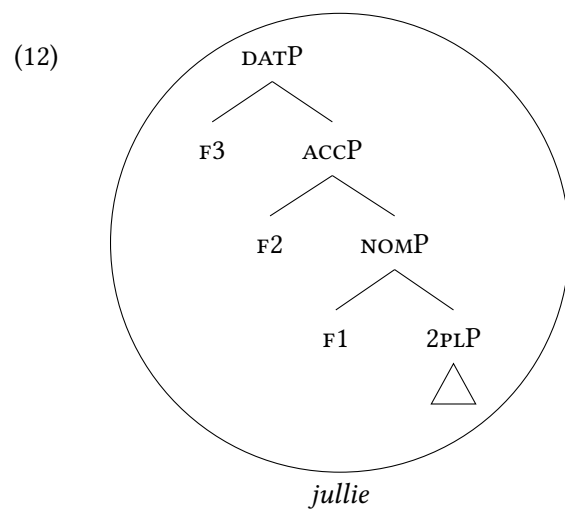
(10) **The Superset Principle** Starke (2009):

A lexically stored tree matches a syntactic node iff the lexically stored tree contains the syntactic node.

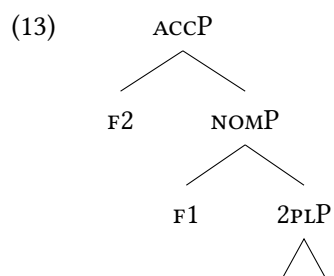
Let me illustrate this with the Dutch second person plural pronoun from Table 3.2. This pronoun is syncretic between between the nominative, accusative and dative. The lexicon only contains a single lexical entry, namely (11). The syntactic representation consists of the complex lexical tree that corresponds to the second person plural pronoun (the 2PLP), and F1, F2 and F3 making it a DATP. The phonological representation that is linked to the lexical tree is *jullie*. The nominative, the accusative and the dative can all be spelled out with this single lexical entry using the Superset Principle in (10).



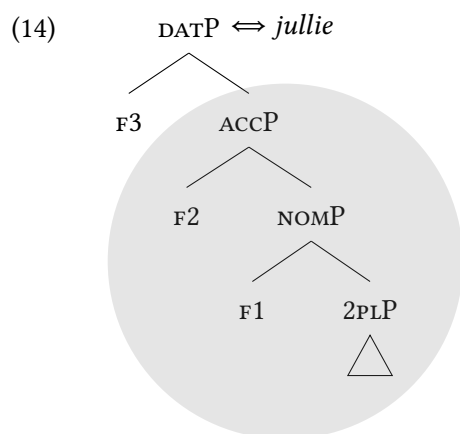
The syntactic structure of the dative, given in (12), is the least exciting of the three. It is identical to the lexical tree (11), and therefore, spelled out as *jullie*.



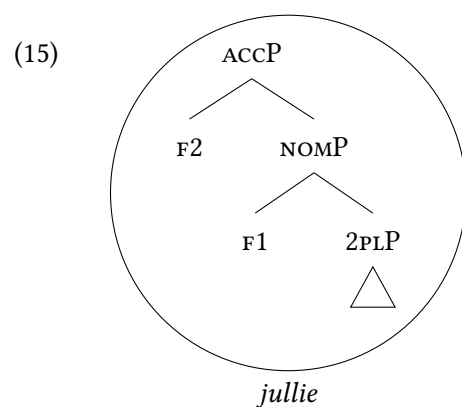
The syntactic structure of the accusative is given in (13).



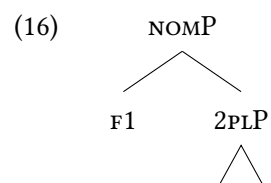
The lexical entry in (11) is not identical to this syntactic structure. However, the lexical tree contains the syntactic structure of the accusative. I repeat the lexical entry for *jullie* in (14), marking the subpart of the tree that matches the syntactic structure in gray.



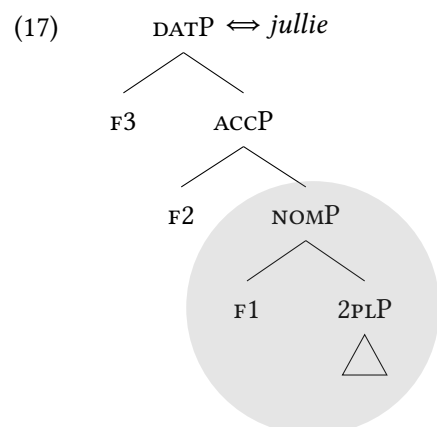
As a result, the accusative is spelled out as *jullie*, shown in (15).



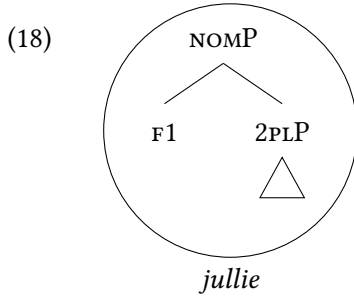
The same holds for the nominative. The syntactic structure is given in (16).



The lexical tree in (11) is not identical to this syntactic structure. However, again, the lexical tree contains the syntactic structure of the nominative. I repeated the lexical entry for *jullie* in (17), marking the subpart of the tree that matches the syntactic structure in gray.



As a result, the nominative is spelled out as *jullie*, as shown in (18).



A question arises at this point. Why are the accusative and nominative in Faroese not spelled out by the lexical entry for the dative (and why is the nominative not spelled out by the lexical entry for the accusative)? These syntactic structures are namely contained in the lexical tree for the dative (and the accusative). The reason for that comes from how competition between lexical entries is regulated in Nanosyntax. When two lexical entries compete, the best fit wins. The best fit is the lexical tree with the least unused features. This is formalized as in (19).

- (19) **The Elsewhere Condition** (Kiparsky 1973, formulated as in Caha 2020):
 When two entries can spell out a given node, the more specific entry wins.
 Under the Superset Principle governed insertion, the more specific entry is the one which has fewer unused features.

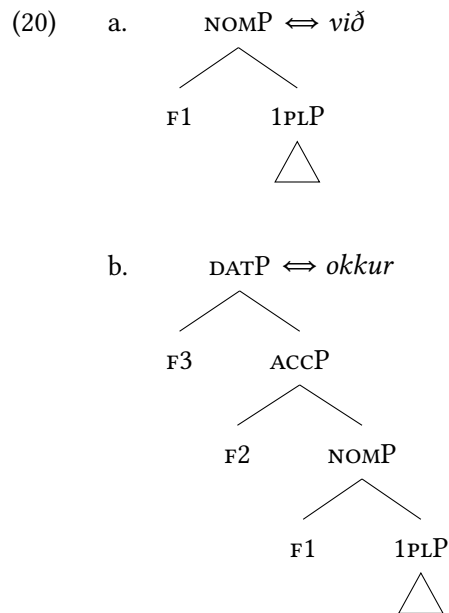
I show how the Superset Principle and the Elsewhere Condition interact in a competition with the Faroese lexical entries. Consider first again the syntactic structure for the nominative in (7). All the Faroese lexical entries (4), (5) and (6) are a candidate for this syntactic structure. (6) has two unused features: F2 and F3 . (5) has one unused feature: F2 . (4) has the least amount of unused features (namely zero), so it wins the competition over the other two.

Regarding the syntactic structure for the accusative in (8), the lexical entries (5) and (6) are a match. (4) is not a candidate here, because it does not contain the complete syntactic structure (i.e. it lacks F2). (6) has fewer unused features than (8), so it wins.

Table 3.2 contains two more attested patterns: the ABB in Icelandic and the

AAB in German. In the remainder of this section I show how these two patterns are derived, and that the unattested one cannot be derived. I also show the system is unable to derive an ABA, which is crosslinguistically unattested.

Consider the Icelandic pattern. For the first person plural, Icelandic uses *við* as nominative and *okkur* as accusative and dative. Two lexical entries are needed for that. The first one in (20a) contains pronominal features and F1, and corresponds to the phonology *við*. The second one is given in (20b). It contains in addition to (20a) also the feature F2 and F3. The phonological representation that is linked to it is *okkur*.



The syntactic structure for the dative is given in (21). It is contained in the lexical tree in (20b), and therefore, spelled out as *okkur*. The lexical entry in (20a) is not considered, because it does not contain F2 and F3.



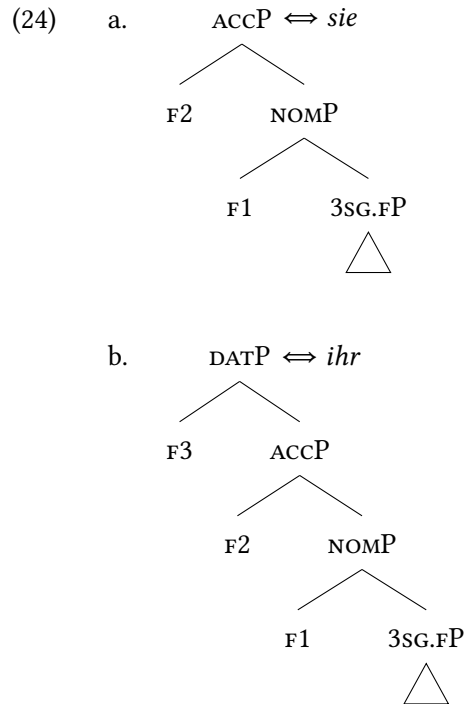
The syntactic structure for the accusative is given in (22). It is contained in the lexical tree in (20b), and therefore, spelled out as *okkur*. The lexical entry in (20a) is not considered, because it does not contain F2.



The syntactic structure for the nominative is given in (23). It is contained in the lexical tree in (20a) and in the one in (20b). The former, (20a), has no unused features. The latter, (20b), has two unused features: F2 and F3. Because (20a) has fewer unused features, (20a) wins the competition, and the syntactic structure is spelled out as *við*.

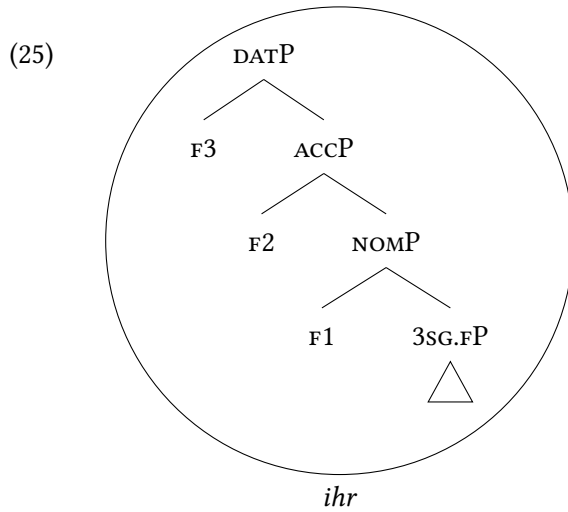


For the third person singular feminine, German uses *sie* as nominative and accusative, and *ihr* as dative. Two lexical entries are needed for that. The first one in (24a) contains pronominal features, F1 and F2. It corresponds to the phonology *sie*. The second one is given in (24b). It contains in addition to *sie* in (24a) also the feature F3. It corresponds to the phonology *ihr*.

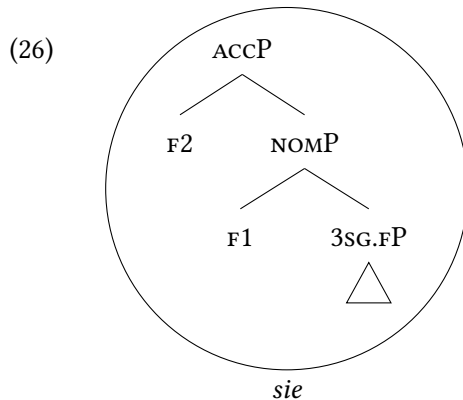


The syntactic structure for the dative is given in (25). It is contained in the lexical tree in (24b), and therefore, spelled out as *ihr*. The lexical entry in (24a) is not

considered, because it does not contain F3.

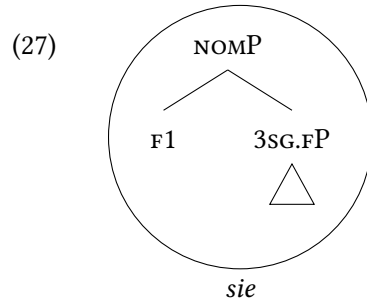


The syntactic structure for the accusative is given in (26). It is contained in the lexical tree in (24a) and in the one in (24b). The former, (24a), has one no unused features. The latter, (24b), has one unused feature: F3. Because (24a) has fewer unused features, (24a) wins the competition, and the syntactic structure is spelled out as *sie*.



The syntactic structure for the nominative is given in (27). It is contained in the lexical tree in (24a) and in the one in (24b). The former, (24a), has one unused feature: F2. The latter, (24b), has two unused features: F2 and F3. Because (24a) has fewer unused features, (24a) wins the competition, and the syntactic structure is spelled

out as *sie*.



This last example also illustrates that the laid out system is unable to derive an ABA pattern. The inability of the system to derive such a pattern is a welcome one, since the pattern is unattested cross-linguistically. In an ABA pattern, the nominative and the dative are syncretic, to the exclusion of the accusative. Such a language would be like German but then the nominative would be *ihr* instead of *sie*.

This result could never be derived with the lexical entries given in (24a) and (24b). *Ihr* is inserted for the dative and the cases contained in it (so accusative and nominative), unless a more specific lexical entry is found. *Sie* is the more specific lexical entry that is found from the accusative on. From the accusative on (so for the accusative and nominative), *sie* will be inserted until a more specific entry is found. If no entry is specified for nominative, *sie* will surface. *Ihr* will not resurface, because the lexical entry for *sie* is and will remain to be more specific.

In sum, the cumulative case decomposition from Table 3.1 can derive the observed syncretism patterns.

3.3 Deriving case containment

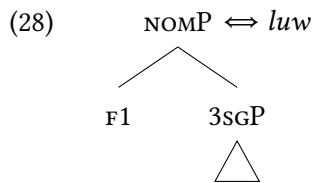
Khanty is an example of a language with so-called morphological case containment. The phonological form of the accusative literally contains the phonological form of the nominative, and the form of the dative contains the form of the accusative. In this section I show how morphological case containment can be derived from the case decomposition in Table 3.1. I repeat an example from Khanty that shows morphological case containment in Table 3.3 (Nikolaeva 1999: 16).

Table 3.3: Containment in 3SG in Khanty

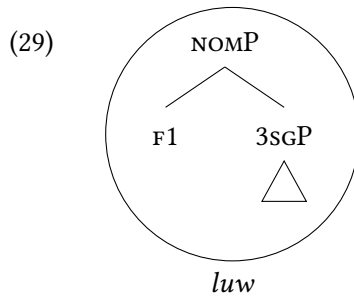
	3SG
NOM	luw
ACC	luw- e:l
DAT	luw- e:l-na

The intuition is the following. The morphological form of the pronouns mirrors the cumulative feature decomposition given in Table 3.1. That is, the accusative has the morphology that the nominative has (*luw*) plus something extra (*e:l*). The dative has the morphology that the accusative has (*luw-e:l*) plus something extra (*na*).

First, I give the lexical entry for the nominative third person singular. It contains pronominal features and the feature F1. The phonological form associated with the structure is *luw*. The lexical entry is given in (28).



The syntactic structure in for the nominative is given in (29). It is contained in the lexical tree in (29), and the nominative is spelled out as *luw*.



In the previous section I only gave examples in which the forms were syncretic (i.e.

formally identical) or suppletive (i.e. formally unrelated). All features (pronoiminal and case) were spelled out by a single lexical entry. The examples from Khanty are different. The accusative pronoun formally contains the nominative pronoun. This can be modeled by letting the NOMP contained in the ACCP be realized by the same NOMP that is spelled out in the nominative. F2 has its own realization that builds upon the nominative (and so does F3 on top of the accusative).⁸

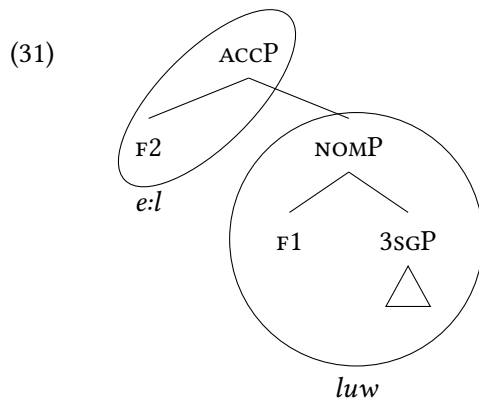
Accordingly, I give the lexical entry for the accusative marker *e:l* in (30).

$$(30) \quad \text{ACCP} \Leftrightarrow e:l$$

$$\begin{array}{c} | \\ \text{F2} \end{array}$$

So, *luw-e:l* consists of two morphemes that both correspond to their own piece of syntactic structure: *luw* and *e:l*. But how do these two morphemes combine? This issue brings me to another detour into the Nanosyntactic theory, which is about spellout driven movement.

As discussed in the previous section, spellout in Nanosyntax only targets constituents. That means that it is impossible to let ACCP spell out as *e:l* while it contains NOMP.⁹



The lexical entry in (30) can only match the syntactic structure if NOMP moves away,

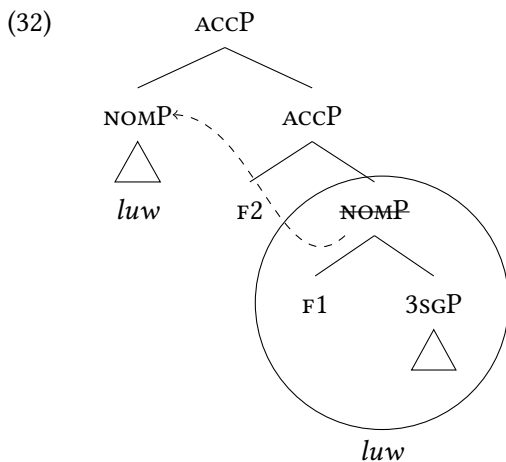
⁸Note that it is crucial here to have a theory in which the features that form an accusative contain the features that form a nominative. If not, it would be a surprise that the nominative form is contained in the accusative form. The same holds for the accusative and dative.

⁹Notice that this also gives the incorrect order of the morphemes: *e:l-luw* instead of *luw-e:l*.

leaving the ACCP containing F2 behind. In other words, the complement of F2 needs to be moved away.

Exactly this movement is one of the two so-called ‘evacuation movements’ that is part of the spellout procedure in Nanosyntax. I showed in Section 3.2 that lexical entries are matched using the Superset Principle and the Elsewhere Condition. If there is no match in the lexicon for a particular syntactic structure, two types of (evacuation) movement can take place, in a fixed order.¹⁰ The movement types change the syntactic structure in such a way that they generate new constituents that are possible matches for spellout.¹¹ For the discussion in this section, only the second type of movement is relevant: complement movement. In this type of movement, the complement or a particular feature moves to the specifier of that same feature.

This is exactly the type of movement I described as necessary for the Khanty pronoun. The movement is displayed in (32). The complement of F2, the NOMP, the lower right circled portion in the structure, moves to the specifier of ACCP.¹²



¹⁰The two movement types are Cinque’s 2005 complement and spec-to-spec movement.

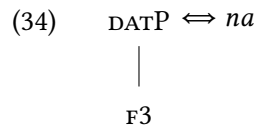
¹¹This type of movement is different from syntactic movement. It is driven by spellout, it does not have any interpretational effects, and it does not leave any traces. In Section 5 I return to ‘regular’ syntactic movement in Nanosyntax.

¹²In its landing position the internal structure of the NOMP is no longer shown (to save some space), and its phonological form is placed under the triangle. The strikethrough of the lower NOMP indicates that the complement of F2 disappears.

The result of the movement is given in (33). The lexical tree in (30) matches the syntactic structure, and ACCP is spelled out as *e:l*.



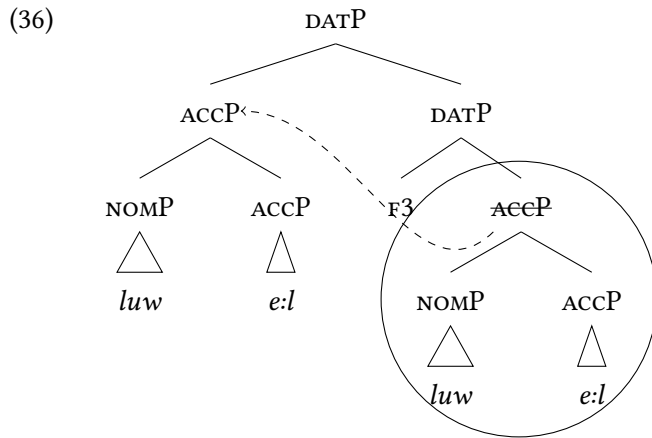
Just as Khanty has an additional morpheme that shows up in the accusative, it also has a morpheme that shows up in the dative. This morpheme *na* combines with the phonological form for the accusative, which leads me to pose the lexical entry in (34).



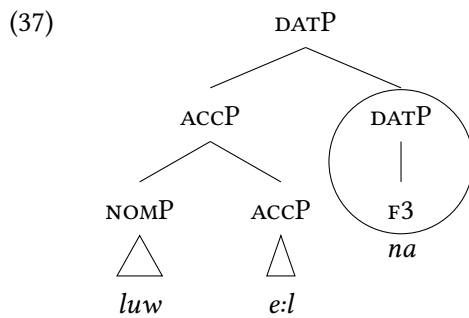
Again, because spellout only targets constituents, F3 cannot be spelled out right after it has been merged, as shown in (35).



The same movement has to take place, which is shown in (36). The complement of F3, the ACCP, the lower right circled portion in the structure, moves to the specifier of DATP.



The result of the movement is given in (37). The lexical tree in (34) matches the syntactic structure, and DATP is spelled out as *na*.



In sum, the cumulative case decomposition from Table 3.1 can derive the morphological case containment facts.

3.4 Deriving the case scale in headless relatives

In headless relatives, the internal case and the external case compete to surface on the relative pronoun. The two competing cases adhere to the case scale $\text{NOM} < \text{ACC} < \text{DAT}$, in which cases more to the right always win over cases more to the left. In this section I show how case competition in headless relatives can be derived from the case decomposition in Table 3.1.

I repeat the summary of the data pattern for Gothic in Table 3.4. I gave the cells

different shadings depending on which cases compete. The dark gray cells are the ones in which dative and the accusative compete, and the dative wins. The light gray cells are the ones in which the dative and the nominative compete, and the dative again wins. The uncolored cells are the ones in which the accusative and the nominative compete, and the accusative wins.

Table 3.4: Summary of Gothic matching headless relative data

INT^{EXT}	[NOM]	[ACC]	[DAT]
[NOM]		ACC	DAT
[ACC]	ACC		DAT
[DAT]	DAT	DAT	

The intuition is the following. The headless relatives reflect the cumulative feature decomposition given in Table 3.1. A case wins the competition if it contains all features the other case has. So, the dative contains all features that the accusative has, so the dative surfaces. Similarly, the dative contains all features the nominative has, and again the dative surfaces. The same holds for the last pair: the accusative contains all features the nominative has, so the accusative surfaces. I illustrate this per case pair.

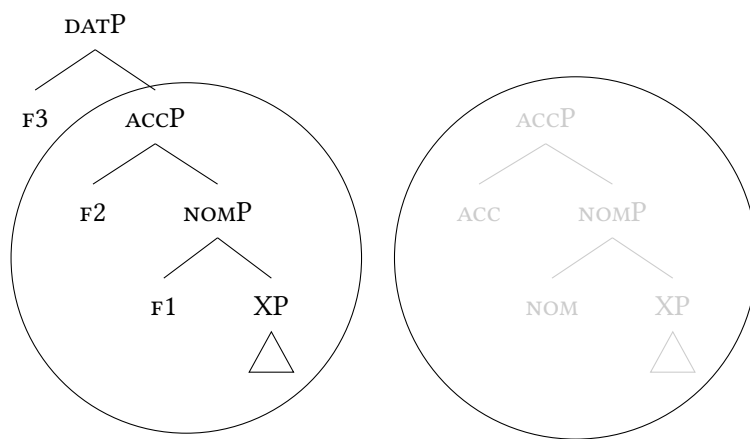
I start with the competition between dative and accusative, in which dative wins. The corresponding cells are marked dark gray in Table 3.4. In (38) I show the syntactic structure of a dative relative pronoun. For now I let syntactic structure that has to do with being a relative pronoun correspond to a complex XP.¹³ I elaborate on the exact content of XP in Chapter . Following that, a dative relative pronoun contains the XP, F1, F2 and F3. Contained in this structure is an accusative relative pronoun, marked in gray. This consists of the XP, F1 and F2.

¹³Within the triangle, I assume there to be amongst others phi features and features having to do with deixis and definiteness.



Table 3.5 shows the situation in which the dative and the accusative compete against each other. The bigger structure deletes the smaller structure it contains: the dative wins.¹⁴

Table 3.5: DATP deletes ACCP



Next is the competition between dative and nominative, in which dative wins. The corresponding cells are marked light gray in Table 3.4. In (39) I show the syntactic structure of a dative relative pronoun. It contains the XP, F1, F2 and F3. Con-

¹⁴In Table 3.5 there are two structures that both have a XP at their bottom. I come back to the exact content of these triangles in Chapter ?? . Whatever is in the triangle under XP does not influence the main point here: a bigger case wins over a smaller case.

tained in this structure is a nominative relative pronoun, marked in gray. This consists of the XP and F1.

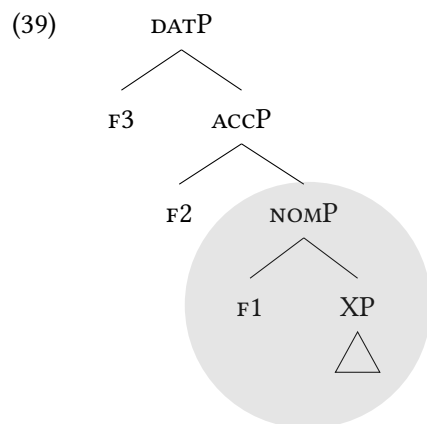
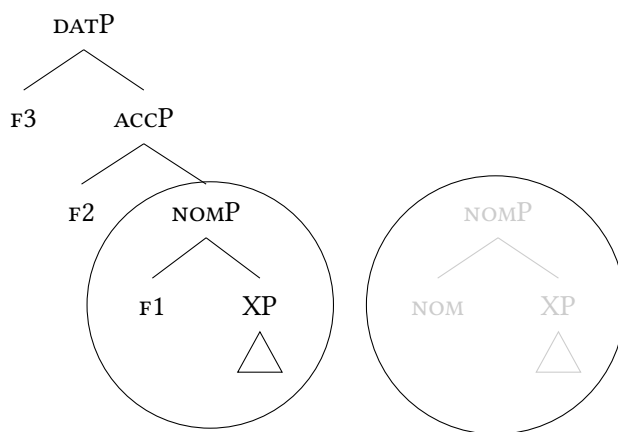


Table 3.6 shows the situation in which the dative and the nominative compete against each other. The bigger structure deletes the smaller structure it contains: the dative wins.

Table 3.6: DATP deletes NOMP



Finally there is the competition between accusative and nominative, in which accusative wins. The corresponding cells are uncolored in Table 3.4. In (40) I show the syntactic structure of an accusative relative pronoun. It contains the XP, F1 and F2. Contained in this structure is a nominative relative pronoun, marked in gray.

This consists of the XP and F1.

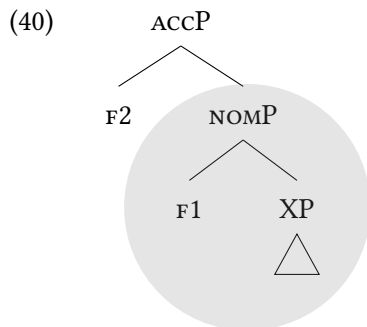
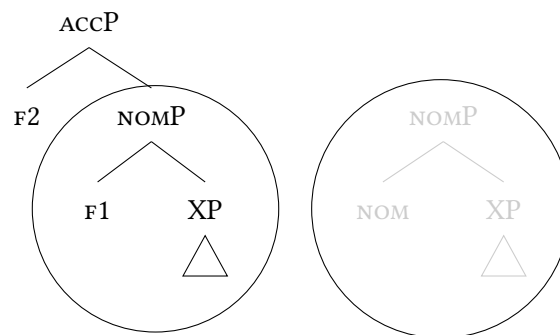


Table 3.7 shows the situation in which the accusative and the nominative compete against each other. The bigger structure deletes the smaller structure it contains: the accusative wins.

Table 3.7: ACCP deletes NOMP



In sum, the cumulative case decomposition from Table 3.1 can derive the case scale observed for case competition in headless relatives.

3.5 Summary

In this section I discussed how a cumulative case decomposition can derive the case scale observed in syncretism patterns, morphological case containment and case competition in headless relatives. Besides the cumulative case decomposition, I assume a Nanosyntactic framework, in which syntactic structures are built from single features, and matched onto lexical entries in the postsyntactic lexicon.

Regarding syncretism, several patterns are attested crosslinguistically (ABC, AAA, AAB and ABB) but one is not: ABA. This follows in a system in which syncretic forms are realized by a single lexical entry. A lexical entry can be applied if it contains all features, as long as there is no more specific one.

Languages with morphological case containment show the cumulative case decomposition in their morphology. The phonological form of the accusative contains the form of the nominative plus an extra morpheme. The phonological form of the dative contains the form of the accusative plus an extra morpheme.

For headless relatives, the idea is that a case wins the competition if it contains all features the other case has. As the dative is the richest in features (it contains F1, F2 and 3), it wins over the accusative (which consists of F1 and F2) and the nominative (which contains only F1). Finally, the accusative wins over the nominative, because the former is richer in features than the latter.

Part II

The variation

Chapter 4

Two attested patterns

I showed that headless relatives crosslinguistically make reference to the case scale: if two cases are in competition, it is always the same that wins. However, there is a second aspect to headless relatives, which differs across languages. That is, sometimes the case competition does not even take place, or rather, there is no winner to the competition. I show that whether or not the case competition takes place depends on the type of relative pronoun that is used. I distinguish two types of relative pronouns: WH-pronouns and D-pronouns.

There are languages in which both the internal and the external case can win (like Gothic). There are also languages in which only the internal case can win. Crucially, there is no language in which a case competition takes place but only the external case can win.¹ Another possibility that is attested is that none of the case can win, that only matching cases give a winner. I summarize this in a table:

¹There are languages in which the external case always surfaces, no matter the internal case. These languages are for instance Old English and Old Icelandic (and maybe Greek?). I come back to that in Section X.

Table 4.1: Variation

	INT>EXT	EXT>INT
Gothic OHG	✓	✓
MG	✓	*
n.a.	*	✓
Polish	*	*

Every speaker of a language needs to learn what the pattern for its language is. Headless relatives are infrequent, is what can be said about at least German. Even though not everybody likes the construction to begin with (they prefer (light-)headed relatives), people seem to have the clear intuition that INT>EXT is much better than the other way around. It seems implausible that learners of German learn this pattern from the few examples they got (there are just too few to make a generalization). Still, the intuition exist. And it is very particular: more complex case wins over less complex case, but only if the internal case is more complex than the external case. This already sounds hard to learn from the input as a generalization.

People have also been describing it like this: formulation from Cinque in his book. (which is actually wrong)

If it does not come from the input, where does it come from? I claim that it comes from other properties of the language. In Grosu’s terminology: is it derived or basic? Ideally, we would want it to be derived.

A similar avenue was pursued by Himmelreich 2017. She specific languages for having different types of agree (up, down) and different types of probes (active, non-active). Doing that, she successfully derived free relatives and parasitic gaps in different languages. Grosu 1994 linked richness of inflection to liberality. He actually talked about the richness of pro.

The crucial difference with I’m doing is that I’m not relying on an arbitrary value I assigned to a language (say null head is active probe, probing only happens upwards). Instead, I look for patterns within the languages themselves, and let the facts of the headless relatives follow from those. To be more specific, I derive the

different behaviors from relative pronouns. I decompose them, and I determine what parts of syntactic structure they correspond to. Having independently done that, I return to the headless relatives, and I derive the facts.

4.1 Headless relatives

4.1.1 Both

4.1.1.1 Gothic

Table 4.2: Summary Gothic headless relatives (repeated)

^{EXT} _{INT}	[NOM]	[ACC]	[DAT]
[NOM]		ACC	DAT
[ACC]	ACC		DAT
[DAT]	DAT	(DAT)	

4.1.1.2 Old High German

Old High German shows the same pattern as Gothic. The relative pronoun can surface in the internal or the external case, depending on which case is more to the right on the case scale. This conclusion follows from my own research of the texts *Der althochdeutsche Isidor*, *The Monsee fragments*, *Otfrid's Evangelienbuch* and *Tatian in ANNIS3*.² The examples below follow the spelling and the detailed glosses in ANNIS3. The translations are my own.

Consider the example in (1). In this example, the internal case is nominative and the external case is accusative. The internal case is nominative. The predicate *gisizzen* ‘to possess’ takes nominative subjects. The external case is accusative. The predicate *bibringan* ‘to give rise to’ takes accusative objects. The relative pronoun *dhen* ‘REL.ACC.M.SG’ appears in the external case: the accusative. The relative pro-

²<https://korpling.german.hu-berlin.de/annis3/>

- (3) Bistú nu zi wáre furira Ábrahame? Ouh
 be.2SG 2SG.NOM now really great.COM_[DAT] Abraham.DAT and
 thén **man** **hiar nu zálta** joh sie
 REL.DAT.M.PL one.M.SG.NOM here now report.PAST.3SG_[ACC] and 3PL.ACC
 álle tod bifálta?
 all.3PL.ACC death.NOM.SG attack.PAST.3SG
 ‘Are you now really greater than Abraham? And than those who one re-
 ported here now and death attacked them all?’
 (OHG, Otfrid III 18:33)

Consider the example in (4). In this example, the internal case is accusative and the external case is nominative. The internal case is accusative. The predicates *zellen* ‘to tell’ and *slahan* ‘to kill’ takes accusative objects. The external case is nominative. The predicate *sin* ‘to be’ takes nominative objects. The relative pronoun *then* ‘REL.ACC.M.SG’ appears in the internal case: the accusative. The relative pronoun is marked in bold, just like as the relative clause, showing that the relative pronoun patterns with the relative clause.

- (4) thíz ist **then** **sie** **zélent** **joh**
 this.NOM be.3SG_[NOM] REL.ACC.M.SG 3PL.MASC.NOM tell.3PL_[ACC] and
then **sie** **sláhan wollent!**
 REL.ACC.M.SG 3PL.MASC.NOM kill_[ACC] want.3PL
 ‘This is the one whom they talk about and whom they want to kill.’
 (OHG, Otfrid III 16:50)

Consider the example in (5). In this example, the internal case is dative and the external case is nominative. The internal case is dative. The predicate *forlazan* ‘to read’ takes dative indirect objects. The external case is nominative. The predicate *minnon* ‘to love’ takes nominative subjects. The relative pronoun *themo* ‘REL.DAT.M.SG’ appears in the internal case: the dative. The relative pronoun is marked in bold, just like as the relative clause, showing that the relative pronoun patterns with the relative clause.

- (5) **themo** **min uuirdit** **forlazan**, min minnot
 REL.DAT.M.SG less become.3SG read_[DAT] less love.3SG_[NOM]
 ‘To whom less is read, loves less.’ (OHG, Tatian 138:13)

Consider the example in (6). In this example, the internal case is dative and the external case is accusative. The internal case is dative. The predicate *gituon* ‘to do’ takes dative indirect objects. The external case is nominative. The predicate *queman* ‘to come’ takes nominative subjects. The relative pronoun *themo* ‘REL.DAT.M.SG’ appears in the internal case: the dative. The relative pronoun is marked in bold, just like as the relative clause, showing that the relative pronoun patterns with the relative clause.

- (6) **Themo** **avur tház** **ni gidúat**, quimit
 REL.DAT.M.SG but DEM.ACC.N.SG not do.3SG_[DAT?] come.3SG_[ACC?]
 séragaz muat, joh wónot inan úbari gotes ábulgi!
 sad.NOM.SG heart.NOM.SG and live.3SG 3.SG.M.ACC over god.GEN.SG rage.SG
 ‘But he does not do that to him, the sad heart comes him, and he lives in
 God’s rage!’ (OHG, Otfrid II 3:37)

There is a counterexample. Consider the example in (7). In this example, the internal case is nominative and the external case is accusative. Surprisingly, the relative pronoun appears in the case lower on the case scale. The internal case is nominative. The predicate *giheilen* ‘to save’ takes nominative subjects. The external case is accusative. The predicate *beran* ‘to bear’ takes accusative objects. The relative pronoun *thér* ‘REL.NOM.M.SG’ appears in the internal case: the nominative. The relative pronoun is marked in bold, just like as the relative clause, showing that the relative pronoun patterns with the relative clause.

- (7) tház si uns béran scolti **thér**
 that 3SG.F.NOM 1PL.DAT bear_[ACC] should.SUBJ.PAST.3SG REL.NOM.M.SG
unsih gihéilti
 1PL.ACC save.SUBJ.PAST.3SG_[NOM]
 ‘that she should bear for us him who will save us’ (OHG, Otfrid I 3:38)

4.1.2 Only internal

In MG, only internal case can win.

Internal is grammatical.

Consider the example in (8). In this example, the internal case is dative and the external case is accusative. The internal case is dative. The predicate *vertrauen* ‘to trust’ takes dative objects. The external case is accusative. The predicate *einladen* ‘to invite’ takes accusative objects. The relative pronoun *wem* ‘REL.DAT.AN’ appears in the internal case: the dative. The relative pronoun is marked in bold, just like as the relative clause, showing that the relative pronoun patterns with the relative clause.

- (8) Ich lade ein **wem** auch Maria vertraut.
 I.NOM invite.1SG_[ACC] REL.DAT.AN also Maria.NOM trust.3SG_[DAT].
 ‘I invite whoever Maria also trusts.’ (MG, adapted from Vogel 2001: 344)

Consider the example in (9). In this example, the internal case is dative and the external case is nominative. The internal case is dative. The predicate *vertrauen* ‘to trust’ takes dative objects. The external case is nominative. The predicate *besuchen* ‘to visit’ takes nominative subjects. The relative pronoun *wem* ‘REL.DAT.AN’ appears in the internal case: the dative. The relative pronoun is marked in bold, just like as the relative clause, showing that the relative pronoun patterns with the relative clause.

- (9) Uns besucht **wem** Maria vertraut.
 we.ACC visit.3SG_[NOM] REL.DAT.AN Maria.NOM trust.3SG_[DAT]
 ‘Who visits us, Maria trusts.’ (MG, adapted from Vogel 2001: 343)

Consider the example in (10). In this example, the internal case is accusative and the external case is nominative. The internal case is accusative. The predicate *mögen* ‘to like’ takes accusative objects. The external case is nominative. The predicate *besuchen* ‘to visit’ takes nominative subjects. The relative pronoun *wen* ‘REL.ACC.AN’ appears in the internal case: the accusative. The relative pronoun is marked in bold,

just like as the relative clause, showing that the relative pronoun patterns with the relative clause.

- (10) Uns besucht **wen** **Maria** mag.
 we.ACC visit.3SG_[NOM] REL.ACC.AN Maria.NOM like.3SG_[ACC]
 ‘Who visits us, Maria likes.’ (MG, adapted from Vogel 2001: 343)

External is ungrammatical.

Consider the example in (11). In this example, the internal case is accusative and the external case is dative. The internal case is accusative. The predicate *mögen* ‘to like’ takes accusative objects. The external case is dative. The predicate *vertrauen* ‘to trust’ takes dative objects. The relative pronoun *wem* ‘REL.DAT.AN’ appears in the external case: the dative. The relative pronoun is not marked in bold, just like as the main clause, showing that the relative pronoun patterns with the main clause. This is ungrammatical in German: only the internal case can win.

- (11) *Ich vertraue wem **auch Maria** mag.
 I.NOM trust.1SG_[DAT] REL.DAT.AN also Maria.NOM like.3SG_[ACC].
 ‘I trust whoever Maria also likes.’ (MG, adapted from Vogel 2001: 345)

Consider the example in (12). In this example, the internal case is nominative and the external case is dative. The internal case is nominative. The predicate *mögen* ‘to like’ takes nominative subjects. The external case is dative. The predicate *vertrauen* ‘to trust’ takes dative objects. The relative pronoun *wem* ‘REL.DAT.AN’ appears in the external case: the dative. The relative pronoun is not marked in bold, just like as the main clause, showing that the relative pronoun patterns with the main clause. This is ungrammatical in German: only the internal case can win.

- (12) *Ich vertraue, wem **Hitchcock** mag.
 I.NOM trust.1SG_[DAT] REL.DAT.AN Hitchcock.ACC like.3SG_[NOM]
 ‘I trust who likes Hitchcock.’ (MG, adapted from Vogel 2001: 345)

Consider the example in (13). In this example, the internal case is nominative and the external case is accusative. The internal case is nominative. The predicate *sein* ‘to be’ takes nominative subjects. The external case is accusative. The predicate

einladen ‘to invite’ takes accusative objects. The relative pronoun *wen* ‘REL.ACC.AN’ appears in the external case: the accusative. The relative pronoun is not marked in bold, just like as the main clause, showing that the relative pronoun patterns with the main clause. This is ungrammatical in German: only the internal case can win.

- (13) *Ich lade ein, wen **mir** sympathisch ist.
 I.NOM invite.1SG_[ACC] REL.ACC.AN I.DAT nice be.3SG_[NOM]
 ‘I invite who I like.’ (MG, adapted from Vogel 2001: 344)

To summarize

Table 4.3: Summary Modern German headless relatives

INT ^{EXT}	[NOM]	[ACC]	[DAT]
[NOM]			
[ACC]	ACC		
[DAT]	DAT	DAT	

4.1.3 Other languages

What does not exist: external only

Something that comes close:

Old English, Old Icelandic both show: D-pronoun plus invariant relativizer + always take case from the main clause

Ancient Greek also actually has both directions (see Van Riemsdijk, 2006), so there is actually not a language with external only + hierarchy effects

And to complete the picture, there are languages in which nothing goes:

Polish and Italian have WH-pronouns but do not allow for conflicts

4.2 Relative pronouns

Is there any other observable difference between the languages? Yes! The shape of the relative pronouns.

This will be intuition later

- when a language's light-headed relatives are D - WH, non-matching is never allowed
- with WH morphology, the internal case can win
- with D morphology (or is it when the relative pronoun can take a complement?), both the external and the internal can win

Table 4.4: Relative pronouns in headless relatives in MG

	INAN	AN
NOM	w-as	w-er
ACC	w-as	w-en
DAT	-	w-em

Table 4.5: Relative pronouns in headless relatives in OHG

	N.SG	M.SG	F.SG
NOM	d-az	d-ër	d-iu
ACC	d-az	d-ën	d-ea/-ia/(-ie)
DAT	d-ëmu/-ëmo	d-ëmu/-ëmo	d-ëru/-ëro
	N.PL	M.PL	F.PL
NOM	d-iu/-ei	d-ē/-ea/-ia/-ie	d-eo/-io
ACC	d-iu/-ei	d-ē/-ea/-ia/-ie	d-eo/-io
DAT	d-ēm/-ēn	d-ēm/-ēn	d-ēm/-ēn

Table 4.6: Relative pronouns in headless relatives in Gothic

	N.SG	M.SG	F.SG
NOM	þ-at-ei	s-a-ei	s-ō-ei
ACC	þ-at-ei	þ-an-ei	þ-ō-ei
DAT	þ-amm-ei	þ-amm-ei	þ-izái-ei
	N.PL	M.PL	F.PL
NOM	þ-ō-ei	þ-ái-ei	þ-ōz-ei
ACC	þ-ō-ei	þ-anz-ei	þ-ōz-ei
DAT	þ-áim-ei	þ-áim-ei	þ-áim-ei

Chapter 5

D VS. WH

Proposal of wh in a nutshell Proposal of d in a nutshell

5.1 WH-relatives

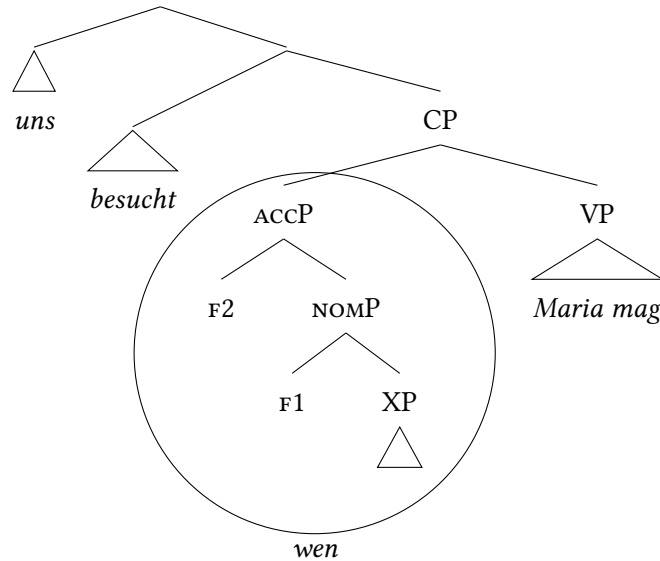
My claim: the behavior in Modern German headless relatives is a consequence of its WH-morphology.

In this section I discuss headless relatives in Modern German. Modern German only allows the relative pronoun only to surface in the internal case, not in the external case. The relative pronoun used in headless relatives in this language is a WH-pronoun. I show in this section that syntactically it is part of the relative clause but that the relative pronoun is sensitive to both the internal and external case.

Modern German differs crucially from Gothic and Old High German in that its headless relative are only grammatical when the internal case wins the case competition over the external case. In other words, the relative pronoun can only surface in the internal case, i.e. the case of the relative clause. This seems to indicate that the relative pronoun is part of the relative clause.

This can be modelled as follows:

(1)



The structure shows an accusative in the relative clause. An ACCP by definition contains a NOMP, so the nominative is there.

We also understand that the other way around does not work: a nominative in the relative clause does not contain an accusative.

5.1.1 The relative pronoun in the relative clause

In this section I show that the relative pronoun in Modern German headless relatives is part of the relative clause. The evidence comes from extraposition. In Modern German, it is possible to extrapose a clause (a CP), but not a noun phrase (DP). The relative clause including the relative pronoun in a headless relative can be extraposed, which indicates that the relative pronoun is part of the relative clause. In what follows I show that CPs can be extraposed and DPs cannot. Then I illustrate how relative clauses including the relative pronoun in headless relatives pattern with CPs.

The sentences in (2) show that it is possible to extrapose CP. In (2a), the clausal object *wie es dir geht* ‘how you are doing’, marked here in bold, appears in its base position. This objects can be extraposed to the right edge of the clause, shown in (2b).

- (2) a. Mir ist **wie es dir geht** egal.
 1SG.DAT is how it 2SG.DAT goes the same
 'I don't care how you are doing.' (Modern German)
- b. Mir ist egal **wie es dir geht**.
 1SG.DAT is the same how it 2SG.DAT goes
 'I don't care how you are doing.' (Modern German)

(3) illustrates that it is impossible to extrapose a DP. The clausal object of (2) is replaced by a simplex noun phrase *die Sache* 'that matter'. In (3a) the object, marked in bold, appears in its base position. In (3b) it is extraposed, and the sentence is no longer grammatical.

- (3) a. Mir ist **die Sache** egal.
 1SG.DAT is that matter the same
 'I don't care about that matter.' (Modern German)
- b. *Mir ist egal **die Sache**.
 1SG.DAT is the same that matter
 'I don't care about that matter.' (Modern German)

So here we see that with an over head.

- (4) adapted from Groos/v Riemsdijk
- a. Jan hat das, **was er gestohlen hat**, zurückgegeben.
 Jan has the money which he stolen has returned
 'Jan has returned the money that he has stolen.'
- b. Jan hat das zurückgegeben, **was er gestohlen hat**.
 the Hans has the money returned which he stolen

 has
 'Jan has returned the money that he has stolen.'
- c. *Jan hat zurückgegeben, das, **was er gestohlen hat**.
 Jan has returned the money which he stolen has
 'Jan has returned the money that he has stolen.'

Here without the head. (5) shows an example of a headless relative. The relative clause including the relative pronoun, marked in bold, appears in its base position in (5a). In (5b), it is extraposed.

- (5) a. Jan hat **was er gestohlen hat** zurückgegeben.
 the Hans has what he stolen has returned
 ‘Hans has returned what he has stolen.’ Groos and van Riemsdijk (1981,
 p. 185)
- b. Jan hat zurückgegeben **was er gestohlen hat**.
 the Hans has returned what he stolen has
 ‘Hans has returned what he has stolen.’ Groos and van Riemsdijk (1981,
 p. 185)

(2) and (3) have shown that only CPs can be moved in Modern German and DPs cannot. (5) shows that the relative clause including the relative pronoun can be extraposed, so it is a CP.

The second argument for the relative pronoun in headless relative being part of the relative clause comes from relative pronouns in headed relatives. Even though these here you can see too that the head is a DP in the main clause and the relative pronoun is part of the relative clause.

(4a) gives an example of a headed relative clause with the relative clause in base position. *das Geld* ‘the money’ is the head of the relative clause and *das er gestohlen hat* ‘that he stole’ is the relative clause. (4b) gives an example with the relative clause extraposed, so at the right edge of the clause. The head of the relative clause is left behind. This is grammatical. This means that a relative clause can be extraposed. (4c) gives an example with the relative clause extraposed and the head of the relative clause with it. This is ungrammatical in Modern German. This means that the head of the relative clause cannot be extraposed.

Conclusion: the *WH*-pronoun is part of the relative clause in Modern German. It appears at the left edge.

5.1.2 Two problems

(1) how does this licensing take place? Normally we have a single DP satisfying the case of a single V. What is happening here? (2) if we follow this logic, to show this type of case competition? (OHG and Gothic also allow this one, so that is fine, they just allow something else in addition, and I'll get back to that later) But there are languages like Polish, which is so-called 'strictly matching'. It always gives an ungrammatical result when there is case competition (and not syncretism or two identical cases).

5.1.2.1 Care about external case

However, just like in Gothic and Old High German, the Modern German relative pronoun is sensitive to the internal and external case. The internal case only surfaces when it is more complex than the external case.

Consider the examples in (6). In both sentences, the internal case is accusative, because the predicate in the relative clause *mögen* 'to like' takes accusative objects. The external case differs between the two sentences. In (6a) the external case is dative, because the predicate *vertrauen* 'to trust' takes dative objects. In (6b), the external case is nominative, because *besuchen* 'to visit' takes nominative subjects.

- (6) a. *Ich vertraue wen **auch Maria mag**.
 I.NOM trust.1SG_[DAT] REL.ACC.AN also Maria.NOM like.3SG_[ACC].
 'I trust whoever Maria also likes.' (adapted from Vogel 2001: 345)
- b. Uns besucht **wen Maria mag**.
 we.ACC visit.3SG_[NOM] REL.ACC.AN Maria.NOM like.3SG_[ACC]
 'Who visits us, Maria likes.' (adapted from Vogel 2001: 343)

The sentence in (6a) is ungrammatical, and the one in (6b) is not. The relative clauses in both sentences are identical case-wise, so the difference in ungrammaticality cannot lie there. The only observable differences are found in the main clause. The former sentence is ungrammatical, because the internal accusative case cannot win the case competition over the external dative. The latter sentence is grammatical, because the internal accusative case wins over the external nominative. The con-

clusion that can be drawn from this is that the relative pronoun in Modern German headless relatives cares about both the internal and the external case.

In sum, even though the relative pronoun in Modern German headless relatives is always part of the relative clause, the relative pronoun also takes the external case into account. That means that the relative pronoun somehow needs to have access to the main clause case. I return to the matter of ‘somehow’ later on in this section.

5.1.2.2 Other *WH*-languages

- (7) a. Jan lubi **komu** (kolwiek) dokucza.
 Jan like.3SG_[ACC] REL.DAT.SG.AN ever tease.3SG_[DAT]
 ‘Jan likes whoever he teases.’
- b. Jan ufa **komu** (kolwiek) wpuścił do domu.
 Jan trust.3SG_[DAT] REL.DAT.SG.AN ever let.3SG_[ACC] to home
 ‘Jan trusts whoever he let into the house.’

5.1.3 Solution: an external head

I propose a single answer to both of these questions: there is an external head. This is the head of the relative clause, and it is deleted in Modern German (as long as it is smaller than the relative pronoun). This external head in Polish is not deleted: it does not add any extra definiteness or indefiniteness. Before I show how this works exactly, I show some independent evidence for assuming that there is this head.

5.1.3.1 Languages with two heads

There is also independent evidence for this head, namely from languages that actually let the head surface.

- (8) doü adiyano-no **doü** deyalukhe
 sago give.3PL.NONFUT-CONN sago finished.AJD
 ‘The sago that they gave is finished.’ (Kombai, Dryer 2005)
- (9) gana gu fali-kha **ro** na-gana-y-a
 bush knife 2SG carry-go.2SG.NONFUT my-bush knife-TR-PRED
 ‘The bush knife that you took away, is my bush knife.’

- (10) yare gamo khereja bogi-n-o **rumu** na-momof-a
 old man join.ss work DUR.do.3SG.NF-TR-CONN person my-uncle-PRED
 ‘The old man who is joining the work is my uncle.’
- (11) a. Junya-wa[Ayaka-gamui-taringo]-otabe-ta.
 Junya-topAyaka-nompeel-pastapple-acceat-past
 ‘Junya ate the apples that Ayaka peeled.’
- b. Junya-wa[Ayaka-garingo-omui-ta-no]-otabe-ta.
 Junya-topAyaka-nomapple-accpeel-past-no-acceat-past
 literally ‘Junya ate [that Ayaka peeled apples].’
- c. Junya-wa[Ayaka-garingo-omui-tasono-ringo]-otabe-ta.
 Junya-topAyaka-nomapple-accpeel-pastthat-apple-acceat-past
 literally ‘Junya ate [those apples that Ayaka peeled apples].’

So, we have the head.

5.1.3.2 Solving external case care

–give here a table with on one side the tree repeated and on the other side the head, with XP at the bottom?–

Now this accusative here can license an external nominative case. The idea is: it is inside this accusative already. We understand why it could not license a dative: f3 is not contained in the accusative.

5.1.3.3 Solving other *WH*-languages

But if we follow the logic I just sketched, I expect all languages that have *WH*-pronouns as relative pronouns to allow for letting the internal case win in case competition. This prediction is incorrect.

Under the grafting analysis, there is nothing that distinguishes Polish from Modern German, so there is no reason for the Polish example in X to be incorrect. The other one is ungrammatical, just as the German one, but the first one is too, and that is unexpected.

Now I do not want to say that Polish and German differ in that Polish is ‘strictly matching’ and Modern German is ‘more relaxed’, that this is something

construction- and language-specific. Instead, I let the distinction in headless relatives follow from something within the language. This something is their light-headed relatives.

- (12) Polish light-headed relative
- (13) German light-headed relative
 - a. *das was*
 - b. *das das*

In German a sense of definiteness is added, because of the *D* in *das*. In Polish that is not the case, because *to* in Polish does not necessarily have definiteness. Evidence for that for Czech comes from Radek. I take that to exist for Polish as well.

So, Polish can involve a second head (the light head) without changing the meaning of the construction. German cannot. Now it is important to note the timing of this ‘repair’ strategy. This has to namely be in the course of the derivation, it cannot be something that is inserted ‘afterwards’. What I mean with this is that there needs to be an element (which is going to become the light head in Polish but not in German) that is available during the derivation. Depending on what this element looks like, Polish shows the light head.

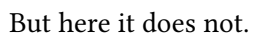
- (14) Polish
 - a. rel clause with ACC
 - b. other element: NOM
 - c. *t*, *c*
- (15) German
 - a. rel clause with ACC
 - b. other element: NOM
 - c. *w* (because *d* would change the meaning)

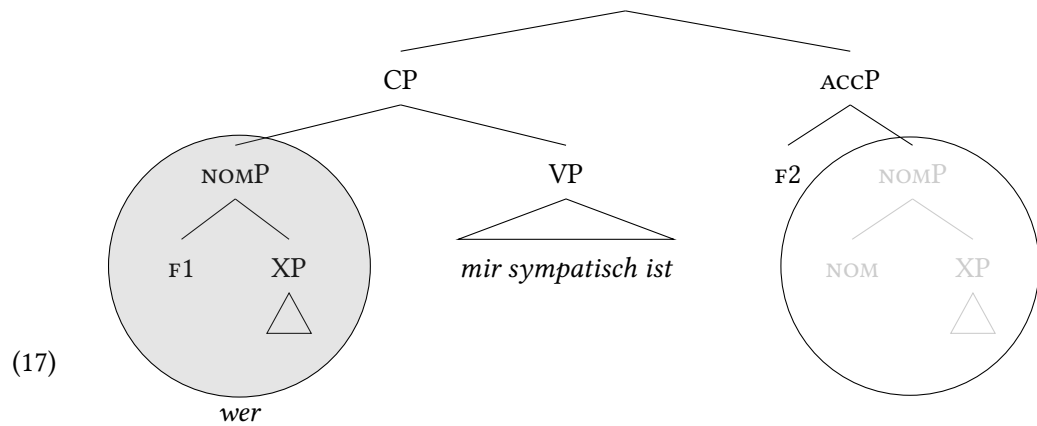
So, Polish has an ‘out’, which German does not have.

What is this external element? This is the external head, that actually shows up in some languages: double-headed relative clauses.

Where is this head in the syntactic structure?

- So this works.





as is deleted because it cannot surface on its own? why not?

what is this deletion to begin with?

Finnish is like German because its light-headed relatives also add some definiteness.

5.2 D-relatives

My claim: d-morphology allows for both directions

5.2.1 Like Modern German

d-relative pronoun is also in embedded clause same story

5.2.2 Derived from light-headed relatives

main clause more complex: full double-headed structure, deletion of element in speccp

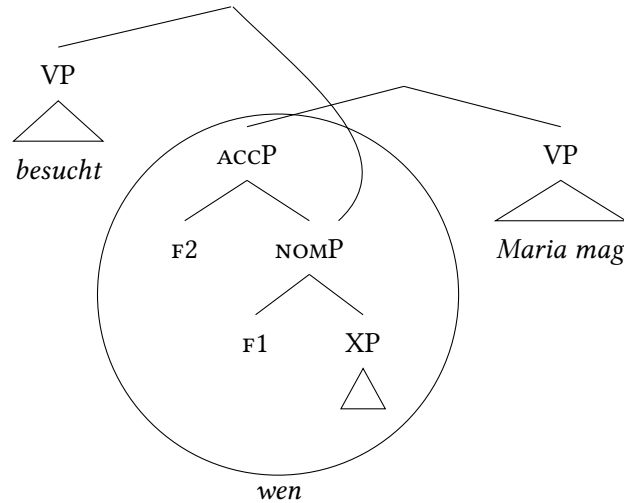
Why does this not happen in Modern German? no idea..

5.2.2.1 Old High German

has attraction, so it could be derived from deletion under c-command under identity

- The relative clause is built, including the accusative relative pronoun. Now the main clause predicate can merge with the nominative that is contained within the accusative.

(19)

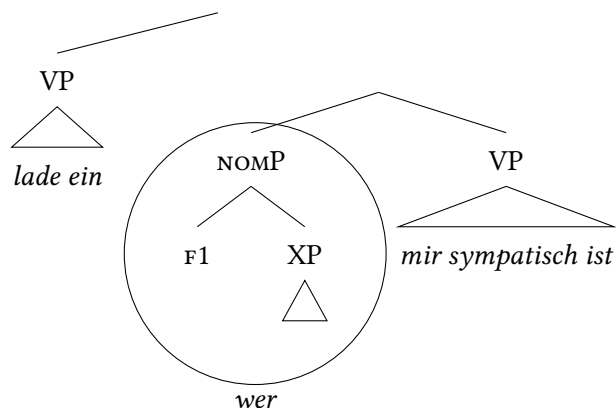


The other way around does not work. Consider (20). This is an example with nominative as internal case and accusative as external case.

- (20) *Ich lade ein, wen **mir sympathisch** ist.
 I.NOM invite.1SG_[ACC] REL.ACC.AN I.DAT nice be.3SG_[NOM]
 'I invite who I like.' (adapted from Vogel 2001: 344)

Now the relative clause is built first again, this time only including the nominative case. There is no accusative node to merge with for the external predicate. Instead, the relative pronoun would need to grow to accusative somehow and then the merge could take place. This is the desired result, because the sentence is ungrammatical.

(21)



So, this seems to work fine. The assumptions you have to do in order to make this are the following. First, case is complex. Second, you can remerge an embedded node (grafting). For the first one I have argued in Chapter 3. The second one could use some additional argumentation. It is a mix between internal remerge (move) and external merge, namely external remerge. Other literature on multidominance and grafting, other phenomena. Problems: linearization, .. But even if fix all these theoretical problems, there is an empirical one.

That is, I want to connect this behavior of Modern German headless relatives to the shape of its relative pronouns. These pronouns are *wh*-elements. The OHG and Gothic ones are not *wh*, they are *D*. Their relative pronouns look different, and so their headless relatives can also behave differently.

Chapter 6

Step by step derivations

6.1 Decomposing pronouns

d-pronouns, wh-pronouns

give this big table and and show which features they express with gray

Table 6.1: Relative pronouns in headless relatives in MG

	INAN	AN
NOM	w-as	w-er
ACC	w-as	w-en
DAT	-	w-em

first phi and case features that form a bundle then wh

So we also have a plural there

Table 6.2: Relative pronouns in headless relatives in OHG

	N.SG	M.SG	F.SG
NOM	d-az	d-ēr	d-iu
ACC	d-az	d-ēn	d-ea/-ia/(-ie)
DAT	d-ēmu/-ēmo	d-ēmu/-ēmo	d-ēru/-ēro
	N.PL	M.PL	F.PL
NOM	d-iu/-ei	d-ē/-ea/-ia/-ie	d-eo/-io
ACC	d-iu/-ei	d-ē/-ea/-ia/-ie	d-eo/-io
DAT	d-ēm/-ēn	d-ēm/-ēn	d-ēm/-ēn

and here there is the complementizer extra

Table 6.3: Relative pronouns in headless relatives in Gothic

	N.SG	M.SG	F.SG
NOM	þ-at-ei	s-a-ei	s-ō-ei
ACC	þ-at-ei	þ-an-ei	þ-ō-ei
DAT	þ-amm-ei	þ-amm-ei	þ-izái-ei
	N.PL	M.PL	F.PL
NOM	þ-ō-ei	þ-ái-ei	þ-ōz-ei
ACC	þ-ō-ei	þ-anz-ei	þ-ōz-ei
DAT	þ-áim-ei	þ-áim-ei	þ-áim-ei

6.2 Background

(1) Spellout Algorithm:

Merge F and

- a. Spell out FP.

- b. If (a) fails, attempt movement of the spec of the complement of F, and retry (a).
- c. If (b) fails, move the complement of F, and retry (a).

When a new match is found, it overrides previous spellouts.

- (2) **Cyclic Override** (Starke, 2018):

Lexicalisation at a node XP overrides any previous match at a phrase contained in XP.

If the spellout procedure in (1) fails, backtracking takes place.

- (3) **Backtracking** (Starke, 2018):

When spellout fails, go back to the previous cycle, and try the next option for that cycle.

If backtracking also does not help, a specifier is constructed.

- (4) **Spec Formation** (Starke, 2018):

If Merge F has failed to spell out (even after backtracking), try to spawn a new derivation providing the feature F and merge that with the current derivation, projecting the feature F at the top node.

- (5) Merge F, Move XP, Merge XP

illustrate this by building d and wh-pronouns

6.3 Light head

Which features are contained in the light head?

German *das, was* - *an dem as, was* - *am*

so d is lacking

which feature is missing there? Florian Schwarz

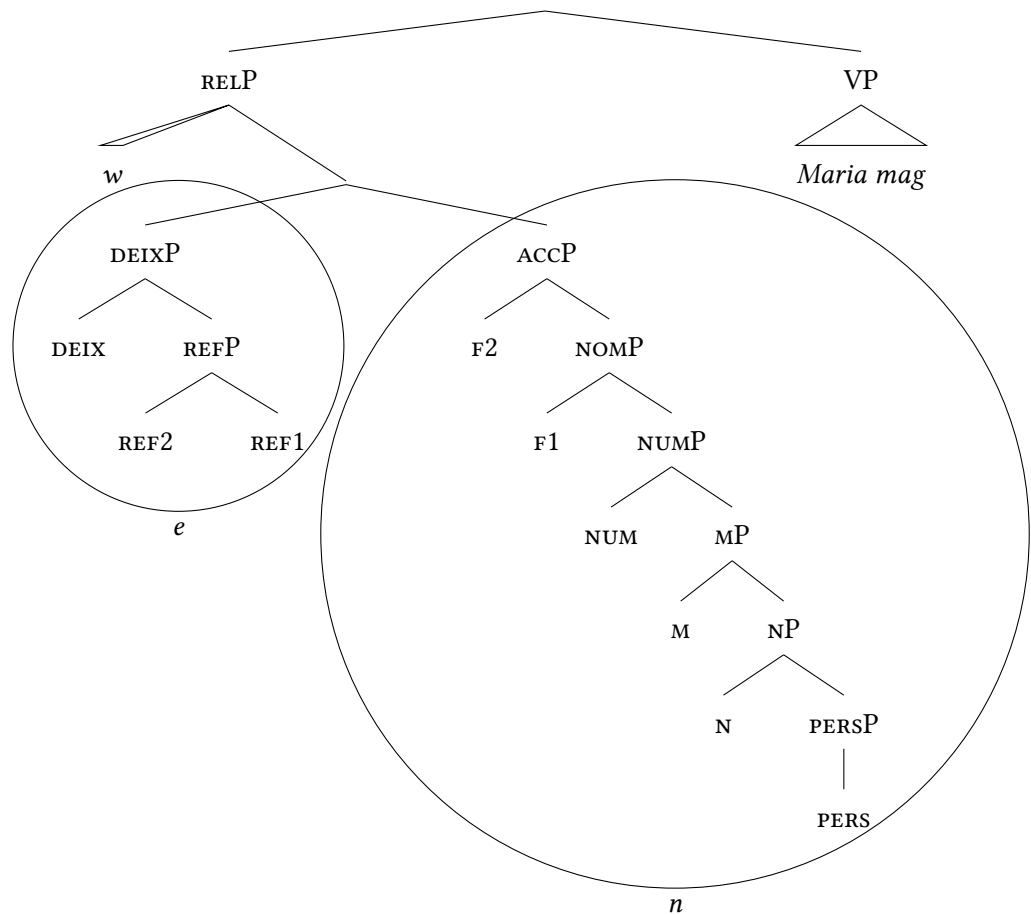
6.3.1 German derivation

- (6) Uns besucht **wen** **Maria** mag.
 we.ACC visit.3SG_[NOM] REL.ACC.AN Maria.NOM like.3SG_[ACC]
 ‘Who visits us, Maria likes.’ (adapted from Vogel 2001: 343)

Internal structure of the relative clause.

w got merged as a complex spec. F1 and F2 ended up there via backtracking:
 taking w off, spec to spec movement, and spelling it out with the suffix.

(7)

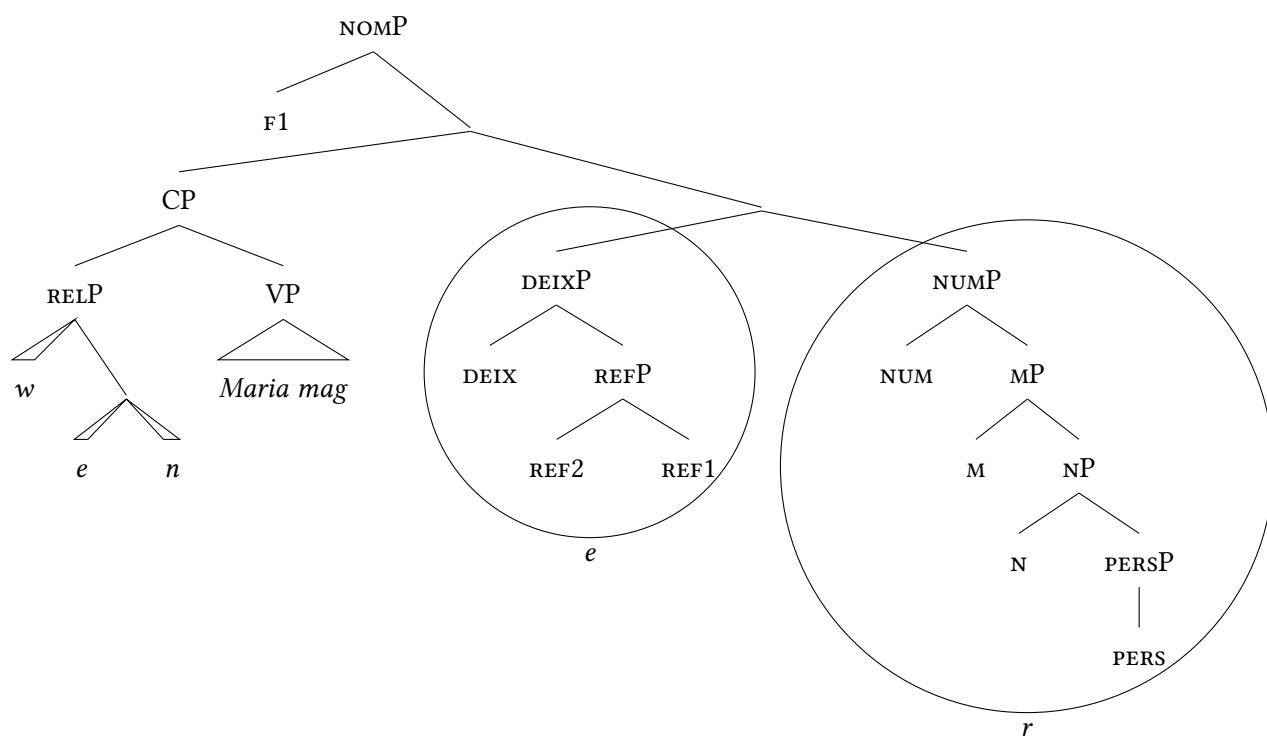


Structure of the relative clause + the external head that is going to be deleted.

Case is merged above the relative clause. Backtracking takes place, meaning

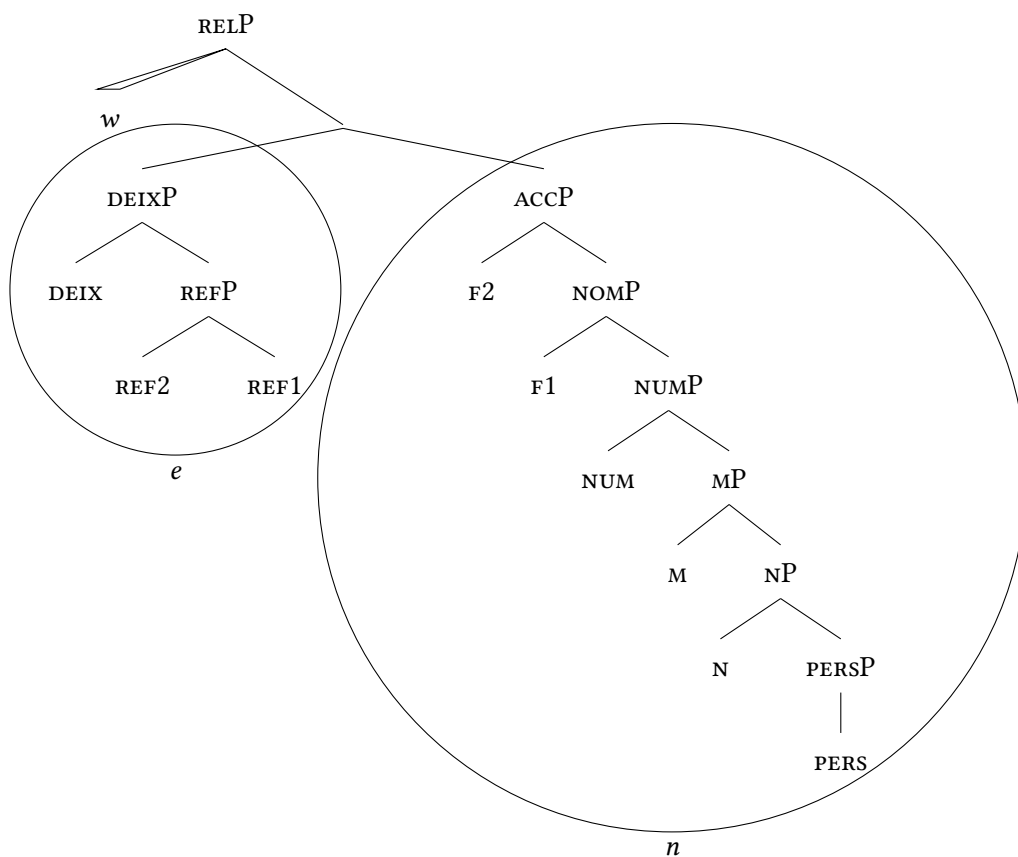
that the relative clause and the head are going to be split up again. Then it can be spelled out with the suffix of the head after spec-to-spec movement.

(8)

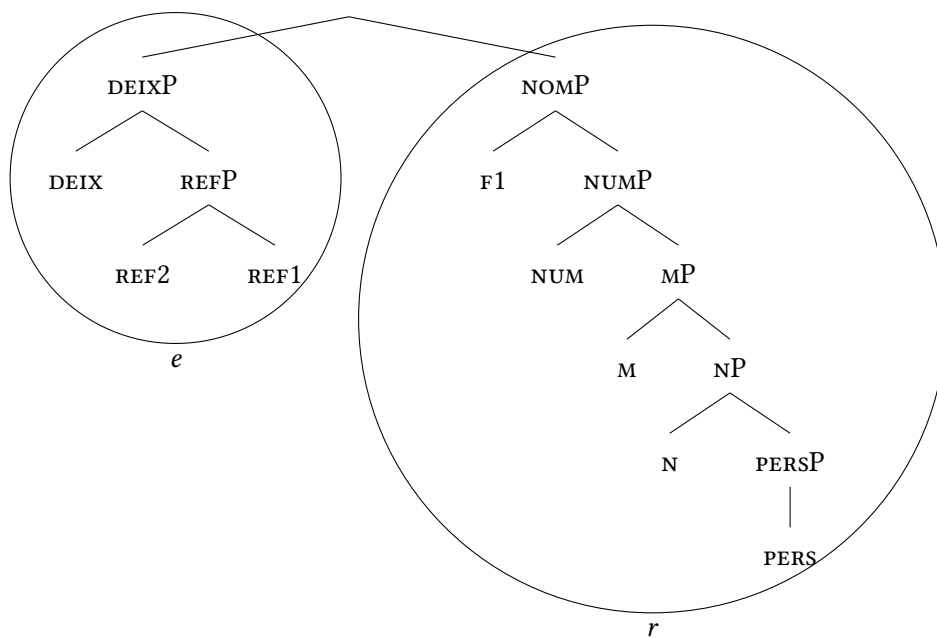


6.4 German deletion

So German relative pronoun:

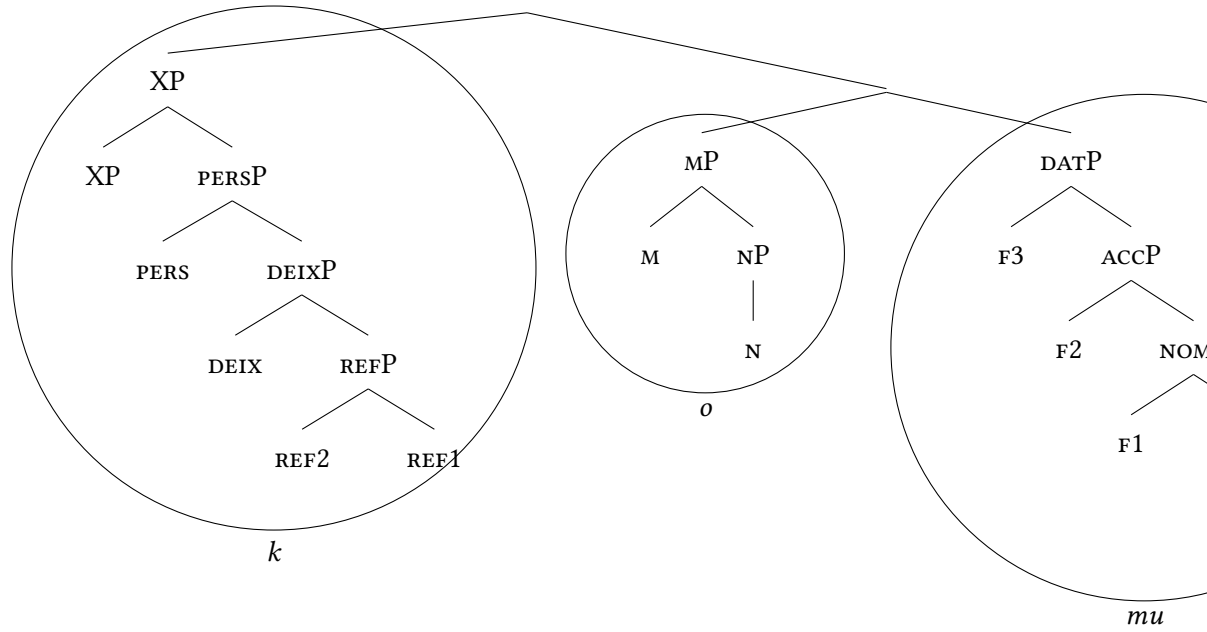


and German head:

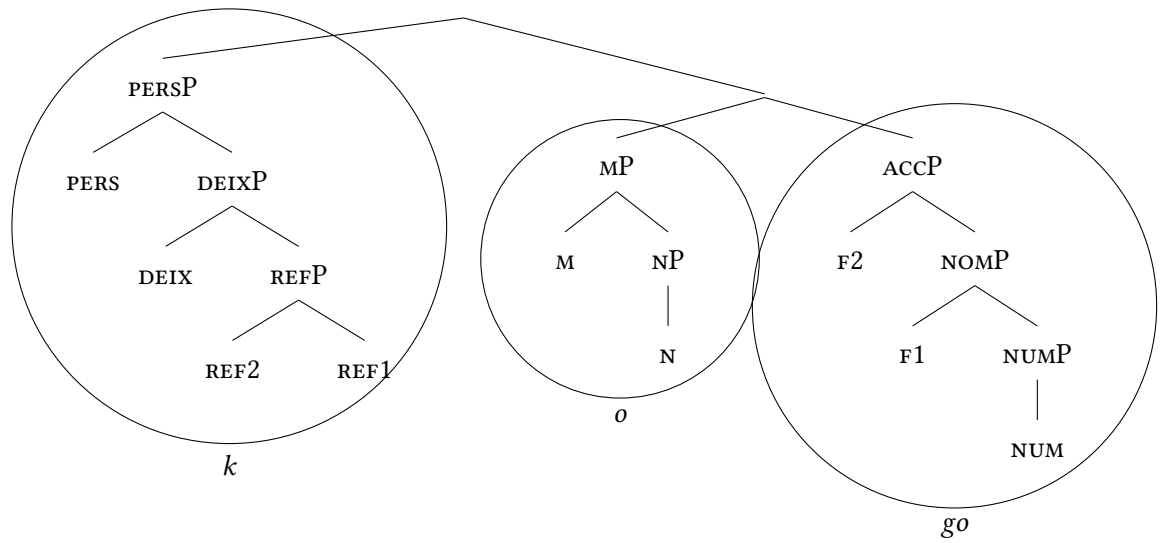


6.5 Polish deletion

Polish relative pronoun



Polish head



6.5.1 Derivations for d

one like German other derived from d, d

Part III

Stuff

Chapter 7

Stuff

7.1 Diachronic story

7.2 D also in Modern German

7.3 Why FEM does not have WH-pronouns

7.4 syncretism

7.5 Polish etc

7.6 Icelandic, Greek?

7.7 Relativization in general

two features: topic and relativization
topic = the movement
relativization = the morpheme
some languages have both, so it has be at least two features

7.8 Shape of relative pronoun

7.8.1 Gothic

Gothic relative pronouns are built from the demonstratives plus the complementizer *ei*. Under *ei*, two phonological processes take place. First, *s* changes into *z*, e.g. in *þ-ōs* to *þ-ōz-ei*. Second, on bisyllabic elements, final vowels disappear e.g. *þ-ata* to *þ-at-ei*.

Table 7.1: Gothic demonstratives

	N.SG	M.SG	F.SG
NOM	þ-ata	sa	sō
ACC	þ-ata	þ-ana	þ-ō
DAT	þ-amma	þ-amma	þ-i-z-ái
	N.PL	M.PL	F.PL
NOM	þ-ō	þ-ái	þ-ōs
ACC	þ-ō	þ-ans	þ-ōs
DAT	þ-áim	þ-áim	þ-áim

The suffixes that appear on demonstratives are also found on 3sg pronouns. The only difference is that the demonstratives attach to a *þ(a?)*-stem and the pronouns attach to an *i*-stem. This does not hold for all forms, some seem to be suppletive.

Table 7.2: Gothic 3SG pronouns

	N.SG	M.SG	F.SG
NOM	i-ta	i-s	si
ACC	i-ta	i-na	i-ja
DAT	i-mma	i-mma	i-z-ái
	N.PL	M.PL	F.PL
NOM	i-ja	eis	i-jōs
ACC	i-ja	i-ns	i-jōs
DAT	i-m	i-m	i-m

7.8.2 Old High German

Wouldn't we now not expect that Modern German patterns with Old High German wrt attraction in headed constructions. Yes, we would. And yes, this is exactly what we see. Paper by Bader on case attraction.

7.9 Two points: all or nothing

7.9.1 No matches work

Italian doesn't allow any of them, because it has *d*, *wh* as light headed relative?

7.9.2 All allow for matching ones (and syncretic ones! whuut)

First, I discuss the matching headless relatives, in which the internal and external case match.

Consider the example in (1), repeated from the introduction. In this example, the internal case and the external case are accusative. The relative clause, including the relative pronoun, is marked in gray. The internal case is accusative. The predicate *arma* 'pity' takes accusative objects. The external case is accusative as well. Here

the predicate *gaarma* ‘pity’ takes accusative objects. The relative pronoun *pan(a)* ‘who.ACC’ appears in the accusative.

- (1) *gaarma pan -ei arma*
 pity_[ACC] who.ACC -COMP pity_[ACC]
 ‘I will pity (him) whom I pity’ (Gothic, Rom. 9:15, after Harbert 1978: 339)

Consider the example in (2), in which the internal case and the external case are nominative. The relative clause, including the relative pronoun, is marked in gray. The internal case is nominative. The predicate *matjai* ‘eats’ takes nominative subjects. The external case is nominative as well. Here the predicate *gadaupnai* ‘die’ takes nominative subjects. The relative pronoun *sa* ‘who.NOM’ appears in the nominative.

- (2) *ei sa -ei þis matjai, ni gadaupnai*
 that who.NOM -COMP of this eats_[NOM] not die_[NOM]
 ‘that (he) who eats of this may not die’
 (Gothic, John 6:50, after Harbert 1978: 337)

Consider the examples in (3), in which the internal case and the external case are dative. The relative clauses, including the relative pronoun, is marked in gray. The internal case is dative. The predicates *gabaur* ‘tribute’, *mota* ‘custom’, *agis* ‘fear’ and *sweriþa* ‘honour’ takes dative objects. The external case is dative as well. The same predicates as in the relative clause take dative objects. The relative pronouns *þamm(a)* ‘who.DAT’ appear in the dative.

- (3) a. *þamm -ei gabaur gabaur*
 who.DAT -COMP tribute_[DAT] tribute_[DAT]
 ‘tribute to (him) whom tribute is due’
 b. *þamm -ei mota mota*
 who.DAT -COMP custom_[DAT] custom_[DAT]
 ‘custom to (him) whom custom is due’

- c. þamm -ei agis agis
 who.DAT -COMP fear_[DAT] fear_[DAT]
 ‘fear (him) whom fear is due’
- d. þamm -ei swerīþa swerīþa
 who.DAT -COMP honour_[DAT] honour_[DAT]
 ‘honour (him) whom honour is due’

(Gothic, Rom. 13:7, after Harbert 1978: 339)

So far only the diagonal line is filled. These are the matching examples, the examples in which the internal case matches the external case. The relative pronoun appears in the case which is the internal and external case. The nominative is given in (2), the accusative in (1), and the dative in (3).

Table 7.3: Summary of Gothic matching headless relative data

EXT INT	[NOM]	[ACC]	[DAT]
[NOM]	NOM		
[ACC]		ACC	
[DAT]			DAT

7.10 Deriving the different languages

give only the ‘end point’, no derivations

7.10.1 Old High German

In OHG, proper attraction in headless relatives can be derived from headed relatives. The relative pronoun is the determiner from the main clause. Under a double-

headed Cinque-analysis, it is the internal DP that is deleted.

(4) DAT instead of ?

- a. was allon them ando, them thar quamun at erist tuo
 what all d.DAT do to d.DAT there x as first do?
 ‘,

than is im so them salte them (the M) man bi seuues Stade oido teuuirpit, 1370.

Hon them erlscipie them thar inne uuas, 2768.

allon them ando them thar quamun at erist tuo, 3435.

fon them herrosten them thes hnses giuueld, 3344 C.

sagda them alat them (the M) thar all giscaop, 4636. —

(5) ACC instead of NOM

- a. unde ne wolden níet besên den mort den dô was
 and not wanted not see the murder.ACC that.ACC there had
 geschên
 happened
 ‘and they didn’t want to see the murder that had happened.’
 (MHG, Nib. 1391,14, Behaghel 1923-1932: 756, after Pittner 1995: 198)

7.10.2 Modern German

In German, inverse attraction in headed relatives can be shown to be very different from inverse attraction in headless relatives. I am not set on an analysis yet. Under a double-headed Cinque-analysis, it is the external DP that is deleted. Grafting is also still an option.

7.10.3 Gothic

In Gothic, ?

Chapter 8

OHG examples

8.1 Isidor

internal: dat, external: nom?

- (1) Ibu christus auur got ni
wenn,falls ChristusSG.NOM aber,jedoch GottSG.NOM nicht
uuari, **dhemu** **in psalmom**
seinSUBJ.PAST.SG.3 derMASC.SG.DAT in Psalm,LobgesangPL.DAT
chiquhedan **uuard**
sprechen,singen werdenIND.PAST.SG.3
“, (OHG, Isid.)

internal: nom, external, nom

- (2) Dher euuuih hrinit,
der.MASC.SG.NOM ihr.PL.ACC.2 berührenIND.PRES.SG.3
hrinit sines augin
berührenIND.PRES.SG.3 seinNEUT.SG.GEN.ST AugeSG.GEN
sehun .
PupilleSG.ACC
“, (OHG, Isid.)

internal: nom, external:nom, light-headed!

- (3) Innan dhiu dher quhimit,
 bis dass der.MASC.SG.NOM kommen.IND.PRES.SG.3
 dher chisendit uuirdhit
 der.MASC.SG.NOM senden,schicken werden.IND.PRES.SG.3
 ‘, (OHG, Isid.)

8.2 Otfrid

internal: nom, external: dat?

- (4) thia láz ih themo
 dieFEM.SG.ACC lassenIND.PRES.SG.1 ichSG.NOM.1 derMASC.SG.DAT
 iz lisit thar
 esNEUT.SG.ACC.3 lesenIND.PRES.SG.3 da, dort
 ‘I leave her to him who reads it’ (OHG, Otfrid)

?

Al io súlcha giwúrt so duat thes géistes giburt thén zi thiú gigángent then =
 dative plural dative subject in embedded clause?

internal: dat? external: nom?

- (5) nist themo
 nicht.seinIND.PRES.SG.3 derMASC.SG.DAT
 sér bizeinit
 Schmerz,Leid,Kummer,Unglück;SG.NOM Böses
 noh léides
 bezeichnen,bestimmenIND.PRES.SG.3 und.nicht
 wiht giméinit
 Leid,Schmerz,UnglückSG.GEN Ding,etwasSG.NOM

sagen,meinen,bestimmenIND.PRES.SG.3

„

(OHG, Otfrid)

acc-acc

séhet then ih kússe see whom I kiss Otfr.Ev.4.16

nom-acc

thoh bín ih then ir súachet toch bin ik wa't sy sykje Otfr.Ev.4.16

8.3 **Tatian**

light-headed relative

- (6) eno nist thiz thér then ir suochet zi arslahanne ?
 etwa, nun; wohl; nicht wahr nicht sein dieser, diese, dieses der,

die, das der, die, das, wer, was ihr suchen zu erschlagen, töten

„

Chapter 9

Conclusion

9.1 Coming back to the genitive

In Gothic headless relatives, there is data available of the genitive in case competition with the accusative. The genitive wins in this competition. I give an example in which the internal case is accusative and the external case is genitive in (1). The relative clause is marked in bold, the relative pronoun is not. The internal case is accusative. The predicate *gasehvun* ‘saw’ takes accusative objects. The external case is genitive. The noun *waiht* ‘thing’ combines with a genitive. The relative pronoun *piz(e)* ‘what.GEN’ appears in the external case: the genitive.

- (1) ni waiht **piz -ei gasehvun**
 not thing_[GEN] what.GEN -COMP saw_[ACC]
 ‘not any of (that) which they saw’

(Gothic, Luke 9:36, adapted from Harbert 1978: 340)

If the internal case is genitive and the external case is accusative, the genitive wins as well. Crucially, there are no attested examples in Gothic of genitives in case competition with nominatives or datives.

The same holds for the two other main languages discussed in this thesis: Modern German and Old High German. In Modern German, case competitions have been reported between all possible case combinations, so also between genitives and nominatives, between genitives and accusatives, and between genitives and

datives (cf. Vogel, 2001). The genitive wins over the nominative and the accusative. In a competition between the genitive and the dative neither of them gives a grammatical result. Old High German might show some examples of case competition between genitives and accusatives and genitives and nominative. In these cases, the genitive always wins. No examples of datives against genitives are attested (Behaghel, 1923-1932). In sum, the genitive does not appear in all possible case competition combinations in all three languages, and is therefore excluded.

What do I predict for the genitive? Starke: S-acc – S-dat – gen – B-acc – B-dat hierarchies for each language individually. Gothic syncretisms: acc-dat, acc-nom, nom-gen(!). Modern German: nom-acc-dat-gen? Old High German: ? then the predictions would be..

The genitive differs from the other cases in a particular way. That is, nominative, accusative and dative are dependents of the verb (or prepositions). Genitives can be dependents of verbs, or they can be dependents of nouns, as possessors or partitives. Consider the example in (1). The genitive relative pronoun *piz(e)* ‘what.GEN’ is a dependent of the noun *waiht* ‘thing’. Most of the examples in headless relatives contain genitives that depend on nouns and not those that depend on verbs. The (genitive) possessor is also placed far away from the other three cases in Keenan and Comrie’s (1977) relativization hierarchy.

I leave it for future research..

9.2 Diachronic part

First, German only had the d-pronoun and attraction. The pattern of attraction that came with that pronoun is ext only. At some point, German invented the wh-pronoun. Helmut showed how it emerged. With that came the other pattern: int only. Some people lost the attraction (but everybody kept the d-pronoun) and with that the pattern disappeared. So the patterns in headless relatives follow from the relative pronouns in the language.

Appendix

Ungrammatical examples against case scale in MG

let me show that the claim I made for Gothic holds for MG as well: DAT wins over ACC wins over NOM.

Examples in which the internal case is dative, the external case is accusative and the relative pronoun appears in accusative case is ungrammatical.

- (2) *Ich lade ein wen **auch Maria vertraut.**
I invite_[ACC] REL.ACC.AN also Maria trusts_[DAT].
'I invite whoever Maria also trusts.' (Vogel 2001: 344)

Examples in which the internal case is dative, the external case is accusative and the relative pronoun appears in accusative case is ungrammatical.

- (3) *Uns besucht wer **Maria vertraut.**
us visits_[NOM] REL.NOM.AN Maria trusts_[DAT]
'Who visits us, Maria trusts.' (Vogel 2001: 343)

Examples in which the internal case is accusative, the external case is nominative and the relative pronoun appears in nominative case is ungrammatical.

- (4) *Uns besucht wer **Maria mag.**
Us visits_[NOM] REL.NOM.AN Maria.NOM likes_[ACC]
'Who visits us likes Maria likes.' (Vogel 2001: 343)

Examples in which the internal case is accusative, the external case is dative and

the relative pronoun appears in accusative case is ungrammatical.

- (5) *Ich vertraue **wen** **auch Maria mag.**
 I trust_[DAT] REL.ACC.AN also Maria likes_[ACC].
 'I trust whoever Maria also likes.' (Vogel 2001: 345)

Examples in which the internal case is nominative, the external case is dative and the relative pronoun appears in nominative case is ungrammatical.

- (6) *Ich vertraue, **wer** **Hitchcock mag.**
 I trust_[DAT] REL.NOM.AN Hitchcock likes_[NOM]
 'I trust who likes Hitchcock.' (Vogel 2001: 345)

Examples in which the internal case is nominative, the external case is accusative and the relative pronoun appears in nominative case is ungrammatical.

- (7) *Ich lade ein, **wer** **mir sympathisch ist.**
 I invite_[ACC] REL.NOM.AN me nice is_[NOM]
 'I invite who I like.' (Vogel 2001: 344)

Primary texts

Col.	Colossians, New Testament
Isid.	Der althochdeutsche Isidor
John	John, New Testament
Luke	Luke, New Testament
Mons.	The Monsee fragments
Nib.	Das Nibelungenlied
Otfrid	Otfrid's Evangelienbuch
Rom.	Romans, New Testament
Tatian	Tatian

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