

Case competition in headless relatives

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List of abbreviations

ABS	absolutive
ACC	accusative
AN	animate
AOR	aorist
AUX	auxiliary
CL	clitic
CMPR	comparative
COMP	complementizer
DAT	dative
DEF	definite
DEM	demonstrative
DET	determiner
ERG	ergative
EXT	external case
F	feminine
GEN	genitive
INF	infinitive
INT	internal case
MOD	modal marker
M	masculine

NMLZ	nominalization
NOM	nominative
N	neuter
OBJ	object
OPT	optative
PASS	passive
PL	plural
POSS	possessive
PRES	present tense
PRET	preterite
PROG	progressive
PST	past tense
PTCP	participle
REL	relative
SBJV	subjunctive mood
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 Decomposing 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.SG.M.NOM’ 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.SG.M.ACC’ 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.SG.M.NOM 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.SG.M.ACC 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.SG.M.ACC’ appears in accusative case.²

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

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

- (5) jah þo **-ei** **ist** **us** **Laudeikaion** jus
and REL.SG.N.ACC -COMP be.PRES.3SG_[NOM] from Laodicea 2PL.NOM
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 questions 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.

1.3 The scope of this dissertation

1.3.1 Case attraction

Case attraction in headed relatives seems related, but I will not account for it.

- (6) unde ne wolden níet besên den mort den dô was geschên
 and not wanted not see the murder.ACC that.ACC there had 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) Den schilt den er vür bôt der wart schiere
 the.ACC shield.ACC which.ACC he held_{ACC}, that.NOM was quickly
 zeslagen
 shattered_{NOM}
 ‘The shield he held was quickly shattered’ Iwein 6722f., Lenerz 1984: 116)

OHG has case attraction in headed relatives, Gothic does not, but both show case competition in headless relatives. So, there does not seem to be a one-to-one connection there. I leave it for further research.

1.3.2 Syncretism

For a long time it has been noted that syncretism seems to resolve case conflicts.
 –references–

A language like Polish, that normally doesn’t allow for any case mismatches, even allows for it. In this dissertation I do not offer a detailed account for what a derivation looks like.

- (8) Jan unika kogokolwiek wczoraj obrazil.
 Jan avoid.3SG_[GEN] REL.SG.M.ACC/GEN yesterday offend.3SG.PST_[ACC].
 ‘Jan avoided whoever he offended yesterday.’

1.3.3 The genitive

(9) ni waitht þiz -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)

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 (9). 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.

more: in middle high german only the genitive shows case attraction in headed relatives. again, it is different from the others.

I leave it for future research..

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. In this section I first discuss examples in which the internal and the external match, and then examples in which they differ.

If the internal and the external case are identical, the relative pronoun simply surfaces in that case. I illustrate this with examples from headless relatives in

predicate *giban* ‘to give’ takes dative indirect objects. The relative pronoun *paim* ‘REL.SG.M.DAT’ appears in the internal and external case: the dative.

- (4) nist mein du giban, alja þaim -ei
is not 1SG.POSS.NOM to give.INF_[DAT] except for REL.SG.M.DAT -COMP
manwiþ was
prepare.PTCP be.PRET.3SG_[DAT]
'it is not mine to give except for to the one, for whom it was prepared'
(Gothic, Mark 10:49, after Harbert 1978: 339)

These findings can be summarized as in Table 2.1. The left column shows the internal case (INT) between square brackets. The upper row shows the external case (EXT) between square brackets. The other cells indicate the case of the relative pronoun.

The diagonal from the top left to the bottom right corresponds to the examples given so far in which the internal and external case match. The nominative marked in light gray corresponds to (2), in which the internal nominative case competes with the external nominative case, and the relative pronoun surfaces in the nominative case. The accusative marked in dark gray corresponds to (3), in which the internal accusative case competes with the external accusative case, and the relative pronoun surfaces in the accusative case. The unmarked dative corresponds to (4), in which the internal dative case competes with the external dative case, and the relative pronoun surfaces in the dative case.

Table 2.1: Extensive summary of Gothic headless relatives (matching)

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

In Table 2.1, six cells remain empty. These are the cases in which the internal and the external case differ. It has been argued in the literature that the two com-

peting 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 (5). Elements more to the right on this scale win over elements more to the left on this scale.²

(5) 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 differing 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 start with the competition between accusative and nominative. Following the case scale in (5), the relative pronoun appears in accusative case and never in nominative.

Consider the example in (6), repeated from the introduction. In this example, the internal accusative case competes against the external nominative case. The internal case is accusative, as the predicate *frijon* ‘to love’ takes accusative objects. The external case is nominative, as the predicate *wisan* ‘to be’ takes nominative subjects. The relative pronoun *þan(a)* ‘REL.SG.M.ACC’ 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.

(6) **þan** -ei frijos siuks ist
 REL.SG.M.ACC -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)

²In 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 6 I briefly return to the issue.

³Throughout this dissertation * stands for 'not found in natural language'. For extinct languages this means that there are no attested examples. For non-extinct languages it means that the examples are ungrammatical.

Table 2.2: Extensive summary of Gothic headless relatives (NOM – ACC)

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

I continue with the competition between dative and nominative. Following the case scale in (5), the relative pronoun appears in dative case and never in nominative.

Consider the example in (8), in which the internal dative case competes against the external nominative case. The internal case is dative, as the predicate *fraletan* ‘to forgive’ takes dative objects. The external case is nominative, as the predicate *frijon* ‘to love’ takes nominative subjects. The relative pronoun *pamm(a)* ‘REL.SG.M.DAT’ 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.

- (8) ip þamm -ei leiril fraletada leiril frijod
but REL.SG.M.DAT -COMP little forgive.PASS.PRES.3SG_[DAT] little love._[NOM]
'but the one whom little is forgiven loves little'
(Gothic, Luke 7:47, adapted from Harbert 1978: 342)

Consider the example in (9), in which the internal nominative case competes against the external dative case. The internal case is nominative, as the predicate *wisan* ‘to be’ takes nominative subjects. The external case is dative, as the predicate *frapjan* ‘to think about’ takes dative indirect objects. The relative pronoun *paim* ‘REL.PL.N.DAT’ 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 nominative, the external case is dative and the relative pronoun appears in nominative case are unattested.

- (9) þaim -ei iupa sind fraþjaip
 REL.PL.N.DAT -COMP above be.PRES.3PL_[NOM] think about.OPT.PRES.2PL_[DAT]
 ‘think about those which are above’
 (Gothic, Col. 3:2, adapted from Harbert 1978: 339)

The two examples in which nominative and dative compete are showed in Table 2.3. The light gray marking corresponds to (8), in which the internal dative wins the case competition over the external nominative, and the relative pronoun surfaces in the dative case. The dark gray marking corresponds to (9), in which the external dative wins the case competition over the internal nominative, and the relative pronoun surfaces in the dative case. The instances of *NOM that appear in the same cells indicate that there are no examples, in which the nominative and the dative compete and the relative pronoun appears in nominative case.

Table 2.3: Extensive summary of Gothic headless relatives (NOM – DAT)

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

I end with the competition between dative and accusative. Following the case scale in (5), the relative pronoun appears in dative case and never in accusative.

Consider the example in (10), in which the internal dative case competes against the external accusative case. The internal case is dative, as the preposition *ana*

jan ‘to send’ takes accusative objects. The external case is dative, as the predicate *galaubjan* ‘to believe’ takes dative objects. The relative pronoun *þamm(a)* ‘REL.SG.M.DAT’ 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.

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

The two examples in which accusative and dative compete are showed in Table 2.4. The light gray marking corresponds to (10), in which the internal dative wins the case competition over the external accusative, and the relative pronoun surfaces in the dative case. The dark gray marking corresponds to (11), in which the external dative wins the case competition over the internal accusative, and the relative pronoun surfaces in the dative case. The instances of *ACC that appear in the same cells indicate that there are no examples, in which the accusative and the dative compete and the relative pronoun appears in accusative case.

Table 2.4: Extensive summary of Gothic headless relatives (ACC — DAT)

<small>INT</small> <small>EXT</small>	[NOM]	[ACC]	[DAT]
[NOM]	NOM	ACC *NOM	DAT *NOM
[ACC]	*NOM ACC	ACC	DAT *ACC
[DAT]	*NOM DAT	*ACC (DAT)	DAT

Table 2.4 can be simplified as Figure 2.5. The data can be divided into three set: (1) a set of three unmarked cells in the diagonal from the top left to the bottom right, (2) a set of three light gray marked cells in the lower left corner and (3) a set of three dark gray marked cells in the upper right corner.

The unmarked three cells in the diagonal are situations in which the internal and the external case match. The three cells in the lower left corner, marked in light gray, are the situations in which the internal case surfaces when it wins the competition. The three cells in the upper right corner, marked in dark gray, are the situations in which the external case surfaces when it wins the competition.

In the three instances in the lower left corner, the relative pronoun appears in the internal case. They correspond to the examples (6), (8) and (10). In the three instances in the upper right corner, the relative pronoun appears in the external case. They correspond to the examples in (7), (9) and (11).

Table 2.5: Summary of Gothic headless relatives

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

To sum up, case competition in headless relative is subject to the case scale, repeated in (12).

$$(12) \quad \text{NOM} < \text{ACC} < \text{DAT}$$

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 and Grosu 2003; Kakarikos 2014 for Ancient 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.

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 (12), 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.

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 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.

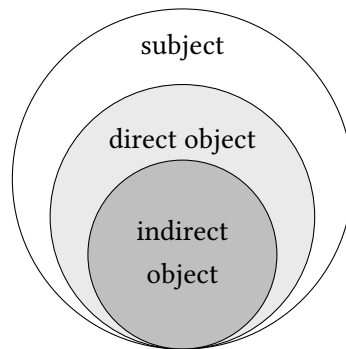


Figure 2.1: Agreement hierarchy

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

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.

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.

Japanese is an example of a language that does not show any agreement on the predicate. An example is given in (13). 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’.

- (13) Tarooga 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 (14). 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’.

- (14) 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 (15). 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*.

- (15) (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 (16). 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’.

- (16) *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.

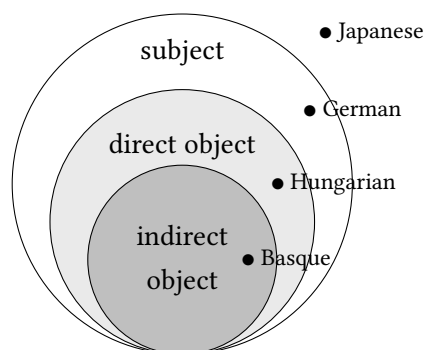


Figure 2.2: Agreement hierarchy with languages

Gilligan (1987) performed a typological study among 100 genetically and areally diverse languages, which confirms the picture. The results are shown in Table 2.6. 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 2.6: Typology for agreement hierarchy

agreement with				
	direct		indirect	number
subject	object	object	object	of languages
*	*	*	*	23
✓	*	*	*	31
✓	✓	*	*	25
✓	✓	✓	✓	23
✓	*	✓	✓	(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.

Icelandic is a language that has dative subjects. It is like German in that it only shows agreement with a single argument. If agreement takes place with the gram-

The second type of evidence that Bobaljik gives comes from ergative-absolutive languages. Ergative-absolutive languages differ in their alignment from nominative-accusative languages. In nominative-accusative languages, the subject of an intransitive verb (S) has the same marking as the subject of a transitive verb (A), namely nominative. The object of a transitive verb (O) has its own marking, namely accusative. This is schematically shown in 2.3.

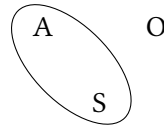


Figure 2.3: Nominative-accusative alignment

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, namely ergative. This is schematically shown in 2.4.

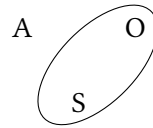


Figure 2.4: Ergative-absolutive alignment

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.

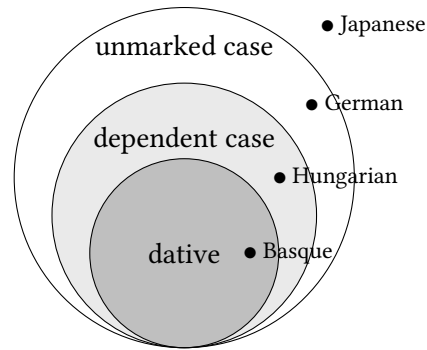


Figure 2.5: Agreement hierarchy (case)

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 (13). 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 (14). 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 (15). 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 (16). 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 2.6 suf-

fices.

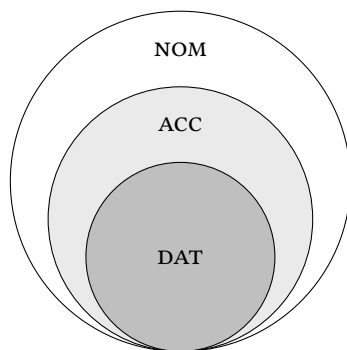


Figure 2.6: Agreement hierarchy (NOM/ACC/DAT)

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

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 (19a). The relative clause derived from that is shown in (19b). 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.

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

In (19b), 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: $\text{NOM} < \text{ACC} < \text{DAT}$.

Keenan and Comrie (1977) formulated the implicational hierarchy in terms of the grammatical functions subject, direct object and indirect object.⁸ The impli-

⁸Keenan and Comrie (1977) also included obliques, possessives and objects of comparison on the

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

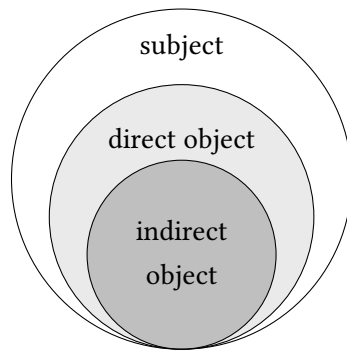


Figure 2.7: Relativization hierarchy

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. (20) 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’.

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

In (21), the subject from the declarative sentence, marked in bold, is relativized. The

lowest end of the hierarchy. I leave them out here, because they are not relevant for the discussion.

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’.

- (21) **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 (20) cannot be relativized in the same way, as shown in (22). 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.

- (22) ***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. (23) 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’.

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

(German)

(24) **die** den Mann küssende **Frau**
 the the man kissing woman
 ‘the woman who is kissing the man’ (German)

(25) ***den** die Frau küssende **Mann**
the the woman kissing man
intended: ‘the man that the woman is kissing’ (German)

(26) Ali bunuh **ayam** yang Aminah sedang memakan.
 Ali kill chicken that Aminah PROG eat
 ‘Ali killed the chicken that Aminah is eating.’
 (Malay, Keenan and Comrie 1977: 71, my boldfacing)

Indirect objects cannot be relativized using the same strategy. (27) is an example of a ditransitive sentence in Malay. The indirect object *kapada perempuan itu* ‘to the woman’ cannot be relativized using *yang*.

- (27) 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 (28). In (28a), 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 (28b) differs from (28a) 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.

- (28) 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).

(29) shows how examples of relativized subjects and direct objects. (29a) 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*

(29) a. Pöydällä tanssinut **poika** oli sairaas.
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)

(30) 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)

⁹Additionally, the relativized positions do not appear in verbal agreement anymore, but this not visible in the example, because they are all phonologically zero.

direct object *liburua* ‘the book’ from (30) is relativized. The head *liburua* ‘the book’, marked in bold, follows the relative clause *gizonak emakumeari eman dio-n* ‘that the man has given to the woman’.¹⁰ The suffix *-n* is attached to the relative clause. In (31c), the dative indirect object *emakumeari* ‘the woman’ from (30) is relativized. 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.

- (31) a. emakume-a-ri libur-u-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 libur-u-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)

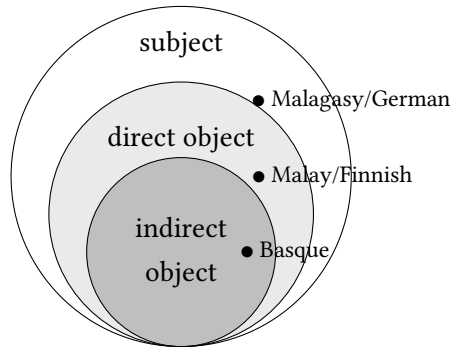


Figure 2.8: Relativization hierarchy with languages

Caha (2009) argues that the implicational hierarchy is more accurate if it is stated

¹⁰The absolutive direct object *liburua* ‘the book’ does not have an additional overt absolutive marker, so this difference cannot be observed when it is relativized.

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 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).

(32) shows an intransitive and transitive sentence in Dyirbal. In the intransitive sentence in (32a), the subject *balan ɖugumbil* 'the woman' is marked absolutive. In the transitive sentence in (32b), the subject *ŋaɖa* 'I' is marked ergative, and the object *balan ɖugumbil* 'the woman' is marked absolutive.

- (32) a. *balan ɖugumbil jina-ŋu*
 DET.ABS woman.ABS sit-PASS
 'The woman is sitting down.'
- b. *ŋaɖa balan ɖugumbil buɾa-n*
 I.ERG DET.ABS woman.ABS see-PRES/PST
 '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 *-ŋu*. In (33a), the absolutive subject *ɖugumbil* 'woman' from (32a) is relativized. The head *ɖugumbil* 'woman', marked in bold, precedes the relative clause *jina-ŋu* 'who is sitting down'. The predicate in the relative clause *jina* 'sit' is followed by the relative suffix *-ŋu*. In (33b), the absolutive object *ɖugumbil* 'woman' from (32b) is relativized. The head *ɖugumbil* 'woman', marked in bold, precedes the relative clause *ŋaɖa buɾa-ŋu* 'whom I am watching'. The predicate in the relative clause *buɾa* 'see' is followed by the relative suffix *-ŋu*.

- (33) a. *ɲaɖa balan ɖugumbil pina-ɲu buɾa-n*
 I.ERG DET.ABS woman.ABS sit-REL see-PRESPST
 ‘I am watching the woman who is sitting down.’
 (Dyirbal, Dixon 1972: 100, my boldfacing)
- b. *balan ɖugumbil ɲaɖa buɾa-ɲu pina-ɲu*
 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 (32b)) 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 2.6.

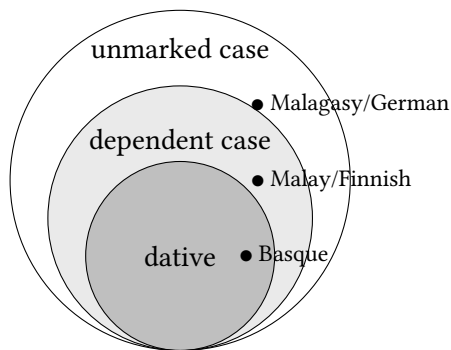


Figure 2.9: Relativization hierarchy (case)

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 (24). 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 (29). 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 (31). 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.

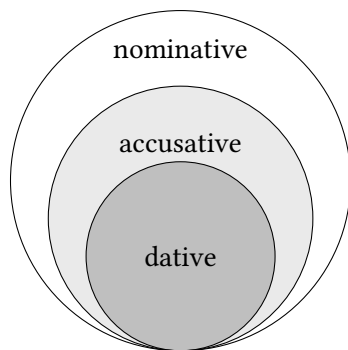


Figure 2.10: Relativization hierarchy (NOM/ACC/DAT)

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 morphological 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 2.7 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.

Table 2.7: Syncretism patterns

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

In sum, case syncretism follows the ordering of the case scale in headless relatives: NOM < ACC < DAT.

2.3.2 Morphological case containment

This section shows a second way in which NOM < ACC < DAT is reflected in morphology: morphological case 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 morphological case containment in some of its pronouns (Nikolaeva 1999: 16 after Smith et al. 2019). Three examples are given in Table 2.8.

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:l**na* ‘him/her’ and *muŋe:w**na* ‘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.

Table 2.8: Morphological case containment in Khanty

	first personSG	third personSG	first personPL
NOM	<i>ma</i>	<i>luw</i>	<i>muŋ</i>
ACC	<i>ma:-ne:m</i>	<i>luw-e:l</i>	<i>muŋ-e:w</i>
DAT	<i>ma:-ne:m-na</i>	<i>luw-e:l-na</i>	<i>muŋ-e:w-na</i>

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

2.4 Summary

Case competition in headless relatives adheres to the case scale in (34). 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.

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

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 us-

ing 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 $NOM < ACC < DAT$ 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 that the case scale $NOM < ACC < DAT$ is a wide-spread phenomenon: it recurs in several phenomena across different languages. The scale can be observed in at least two more syntactic phenomena: agreement and relativization.¹ The case scale also appears within morphology in syncretism patterns and morphological case 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 scales in different subparts of language (cf. Caha, 2019, on numeral constructions). Specifically, I show

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.

that the observed case scale naturally follows on the assumption that the case hierarchy is deeply anchored in syntax. The case scales 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 morphological case 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 one by one. 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

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 morphological 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. In Table 3.2 I repeat from Table 2.7 examples that shows the possible and impossible syncretism patterns.

Table 3.2: Syncretism patterns (repeated)

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

Table 3.2 shows that if one orders cases in the linear sequence $NOM - ACC - DAT$, only contiguous regions in the sequence turn out to be syncretic. First, all three cases can be non-syncretic, as in Faroese. Second, all three cases can be syncretic, as in Dutch. Third, the accusative and the dative can be syncretic and the nominative not, as in Icelandic. Fourth, nominative and accusative can be syncretic and the dative not, as in German. The pattern that is not attested crosslinguistically is the

one that targets non-contiguous regions in the table, the ABA pattern (Baerman, Brown, and Corbett, 2005; Caha, 2009; Zoppi, 2017).

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.

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 lexical trees (i.e. syntactic representations) on the one hand and phonology (PF) and concepts (CF) on the other hand.⁴

In Nanosyntax, the lexicon contains lexical entries, which are links between lexical trees, phonological representations and conceptual representations (Starke, 2014).⁵ I leave the conceptual representation out of discussion for now, as it is

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

⁴Throughout the dissertation I call the syntactic representations in the lexicon ‘lexical trees’ in order to distinguish them from syntactic structures in the syntax.

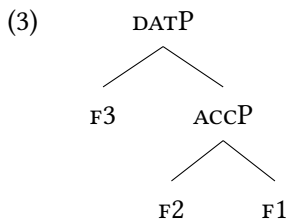
⁵The lexical tree does not have to correspond to both a phonological and a conceptual represen-

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. 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, a feature bundle as in (2) cannot exist. It 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.



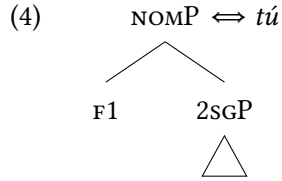
This structure leads to the concept of phrasal spellout: not terminals but multiple syntactic heads (phrases) are realized with a single piece of phonology (i.e. a single morpheme). Applying this to (3), not the terminals F1, F2 and F3 receive a realization, but ACCP and DATP are spelled out. A necessary requirement is that these multiple syntactic heads form a constituent. That means that DATP cannot be spelled out without ACCP.

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

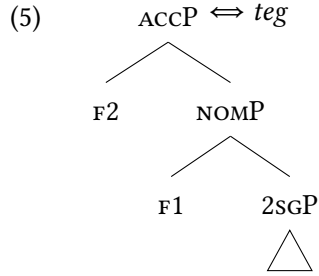
tation. Lexical trees that only correspond to a conceptual representations and not to phonological representations are (phrasal or clausal) idioms. Lexical trees that only correspond to phonological representations but not to conceptual representations are for instance irregular plurals.

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 phrase 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 have the stem *t* with a suffix following it.

The lexical entry for *tú* is given in (4). The lexical tree consists of 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

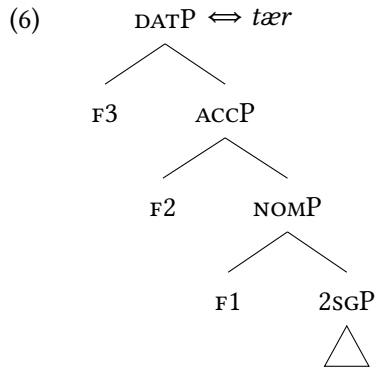


The lexical entry for *teg* is given in (5). The lexical tree consists of all the features of the lexical tree in (4), plus F2, making it an ACCP. The linked phonological representation is *teg*.



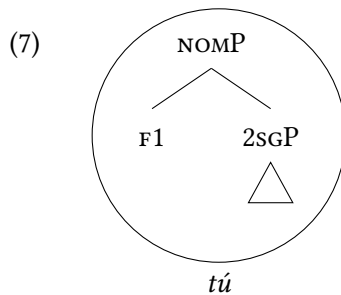
The lexical entry for *tær* is given in (6). The lexical tree consists of all the features of the lexical tree in (5), plus F3, making it a DATP. The linked phonological representation is *tær*.

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



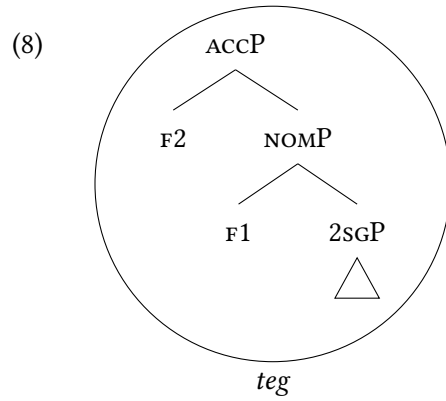
The lexical trees and their phonological counterparts I gave in (4) to (6) are lexical entries. These lexical entries are used to spell out syntactic structures. I give examples of syntactic structures in (7) to (9).

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

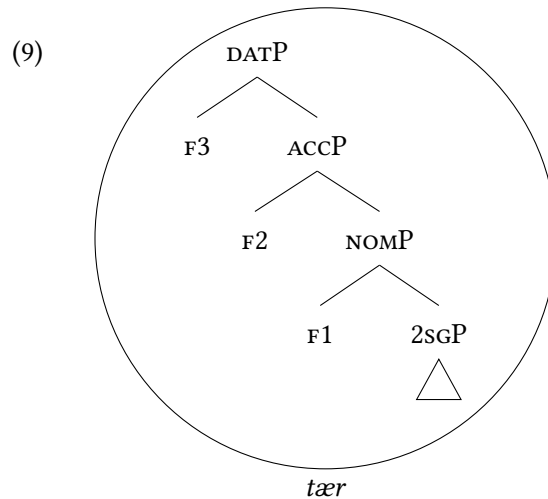


The lexical tree in (5) is identical to the syntactic structure in (8), and it is spelled out as *teg*.

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

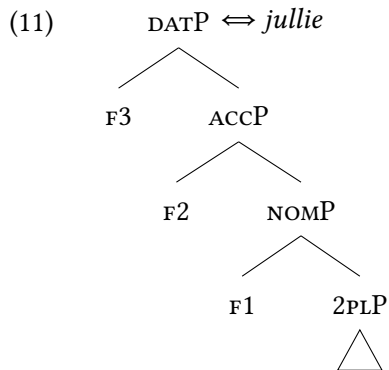


In the Faroese examples above, the syntactic structures are all identical to the lexical trees. However, Nanosyntax assumes that to be a successful match, identity is not a necessary requirement. Instead, matching relies on a containment relation. A lexical entry applies when it contains all features.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

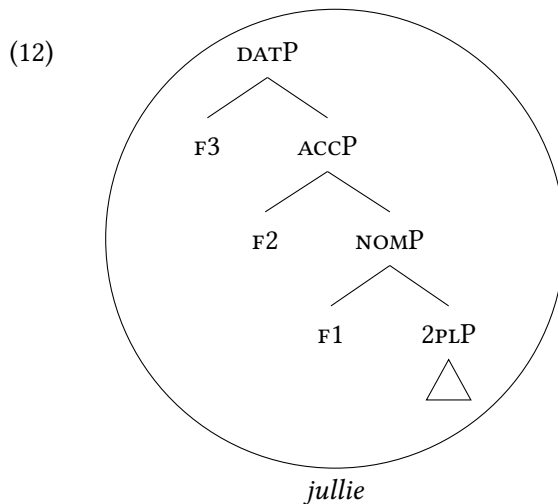
(10) **The Superset Principle** Starke (2009):

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

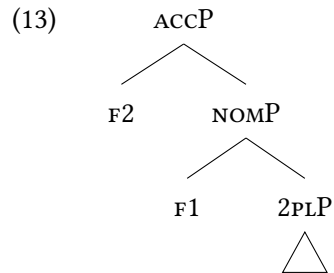
Let me illustrate this with the Dutch second person plural pronoun from Table 3.2. This pronoun is syncretic between the nominative, accusative and dative. The lexicon only contains a single lexical entry, namely (11). The lexical tree consists of the complex lexical tree that corresponds to the second 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).



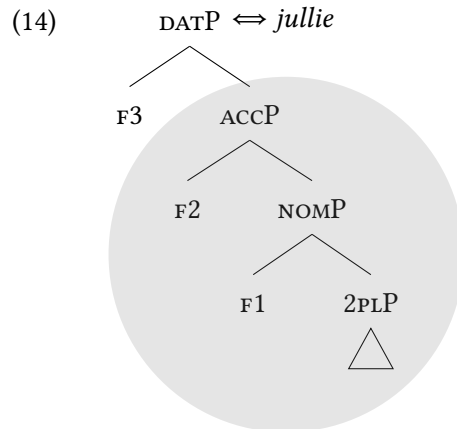
The syntactic structure of the dative, given in (12), is the least exciting of the three. It is identical to the lexical tree (11), and therefore, spelled out as *jullie*.



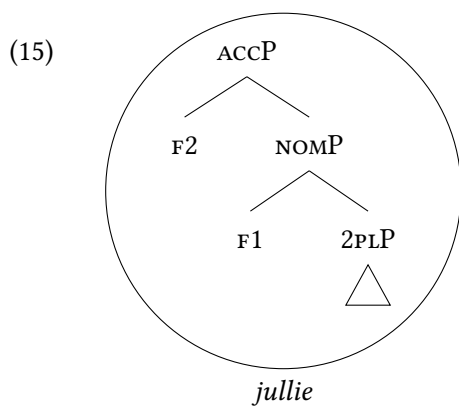
The syntactic structure of the accusative is given in (13).



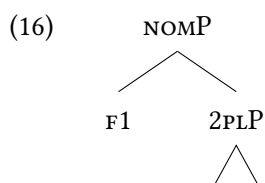
The lexical entry in (11) is not identical to this syntactic structure. However, the lexical tree contains the syntactic structure of the accusative. I repeat the lexical entry for *jullie* in (14), marking the subpart of the tree that matches the syntactic structure in gray.



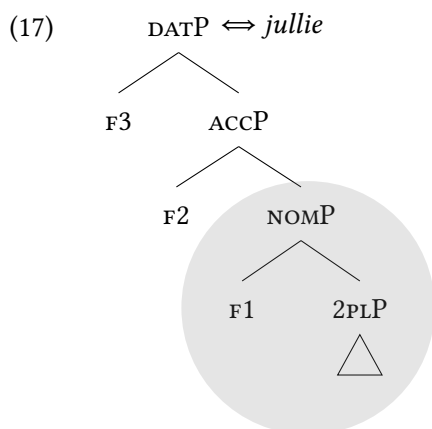
As a result, the accusative is spelled out as *jullie*, shown in (15).



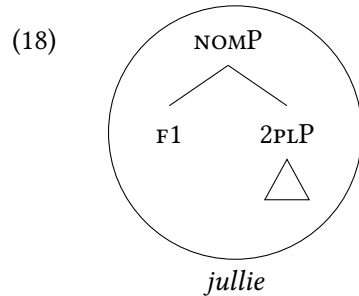
The same holds for the nominative. The syntactic structure is given in (16).



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 repeat 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).

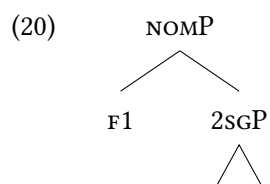


A question arises at this point. Why are the accusative and nominative in Faroese not spelled out by the lexical entry for the dative (and why is the nominative not spelled out by the lexical entry for the accusative)? These syntactic structures are namely contained in the lexical tree for the dative (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 features that are not used. This is formalized as in (19).

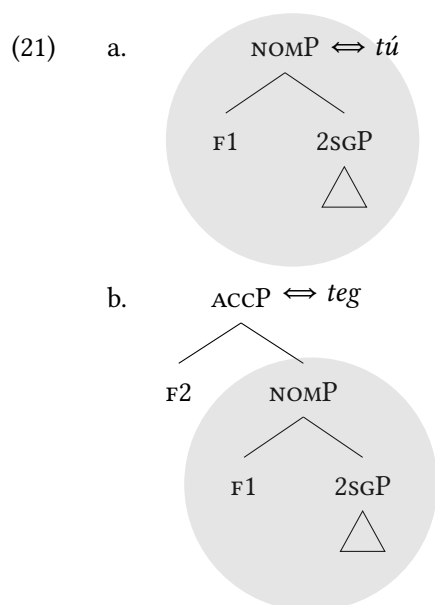
- (19) **The Elsewhere Condition** (Kiparsky 1973, formulated as in Caha 2020):
 When two entries can spell out a given node, the more specific entry wins.
 Under the Superset Principle governed insertion, the more specific entry is the one which has fewer unused features.

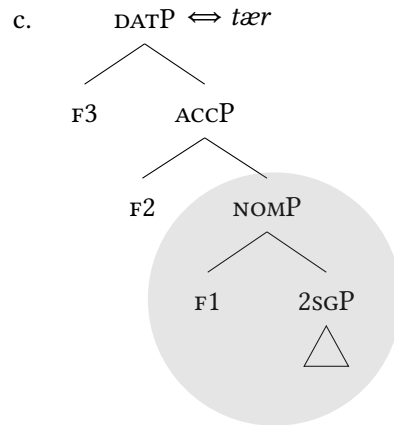
I show how the Superset Principle and the Elsewhere Condition interact in a competition with the Faroese lexical entries. I only discuss the nominative *tú* and the accusative *teg*, because for the dative *tær* there is only a single candidate that contains all features: the lexical entry *tær*.

Consider first again the syntactic structure for the nominative in (20), repeated from (7).

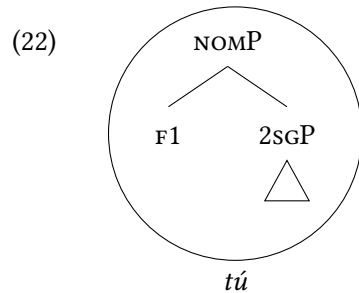


The three lexical entries for *tú* in (4), *teg* in (5) and *tær* in (6) are candidates for this syntactic structure. I repeat the lexical entries for *tú*, *teg* and *tær* in (21), marking the subpart of the tree that matches the syntactic structure in gray.

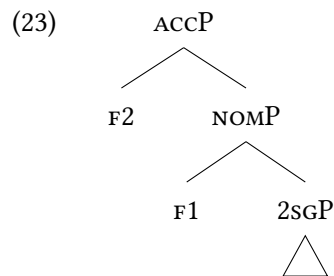




The first, (21a), has no unused features. The second, (21b), has one unused feature: f2 . The third, (21c), has two unused features: f2 and f3 . Because (21a) has the least amount of unused features, it wins the competition, and the syntactic structure is spelled out as *tú*. This is shown in (22).

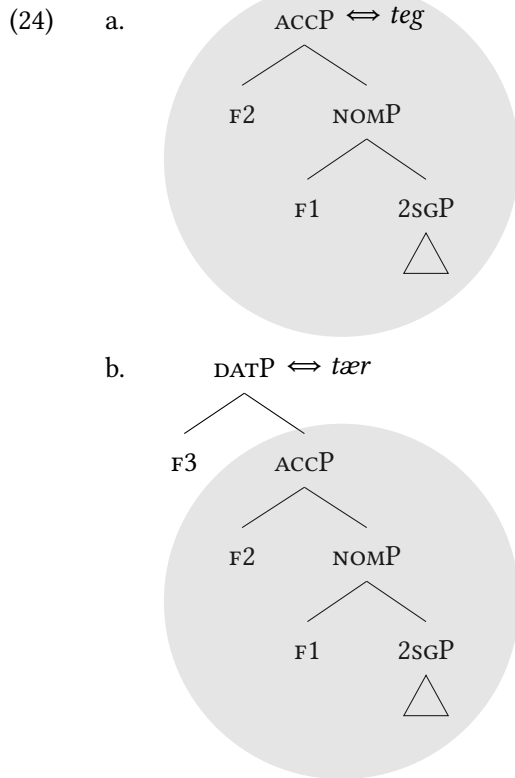


Consider the syntactic structure for the accusative in (23), repeated from (8).



The two lexical entries for *teg* in (5) and *tær* in (6) are candidates for this syntactic

structure. The lexical entry for *tú* in (4) is not a candidate here, because it does not contain the complete syntactic structure (i.e. it lacks F2). I repeat the lexical entries for *teg* and *tær* in (17), marking the subpart of the tree that matches the syntactic structure in gray.



The former, (24a), has no unused features. The latter, (24b), has one unused feature: F2. Because (24a) has fewer unused features than (24b), it wins the competition, and the syntactic structure is spelled out as *teg*. This is shown in (25).

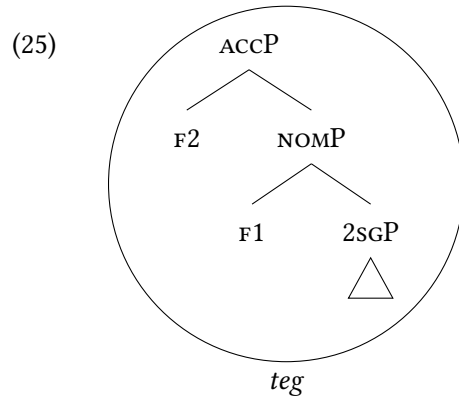
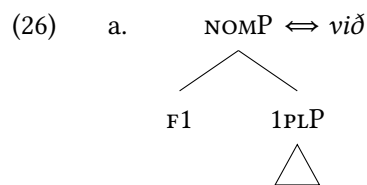
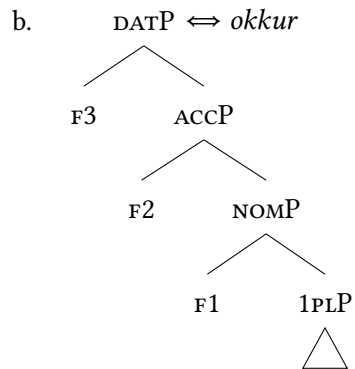


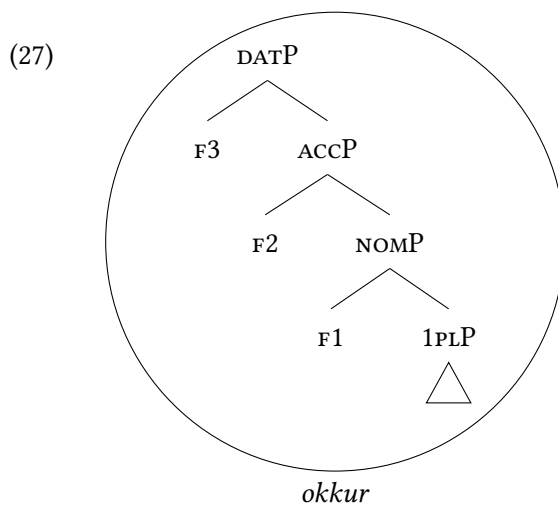
Table 3.2 contains two more attested patterns: the ABB in Icelandic and the AAB in German. In the remainder of this section I show how these two patterns are derived, and that the unattested one cannot be derived. I also show how the system is unable to derive an ABA pattern, which is crosslinguistically unattested (Baerman, Brown, and Corbett, 2005; Caha, 2009; Zompì, 2017).

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 (26a) contains pronominal features and F1, and corresponds to the phonology *við*. The second one is given in (26b). It contains in addition to (26a) also the feature F2 and F3. The phonological representation that is linked to it is *okkur*.

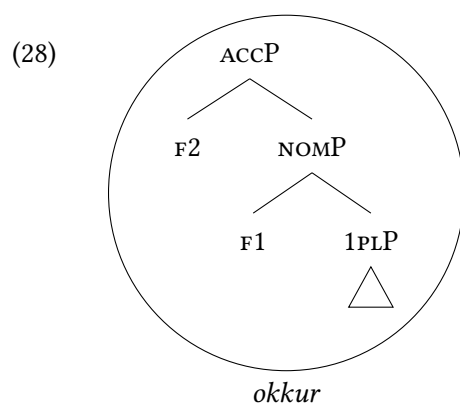




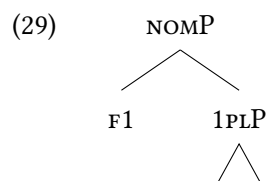
The syntactic structure for the dative is given in (27). It is contained in the lexical tree in (26b), and therefore, spelled out as *okkur*. The lexical entry in (26a) is not considered, because it does not contain f2 and f3.



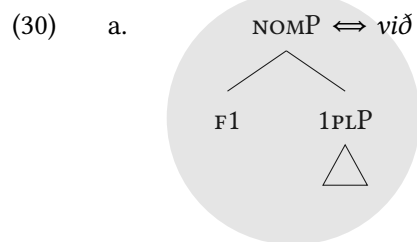
The syntactic structure for the accusative is given in (28). It is contained in the lexical tree in (26b), and therefore, spelled out as *okkur*. The lexical entry in (26a) is not considered, because it does not contain f2.

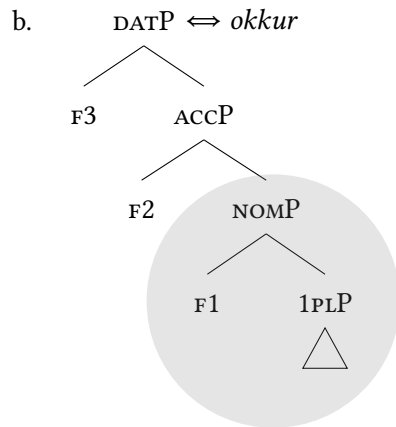


The syntactic structure for the nominative is given in (29).

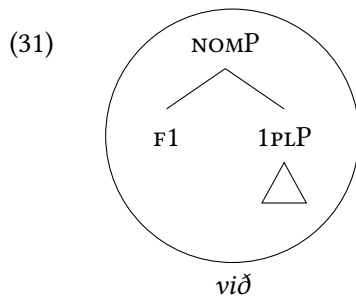


It is contained in the lexical tree for *við* in (26a) and in the one for *okkur* in (26b). I repeat the lexical entries for *við* and *okkur* in (30), marking the subparts of the trees that match the syntactic structure in gray.

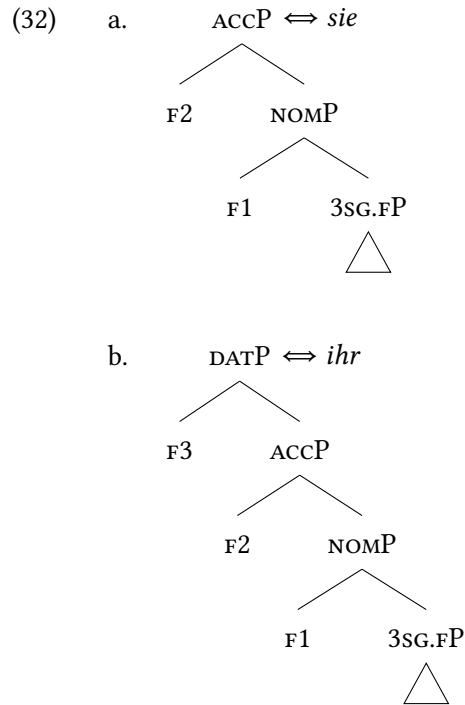




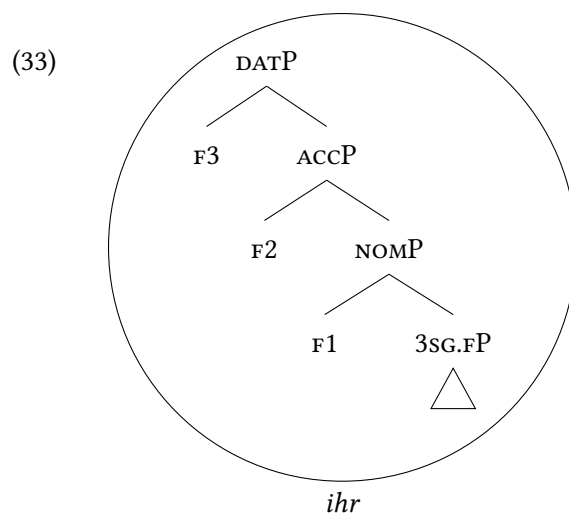
The former, (30a), has no unused features. The latter, (30b), has two unused features: F2 and F3. Because (30a) has fewer unused features, it wins the competition, and the syntactic structure is spelled out as *við*. This is shown in (31).



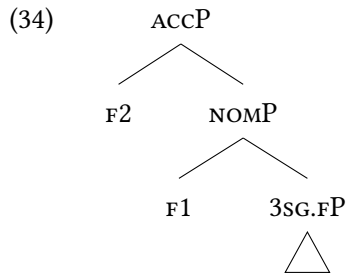
For the third person singular feminine, German uses *sie* as nominative and accusative, and *ihr* as dative. Two lexical entries are needed for that. The first one in (32a) contains pronominal features, F1 and F2. It corresponds to the phonology *sie*. The second one is given in (32b). It contains in addition to *sie* in (32a) also the feature F3. It corresponds to the phonology *ihr*.



The syntactic structure for the dative is given in (33). It is contained in the lexical tree in (32b), and therefore, spelled out as *ih*. The lexical entry in (32a) is not considered, because it does not contain F3 .

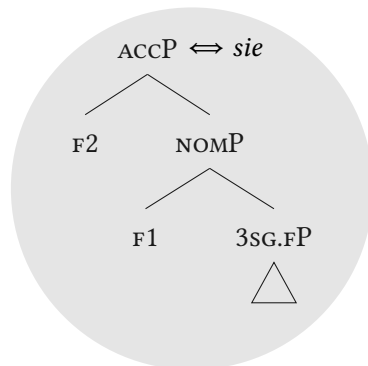


The syntactic structure for the accusative is given in (34).

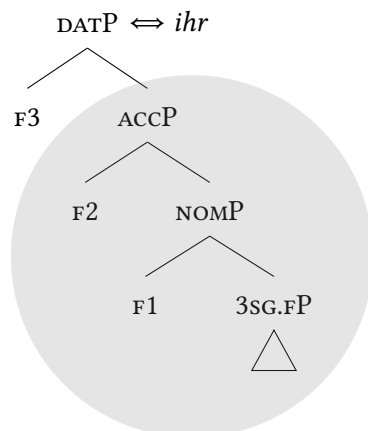


It is contained in the lexical tree for *sie* in (32a) and in the one for *ihr* in (32b). I repeat the lexical entries for *sie* and *ihr* in (35), marking the subparts of the trees that match the syntactic structure in gray.

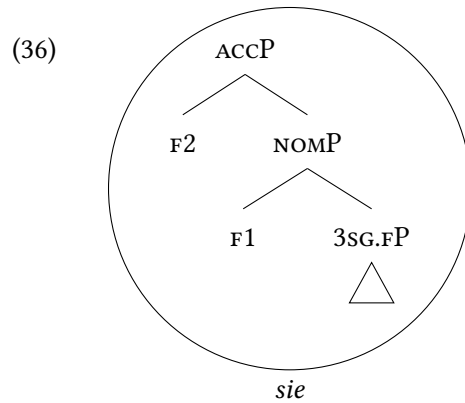
(35) a.



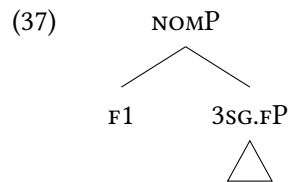
b.



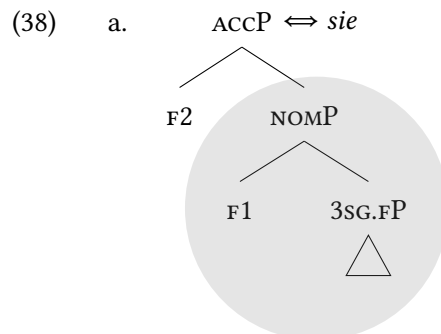
The former, (35a), has one no unused features. The latter, (35b), has one unused feature: f3. Because (35a) has fewer unused features, it wins the competition, and the syntactic structure is spelled out as *sie*. This is shown in (36)

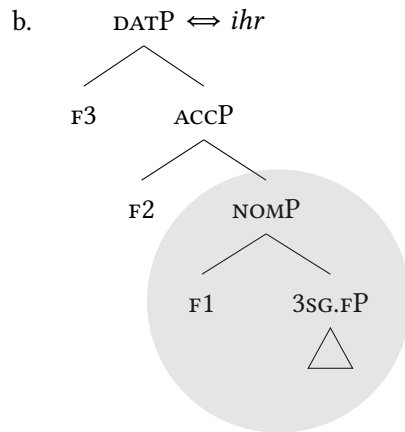


The syntactic structure for the nominative is given in (37).

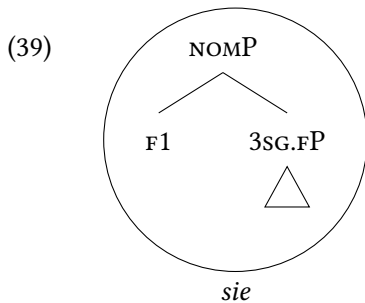


It is contained in the lexical tree for *sie* in (32a) and in the one *ihr* in (32b). I repeat the lexical entries for *sie* and *ihr* in (38), marking the subparts of the trees that match the syntactic structure in gray.





The former, (38a), has one unused feature: *f2*. The latter, (38b), has two unused features: *f2* and *f3*. Because (38a) has fewer unused features, it wins the competition, and the syntactic structure is spelled out as *sie*. This is shown in (39).



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 (32a) and (32b). *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 morphological case containment

Some languages morphologically reflect the case scale $\text{NOM} < \text{ACC} < \text{DAT}$. Khanty is an example of such a language. 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: Morphological case containment of 3SG in Khanty

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

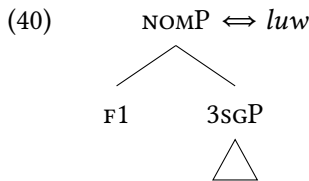
The intuition is the following. The morphological form of the pronouns mirrors the cumulative feature decomposition given in Table 3.1. That is, the accusative has the morphology that the nominative has (*luw*) plus something extra (*e:l*). Similarly, the accusative also has the features that the nominative has (F1) plus something extra (F2). The dative has the morphology that the accusative has (*luw-e:l*) plus something extra (*na*). Again, similarly, the dative has the features that the accusative has (F1, F2) plus something extra (F3).

Before I show how languages with morphological case containment can be derived, I need to discuss how variation between languages is modeled in Nanosyntax. Crosslinguistic variation is namely explained in terms of differences in the lexicon.

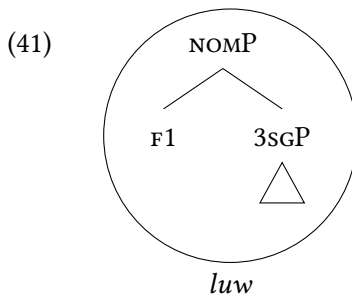
In other words, the syntactic structure is identical across languages, but the lexical entries package features together differently.

Let me discuss the differences between synthetic and agglutinative morphology to make this more concrete. Take the accusative, which contains F1 and F2 in all languages. The languages discussed in the previous section, Section 3.2, are all synthetic languages. F2 can only be spelled out in a single lexical entry together with F1. The result is that the examples are syncretic (i.e. formally identical) or suppletive (i.e. formally unrelated). The language I discuss in this section is agglutinative. F2 is not spelled out in the same lexical entry with F1. Instead, the F2 is spelled out by its own lexical entry. The result is that the accusative formally contains the nominative.

Let me illustrate this by deriving the 3sg paradigm in Khanty. 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 (40).



The syntactic structure in for the nominative is given in (41). It is contained in the lexical tree in (41), and the nominative is spelled out as *luw*.



As shown in Table 3.3, the morphological form of the accusative contains the mor-

phological form of the nominative (*luw*) plus an extra morpheme (*e:l*). As shown in Table 3.1, the syntactic features of the accusative contain the syntactic features of the nominative (F1) plus an extra feature (F2). Accordingly, I give the lexical entry for the accusative marker *e:l* in (42).⁸

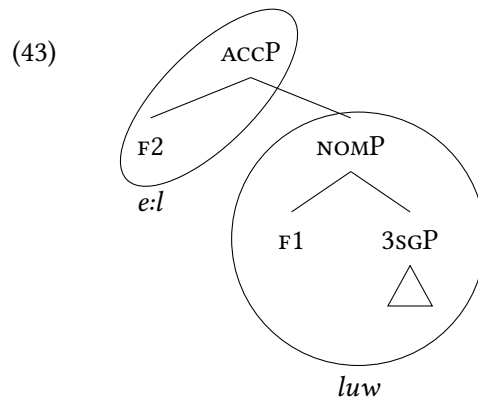
$$(42) \quad \text{ACCP} \Leftrightarrow e:l$$

$$\quad \quad \quad |$$

$$\quad \quad \quad \text{F2}$$

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



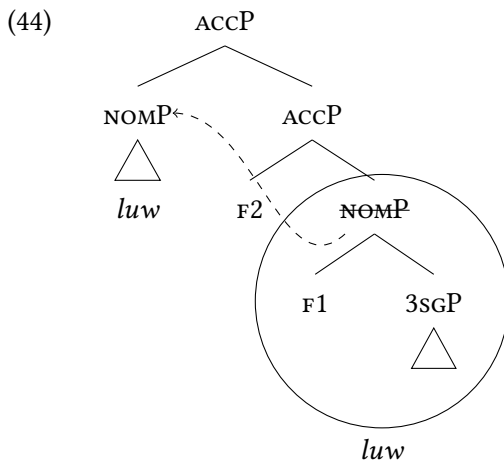
The lexical entry in (42) can only match the syntactic structure if NOMP moves away, leaving the ACCP containing F2 behind. In other words, the syntactic structure needs to be modified in such a way that the complement of F2 is not in the way anymore.

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*.

Exactly this movement is one of the two so-called ‘evacuation movements’ that is part of the spellout procedure in Nanosyntax.¹⁰ 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.¹¹ The movement types change the syntactic structure in such a way that they generate new constituents that are possible matches for spellout.¹² For the discussion in this section, only the second type of movement is relevant: complement movement. In this type of movement, the complement of 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 (44). The complement of F2, the NOMP, moves to the specifier of ACCP.¹³



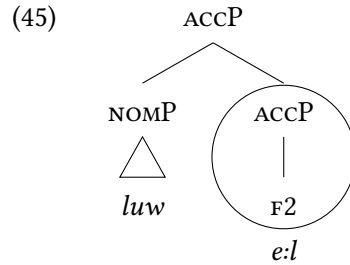
¹⁰In Chapter ?? I introduce the spellout procedure in more detail.

¹¹The two types of movement are cyclic movement and snowball movement, also used to derive the possible orders in DEM > NUM > ADJ > N (Cinque, 2005).

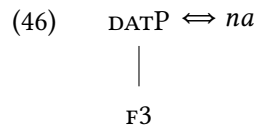
¹²This type of movement is different from syntactic movement. It is driven by spellout, it does not have any interpretational effects, and it does not leave any traces (Starke, 2018). In Chapter 5 I return to ‘regular’ syntactic movement in Nanosyntax.

¹³In 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.

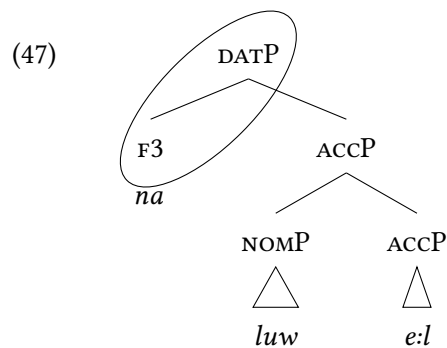
The result of the movement is given in (45). The lexical tree in (42) matches the syntactic structure, and ACCP is spelled out as *e:l*.



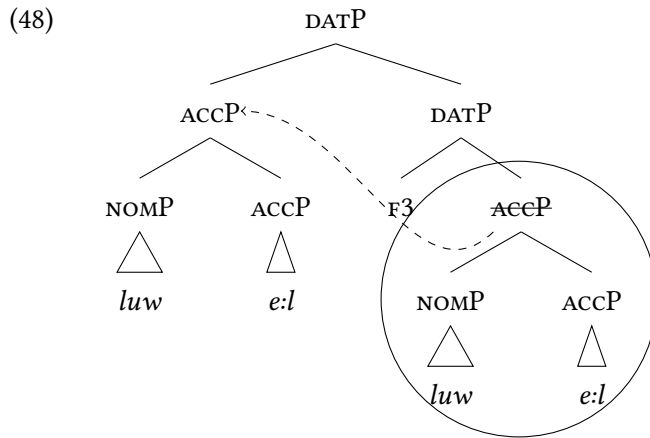
Just as Khanty has an additional morpheme that shows up in the accusative, it also has a morpheme that shows up in the dative. Similarly, just as the accusative has one more feature than the nominative (F1, F2 vs. F1), the dative has one more feature than the accusative (F1, F2, F3 vs. F1, F2). This leads me to pose the lexical entry in (46).



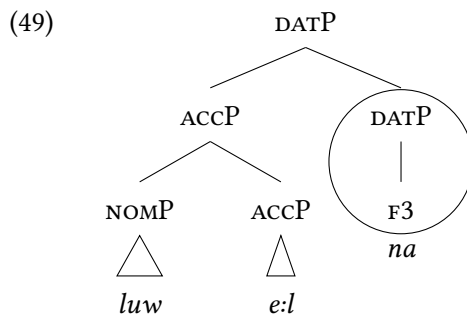
Again, because spellout only targets constituents, F3 cannot be spelled out right after it has been merged, as shown in (47).



The same complement movement as before has to take place, which is shown in (48). The complement of F3, the ACCP, moves to the specifier of DATP.



The result of the movement is given in (49). The lexical tree in (46) 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 The intuition for 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

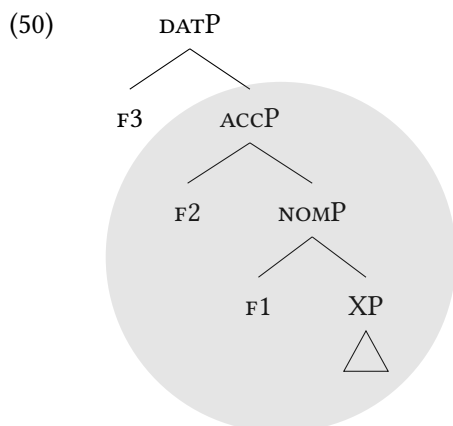
different shadings depending on which cases compete. The dark gray cells are the ones in which dative and the accusative compete, and the dative wins. The light gray cells are the ones in which the dative and the nominative compete, and the dative again wins. The uncolored cells are the ones in which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

Table 3.4: Summary of Gothic headless relative (repeated)

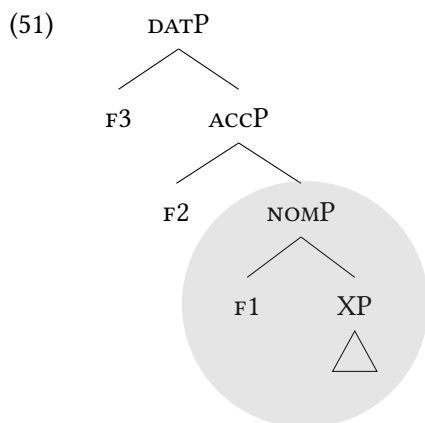
INT^{EXT}	[NOM]	[ACC]	[DAT]
[NOM]		ACC	DAT
[ACC]	ACC		DAT
[DAT]	DAT	DAT	

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. 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 (50) 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. I elaborate on the exact content of XP in Chapter 5. 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. The bigger structure wins against the smaller structure it contains: the dative wins over the accusative.

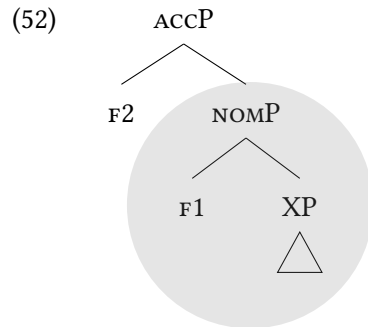


Next is the competition between dative and nominative, in which dative wins. The corresponding cells are marked light gray in Table 3.4. In (51) I show the syntactic structure of a dative relative pronoun. It contains the XP, F1, F2 and F3. Contained in this structure is a nominative relative pronoun, marked in gray. This consists of the XP and F1. The bigger structure wins against the smaller structure it contains: the dative wins over the nominative.



Finally there is the competition between accusative and nominative, in which accusative wins. The corresponding cells are uncolored in Table 3.4. In (52) 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. The bigger structure wins against the smaller structure it

contains: the accusative wins over the nominative.



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 F3), 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

Internal and external

Chapter 4

A case competition typology

In Part I of this dissertation, I discussed a first aspect of case competition in headless relatives. There is a fixed scale that determines which case wins the case competition. This is the same case scale crosslinguistically. I repeat the case scale from Chapter 2 in (1).

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

Also in Part I, I argued that a cumulative case decomposition can derive the case scale. This does not only hold for case competition in headless relatives, but also for syncretism patterns and morphological case containment patterns. In a cumulative case composition, the scale in (1) can be interpreted as follows: the accusative contains all features the nominative contains plus one more. Similarly, the dative contains all features the accusative contains plus one. Therefore, the dative can be considered more complex than the accusative, and the accusative complex more than the nominative. In line with that, I refer to cases more to the right on the case scale as being more complex cases than cases more to the left on the scale.

This part of the dissertation, Part II, focuses on a second aspect to headless relatives. This part is not stable crosslinguistically, but it differs across languages. Languages differ in whether they allow the internal case (the case from the relative clause) or the external case (the case from the main clause) to surface when they win the case competition. Metaphorically speaking, even though a case wins the case competition, it is a second matter whether it is allowed to come forward as

a winner. Four patterns are logically possible for languages: (1) the internal case and the external case are allowed to surface, (2) only the internal case is allowed to surface, and the external case is not, (3) only the external case is allowed to surface, and the internal case is not, (4) neither the internal nor the external case is allowed to surface.¹ I show in this chapter that one of these logically possible patterns is not attested in any natural language.

The next section introduces the patterns that are logically possible with case competition. In Section 4.2 to Section 4.5, I discuss the patterns one by one, and I give examples when the pattern is attested. In Section 4.7 I make a sidestep to languages that do not show any case competition, and I give a typology of headless relatives.

4.1 Four possible patterns

Case competition has two aspects. The first aspect is the topic of Part I of the dissertation. It concerns which case wins the case competition. This is decided by the same case scale for all languages. The second aspect is the topic of Part II of the dissertation. This one concerns whether the case that wins the case competition is actually allowed to surface. It namely differs per language whether it allows the internal or the external case to do so.

Metaphorically, the second aspect can be described as a language-specific approval committee. The committee learns (from the first aspect) which case wins the case competition. Then it can either approve this case or not approve it. This approval happens based on where the winning case comes from: (1) from inside to the relative clause (internal) or (2) from outside to the relative clause (external). It is determined per language whether it approves the internal case, the external case or both of them. The approval committee can only approve the winner of the competition or deny it, it cannot propose an alternative winner. In this metaphor, the approval of the committee means that a particular case is allowed to surface. When the case is not allowed to surface, the headless relative as a whole is ungrammatical.

¹On the surface, the last pattern cannot be distinguished from a language that does not have case competition and does not allow for any case mismatches. I come back to this matter in 4.1, where I argue that there actually is case competition in play.

Taking this all together, there are four patterns possible in languages. First, the internal case and the external case are allowed to surface. Second, only the internal case is allowed to surface, and the external case is not. Third, only the external case is allowed to surface, and the internal case is not. Fourth, neither the internal nor the external case is allowed to surface. In what follows, I introduce these possible patterns.

The first possible pattern is that of a language that allows the internal case and the external case to surface when either of them wins the case competition. This pattern might look familiar, because it is the one that Gothic has, which I discussed in Chapter 2. Table 4.2 (repeated from Table 2.5) illustrates what the pattern for such a language looks like.

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 from the top left to the bottom right corresponds to the examples in which the internal and external case match. The three cells in the lower left corner, marked in light gray, are the situations in which the internal case surfaces when it wins the competition. The three cells in the upper right corner, marked in dark gray, are the situations in which the external case surfaces when it wins the competition. All these instances are grammatical.

Table 4.1: Either internal or external case allowed

$\begin{smallmatrix} \text{INT} & \text{EXT} \end{smallmatrix}$	[NOM]	[ACC]	[DAT]
[NOM]	NOM	ACC	DAT
[ACC]	ACC	ACC	DAT
[DAT]	DAT	DAT	DAT

The second possible pattern is that of a language that allows the internal case to surface when it wins the case competition, but it does not allow the external case to do so. In this type of language, the internal case gets to surface when it is more complex than the external one. When the external case is more complex, it is not allowed to surface, and the headless relative construction is ungrammatical.

Table 4.2 illustrates what the pattern for such a language looks like. Compared to the first pattern, it has three cells in which there is no grammatical relative pronoun. The diagonal from the top left to the bottom right corresponds to the examples in which the internal and external case match. The three cells in the lower left corner, marked in light gray, are the situations in which the internal case surfaces when it wins the competition. Just as in the first pattern, these six instances are grammatical. The three cells in the upper right corner, marked in dark gray, are the situations in which the external case surfaces when it wins the competition. These instances are not grammatical for this type of language. The reasoning behind that is that the language does not allow the external case to surface when it wins the case competition.

Table 4.2: Only internal case allowed

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

The third possible pattern is that of a language that allows the external case to surface when it wins the case competition, but it does not allow the internal case to do so. In this type of language, only the external case gets to surface when it is more complex. When the internal case is more complex, it is not allowed to surface, and the headless relative construction is ungrammatical.

Table 4.3 illustrates what the pattern for such a language looks like. Comparing this pattern to the second one, the ungrammatical cells are here the three on the other side of the diagonal. The diagonal from the top left to the bottom right corresponds to the examples in which the internal and external case match. Just as in the first and second pattern, these instances are grammatical. The three cells in the lower left corner, marked in light gray, are the situations in which the internal case surfaces when it wins the competition. Unlike in the first and the second pattern, these instances are not grammatical for this type of language. The reasoning

behind that is that the language does not allow the internal case to surface when it wins the case competition. The three cells in the upper right corner, marked in dark gray, are the situations in which the external case surfaces when it wins the competition. Just as in the first pattern but unlike in the second pattern, these instances are grammatical.

Table 4.3: Only external case allowed

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

The fourth possible pattern is that of a language that allows neither the internal nor the external case to surface when it wins the case competition. When the internal case or the external is more complex, it is not allowed to surface, and the headless relative construction is ungrammatical. In other words, when the internal and the external case differ, there is no grammatical headless relative construction possible.

Table 4.4 illustrates what the pattern for such a language looks like. The diagonal from the top left to the bottom right corresponds to the examples in which the internal and external case match. Just as in the first, second and third pattern, these instances are grammatical. The three cells in the lower left corner, marked in light gray, are the situations in which the internal case surfaces when it wins the competition. Just as the third pattern, but unlike the first and the second pattern, these instances are not grammatical for this type of language. The reasoning behind that is that the language does not allow the internal case to surface when it wins the case competition. The three cells in the upper right corner, marked in dark gray, are the situations in which the external case surfaces when it wins the competition. Just as the second pattern, but unlike the first and the third pattern, these instances are not grammatical for this type of language. The reasoning behind that is that the language does not allow the external case to surface when it wins

the case competition.

On the surface, this pattern cannot be distinguished from a pattern that does not have case competition and does not allow for any case mismatches. I understand ‘a language with case competition’ as a language that compares the internal and external case in its headless relatives. If the internal and external case are not compared in Polish, it would be unclear why the diagonal is different from all the other cells. The source of ungrammaticality for the cells in Table 4.4 can only come from the comparing the internal and external case. In Section 4.7 I discuss languages in which the internal and external case are not compared to each other.

Table 4.4: Neither internal nor external allowed

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

In this chapter I show that three of these four patterns are attested crosslinguistically. Section 4.2 shows that the first pattern, in which either the internal case or the external case can surface, is exemplified by Gothic (repeated from Chapter 2) and by Old High German. The second pattern, in which only the internal case can surface, is illustrated by Modern German in Section 4.3. To my knowledge, there is no language in which only the external case can surface when it wins the case competition. This is discussed in 4.4. Section 4.5 shows a language that allows neither the internal nor the external case to surface when it wins the competition, namely Polish.

4.2 Internal and external case allowed

This section discusses the situation in which the internal case and the external case are allowed to surface when either of them wins the case competition. I repeat the pattern from Section 4.1 in 4.5.

Table 4.5: Internal and external case allowed (repeated)

$\begin{smallmatrix} \text{INT} & \text{EXT} \end{smallmatrix}$	[NOM]	[ACC]	[DAT]
[NOM]	NOM	ACC	DAT
[ACC]	ACC	ACC	DAT
[DAT]	DAT	DAT	DAT

Two examples of languages that show this pattern are Gothic and Old High German. I repeat the summary of the findings from Gothic (from Chapter 2), and I present the data for Old High German, which is the result of my own research.

In Chapter 2, I discussed case competition in Gothic headless relatives, based on the work of Harbert (1978). I repeat the results from Section 2.1 in Table 4.6.

In Gothic, the relative pronoun is allowed to surface in the internal case and the external case. The diagonal from the top left to the bottom right corresponds to the examples in which the internal and external case match. The three cells in the lower left corner, marked in light gray, are the situations in which the internal case surfaces when it wins the competition. The three cells in the upper right corner, marked in dark gray, are the situations in which the external case surfaces when it wins the competition. All these instances are grammatical. All these instances are grammatical. The examples corresponding to the cells in Table 4.6 can be found in Section 2.1.

Table 4.6: Internal and external case allowed (repeated)

$\begin{smallmatrix} \text{INT} & \text{EXT} \end{smallmatrix}$	[NOM]	[ACC]	[DAT]
[NOM]	NOM	ACC	DAT
[ACC]	ACC	ACC	DAT
[DAT]	DAT	(DAT)	DAT

Old High German is another instance of a language in which the relative pronoun is allowed to surface in either the internal case or the external case. This

conclusion follows from my own research of the texts ‘Der althochdeutsche Isidor’, ‘The Monsee fragments’, ‘Otfrid’s Evangelienbuch’ and ‘Tatian’ in ANNIS (Krause and Zeldes, 2016).² The examples follow the spelling and the detailed glosses in ANNIS. The translations are my own.

First I discuss examples in which the internal and the external match, and then examples in which they differ. If the internal and the external case are identical, the relative pronoun simply surfaces in that case. I illustrate this for the nominative, the accusative and the dative.

Consider the example in (2), in which the internal nominative case competes against the external nominative case. The internal case is nominative, as the predicate *senten* ‘to send’ takes nominative subjects. The external case is nominative as well, as the predicate *queman* ‘to come’ takes nominative subjects. The relative pronoun *dher* ‘REL.SG.M.NOM’ appears in the internal and external case: the nominative.

- (2) quham dher chisendit scolda
 come.PST.3SG_{NOM} REL.SG.M.NOM send.PST.PTCP_{NOM} should.PST.3SG
 uuerdhan
 become.INF
 ‘the one, who should have been sent, came’ (Old High German, Isid. 35:5)

Consider the example in (3), in which the internal accusative case competes against the external accusative case. The internal case is accusative, the predicate *quedan* ‘to speak’ takes accusative objects. The external case is accusative as well, as the predicate *gihoren* ‘to listen to’ takes accusative objects. The relative pronoun *thiu* ‘REL.PL.N.ACC’ appears in the internal and external case: the accusative.

²Old High German is widely discussed in the literature because of its case attraction in headed relatives (cf. Pittner, 1995), a phenomenon that seems related to case competition in headless relatives (see Section 1.3.1 for why attraction is not further discussed in this dissertation). A common observation is that case attraction in headed relatives in Old High German adheres to the case scale. The same is claimed for headless relatives. What, to my knowledge, has not been studied systematically is whether Old High German headless relatives allow the internal case and the external case to surface when either of them wins the case competition. This is what I investigated in my work.

- Consider the example in (4), in which the internal dative case competes against the external dative case.³ The internal case is dative, the predicate *willian* ‘to wish’ takes dative objects. The external case is dative as well, as the predicate *seggian* ‘to say’ takes dative indirect objects. The relative pronoun *them* ‘REL.PL.M.DAT’ appears in the internal and external case: the dative.

- These findings can be summarized as in Table 4.7. The diagonal from the top left to the bottom right corresponds to the examples given so far in which the internal and external case match. The nominative marked in light gray corresponds to (2), in which the internal nominative case competes with the external nominative case, and the relative pronoun surfaces in the nominative case. The accusative marked in dark gray corresponds to ??, in which the internal accusative case competes with the external accusative case, and the relative pronoun surfaces in the accusative case. The unmarked dative corresponds to ??, in which the internal dative case competes with the external dative case, and the relative pronoun surfaces in the dative case.

³I could not find such an instance for in any of the Old High German texts. This example comes from the 'Heliand', an Old Saxon text written around the same time as the Old High German works I give examples from. Old Saxon is linguistically speaking the closest relative of Old High German.

Table 4.7: Extensive summary of Old High German headless relatives (matching)

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

In Table 2.1, six cells remain empty. These are the cases in which the internal and the external case differ. In the remainder of this section, I discuss them one by one.

I start with the competition between accusative and nominative. Following the case scale, the relative pronoun appears in accusative case and never in nominative. As Old High German allows the internal and external case to surface, the accusative surfaces when it is the internal case and when it is the external case.

Consider the example in (5). In this example, the internal accusative case competes against the external nominative case. The internal case is accusative, as the predicate *zellen* ‘to tell’ takes accusative objects. The external case is nominative, as the predicate *sin* ‘to be’ takes nominative objects. The relative pronoun *then* ‘REL.SG.M.ACC’ appears in the internal case: the accusative. 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 accusative, the external case is nominative and the relative pronoun appears in nominative case are unattested.

- (5) thíz ist **then** **sie** **zélent**
 DEM.SG.N.NOM be.PRES.3SG_[NOM] REL.SG.M.ACC 3PL.M.NOM tell.PRES.3PL_[ACC]
 ‘this is the one whom they talk about’ (Old High German, Otfrid III 16:50)

Consider the example in (6). In this example, the internal nominative case competes against the external accusative case. The internal case is nominative, as the predicate *gisizzen* ‘to possess’ takes nominative subjects. The external case is accusative, as the predicate *bibringan* ‘to create’ takes accusative objects. The relative

pronoun *dhen* ‘REL.SG.M.ACC’ appears in the external case: the accusative. The relative pronoun is not marked in bold, just as the main clause, showing that the relative pronoun patterns with the main clause.⁴

- (6) ih bibringu fona iacobes samin endi fona
 1SG.NOM create.PRES.1SG_[ACC] of Jakob.GEN seed.SG.DAT and of
 iuda dhen **mina** **berga**
 Judah.DAT REL.SG.M.ACC my.ACC.M.PL mountain.ACC.PL
 chisitzit
 possess.PRES.3SG_[NOM]
 ‘I create of the seed of Jacob and of Judah the one, who possess my mountains’

(Old High German, Isid. 34:3)

The two examples in which nominative and accusative compete are highlighted in Table 4.8. The light gray marking corresponds to (5), in which the internal accusative wins over the external nominative, and the relative pronoun is allowed to surface in the accusative case. The dark gray marking corresponds to (6), in which the external accusative wins over the internal nominative, and the relative pronoun is allowed to surface in the accusative case.

Table 4.8: Summary of Old High German headless relatives (NOM – ACC)

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

I continue with the competition between dative and nominative. Following the

⁴At the end of this section I discuss a counterexample to the case scale, in which the internal case is nominative, the external case is accusative, and the relative pronoun appears in the nominative case.

case scale, the relative pronoun appears in dative case and never in nominative. As Old High German allows the internal and the external case to surface, the dative surfaces when it is the internal case and when it is the external case.

Consider the example in (7). In this example, the internal dative case competes against the external nominative case. The internal case is dative, as the predicate *forlazan* ‘to read’ takes dative indirect objects. The external case is nominative, as the predicate *minnon* ‘to love’ takes nominative subjects. The relative pronoun *themo* ‘REL.SG.M.DAT’ 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.

- (7) **themo** **min uuirdit** **forlazan,** min minnot
 REL.SG.M.DAT less become.PRES.3SG read.INF_[DAT] less love.PRES.3SG_[NOM]
 ‘to whom less is read, loves less’ (Old High German, Tatian 138:13)

Consider the example in (8). In this example, the internal nominative case competes against the external dative case. The internal case is nominative, as the predicate *sprehhan* ‘to speak’ takes nominative subjects. The external case is dative, as the predicate *antwurten* ‘to reply’ takes dative objects. The relative pronoun *demo* ‘REL.SG.M.DAT’ appears in the external case: the dative. The relative pronoun is not marked in bold, just 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 dative and the relative pronoun appears in nominative case are unattested.

- (8) enti aer ant uurta demo **zaimo**
 and 3SG.M.NOM reply.PST.3SG_[DAT] REL.SG.M.DAT to 3SG.M.DAT
 sprah
 speak.PST.3SG_[NOM]
 ‘and he replied to the one who spoke to him’
 (Old High German, Mons. 7:24, adapted from Pittner 1995: 199)

The two examples in which nominative and dative compete are highlighted in Table 4.9. The light gray marking corresponds to (7), in which the internal dative wins over the external nominative, and the relative pronoun is allowed to surface in the dative case. The dark gray marking corresponds to (8), in which the external dative wins over the internal nominative, and the relative pronoun is allowed to surface in the dative case.

Table 4.9: Summary of Old High German headless relatives (NOM – DAT)

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

I end with the competition between dative and accusative. Following the case scale, the relative pronoun appears in dative case and never in accusative. As Old High German allows the internal and the external case to surface, the dative surfaces when it is the internal case and when it is the external case.

Consider the example in (9). In this example, the internal dative case competes against the external accusative case. The internal case is dative, as the predicate *zawen* ‘to tell’ takes dative subjects. The external case is accusative, as the predicate *weizan* ‘to know’ takes accusative objects. The relative pronoun *thémō* ‘REL.SG.M.DAT’ appears in the external 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 accusative, the external case is dative and the relative pronoun appears in accusative case are unattested.

- (9) weiz **thémo** **ouh baz** **záweta**
 know.1SG_[ACC] REL.SG.M.DAT also better manage.PST.3SG_[DAT]
 ‘I know the one who also managed it better’

(Old High German, Otfrid V 5:5)

Leaving the counterexample aside, I conclude that Gothic and Old High German are both instances of languages that allow the internal and the external case to

surface. The relative pronoun surfaces in the case that wins the case competition.

4.3 Only internal case allowed

This section discusses the situation in which only the internal case is allowed to surface when it wins the case competition. When the internal case wins the case competition, the result is ungrammatical. I repeat the pattern from Section 4.1 in 4.11.

Table 4.11: Only internal case allowed (repeated)

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

An example of a language that shows this pattern is Modern German. In this section I discuss the Modern German data, based on the research of Vogel (2001). The examples and the judgements are Vogel's (2001). I made glosses more detailed, and I added and modified translations.

First I discuss examples in which the internal and the external match, and then examples in which they differ. If the internal and the external case are identical, the relative pronoun simply surfaces in that case. I illustrate this for the nominative, the accusative and the dative.

Consider the example in (12), in which the internal nominative case competes against the external nominative case. The internal case is nominative, as the predicate *mögen* 'to like' takes nominative subjects. The external case is nominative as well, as the predicate *besuchen* 'to visit' takes nominative subjects. The relative pronoun *wer* 'REL.AN.NOM' appears in the internal and external case: the nominative.

- (12) Uns besucht, **wer** **Maria** **mag**.
 2PL.ACC visit.PRES.3SG_[NOM] REL.AN.NOM Maria.ACC like.PRES.3SG_[NOM]
 ‘Who visits us likes Maria.’
 (Modern German, adapted from Vogel 2001: 343)

Consider the example in (13), in which the internal accusative case competes against the external accusative case. The internal case is accusative, as the predicate *mögen* ‘to like’ takes accusative objects. The external case is accusative as well, as the predicate *einladen* ‘to invite’ takes accusative objects. The relative pronoun *wen* ‘REL.AN.ACC’ appears in the internal and external case: the accusative.

- (13) Ich lade ein, **wen** **auch**
 1SG.NOM invite.PRES.1SG_[ACC] REL.AN.ACC Maria.NOM like.PRES.3SG_[ACC]
Maria mag.
 ‘I invite who Maria also like.’
 (Modern German, adapted from Vogel 2001: 344)

Consider the examples in (14), in which the internal dative case competes against the external dative case. The internal case is dative, as the predicate *gefallen* ‘to please’ takes dative subjects. The external case is dative as well, the predicate *vertrauen* ‘to trust’ takes dative objects. The relative pronoun *wem* ‘REL.AN.DAT’ appears in the internal and external case: the dative.

- (14) Ich vertraue, wem Maria gefällt
 1SG.NOM trust.PRES.1SG_[DAT] REL.AN.DAT Maria.NOM please.PRES.3SG_[DAT].
 ‘I trust whoever Maria pleases.’
 (Modern German, adapted from Vogel 2001: 345)

These findings can be summarized as in Table 4.12. The diagonal from the top left to the bottom right corresponds to the examples given so far in which the internal and external case match. The nominative marked in light gray corresponds to (12), in which the internal nominative case competes with the external nominative case, and the relative pronoun surfaces in the nominative case. The accusative marked in

dark gray corresponds to (13), in which the internal accusative case competes with the external accusative case, and the relative pronoun surfaces in the accusative case. The unmarked dative corresponds to (14), in which the internal dative case competes with the external dative case, and the relative pronoun surfaces in the dative case.

Table 4.12: Summary of Modern German headless relatives (matching)

<small>INT</small> <small>EXT</small>	[NOM]	[ACC]	[DAT]
[NOM]	NOM		
[ACC]		ACC	
[DAT]			DAT

In Table 4.12, six cells remain empty. These are the cases in which the internal and the external case differ. In the remainder of this section, I discuss them one by one.

I start with the competition between accusative and nominative. Following the case scale, the relative pronoun appears in accusative case and never in nominative. Following the internal-only requirement, when the accusative case is the internal case, the sentence is grammatical. When the accusative is the external case, the sentence is ungrammatical.

I start with the situation in which the internal case wins the competition, and it is possible to have a grammatical headless relative. Consider the example in (15). In this example, the internal accusative case competes against the external nominative case. The internal case is accusative, as the predicate *mögen* ‘to like’ takes accusative objects. The external case is nominative, as the predicate *besuchen* ‘to visit’ takes nominative subjects. The relative pronoun *wen* ‘REL.AN.ACC’ appears in the internal case: the accusative. The relative pronoun is marked in bold, just as the relative clause, showing that the relative pronoun patterns with the relative clause. The example is grammatical, because the example adheres to the case scale, and the most complex case (here the accusative) is the internal case.

- (15) Uns besucht, **wen** **Maria** **mag**.
 2PL.ACC visit.PRES.3SG_[NOM] REL.AN.ACC Maria.NOM like.PRES.3SG_[ACC]
 ‘Who visits us, Maria likes.’
 (Modern German, adapted from Vogel 2001: 343)

The example in (16) is identical to (15), except for that the relative pronoun appears in the external less complex nominative case. This example is ungrammatical: although the internal case is more complex, the relative pronoun appears in the less complex case (the nominative) and not in the most complex case (the accusative).

- (16) *Uns besucht, **wer** **Maria** **mag**.
 2PL.ACC visit.PRES.3SG_[NOM] REL.AN.NOM Maria.NOM like.PRES.3SG_[ACC]
 ‘Who visits us, Maria likes.’
 (Modern German, adapted from Vogel 2001: 343)

Now I turn to the situation in which the external case wins the competition, and there is no grammatical outcome possible, whichever case the relative pronoun appears in. Consider the ungrammatical example in (i). In this example, the internal nominative case competes against the external accusative case. The internal case is nominative, as the predicate *sein* ‘to be’ takes nominative subjects. The external case is accusative, as the predicate *einladen* ‘to invite’ takes accusative objects. The relative pronoun *wen* ‘REL.AN.ACC’ appears in the external case: the accusative. The relative pronoun is not marked in bold, just as the main clause, showing that the relative pronoun patterns with the main clause. The example adheres to the case scale, but the most complex case (here the accusative) is not the internal case. The example is ungrammatical, because only the internal can win the case competition in Modern German.

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

The example in (18) is identical to (i), except for that the relative pronoun appears in the external less complex nominative case. This example is also ungrammatical: in addition to the most complex case not being the internal case, the relative pronoun also does not appear in the most complex case (the accusative) but in the less complex case (the nominative).⁵

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

The two examples in which nominative and accusative compete are highlighted in Table 4.13. The light gray marking corresponds to (15), in which the internal accusative wins over the external nominative, and the relative pronoun is allowed to surface in the accusative case (and not in the losing nominative case as in (16)). The dark gray marking corresponds to (i), in which the external accusative wins over the internal nominative, but the relative pronoun is not allowed to surface in the accusative case (or in the losing nominative case as in (18)).

⁵There are actually people who accept this kind of example.

- (i) Ich liebe wer gutes tut, und hasse, wer
 1SG.NOM love.1SG_[ACC] REL.AN.NOM good.NMLZ do.3SG_[NOM] and hate.1SG_[ACC] REL.AN.NOM
 mich verletzt.
 1SG.ACC hurt.3SG_[NOM]
 ‘I love who does good and hate who hurts me.’
 (Modern German, adapted from Groos and van Riemsdijk 1981: 206)

There is no grammatical way of saying this, so people try to make it work one way or the other by somehow repairing it. There are two ways of doing that: (1) they can take *wer gutes tut* and *wer mich verletzt* as clauses objects, (2) they add *den* as an object and drop it at the same time. Notice that this crucially differs from the Old High German example with *Jezus*. In that one, there was a grammatical option.

Table 4.13: Summary of Modern German headless relatives (NOM – ACC)

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

I continue with the competition between dative and nominative. Following the case scale, the relative pronoun appears in dative case and never in nominative. Following the internal-only requirement, when the dative case is the internal case, the sentence is grammatical.

I start again with the situation in which the internal case wins the competition, and there is a grammatical outcome possible. Consider the example in (19). In this example, the internal dative case competes against the external nominative case. The internal case is dative, as the predicate *vertrauen* ‘to trust’ takes dative objects. The external case is nominative, as the predicate *besuchen* ‘to visit’ takes nominative subjects. The relative pronoun *wem* ‘REL.AN.DAT’ 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. The example adheres to the case scale, and the most complex case (here the dative) is the internal case, so the example is grammatical.

- (19) Uns besucht, **wem** **Maria** vertraut.
 2PL.ACC visit.PRES.3SG_[NOM] REL.AN.DAT Maria.NOM trust.PRES.3SG_[DAT]
 ‘Who visits us, Maria trusts.’
 (Modern German, adapted from Vogel 2001: 343)

The example in (20) is identical to (19), except for that the relative pronoun appears in the external less complex nominative case. This example is ungrammatical: although the internal case is more complex, the relative pronoun appears in the less complex case (the nominative) and not in the most complex case (the dative).

- (20) *Uns besucht, **wer** **Maria** **vertraut**.
 2PL.ACC visit.PRES.3SG_[NOM] REL.AN.NOM Maria.NOM trust.PRES.3SG_[DAT]
 ‘Who visits us, Maria trusts.’
 (Modern German, adapted from Vogel 2001: 343)

Now I turn again to the situation in which the external case wins the competition, and there is no grammatical outcome possible, whichever case the relative pronoun appears in. Consider the ungrammatical example in (21). In this example, the internal nominative case competes against the external dative case. The internal case is nominative, as the predicate *mögen* ‘to like’ takes nominative subjects. The external case is dative, as the predicate *vertrauen* ‘to trust’ takes dative objects. The relative pronoun *wem* ‘REL.AN.DAT’ appears in the external case: the dative. The relative pronoun is not marked in bold, just as the main clause, showing that the relative pronoun patterns with the main clause. The example adheres to the case scale, but the most complex case (here the dative) is not the internal case. The example is ungrammatical, because only the internal can win the case competition in Modern German.

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

The example in (22) is identical to (21), except for that the relative pronoun appears in the external less complex nominative case. This example is also ungrammatical: in addition to the most complex case not being the internal case, the relative pronoun also does not appear in the most complex case (the dative) but in the less complex case (the nominative).

- (22) *Ich vertraue, *wer* **Hitchcock** **mag**.
 1SG.NOM trust.PRES.1SG_[DAT] REL.AN.NOM Hitchcock.ACC like.PRES.3SG_[NOM]
 ‘I trust who likes Hitchcock.’
 (Modern German, adapted from Vogel 2001: 345)

The two examples in which nominative and dative compete are highlighted in Table 4.14. The light gray marking corresponds to (21), in which the external dative wins over the internal nominative, but the relative pronoun is not allowed to surface in the dative case (or in the losing nominative case as in (22)). The dark gray marking corresponds to (19), in which the internal dative wins over the external nominative, and the relative pronoun is allowed to surface in the dative case (and not in the losing nominative case as in (20)).

Table 4.14: Summary of Modern German headless relatives (NOM – DAT)

<small>INT</small> <small>EXT</small>	[NOM]	[ACC]	[DAT]
[NOM]	NOM	*	*
[ACC]	ACC	ACC	
[DAT]	DAT		DAT

I end with the competition between dative and accusative. Following the case scale, the relative pronoun appears in dative case and never in accusative. Following the internal-only requirement, when the dative case is the internal case, the sentence is grammatical.

I start again with the situation in which the internal case wins the competition, and there is a grammatical outcome possible. Consider the example in (23). In this example, the internal dative case competes against the external accusative case. The internal case is dative, as the predicate *vertrauen* ‘to trust’ takes dative objects. The external case is accusative, as the predicate *einladen* ‘to invite’ takes accusative objects. The relative pronoun *wem* ‘REL.AN.DAT’ 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. The example adheres to the case scale, and the most complex case (here the dative) is the internal case, so the example is grammatical.

- (23) Ich lade ein, **wem** auch Maria
 1SG.NOM invite.PRES.1SG_[ACC] REL.AN.DAT also Maria.NOM

vertraut.

trust.PRES.3SG_[DAT].

‘I invite whoever Maria also trusts.’

(Modern German, adapted from Vogel 2001: 344)

The example in (24) is identical to (23), except for that the relative pronoun appears in the external less complex accusative case. This example is ungrammatical: although the internal case is more complex, the relative pronoun appears in the less complex case (the accusative) and not in the most complex case (the dative).

- (24) *Ich lade ein, **wen** **auch** Maria
1SG.NOM invite.PRES.1SG_[ACC] REL.AN.ACC also Maria.NOM

vertraut.

trust.PRES.3SG_[DAT].

‘I invite whoever Maria also trusts.’

(Modern German, adapted from Vogel 2001: 344)

Now I turn again to the situation in which the external case wins the competition, and there is no grammatical outcome possible, whichever case the relative pronoun appears in. Consider the ungrammatical example in (25). In this example, the internal accusative case competes against the external dative case. The internal case is accusative, as the predicate *mögen* ‘to like’ takes accusative objects. The external case is dative, as the predicate *vertrauen* ‘to trust’ takes dative objects. The relative pronoun *wem* ‘REL.AN.DAT’ appears in the external case: the dative. The relative pronoun is not marked in bold, just as the main clause, showing that the relative pronoun patterns with the main clause. The example adheres to the case scale, but the most complex case (here the dative) is not the internal case. The example is ungrammatical, because only the internal can win the case competition in Modern German.

- (25) *Ich vertraue, *wem* **auch** Maria
1SG.NOM trust.PRES.1SG_[DAT] REL.AN.DAT also Maria.NOM

mag.like.PRES.3SG_[ACC].

‘I trust whoever Maria also likes.’

(Modern German, adapted from Vogel 2001: 345)

The example in (26) is identical to (25), except for that the relative pronoun appears in the external less complex accusative case. This example is also ungrammatical: in addition to the most complex case not being the internal case, the relative pronoun also does not appear in the most complex case (the dative) but in the less complex case (the accusative).

- (26) *Ich vertraue, wen **auch Maria**
 1SG.NOM trust.PRES.1SG_[DAT] REL.AN.ACC also Maria.NOM

mag.like.PRES.3SG_[ACC].

‘I trust whoever Maria also likes.’

(Modern German, adapted from Vogel 2001: 345)

The two examples in which nominative and dative compete are highlighted in Table 4.15. The light gray marking corresponds to (23), in which the internal dative wins over the external accusative, and the relative pronoun is allowed to surface in the dative case (and not in the losing accusative case as in (24)). The dark gray marking corresponds to (21), in which the external dative wins over the internal nominative, but the relative pronoun is not allowed to surface in the dative case (or in the losing accusative case as in (22)).

Table 4.15: Summary of Modern German headless relatives (ACC – DAT)

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

In sum, Modern German is an instance of a language that only allows the internal case to surface. The relative pronoun surfaces in the most complex case, but only when this more complex case is the internal case.

4.4 Only external case allowed

This section discusses the situation in which only the external case is allowed to surface when it wins the case competition. When the internal case wins the case competition, the result is ungrammatical. I repeat the pattern from Section 4.1 in 4.16.

Table 4.16: Only external case allowed (repeated)

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

To my knowledge, this pattern is not attested in any natural language, whether extinct or alive. Classical Greek has been mentioned in the literature both as a language of the third type (c.f. Cinque 2020, p. 120, who actually classifies Gothic also as such) and as a language of the first type (cf. Grosu, 1987, p. 41). I show that the correct description of Classical Greek is the latter, in which it patterns with Gothic and Old High German.⁶ I start with an example in which a more complex external case wins the case competition over a less complex internal case, and the relative pronoun surfaces in the external case.

⁶It does seem to be the case that examples in which the external case wins over the internal case are more frequent in Classical Greek than examples in which the internal case wins over the external case (see Kakarikos 2014 for numerous examples of these cases). In this dissertation I do not address the question of why certain constructions and configurations are more frequent than others. My goal is to set up a system that generates the grammatical patterns and excludes the ungrammatical or unattested patterns.

Consider the example in (27). In this example, the internal accusative case competes against the external dative case. The internal case is accusative, as the predicate *tíktō* ‘to give birth to’ takes accusative objects. The external case is dative, as the predicate *ékhō* ‘to provide’ takes dative indirect objects. The relative pronoun *hō* ‘REL.SG.M.ACC’ appears in the internal case: the accusative. The relative pronoun is not marked in bold, unlike as the relative clause, showing that the relative pronoun patterns with the main clause.

- (27) *pān tò tekòn* *trophèn* *ékhei* *hō* ***án***
 any parent.SG.NOM food.SG.ACC provide.PRES.3SG REL.SG.M.DAT MOD
 tékē
 gives birth.AOR.3SG
 ‘any parent provides food to what he would have given birth to’
 (Classical Greek, Pl. Men. 237e, adapted from Kakarikos 2014: 292)

This example is compatible with the picture of Classical Greek only allowing the external case to surface when it wins the competition. I repeat Table 4.16 from the beginning of this section as Table 4.17, and I mark the cell that corresponds to the example in (27) in gray.

Table 4.17: Classical Greek possibility 1

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

However, the example in (27) is not only compatible with the external-only pattern. Considering only the example I have given so far, it is still possible for Classical Greek to be of the internal-and-external type. I repeat Table 4.5 from Section 4.2 as Table 4.18, and I mark the cell that corresponds to the example in (27) in gray.

Table 4.18: Classical Greek possibility 2

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

What sets Table 4.17 and Table 4.18 apart is the lower left corner of the table. These are cases in which the internal case wins the case competition. In Table 4.17 these examples are not allowed to surface, and in Table 4.18 they are. In what follows, I give an example in which a more complex internal case wins over a less complex external case. This indicates that Classical Greek cannot be of the type shown in Table 4.17, but is has to be of the type shown in Table 4.18. In other words, it is not of the type that only allows the external case to surface when it wins the case competition.

Consider the example in (28). In this example, the internal accusative case competes against the external nominative case. The internal case is accusative, as the predicate *philéo* ‘to love’ takes accusative objects. The external case is nominative, as the predicate *apothnēiskō* ‘to die’ takes nominative subjects. The relative pronoun *hòn* ‘REL.SG.M.ACC’ appears in the internal case: the accusative. The relative pronoun is marked in bold, just as the relative clause, showing that the relative pronoun patterns with the relative clause.⁷

- (28) **hòn** **hoi theoì philoũsin** apothnēskei néos
 REL.SG.M.ACC the god.PL love.3PL_[ACC] die.3SG_[NOM] young
 ‘He, whom the gods love, dies young.’ (Classical Greek, Men. DD., 125)

This example shows that Classical Greek is not an instance of the third possible pattern, in which only the external case is allowed to surface. Instead, as illustrated by

⁷The sentence in (28) can also be analyzed as a headed relative, in which the relative clause modifies the phonologically empty subject of *apothnēiskō* ‘to die’. Then, however, more needs to be said about how it is possible for a relative clause to modify a phonologically empty element.

Table 4.19, the language allows the external case (marked light gray) and the internal case (marked dark gray) to surface when either of them wins the case competition.

Table 4.19: Summary of Classical Greek headless relatives

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

I do not discuss more examples from Classical Greek than I did until now. This does not change anything about the point I am making here: the only kind of system that is compatible with the examples given is the one in which the internal and the external case are allowed to surface when either of them wins the case competition. For more examples in which the external case wins, I refer the reader to Kakarikos (2014: 292-294). An example in which the external dative wins over the internal nominative can be found in Noussia-Fantuzzi (2015). I am not aware of an example in which the internal dative wins over the external accusative.

To sum up, to my knowledge, there is no language in which only the external case is allowed to surface when it wins the case competition, and the internal case is not. Classical Greek actually patterns with Gothic and Old High German in that it allows the internal and the external case to surface.

4.5 Internal and external case not allowed

This section discusses the situation in which neither the internal nor the external case is allowed to surface when it wins the case competition. When the internal case or the external is more complex, it is not allowed to surface, and the headless relative construction is ungrammatical. In other words, when the internal and the external case differ, there is no grammatical headless relative construction possible. Only when the internal and external case are identical, it is possible to make headless relative. I repeat the pattern from Section 4.1 in 4.20.

Table 4.20: Neither internal nor external allowed (repeated)

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

An example of a language that shows this pattern is Polish. In this section I discuss the Polish data, based on the research of **citko2013** after Himmelreich (2017). I only discuss the case competition between accusative and dative, as only this data is discussed. This does not change anything about the point I am making here: the only kind of system that is compatible with the examples given is the one in which neither the internal nor the external case is allowed to surface. I made glosses more detailed, and I added and modified translations.

First I discuss examples in which the internal and the external match, and then examples in which they differ. If the internal and the external case are identical, the relative pronoun simply surfaces in that case. I illustrate this for the nominative, the accusative and the dative.

Consider the example in (29), in which the internal accusative case competes against the external accusative case. The internal case and external case is accusative, as the predicate *lubić* ‘to like’ in both clauses takes accusative objects. The relative pronoun *kogo* ‘REL.ACC.M.SG’ appears in the internal and external case: the accusative.

- (29) Jan lubi kogo -kolkwiek Maria lubi.
 Jan like.3SG_{ACC} REL.ACC.M.SG ever Maria like.3SG_{ACC}
 ‘Jan likes whoever Maria likes.’

(Polish, adapted from **citko2013** after Himmelreich 2017:17)

Consider the example in (30), in which the internal dative case competes against the external dative case. The internal case is dative, the predicate *ufać* ‘to trust’ takes dative objects. The external case is dative as well, as the predicate *pomagać*

‘to help’ takes dative objects. The relative pronoun *them* ‘REL.PL.M.DAT’ appears in the internal and external case: the dative.

- (30) Jan pomaga komu -kolkwiek ufa.
 Jan help.3SG_{DAT} REL.DAT.M.SG ever trust.3SG_{DAT}
 ‘Jan helps whomever he trusts.’

(Polish, adapted from **citko2013** after Himmelreich 2017:17)

These findings can be summarized as in Table 4.21. The diagonal from the top left to the bottom right corresponds to the examples given so far in which the internal and external case match. The accusative marked in light gray corresponds to (29), in which the internal accusative case competes with the external accusative case, and the relative pronoun surfaces in the accusative case. The dative marked in dark gray corresponds to (30), in which the internal dative case competes with the external dative case, and the relative pronoun surfaces in the dative case.

Table 4.21: Polish headless relatives (matching)

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

In Table 4.21, six cells remain empty. These are the cases in which the internal and the external case differ. In the remainder of this section, I discuss them one by one.

I give examples from the case competition between accusative and dative. According to the case scale, the dative would win over the accusative. However, as neither the internal nor the external case are allowed to surface when they win the case competition, all examples are ungrammatical.

I start with the situation in which the external case wins the competition, and there is no grammatical outcome possible. Consider the example in (31). In this example, the internal accusative case competes against the external dative case. The internal case is nominative, as the predicate *wpuścić* ‘to let’ takes accusative sub-

jects. The external case is accusative, as the predicate *ufać* ‘to trust’ takes dative objects. The relative pronoun *komu* ‘REL.AN.DAT’ appears in the external case: the dative. The relative pronoun is not marked in bold, just as the main clause, showing that the relative pronoun patterns with the main clause. The example adheres to the case scale, but the the external case is not allowed to surface when it wins the case competition. Therefore, the example is ungrammatical.

- (31) *Jan ufa *komu* **-kolkwiek wpuścił do domu.**
 Jan trust.3SG_{DAT} REL.DAT.M.SG ever let.3SG_{ACC} to home
 ‘Jan trusts whoever he let into the house.’
 (Polish, adapted from **citko2013** after Himmelreich 201717)

The example in (32) is identical to (31), except for that the relative pronoun appears in the internal less complex accusative case. This example is also ungrammatical: the internal case is less complex, and the internal case is not allowed to surface when it wins the case competition.

- (32) *Jan ufa **kogo** **-kolkwiek wpuścił do domu.**
 Jan trust.3SG_{DAT} REL.ACC.M.SG ever let.3SG_{ACC} to home
 ‘Jan trusts whoever he let into the house.’
 (Polish, adapted from **citko2013** after Himmelreich 201717)

Now I turn to the situation in which the internal case wins the competition, and there is also no grammatical outcome possible. Consider the example in (23). In this example, the internal dative case competes against the external accusative case. The internal case is dative, as the predicate *dokuczać* ‘to tease’ takes dative objects. The external case is accusative, as the predicate *lubić* ‘to like’ takes accusative subjects. The relative pronoun *komu* ‘REL.AN.DAT’ 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. The example adheres to the case scale, but the the internal case is (just as the external case) not allowed to surface when it wins the case competition. Therefore, the example is ungrammatical.

- (33) *Jan lubi **komu** **-kolkwiek dokucza.**

Jan like.3SG_{ACC} REL.DAT.M.SG ever tease.3SG_{DAT}

‘Jan likes whoever he teases.’

(Polish, adapted from **citko2013** after Himmelreich 201717)

The example in (34) is identical to (33), except for that the relative pronoun appears in the external less complex accusative case. This example is also ungrammatical: the external case is less complex, and the external case is not allowed to surface when it wins the case competition.

- (34) *Jan lubi kogo **-kolkwiek dokucza.**

Jan like.3SG_{ACC} REL.ACC.M.SG ever tease.3SG_{DAT}

‘Jan likes whoever he teases.’

(Polish, adapted from **citko2013** after Himmelreich 201717)

The two examples in which accusative and dative compete are highlighted in Table ???. The light gray marking corresponds to (33), in which the internal dative wins over the external accusative, but the relative pronoun is not allowed to surface in the dative case (or in the losing accusative case as in (34)). The darkest gray marking corresponds to (25), in which the external dative wins over the internal accusative, but the relative pronoun is not allowed to surface in the dative case (or in the losing accusative case as in (26)).

Table 4.22: Summary of Polish headless relatives (ACC – DAT)

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

In sum, Polish is an instance of a language that allows neither the internal case nor the external case to surface. When the internal and the external case differ in Polish, there is no way to form a grammatical headless relative construction.

4.6 Summary

In case competition in headless relatives two aspects play a role. The first one is which case wins the case competition. It is a crosslinguistically stable fact that this is determined by the case scale in (35), repeated from Chapter 2. A case more to the right on the scale wins over a case more to the left on the scale.

$$(35) \quad \text{NOM} < \text{ACC} < \text{DAT}$$

This gives the following table 4.23.

Table 4.23: Cases that win the case competition

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

The second aspect is whether the internal and the external case are allowed to surface when either of them wins the case competition. This differs across languages. There are four possibilities: (1) the internal and the external case are allowed to surface when either of them wins, (2) only the internal case is allowed to surface when it wins, (3) only the external case is allowed to surface when it wins, and (4) neither the internal nor the external case is allowed to surface.

Gothic, Old High German and Classical Greek are examples of languages of the first type. Modern German is an example of a language of the second type. Polish is an example of a language of the fourth type. To my knowledge, the third pattern is not attested. A summary of the patterns and languages is given in Table 4.24.

Table 4.24 gives an overview of the patterns and whether they are attested. The top row sketches two different situations: one in which the internal case is the most complex ($[\text{INT}] > [\text{EXT}]$) and one in which the external case is the most complex ($[\text{EXT}] > [\text{INT}]$). The second row refers to the case in which the relative pronoun appears, which can be either the internal case (INT) or the external case (EXT).

Table 4.24: Possible patterns in headless relatives with case competition

[INT]>[EXT]		[EXT]>[INT]		language
INT	EXT	INT	EXT	
✓	*	*	✓	e.g. Old High German
✓	*	*	*	Modern German
*	*	*	✓	n.a.
*	*	*	*	Polish

The row numbered as 1 in Table 4.24 corresponds to the first pattern, in which the relative pronoun is allowed to surface in the internal and the external case, when either of them wins the case competition. The most left checkmark indicates that the internal case is allowed to surface in the internal case when the internal case is the most complex. This corresponds to the light gray marked cells in Table 4.23. The most right checkmark indicates that the external case is allowed to surface in the external case when the external case is the most complex. This corresponds to the dark gray marked cells in Table 4.23. In sum, all cells in Table 4.23 are grammatical.

The row numbered as 2 in Table 4.24 corresponds to the second pattern, in which the relative pronoun is only allowed to surface in the internal case, when it wins the case competition. The checkmark indicates that the internal case is allowed to surface in the internal case when the internal case is the most complex. This corresponds to the light gray marked cells in Table 4.23. There is no checkmark in columns that correspond to the situation in which the external case wins the case competition, meaning that there is no grammatical result possible. This means that the dark gray marked cells in Table 4.23 are ungrammatical in this pattern. In sum, the diagonal and the light gray marked cells in Table 4.23 are grammatical, the dark gray marked ones are not.

The row numbered as 3 in Table 4.24 corresponds to the third pattern, in which the relative pronoun is only allowed to surface in the external case, when it wins the case competition. The checkmark indicates that the external case is allowed to surface in the external case when the external case is the most complex. This

corresponds to the dark gray marked cells in Table 4.23. There is no checkmark in columns that correspond to the situation in which the internal case wins the case competition, meaning that there is no grammatical result possible. This means that the light gray marked cells in Table 4.23 are ungrammatical in this pattern. In sum, the diagonal and the dark gray marked cells in Table 4.23 are grammatical, the light gray marked ones are not.

The row numbered as 4 in Table 4.24 corresponds to the third pattern, in which the relative pronoun is neither allowed to surface in the internal case nor in the external case. There is no checkmark for this pattern, meaning that there is no grammatical result possible when the internal case is more complex than the external case or the other way around (i.e. when the internal case and the external case differ). This means that the light gray marked cells and the dark gray marked cells in Table 4.23 are ungrammatical in this pattern. In sum, only the cells in the diagonal are grammatical.

It is impossible to prove that this pattern does not exist (or has not existed) in any natural language, and it could be an accidental gap. However, in line with the available data so far, I set up a system in the next section that derives the three attested patterns, and excludes the fourth one.

I model the possibilities across the languages using two parameters: (1) does the language allow the internal case as a winner? and (2) does the language allow the external case as a winner? This gives me three possible language. The language that only allows the only external case to win is not generated.

If the first question is answered with no, all non-matching headless relatives are ungrammatical. If the first question is answered with yes, then a second question comes. By setting it up like this, it is impossible to get a language that only allows the external question, because you never reach the question. If you answer the second question with no, then you only allow internal. If you answer the second question with yes, you allow both internal and external.

You can see this flow chart as a committee that lets all the contestants go through two rounds. Round 1: int? if you are out then, you are not considered for the second question. if you get through the first round, then you get to the second question of the ext question.

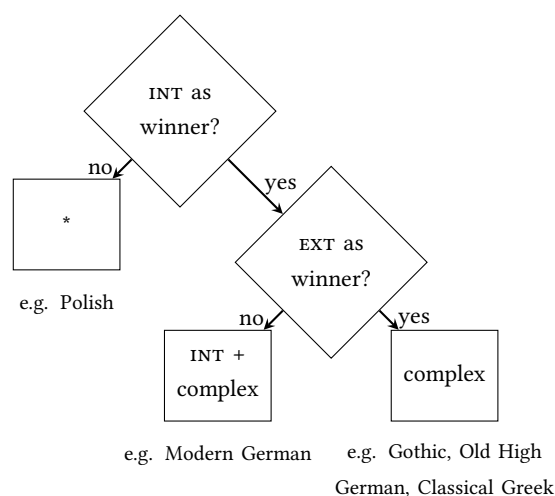


Figure 4.1: Overview attested headless relatives with case competition

4.7 Aside: languages without case competition

In this chapter so far, I discussed languages that show case competition. There are also languages that do not show any case competition. This section discusses them, and gives a typology of headless relatives.

In languages without case competition, the internal case and the external case do not compete to show their case on the relative pronoun. It is irrelevant how the two cases relate to each other on the case scale. Instead, it is fixed per language whether the relative pronoun appears in the external or the internal case. Logically, there are two possible languages: one that lets the relative pronoun appear in the internal case, and one that lets the relative pronoun appear in the external case.

Table 4.25 shows the pattern of a language in which the relative pronoun always appears in the internal case. In the second row, the internal case is nominative and the external case is nominative, accusative or dative. The relative pronoun appears in the nominative. It is irrelevant here that the nominative is less complex than the accusative and the dative, because there is no case competition taking place. The third row shows that the relative pronoun always appears in the accusative when the internal case is the accusative, and the fourth row shows the same for the dative.

To my knowledge, this type is not attested in any natural language.

Table 4.25: Always internal case

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

Table 4.26 shows the pattern of a language in which the relative pronoun always appears in the external case. In the second column, the external case is nominative and the internal case is nominative, accusative or dative. The relative pronoun appears in the nominative. It is irrelevant here that the nominative is less complex than the accusative and the dative, because there is no case competition taking place. The third column shows that the relative pronoun always appears in the accusative when the external case is the accusative, and the fourth column shows the same for the dative.

Table 4.26: Always external case

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

Section 4.7.1 discusses two languages that always let their relative pronouns in headless relatives surface in the external case: Old English and Modern Greek. In Section 4.7.2 I extend the case competition typology from Section 4.6 by adding the languages without case competition. As I briefly mentioned, I do not know of any languages, whether extinct or alive, that lets the relative pronoun always surface

in the internal case. I do not offer an explanation for why it is not attested, and I include this possibility in my typology.

4.7.1 Always external case

In this section I discuss two languages in which the relative pronoun always appears in the external case. I show that these languages do not show any case competition. In other words, these languages are of the type shown in Table 4.26 and not of the type I discussed in Section 4.4 (or of the one in Section 4.2).

This section discusses the situation in which neither the internal nor the external case is allowed to surface when it wins the case competition. When the internal case or the external is more complex, it is not allowed to surface, and the headless relative construction is ungrammatical. In other words, when the internal and the external case differ, there is no grammatical headless relative construction possible. Only when the internal and external case are identical, it is possible to make headless relative. I repeat the pattern from Section 4.1 in 4.20.

Table 4.27: Always external case

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

Two example of languages that shows this pattern are Old English and Modern Greek. In this section I discuss the Old English data with examples from Harbert (1983). The Modern Greek data I discuss is taken from Daskalaki, 2011. For all examples holds that I made glosses more detailed, and I added and modified translations.

I start with Old English. I give an example in which the external case is more complex than the internal case and the relative pronoun appears in the most complex external case.

Table 4.29: Old English possibility 2

$\begin{smallmatrix} \text{INT} & \text{EXT} \end{smallmatrix}$	[NOM]	[ACC]	[DAT]
[NOM]	NOM	ACC	DAT
[ACC]	ACC	ACC	DAT
[DAT]	DAT	DAT	DAT

Third, Old English could be a language without case competition that lets the relative pronoun appear in the external case. I repeat Table 4.27 from the beginning of this section as Table 4.30, and I mark the cell that corresponds to the example in (36) in gray.

Table 4.30: Old English possibility 3

$\begin{smallmatrix} \text{INT} & \text{EXT} \end{smallmatrix}$	[NOM]	[ACC]	[DAT]
[NOM]	NOM	ACC	DAT
[ACC]	NOM	ACC	DAT
[DAT]	NOM	ACC	DAT

What sets Table 4.28, Table 4.29 and Table 4.30 apart is the lower left corner of the table. These are cases in which the internal case is more complex than the external case.

In Table 4.28 the winning case is not allowed to surface, and there is no grammatical headless relative possible. If this is the pattern that Old English shows, then it would be a language with case competition that only allows the external case to surface, i.e. it would be of the type of Section 4.4 I claimed did not exist.

In Table 4.29 and in Table 4.30 there is a relative pronoun that can surface, but the case of the relative pronouns differs. In Table 4.29, the relative pronoun surfaces in the most complex case that wins the case competition: the internal case. In Table 4.30, there is no case competition taking place, and the relative pronoun surfaces in

the external case.

In the example that follows I show that Old English is of the type in Table 4.30. I give an example in which the internal case is more complex than the external one. Nevertheless, the relative pronoun surfaces in the less complex external case. Old English is namely a language without case competition that lets the relative pronoun surface in the external case.

Consider the example in (37). The internal case is dative, as the preposition *onuppan* ‘upon’ takes dative objects. The external case is accusative, as the predicate *tōbrȳsan* ‘to pulverize’ takes accusative objects. The relative pronoun *ðone* ‘REL.SG.ACC’ appears in the external case: the accusative. The relative pronoun appears in the external case, although it is the less complex case of the two. The example is grammatical, because Old English does not show case competition, so the case scale is irrelevant. As long as the relative pronoun appears in the external case, the headless relative is grammatical.

- (37) he tobryst ðone ðe **he onuppan fylð**
 it pulverizes_[ACC] REL.SG.ACC COMP it upon_[DAT] falls
 ‘It pulverizes him whom it falls upon.’

(Old English, adapted from Harbert 1983: 550)

This example shows that Old English is neither an instance of the pattern in Section 4.4, in which only the external case is allowed to surface, nor an instance of the pattern in Section 4.2, in which the internal case and external case are allowed to surface. Instead, as illustrated by Table 4.31, the language does not have any case competition. The relative pronoun appears in the external case: the external case can be the most complex case, illustrated by the example in (36), marked here in light gray, or the external case can be the less complex case, illustrated by the example in (37), marked here in dark gray.

Table 4.31: Summary of Old English headless relatives

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

I do not discuss more examples from Old English than I did until now. This does not change anything about the point I am making here: the only kind of system that is compatible with the examples given is the one in which the relative pronoun always appears in the external case.

The same pattern appears in Modern Greek. The only difference is that Modern Greek has the genitive, and not the dative. I start again with an example in which the external case is more complex than the internal case and the relative pronoun appears in the most complex external case.

Consider the example in (38). The internal case is nominative, as the predicate *voíθisó* ‘to help’ takes nominative subjects. The external case is accusative, as the predicate *efxarístisó* ‘to thank’ takes accusative objects. The relative pronoun *ópjus* ‘REL.PL.M.ACC’ appears in the external case: the accusative. The relative pronoun is not marked in bold, unlike the relative clause, showing that the relative pronoun patterns with the main clause.

- (38) Efxarístisa ópjus **me** voíθisan.
 thank.PST.3PL_[ACC] REL.PL.M.ACC CL.1SG.ACC help.PST.3PL_[NOM]
 ‘I thanked whoever helped me.’

(Modern Greek, adapted from Daskalaki 2011: 80)

This example is compatible with three patterns. First, Modern Greek could be a case competition language that only allows the external case to surface. I repeat Table 4.16 from Section 4.4 as Table 4.32, and I mark the cell that corresponds to the example in (38) in gray.

Table 4.32: Modern Greek possibility 1

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

Second, Modern Greek could be a case competition language that allows the internal case and external case to surface. I repeat Table 4.5 from Section 4.2 as Table 4.33, and I mark the cell that corresponds to the example in (38) in gray.

Table 4.33: Modern Greek possibility 2

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

Third, Modern Greek could be a language without case competition that lets the relative pronoun appear in the external case. I repeat Table 4.27 from the beginning of this section as Table 4.34, and I mark the cell that corresponds to the example in (38) in gray.

Table 4.34: Modern Greek possibility 3

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

What sets Table 4.32, Table 4.33 and Table 4.34 apart is the lower left corner of the table. These are cases in which the internal case is more complex than the external case.

In Table 4.32 the winning case is not allowed to surface, and there is no grammatical headless relative possible. If this is the pattern that Modern Greek shows, then it would be a language with case competition that only allows the external case to surface, i.e. it would be of the type of Section 4.4 I claimed did not exist.

In Table 4.33 and in Table 4.34 there is a relative pronoun that can surface, but the case of the relative pronouns differs. In Table 4.33, the relative pronoun surfaces in the most complex case that wins the case competition: the internal case. In Table 4.34, there is no case competition taking place, and the relative pronoun surfaces in the external case.

In the example that follows I show that Modern Greek is of the type in Table 4.34. I give an example in which the internal case is more complex than the external one. Nevertheless, the relative pronoun surfaces in the less complex external case. Modern Greek is namely a language without case competition that lets the relative pronoun surface in the external case.

Consider the example in (39). The internal case is accusative, as the predicate *irθó* ‘to invite’ takes accusative objects. The external case is accusative, as the predicate *kálesó* ‘to come’ takes nominative subjects. The relative pronoun *ópi* ‘REL.PL.M.NOM’ appears in the external case: the nominative. The relative pronoun appears in the external case, although it is the less complex case of the two. The example is grammatical, because Modern Greek does not show case competition, so the case scale is irrelevant. As long as the relative pronoun appears in the external case, the headless relative is grammatical.

- (39) *Irθan* *ópi* ***káleses.***
 come.PST.3PL_[NOM] REL.PL.M.NOM invite.PST.2SG_[ACC]
 ‘Whoever you invited came.’

(Modern Greek, adapted from Daskalaki 2011: 80)

The example in (40) is identical to (39), except for that the relative pronoun appears in the internal more complex case. This example is ungrammatical: the relative

pronoun does not appear in the external case. The fact that the internal case is more complex is irrelevant.

- (40) *Irθan **ópjus** **káleses.**
 come.PST.3PL_[NOM] REL.PL.M.ACC invite.PST.2SG_[ACC]
 ‘Whoever you invited came.’

(Modern Greek, adapted from Daskalaki 2011: 79)

This example shows that Modern Greek is neither an instance of the pattern in Section 4.4, in which only the external case is allowed to surface, nor an instance an instance of the pattern in Section 4.2, in which the internal case and external case are allowed to surface. Instead, as illustrated by Table 4.35, the language does not have any case competition. The relative pronoun appears in the external case: the external case can be the most complex case, illustrated by the example in (38), marked here in light gray, or the external case can be the less complex case, illustrated by the example in (39), marked here in dark gray.

Table 4.35: Summary of Modern Greek headless relatives

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

There is something more to be said about the situation in Modern Greek. When the internal case is genitive instead of accusative, a clitic is added to the sentence to make it grammatical.

Consider the example in (41). The internal case is genitive, as the predicate *eðósó* ‘to give’ takes genitive objects. The external case is accusative, as the predicate *efxarístisó* ‘to thank’ takes nominative subjects. The relative pronoun *ópjon* ‘REL.PL.M.NOM’ appears in the external case: the nominative. The relative pronoun appears in the external case, although it is the less complex case of the two. The

example is grammatical, because Modern Greek does not show case competition, so the case scale is irrelevant. As long as the relative pronoun appears in the external case, the headless relative is grammatical. In addition, the relative clause obligatorily contains the genitive clitic *tus* ‘CL.3PL.GEN’.⁸

- (41) Me efχarístisan ópji **tus** **íχa**
 CL.1SG.ACC thank.PST.3PL_[NOM] REL.PL.M.NOM CL.3PL.GEN have.PST.1SG
ðósi leftá.
 give.PTCP_[GEN] money
 ‘Whoever I had given money to, thanked me.’
 (Modern Greek, adapted from Daskalaki 2011: 80)

This once again confirms the picture of Modern Greek always letting the relative pronoun surface in the external case. The internal case is taken care of by the clitic, which is independent of the relative clause construction.

I do not discuss more examples from Modern Greek than I did until now. This does not change anything about the point I am making here: the only kind of system that is compatible with the examples given is the one in the relative pronoun always appears in the external case. For more examples that illustrate this pattern, I refer the reader to Daskalaki (2011: 79-80).

In sum, Old English and Modern Greek are two languages that do not show any case competition. The relative pronoun always appears in the external case.

4.7.2 A typology of headless relatives

This section provides a typological overview of headless relatives. I give all logically possible patterns and show with a diagram to what extent I can exclude the non-attested patterns.

In Section 4.2 to 4.5 I four different patterns that are all derived from the same table. The relative pronoun that appears is the one that wins the case competition,

⁸In Modern German, it is possible to insert a light head to resolve a situation with a more complex external case. However, then the relative pronoun has to change as well (from a WH-pronoun into a D-pronoun). I assume this is a different construction, and the Modern Greek one with the clitic inserted is not.

as in Table 4.36. The variation between the four arises from allowing either the internal case, the external case, both of them or neither of them to surface.

Table 4.36: Relative pronoun follows case competition

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

In this section I introduced two different ways of filling out the table. The first one is the one in which the relative pronoun appears in the internal case, as in Table 4.37

Table 4.37: Relative pronoun is internal case

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

The second one is the one in which the relative pronoun appears in the external case, as in Table 4.38

Table 4.38: Relative pronoun in external case

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

I incorporate the options to generate these different patterns into the diagram from Section 4.6 in Figure 4.2. I added to parameters. First, a language can either have case competition or not. If the language does, Table 4.36 is generated. For what follows, see Section 4.6.

If the language does not have case competition, the second parameter is whether the language lets the relative surface in the internal case or in the external case. Old English and Modern Greek are two examples of languages that let their relative pronouns in headless relatives appear in the external case. I am not aware of any language that lets its relative pronoun in headless relatives appear in the internal case. In this dissertation I do not offer an explanation for why this type of example should be absent.

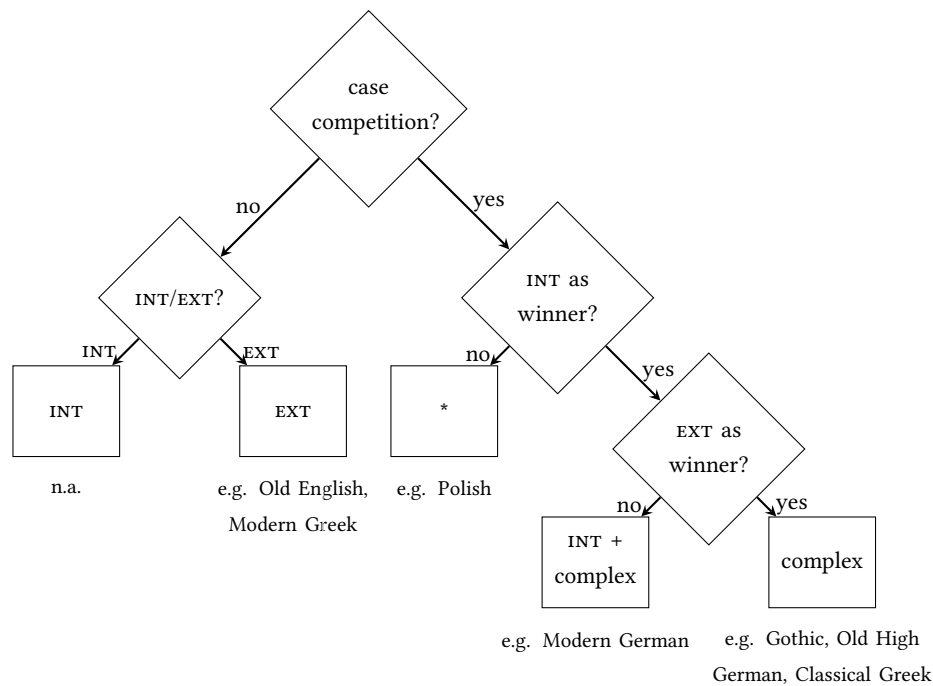


Figure 4.2: Overview attested headless relatives

Table 4.39: Possible patterns in headless relatives

	INT>EXT		EXT>INT		language
	INT	EXT	INT	EXT	
1	✓	*	✓	*	n.a.
2	✓	*	*	✓	Old High German
3	✓	*	*	*	Modern German
4	*	✓	✓	*	n.a.
5	*	✓	*	✓	Old English
6	*	✓	*	*	n.a.
7	*	*	✓	*	n.a.
8	*	*	*	✓	n.a.
9	*	*	*	*	Polish

hallo

Chapter 5

The committee

In the previous chapter I showed that languages with case competition come in two variants. First, there are languages that allow the internal and external case to surface when they win the competition, such as Gothic and Old High German. Second, there are languages that only allow the internal case to surface when it wins the competition, such as Modern German. Crucially, there is no language that only allows the external case to surface when it wins the competition.

The aim of this chapter is twofold. Third, I discuss how the difference between internal-and-external languages and internal-only languages can be derived. I introduce both matters a bit more in this introduction. Second, I discuss how the non-existence of the external-only pattern can be explained.

Let me now turn to the matter of crosslinguistic differences. 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 Modern 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. 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). Like I briefly mentioned in Chapter 3, Nanosyntax models crosslinguistic variation as differences in the lexicon, how the features are packaged together differently. That means that I look for patterns within the languages themselves, and let the facts of the headless relatives follow from those. Specifically, I derive the different behaviors from relative pronouns and the external head that I introduce in this chapter.

In Section ?? I discuss the situation in which the internal case wins the competition and the relative pronoun surfaces in the internal case. This situation is attested in all languages with case competition: the internal-only ones, such as Modern German, and the internal-and-external ones, such as Gothic and Old High German.

In Section ?? I discuss the situation in which the external case wins the case competition and the relative pronoun surfaces in the external case. This situation is not attested in all of the case competition languages. This situation arises if the external head contains all case features of the internal head. In addition, and this is what distinguishes the internal-and-external languages from the internal-only languages, the features of the relative pronoun are a subset of the features of the external head. So, *em* cannot delete *wen*, but *dem* can delete *den*.

From these two proposals follows that it is impossible to have third pattern, which is indeed also not attested. When the external case wins over the internal one, there is a situation in which the external case could delete the internal one. So, it is impossible to have the second option but not the first one.

5.1 The idea

what criteria does the committee use? ideally, something independently observable within the language.

if int contains ext, int is approved if ext contains int, ext is approved

5.2 The internal and external element

what are they? we see only one: the relative pronoun. however, we really need to elements! because we need to compare internal and external

you can see this very very well in modern german: it does not suffice to let the relative pronoun surfaces in the internal case. we always need a way to refer to the more complex case.

The relative pronoun in Modern German headless relatives is sensitive to both the internal and the external case. Consider the examples in (1). 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 (1a) the external case is dative, because the predicate *vertrauen* ‘to trust’ takes dative objects. In ??, the external case is nominative, because *besuchen* ‘to visit’ takes nominative subjects.

- (1) 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 (1a) is ungrammatical, and the one in ?? is not. The internal case cannot be the source of ungrammaticality, because the relative clauses are identical regarding case, i.e. they both take accusative. The external case differs, however. In Chapter X I showed that headless relatives in Modern German are (just like e.g. Gothic) sensitive to the case scale: NOM < ACC < DAT.

(1a) is grammatical, because the internal accusative case wins over the external nominative. ?? is ungrammatical, because the internal accusative case cannot win the case competition over the external dative. It can be concluded 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 needs to have access to the main clause case. I propose that this can be achieved by introducing an external head to the relative clause. In Section X I show how this solves the issue.

I introduce two elements: the relative pronoun, which is always the internal element, and the external element, which contains a subset of the features of the internal element

5.2.1 The relative pronoun = internal

The sentences in (2) show that it is possible to extrapose a CP. In (2a), the clausal object *wie es dir geht* ‘how you are doing’, marked here in bold, appears in its base position. It 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.’
 b. Mir is 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 the 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.'
- b. *Mir ist egal **die Sache**.
 1SG.DAT is the same that matter
 'I don't care about that matter.' (Modern German)

The same asymmetry between CPs and DPs can be observed with relative clauses. A relative clause is a CP, and the head of a relative clause is a DP. The sentences in (4) contain the relative clause *was er gekocht hat* 'what he has stolen'. This is marked in bold in the examples. The (light) head of the relative clause is *das*. In (4a), the relative clause and its head appear in base position. In (4b), the relative clause is extraposed. This is grammatical, because it is possible to extrapose CPs in Modern German. In (4c), the relative clause and the head are extraposed. This is ungrammatical, because it is possible to extrapose DPs.

- (4) a. Jan hat das, **was er gekocht hat**, aufgegessen.
 Jan has that what he cooked has eaten
 'Jan has eaten what he cooked.'
- b. Jan hat das aufgegessen, **was er gekocht hat**.
 Jan has that eaten what he cooked has
 'Jan has eaten what he cooked.'
- c. *Jan hat aufgegessen, das, **was er gekocht hat**.
 Jan has eaten that what he cooked has
 'Jan has eaten what he cooked.'

The same can be observed in relative clauses without a head. (5) is the same sentence as in (4) only without the overt head. The relative clause is marked in bold again. In (5a), the relative clause appears in base position. In (5b), the relative clause is extraposed. This is grammatical, because it is possible to extrapose CPs in Modern German. In (5c), the relative clause is extraposed without the relative pronouns. This is ungrammatical, because the relative pronoun is part of the CP. This shows that the relative pronoun in headless relatives in Modern German are necessarily part of a CP, which is here a relative clause.

- (5) a. Jan hat **was er gekocht hat** aufgegessen.
 Jan has what he cooked has eaten
 'Jan has eaten what he cooked.'
- b. Jan hat aufgegessen **was er gekocht hat**.
 Jan has eaten what he cooked has
 'Jan has eaten what he cooked.'
- c. *Jan hat **was** aufgegessen **er gekocht hat**.
 Jan has what eaten he cooked has
 'Jan has eaten what he cooked.'

In conclusion, extraposition facts show, that the relative pronoun in Modern German is syntactically part of the relative clause.

5.2.2 The other element = external

Like I said, we need an element here. But where and how? Well, there are actually languages that show we have it! The existence of this element is independently motivated by languages that overtly show it. I show that this element contains a subset of the features that the relative pronoun contains. I place the external head in a syntactic position from which it is c-commanded by the relative pronoun and it can receive case from the main clause predicate.

There is independent evidence for this head, namely from languages that actually let the head surface. Here there are two identical copies of the head, one inside the relative clause, one outside of the relative clause.

- (6) [**doü** adiyano-no] **doü** deyalukhe
 sago give.3PL.NONFUT-CONN sago finished.AJD
 'The sago that they gave is finished.' (Kombai, Dryer 2005)

I give an example of a language in which the external head follows the relative clause. There are also languages in which the head precedes the relative clause, e.g.
 xx

The external head is not always an exact copy of the head inside of the relative clause. An example from xx here shows that the head outside of the relative clause

can also be a subset of what the element inside of the relative clause is. In this case, there is an *old man* and a *person*.

- (7) [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.’

So, we have the head. Translating this to relative pronouns, there is the relative pronoun, and something identical or smaller than a relative pronoun outside of the relative clause. In Chapter X I show what the feature content of the head exactly is.

Let me now show how this solves the external case problems and how it helps exclude some languages.

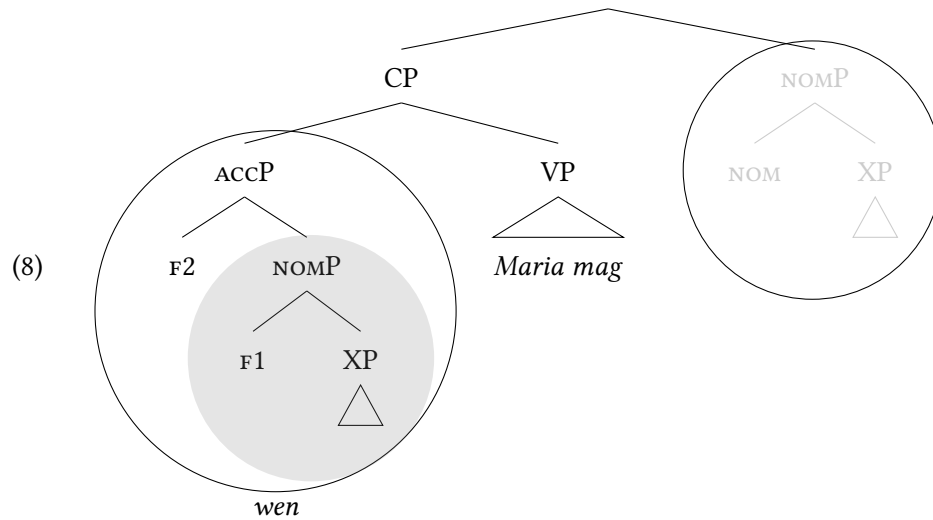
indefinite noun, as *cinque* and the content of the external head visible in some languages

Where is this head in the syntactic structure?

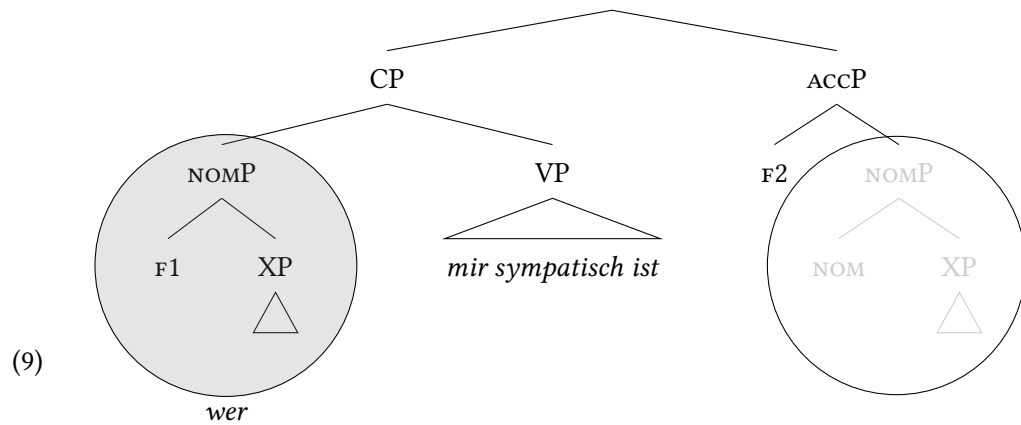
- Somewhere where the relative pronoun can delete it: where it is c-commanded by the relative pronoun
- Somewhere where it can receive case from the main clause
- Where it normally is in SOV languages (does the thing in Polish move because it is a svo language?)

x

So this works.



But here it does not.



x

5.3 Deriving the patterns

5.3.1 Deriving internal-and-external

Old High German

featural content of relative pronoun

Table 5.1: Relative pronouns in headless relatives in Old High German

	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

featural content of external head

(10) **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.

(11) **Cyclic Override** (Starke, 2018):

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

If the spellout procedure in (10) fails, backtracking takes place.

(12) **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.

(13) **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.

(14) Merge F, Move XP, Merge XP

show how internal-wins works show how external-wins works

5.3.2 Deriving internal-only

Modern German

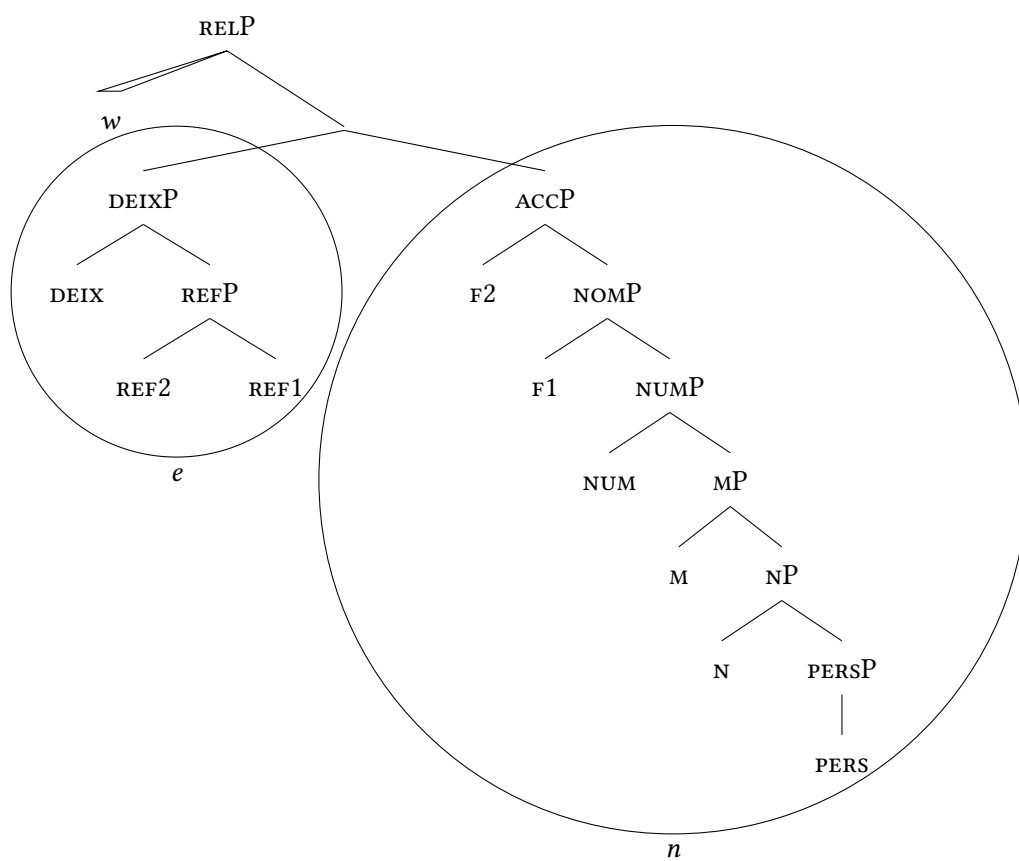
featural content of relative pronoun

Table 5.2: Relative pronouns in headless relatives in Modern German

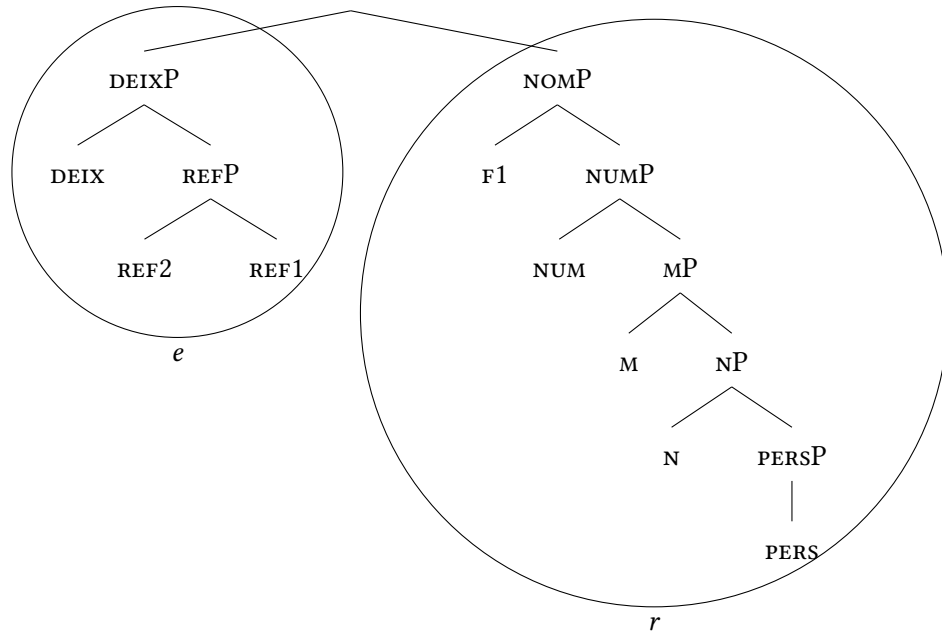
	inanimate	AN
NOM	w-as	w-er
ACC	w-as	w-en
DAT	-	w-em

featural content of external head

So German relative pronoun:



and German head:



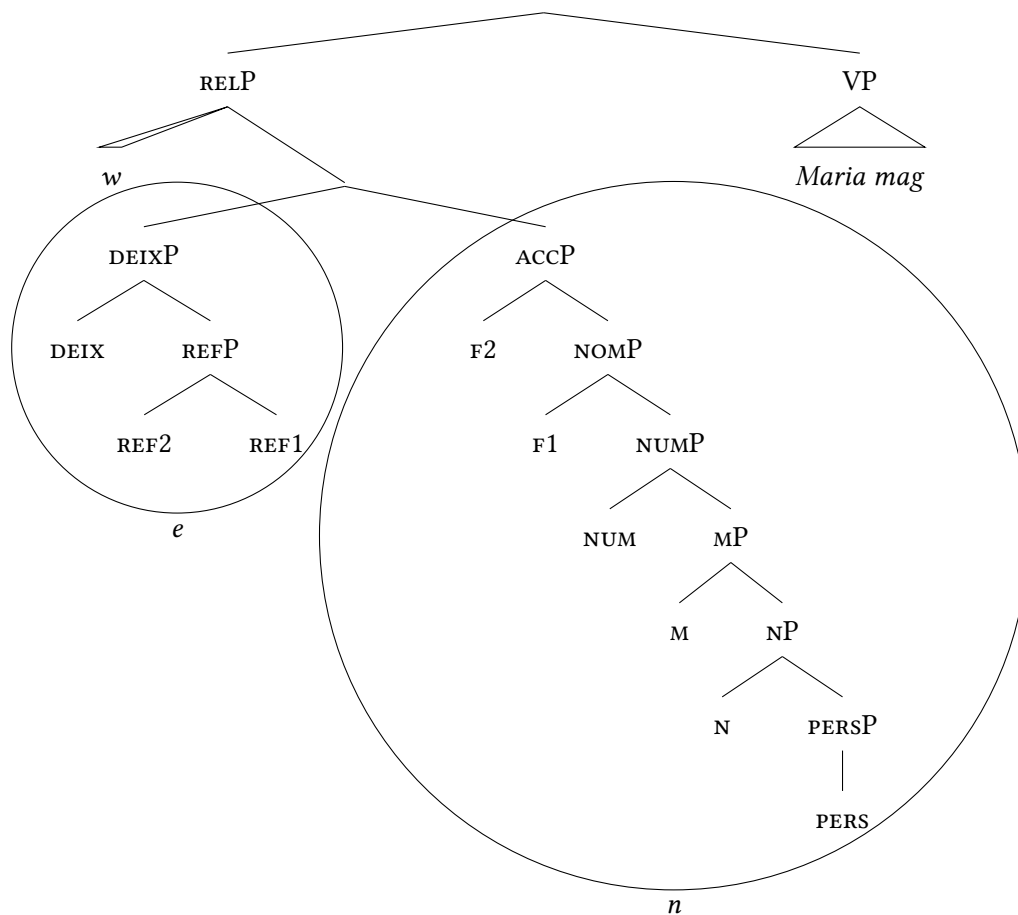
show how internal-wins works show how external-wins does not work
 Florian with his am Main

- (15) 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.

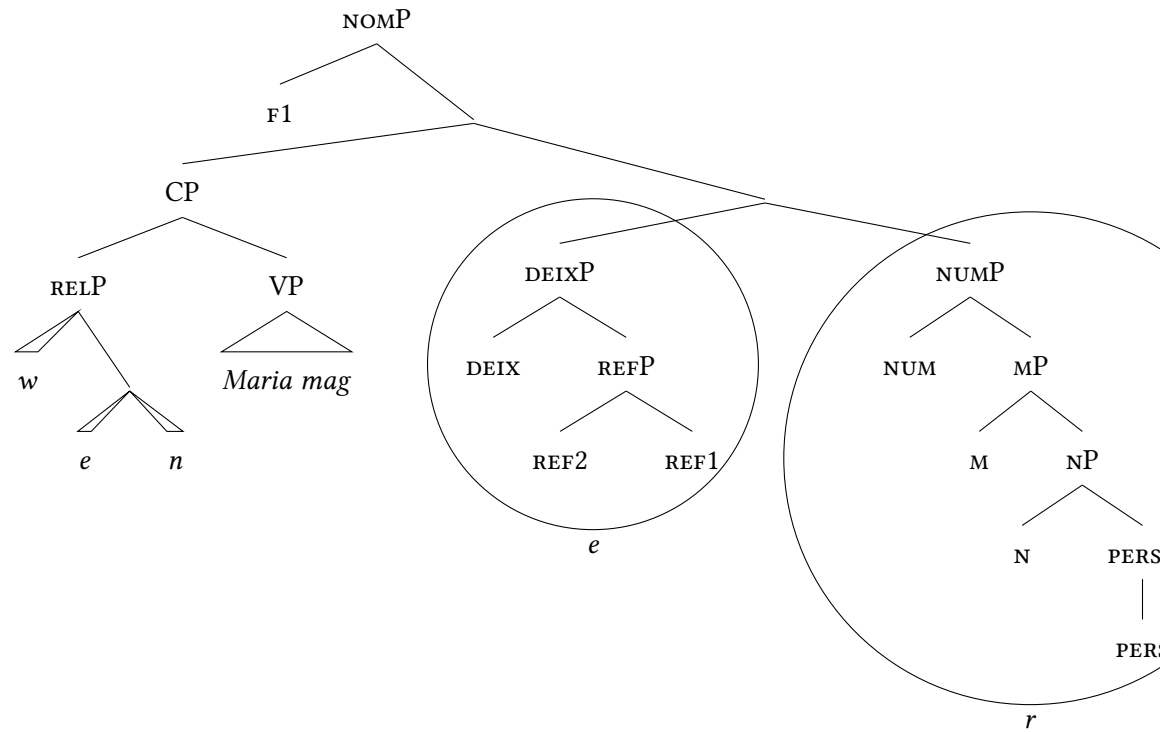
(16)



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.

(17)

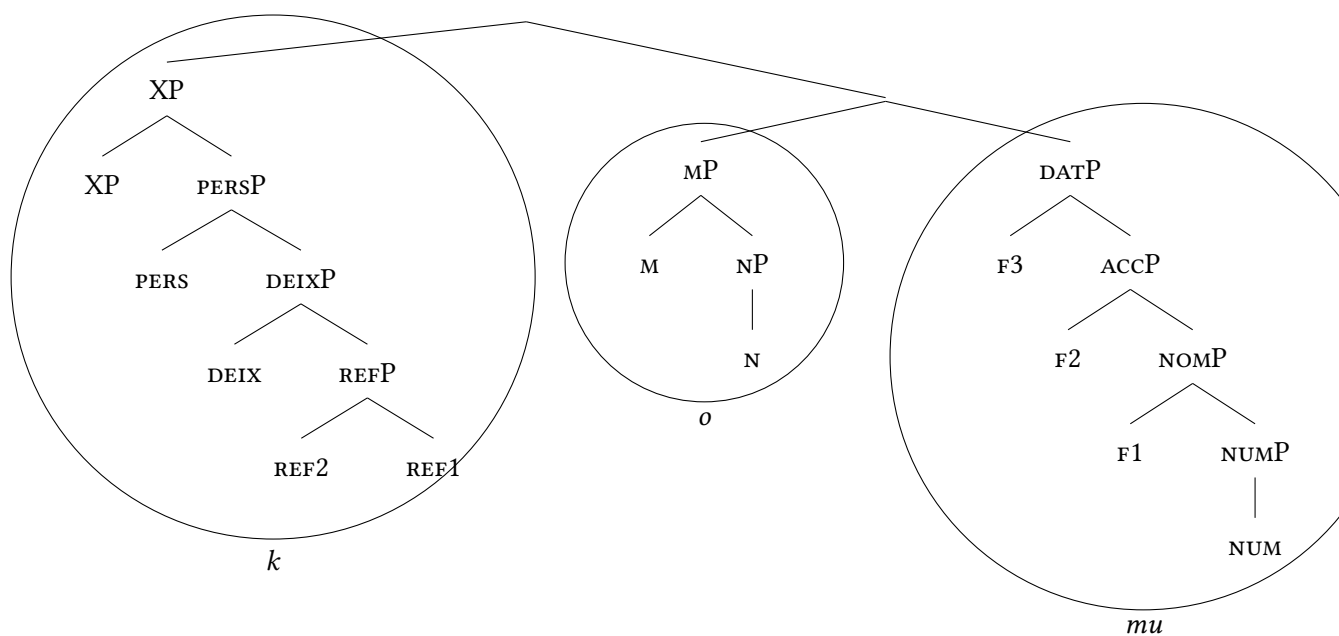


5.3.3 Deriving neither

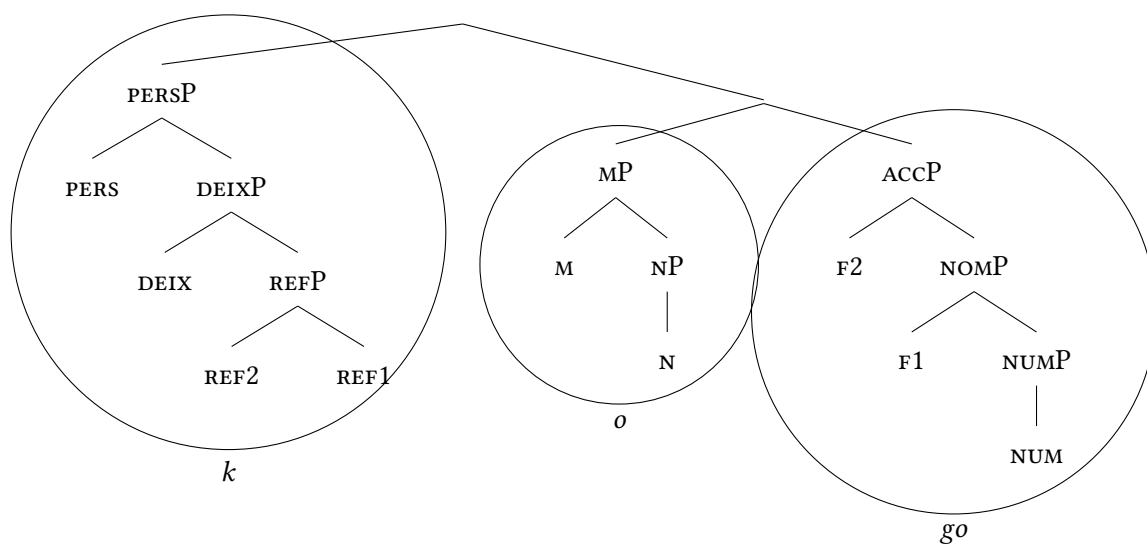
Polish

featural content of relative pronoun featural content of external head

Polish relative pronoun

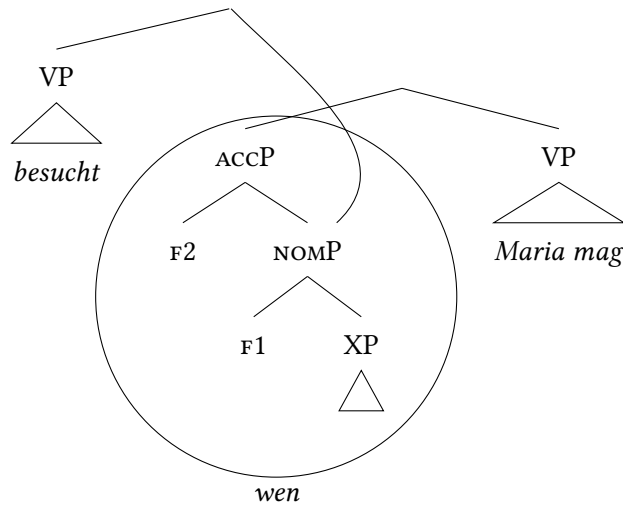


Polish head



show how internal-wins does not work show how external-wins does not work
 Radek with his definitenessless of Czech demonstratives

(19)

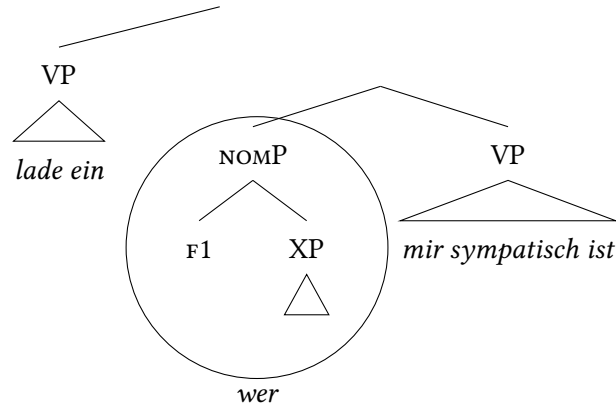


The other way around does not work. Consider (20). This is an example with nominative as internal case and accusative as external case.

- (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.

5.5 Summary

here

Chapter 6

Discussion

6.1 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.

6.2 D also in Modern 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.

First there was only the relative pronoun with a D. Then we did case competition with this one, in both directions. Later, we only did it with the wh, and we only had internal left. Because this competitor was introduced, the case competition with D disappeared.

6.3 Why FEM does not have WH-pronouns

6.4 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

Another language that only allows the internal case to surface after it wins the case competition.

valita 'choose' takes a partitive object

- (1) Valitsen mista sina piddt. choose-I.el what-el you like-you.part 'I choose what you like.'

pitää 'like' takes elative objects

- (2) *Pidan mista sind valitset.
 like-I.part what-el you choose-you.el
 'I like what you choose.'
- (3) *Pidan mita sind valitset.
 like-I.part what-el you choose-you.el
 'I like what you choose.'

Primary texts

Col.	Colossians, New Testament
Hel.	Heliand
Isid.	Der althochdeutsche Isidor
John	John, New Testament
Luke	Luke, New Testament
Mark	Mark, New Testament
Men. DD.	Menander, The Double Deceiver
Mons.	The Monsee fragments
Nib.	Das Nibelungenlied
Otfrid	Otfrid's Evangelienbuch
Pl. Men.	Plato, Menexenus
Rom.	Romans, New Testament
Tatian	Tatian

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