

CASE COMPETITION IN HEADLESS RELATIVES

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List of abbreviations

1	first person
2	second person
3	third person
ABS	absolutive
ACC	accusative
AN	animate
AOR	aorist
AUX	auxiliary
CL	clitic
CMPR	comparative
COMP	complementizer
DAT	dative
DEF	definite
DEM	demonstrative
DET	determiner
ELH	extra light head
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.

Free relatives? I use the neutral descriptive term headless relatives, because free has this free choice interpretation connotation.

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 2003a. At this point in the discussion this distinction is not relevant. I return to the issue in Chapter ??.

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., Lernerz 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

Case competition

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 in different languages. Section 2.3 shows that the case scale also appears in morphology. 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 case and the external case match, and then examples in which they differ.

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

predicate *giban* ‘to give’ also takes dative indirect objects. The relative pronoun *ḡaim*) ‘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 top-left to bottom-right diagonal corresponds to the examples I have 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 against 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 against 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 against the external dative case, and the relative pronoun surfaces in the dative case.

Table 2.1: 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 competing

cases always adhere to a particular case scale (cf. Harbert, 1978; Pittner, 1995; Vogel, 2001; Grosu, 2003a; Bergsma, 2019; Caha, 2019). This is the scale I gave in the introduction of this chapter, 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 the accusative and the nominative. Following the case scale in (5), the relative pronoun appears in the accusative case and never in the 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 the 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. I discussed the genitive briefly in Section 1.3.3.

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: Gothic headless relatives (NOM – ACC)

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

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

- (8) *ip þamm -ei letil fraletada letil 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 *fraþjan* ‘to

think about’ takes dative indirect objects. The relative pronoun *þaim* ‘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 the 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 the nominative and the 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 the nominative case.

Table 2.3: Gothic headless relatives (NOM — DAT)

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

I end with the competition between the dative and the accusative. Following

the case scale in (5), the relative pronoun appears in the dative case and never in the 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* ‘on’ takes dative complements.^{4,5} The external case is accusative, as the predicate *ushafjan* ‘to pick up’ takes accusative objects. The relative pronoun *þamm(a)* ‘REL.SG.N.DAT’ appears in the internal case: the dative. The relative pronoun is marked in bold, just like as the relative clause, showing that the relative pronoun patterns with the relative clause. Examples in which the internal case is dative, the external case is accusative and the relative pronoun appears in the accusative case are unattested.

- (10) *ushafjands* ***ana*** ***þamm*** ***-ei*** ***lag***
 pick up.PRES.PTCP_[ACC] on_[DAT] REL.SG.N.DAT -COMP lie.PRET.3SG
 ‘picking up that what he lay on’

⁴The example in (10) differs from the other examples of headless relatives. In this example, it is a preposition that assigns a particular case to the relative pronoun. So far, I have only given examples in which it is a verbal predicate that assigns a case to the relative pronoun (or the absent head). The reason for that is to keep the data set as homogenous as possible. Harbert (1978) reports there is no such example with the dative as internal case and the accusative as external case. My own research reaches the same conclusion. The absence of a headless relative with an internal dative case and an external accusative case (both assigned by verbal predicates) is not surprising, mainly for two reasons. First, the headless relative construction is infrequent to begin with. Harbert reports of some case competition combinations only a single or a few occurrences. Second, Gothic only has a few verbs that take dative complements.

There is reason to believe that this missing occurrence is due to the above mentioned reasons rather than a meaningful gap in the paradigm. Datives often appear after prepositions. There are instances in which the internal dative case is assigned by a preposition and the external accusative case is assigned by a verbal predicate. In each of these instances, the relative pronoun surfaces in the internal dative case and not in the external accusative case (as in (10)). For the other way around holds the same: with an accusative internal case assigned by a verbal predicate and a dative external predicate assigned by a preposition, the relative pronoun surfaces in the dative and not in the accusative. Therefore, the system that I set up later in this dissertation is able to generate the dative as internal case and accusative as external case which are both assigned by verbal predicates.

⁵*Ana* ‘on’ takes dative complements when the PP is interpreted as locational. *Ana* ‘on’ takes accusative complements when the PP is interpreted as directional. *Ana þammei* ‘on that’ in (10) refers to a location.

(Gothic, Luke 5:25, adapted from Harbert 1978: 343)

Consider the example in (11), in which the internal accusative case competes against the external dative case. The internal case is accusative, as the predicate *insandjan* ‘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 the accusative case are unattested.

- (11) ei galaubjaiþ 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 the accusative and the 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 the accusative case.

Table 2.5 is a simplified version of Table 2.4. The data in the table can be divided into three sets: (1) a set of three unmarked cells in the top-left to bottom-right diagonal, (2) a set of three light gray marked cells in the bottom-left corner and (3) a set of three dark gray marked cells in the top-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 bottom-left corner, marked in light gray, are the situations in which the internal case surfaces when it wins the competition. In these situations, the relative pronoun appears in the internal case. They correspond to the examples

Table 2.4: Gothic headless relatives (ACC – DAT)

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

(6), (8) and (10). The three cells in the top-right corner, marked in dark gray, are the situations in which the external case surfaces when it wins the competition. In these situations, 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

^{EXT} INT	[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 from the introduction of this chapter in (12).

(12) $NOM < ACC < DAT$

If two cases compete, the dative wins over the accusative and the nominative, and the accusative wins over the 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 and Old High German and Grosu 2003a; 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.

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).

⁶Modern German differs from Gothic and the other languages in that it is subject to an additional constraint. That is, it does not allow the internal and the external case to win case competitions. Modern German only allows the internal case to do so. 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.

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

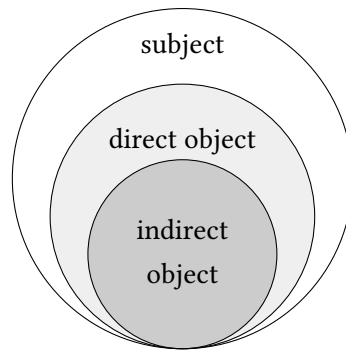


Figure 2.1: Agreement hierarchy

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

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

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

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.

with the subject *Tarooga* ‘Taro’, with the direct object *nimotuo* ‘package’ or with the indirect object *Hanakoni* ‘Hanako’.

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

German is an example of a language that shows agreement with the subject of the clause. An example is given in (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 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.

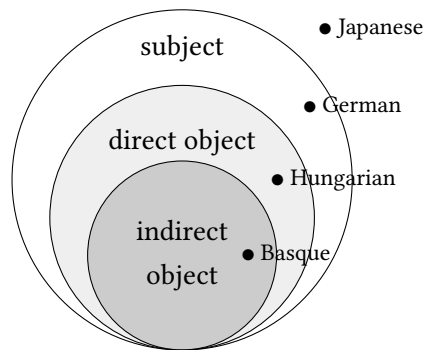


Figure 2.2: Agreement hierarchy with languages

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.

So far I have discussed the implicational hierarchy in terms of grammatical func-

Table 2.6: Typology for agreement hierarchy

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

tion. 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 the 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 grammatical subject, it is expected that the dative subject agrees with the predicate. This is not what happens, as illustrated in (17). The dative subject *morgum studentum*

‘many students’ is plural. The sentence is ungrammatical with the predicate *líka* ‘like’ inflecting for plural as well. So, the dative subject does not agree in number with the predicate. In other words, it is not the grammatical subject that shows agreement.

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

Instead, it is the nominative object that agrees with the verb. This is illustrated in (18). The dative subject *konunginum* ‘the king’ is singular. The nominative object *ambáttir* ‘slaves’ is plural. The predicate *voru* ‘were’ is inflected for plural, agreeing with the nominative object. This is expected if morphological case determines agreement: it is the nominative that shows agreement. The grammatical role, the fact that this nominative is an object, does not influence agreement.

- (18) Um veturinn voru konunginum gefnar ambáttir
 In the winter were.PL the king.SG.DAT given slave.PL.NOM
 ‘In the winter, the king was given (female) slaves.’
 (Zaenen, Maling, and Thráinsson 1985: 112)

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.

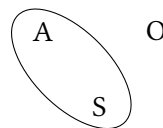


Figure 2.3: Nominative-accusative alignment

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.

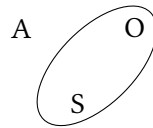


Figure 2.4: Ergative-absolutive alignment

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.

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

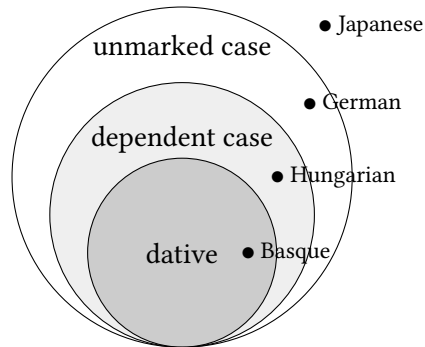


Figure 2.5: Agreement hierarchy (case)

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 the 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 suffices.

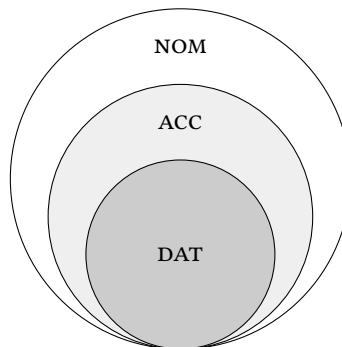


Figure 2.6: Agreement hierarchy (NOM/ACC/DAT)

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

2.2.2 Relativization

Relativization refers to the process in which a relative clause is derived from a non-relative clause. An example of the non-relative clause is given in (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: NOM < ACC < DAT.

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

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.

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

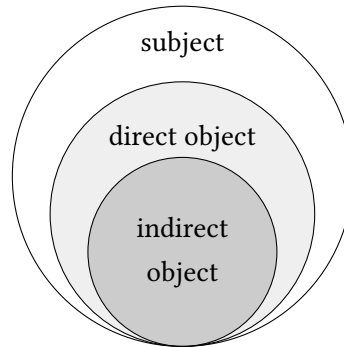


Figure 2.7: Relativization hierarchy

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 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)

The subject from the declarative in (23), sentence *die Frau* ‘the woman’, is relativized in (24). The predicate from the declarative clause *küsst* ‘kisses’ is turned in into the participle *küssende* ‘kissing’. The participle appears at the end of the reduced relative clause *den Mann küssende* ‘the man kissing’. The reduced relative clause directly precedes the noun of the subject, creating distance between the determiner *die* ‘the’ and *Frau* ‘woman’, which are both marked in bold.

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

The object from the declarative sentence in (23), *den Mann* ‘the man’, cannot be relativized like the subject, as shown in (25). Again, the predicate from the declarative clause *küsst* ‘kisses’ is turned in into the participle *küssende* ‘kissing’. The participle

appears at the end of the relative clause *die Frau küssende* ‘the woman kissing’. The reduced relative clause directly precedes the noun of the object, creating distance between the determiner *der* ‘the’ and *Mann* ‘man’, which are both marked in bold. This example is ungrammatical.

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

Malay is an example of a language that has a relativization strategy for subjects and direct objects, but not for indirect objects. (26) shows an example in which the object is relativized. The object here is *ayam* ‘chicken’, marked in bold. It is followed by the relativizer *yang* ‘that’. After that, the rest of the relative clause *Aminah sedang memakan* ‘Aminah is eating’ follows. The same strategy works to relativize subjects, which is not illustrated with an example.

- (26) Ali bunoh **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

- (29) a. Pöydällä tanssinut **poika** oli sairas.
on-table having-danced boy was sick
'The boy who had danced on the table was sick.'
- b. Näkemäni **poika** tanssi pöydällä.
I-having-seen boy danced on-table
'The boy that I saw danced on the table.'

(Finnish, Keenan and Comrie 1977: 71)

Basque is an example of a language that has a particular relativization strategy for subjects, direct objects and indirect objects. (30) is an example of a declarative ditransitive sentence in Basque. The sentence contains the subject *gizonak* ‘the man’, the direct object *liburua* ‘the book’ and the indirect object *emakumeari* ‘the woman’.

- (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)

A relative clause in Basque appears in the prenominal position and it is marked by the invariable marker *-n*.⁹ (31a) shows the three relativizations that are derived from (30). In (31a), the ergative subject *gizonak* ‘the man’ from (30) is relativized. The head *gizona* ‘the man’, marked in bold, has lost its ergative marker *-k*, and follows the relative clause *makumeari liburua eman dio* ‘who has given the book to the woman’. The suffix *-n* is attached to the relative clause. In (31b), the absolutive direct object *liburua* ‘the book’ from (30) is relativized. The head *liburua* ‘the book’, marked in bold, follows the relative clause *gizonak emakumeari eman dion* ‘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 woman’, marked in bold, has lost its dative marker *-ri*, and follows the relative clause *gizonak liburua eman dion* ‘that the man has given the book to’. The suffix *-n* is attached to the relative clause.

- (31) a. *emakume-a-ri liburu-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’

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

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.

- 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 liburu-a eman dio-n **emakume-a**
 man-DEF-ERG book-DEF.ABS give has-REL woman-DEF
 ‘the woman that the man has given the book to’

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

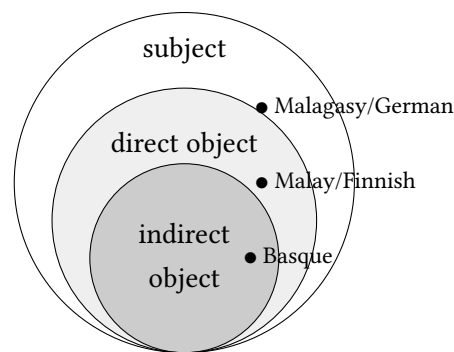


Figure 2.8: Relativization hierarchy with languages

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

According to Keenan and Comrie (1977), ergative-absolutive languages form a counterexample to their hierarchy. It turns out that in some languages ergative 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 dugumbil* ‘the woman’ is marked absolutive. In the transitive sentence in (32b), the subject *ɲaɖa* ‘I’ is marked ergative, and the object

balan ɖugumbil ‘the woman’ is marked absolutive.

- (32) a. *balan ɖugumbil ɲina-ɲu*
 DET.ABS woman.ABS sit-PASS
 ‘The woman is sitting down.’
 b. *ɲaɖa 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 *-ɲu*. In (33a), the absolutive subject *ɖugumbil* ‘woman’ from (32a) is relativized. The head *ɖugumbil* ‘woman’, marked in bold, precedes the relative clause *ɲina-ɲu* ‘who is sitting down’. The predicate in the relative clause *ɲina* ‘sit’ is followed by the relative suffix *-ɲu*. In (33b), the absolutive object *ɖugumbil* ‘woman’ from (32b) is relativized. The head *ɖugumbil* ‘woman’, marked in bold, precedes the relative clause *ɲaɖa buɾa-ɲu* ‘whom I am watching’. The predicate in the relative clause *buɾa* ‘see’ is followed by the relative suffix *-ɲu*.

- (33) a. *ɲaɖa balan **ɖugumbil** ɲina-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 ɲina-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 absolutives first, creating a passive-like structure. In other words, only relativization of absolutives 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.

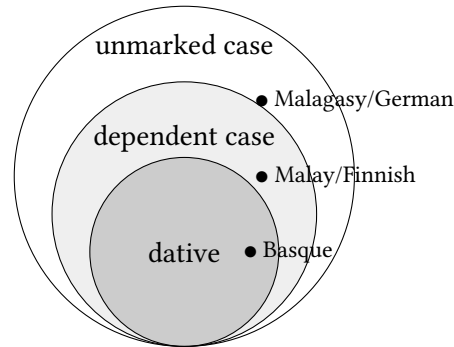


Figure 2.9: Relativization hierarchy (case)

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.

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

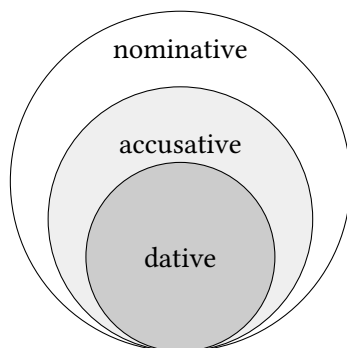


Figure 2.10: Relativization hierarchy (NOM/ACC/DAT)

2.3 In morphology

In the two previous sections I showed that the case scale $\text{NOM} < \text{ACC} < \text{DAT}$ 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 rela-

tives: 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:lna* ‘him/her’ and *muŋe:wna* ‘us’ contain the accusative forms *luwe:l* and *muŋe:w* plus the dative marker *-na*. Again, the dative formally contains the accusative, which in turn contains the nominative.

Table 2.8: Morphological case containment in Khanty

	1SG	3SG	1PL
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 using the same strategy. If an accusative can be relativized with a particular strategy, so can a nominative with this strategy.

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

These phenomena show that the pattern observed in headless relatives is not something that stands on itself. The scale is a pattern that recurs across languages and across phenomena. Therefore, it should not be treated as a special process with its own stipulated rule. Instead, it is something general that should also follow from general processes in languages.

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

Chapter 3

Case decomposition

At the beginning of the previous chapter I showed that the case scale $\text{NOM} < \text{ACC} < \text{DAT}$ appears in headless relatives. In most accounts for headless relatives (cf. Harbert 1978; Pittner 1995; Vogel 2001; Grosu 2003a, 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 $\text{NOM} < \text{ACC} < \text{DAT}$ 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.

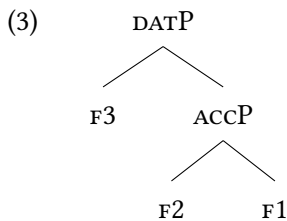
⁵The lexical tree does not have to correspond to both a phonological and a conceptual represen-

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.



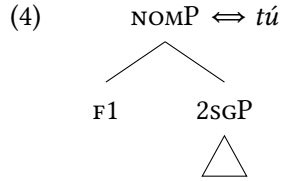
This structure leads to the concept of phrasal spellout: not terminals but multiple syntactic heads (phrases) are realized with a single piece of phonology (i.e. a single morpheme). Applying this to (3), not the terminals F1, F2 and F3 receive a realization, but ACCP and DATP are spelled out. A necessary 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

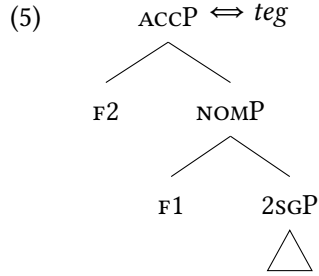
tation. Lexical trees that only correspond to a conceptual representations and not to phonological representations are (phrasal or clausal) idioms. Lexical trees that only correspond to phonological representations but not to conceptual representations are for instance irregular plurals.

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

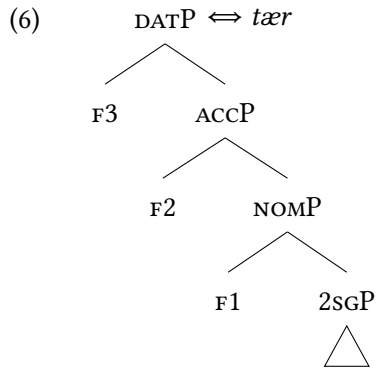


The lexical entry for *teg* is given in (5). The lexical tree consists of all the features of the lexical tree in (4), plus F2, making it an ACCP. The linked phonological representation is *teg*.



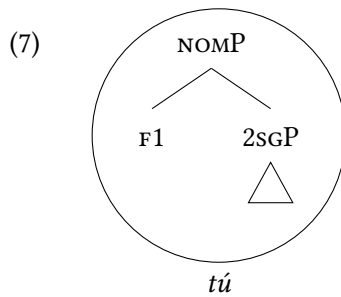
The lexical entry for *tær* is given in (6). The lexical tree consists of all the features of the lexical tree in (5), plus F3, making it a DATP. The linked phonological representation is *tær*.

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



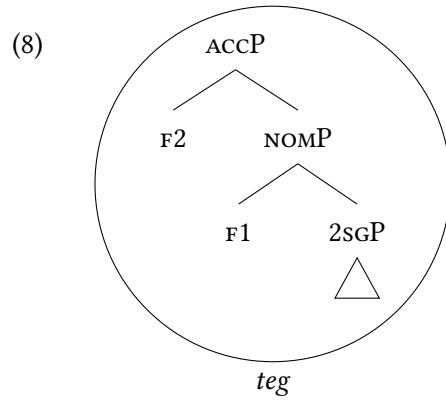
The lexical trees and their phonological counterparts I gave in (4) to (6) are lexical entries. These lexical entries are used to spell out syntactic structures. I give examples of syntactic structures in (7) to (9).

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

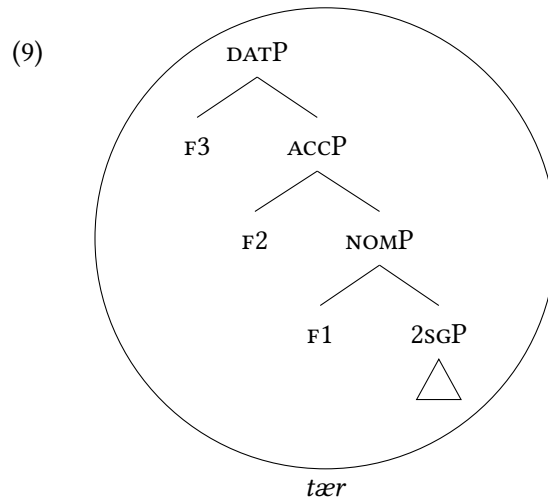


The lexical tree in (5) is identical to the syntactic structure in (8), and it is spelled out as *teg*.

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*.

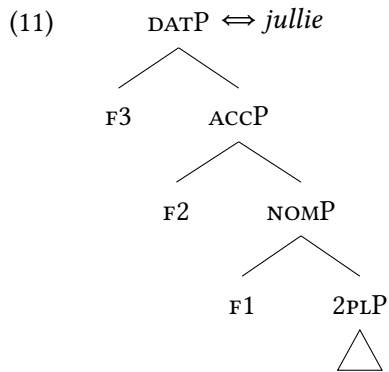


In the Faroese examples above, the syntactic structures are all identical to the lexical trees. However, Nanosyntax assumes that to be a successful match, identity is not a necessary requirement. Instead, matching relies on a containment relation. A lexical entry applies when it contains all features.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

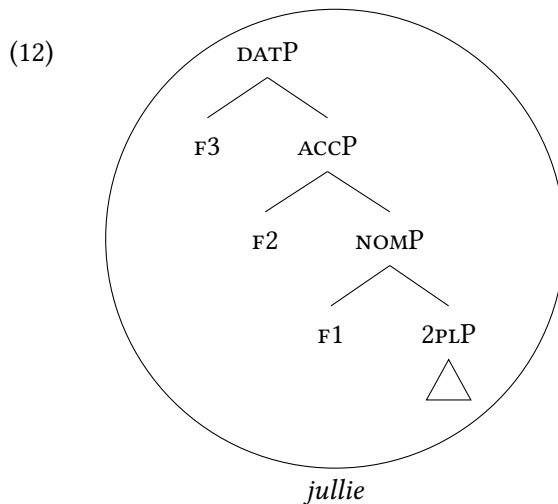
(10) **The Superset Principle** Starke (2009):

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

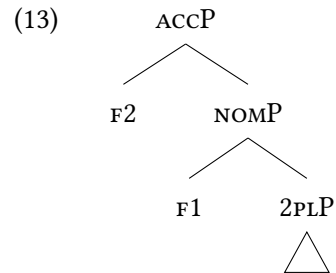
Let me illustrate this with the Dutch second person plural pronoun from Table 3.2. This pronoun is syncretic between the nominative, accusative and dative. The lexicon only contains a single lexical entry, namely (11). The lexical tree consists of the complex lexical tree that corresponds to the second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



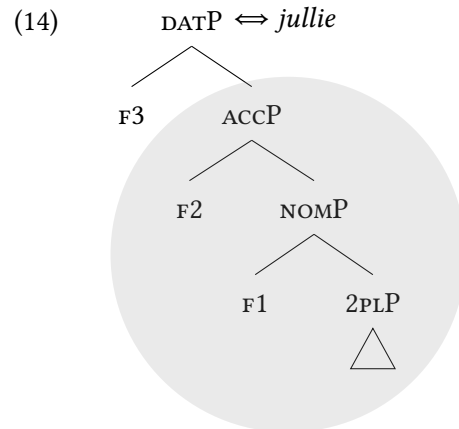
The syntactic structure of the dative, given in (12), is the least exciting of the three. It is identical to the lexical tree (11), and therefore, spelled out as *jullie*.



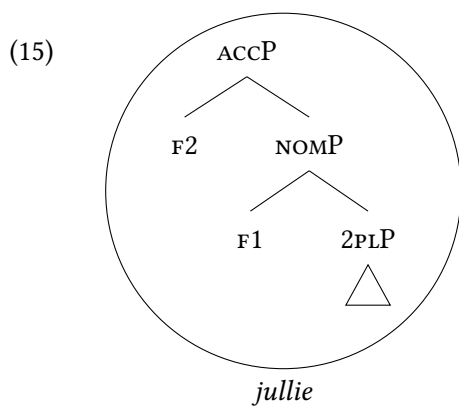
The syntactic structure of the accusative is given in (13).



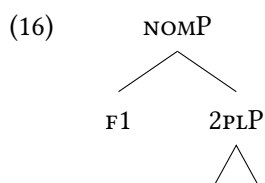
The lexical entry in (11) is not identical to this syntactic structure. However, the lexical tree contains the syntactic structure of the accusative. I repeat the lexical entry for *jullie* in (14), marking the subpart of the tree that matches the syntactic structure in gray.



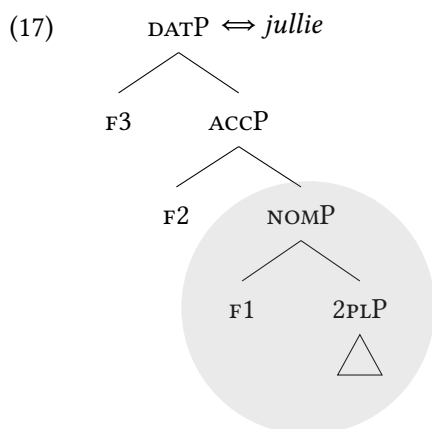
As a result, the accusative is spelled out as *jullie*, shown in (15).



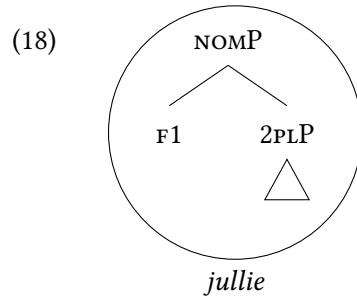
The same holds for the nominative. The syntactic structure is given in (16).



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).

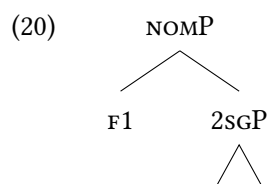


A question arises at this point. Why are the accusative and nominative in Faroese not spelled out by the lexical entry for the dative (and why is the nominative not spelled out by the lexical entry for the accusative)? These syntactic structures are namely contained in the lexical tree for the dative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

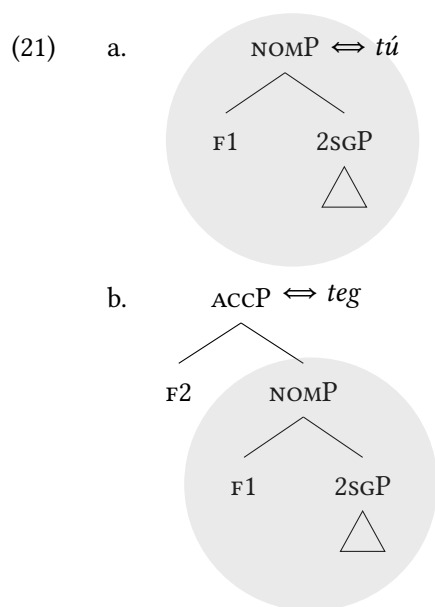
- (19) **The Elsewhere Condition** (Kiparsky 1973, formulated as in Caha 2020b):
 When two entries can spell out a given node, the more specific entry wins.
 Under the Superset Principle governed insertion, the more specific entry is the one which has fewer unused features.

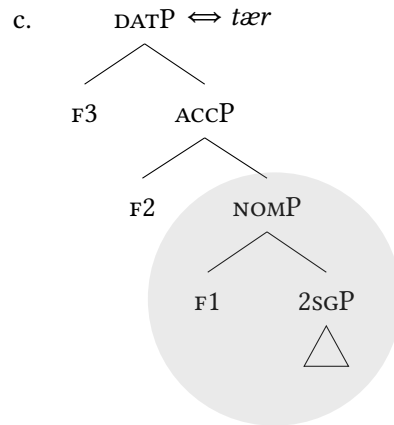
I show how the Superset Principle and the Elsewhere Condition interact in a competition with the Faroese lexical entries. I only discuss the nominative *tú* and the accusative *teg*, because for the dative *tær* there is only a single candidate that contains all features: the lexical entry *tær*.

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

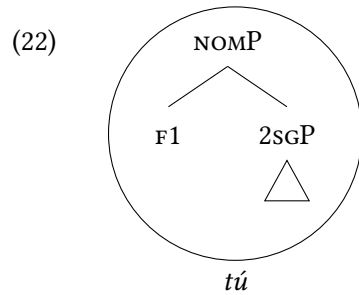


The three lexical entries for *tú* in (4), *teg* in (5) and *tær* in (6) are candidates for this syntactic structure. I repeat the lexical entries for *tú*, *teg* and *tær* in (21), marking the subpart of the tree that matches the syntactic structure in gray.

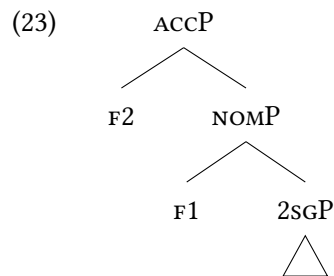




The first, (21a), has no unused features. The second, (21b), has one unused feature: f_2 . The third, (21c), has two unused features: f_2 and f_3 . Because (21a) has the least amount of unused features, it wins the competition, and the syntactic structure is spelled out as *tú*. This is shown in (22).

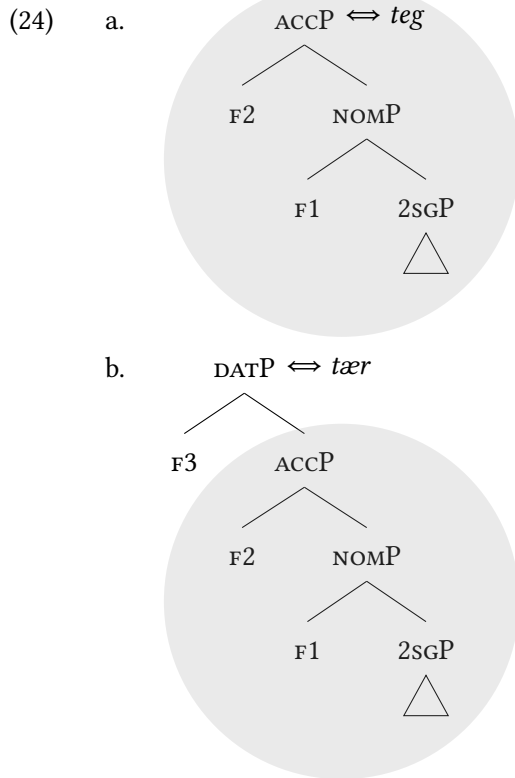


Consider the syntactic structure for the accusative in (23), repeated from (8).



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).

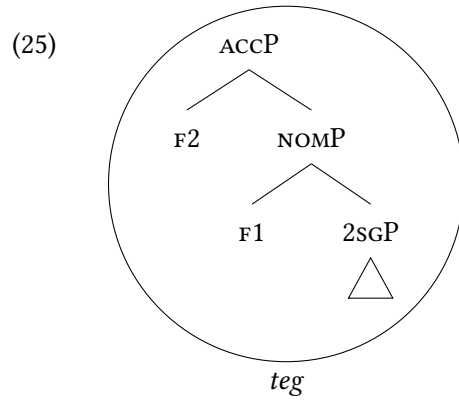
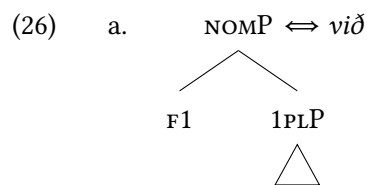
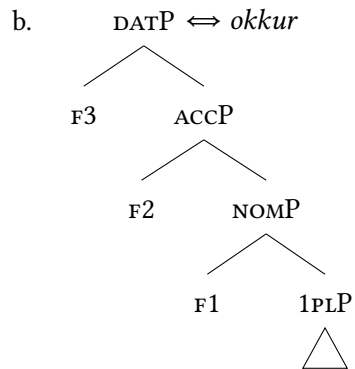


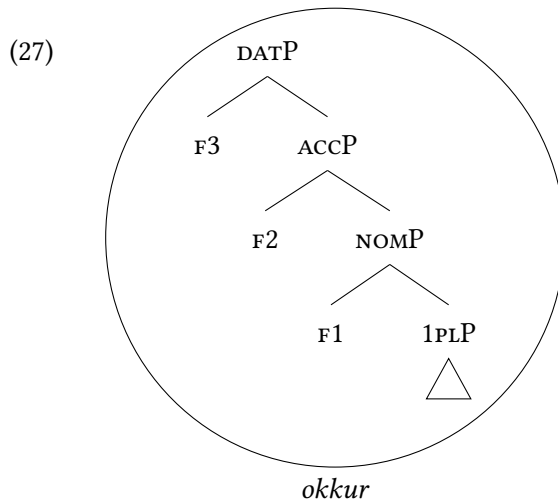
Table 3.2 contains two more attested patterns: the ABB in Icelandic and the AAB in German. In the remainder of this section I show how these two patterns are derived, and that the unattested one cannot be derived. I also show how the system is unable to derive an ABA pattern, which is crosslinguistically 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*.

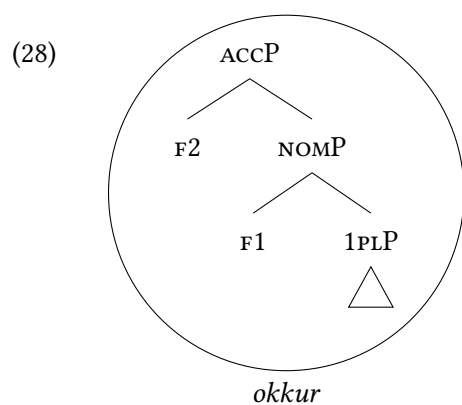




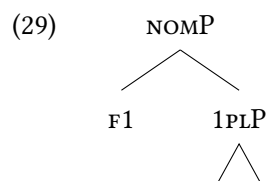
The syntactic structure for the dative is given in (27). It is contained in the lexical tree in (26b), and therefore, spelled out as *okkur*. The lexical entry in (26a) is not considered, because it does not contain *F2* and *F3*.



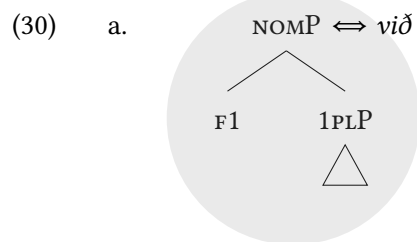
The syntactic structure for the accusative is given in (28). It is contained in the lexical tree in (26b), and therefore, spelled out as *okkur*. The lexical entry in (26a) is not considered, because it does not contain *F2*.

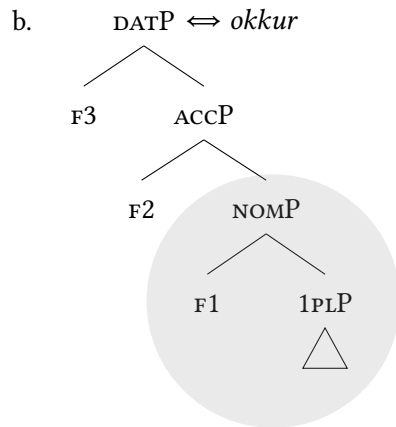


The syntactic structure for the nominative is given in (29).

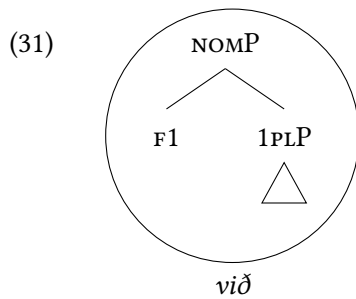


It is contained in the lexical tree for *við* in (26a) and in the one for *okkur* in (26b). I repeat the lexical entries for *við* and *okkur* in (30), marking the subparts of the trees that match the syntactic structure in gray.

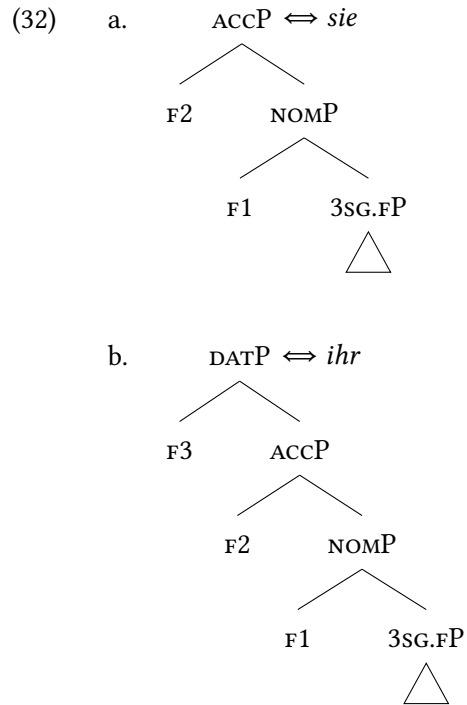




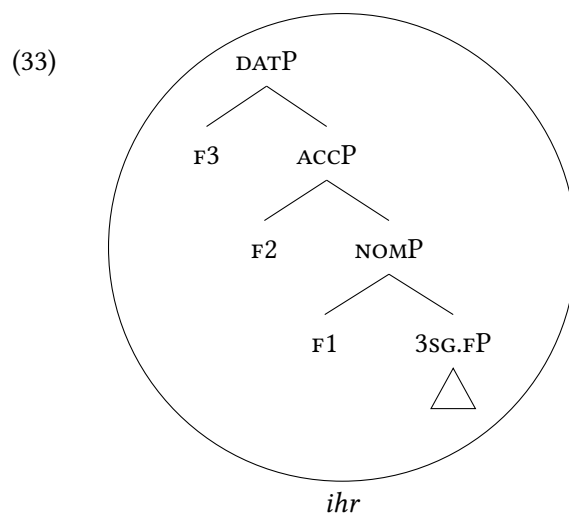
The former, (30a), has no unused features. The latter, (30b), has two unused features: F2 and F3. Because (30a) has fewer unused features, it wins the competition, and the syntactic structure is spelled out as *við*. This is shown in (31).



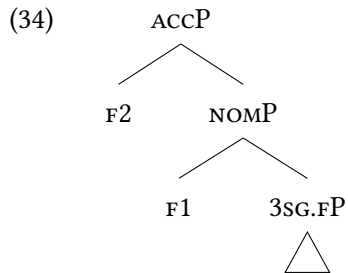
For the third person singular feminine, German uses *sie* as nominative and accusative, and *ihr* as dative. Two lexical entries are needed for that. The first one in (32a) contains pronominal features, F1 and F2. It corresponds to the phonology *sie*. The second one is given in (32b). It contains in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

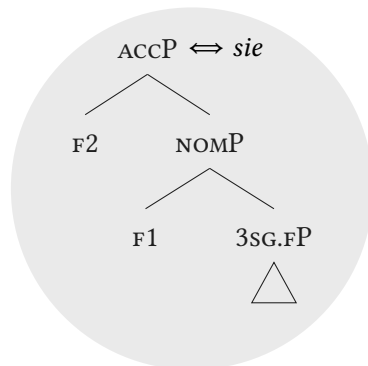


The syntactic structure for the accusative is given in (34).

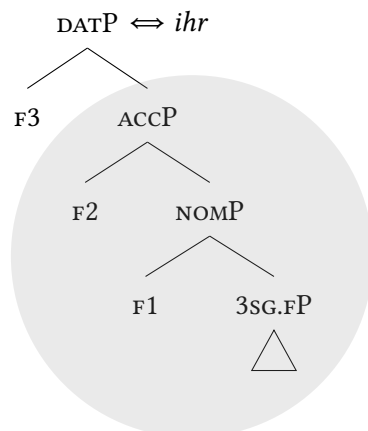


It is contained in the lexical tree for *sie* in (32a) and in the one for *ihr* in (32b). I repeat the lexical entries for *sie* and *ihr* in (35), marking the subparts of the trees that match the syntactic structure in gray.

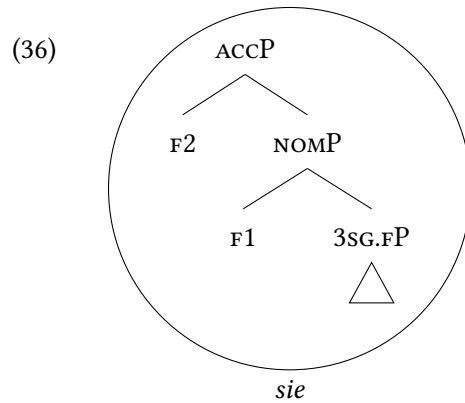
(35) a.



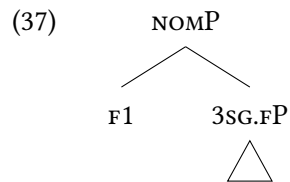
b.



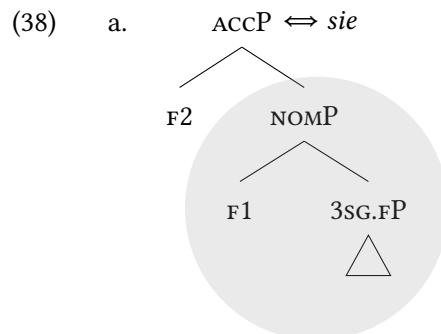
The former, (35a), has one no unused features. The latter, (35b), has one unused feature: F3. Because (35a) has fewer unused features, it wins the competition, and the syntactic structure is spelled out as *sie*. This is shown in (36)

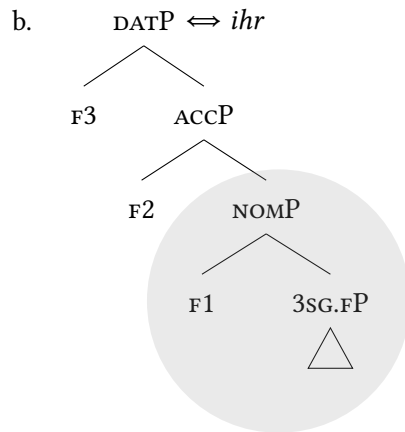


The syntactic structure for the nominative is given in (37).

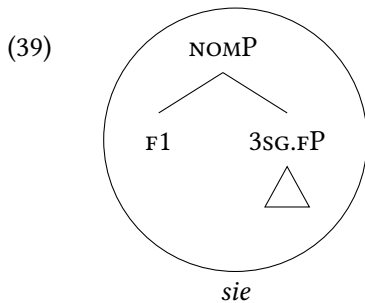


It is contained in the lexical tree for *sie* in (32a) and in the one *ihr* in (32b). I repeat the lexical entries for *sie* and *ihr* in (38), marking the subparts of the trees that match the syntactic structure in gray.





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

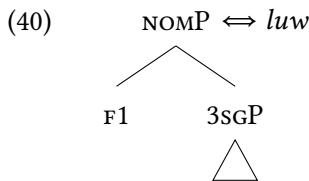
	3SG
NOM	luw
ACC	luw- e:l
DAT	luw- e:l-na

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).

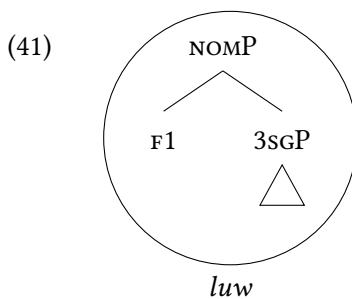
Before I show how languages with morphological case containment can be derived, I need to discuss how variation between languages is modeled in Nanosyntax. Crosslinguistic variation is namely explained in terms of differences in the lexicon. In other words, the syntactic structure is identical across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

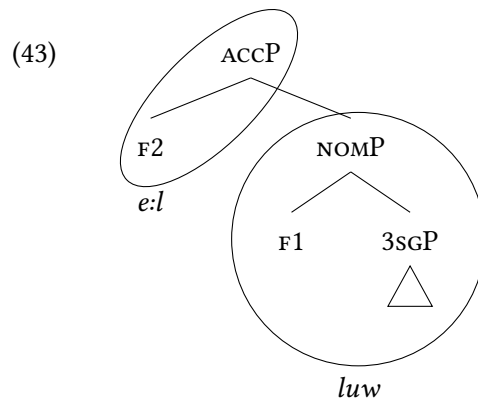
$$(42) \quad \text{ACCP} \Leftrightarrow e:l$$

$$\quad \quad \quad |$$

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

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.

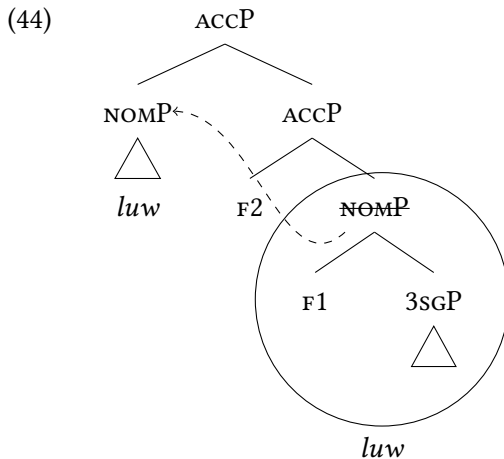
Exactly this movement is one of the two so-called ‘evacuation movements’ that

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*.

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



The result of the movement is given in (45). The lexical tree in (42) matches the

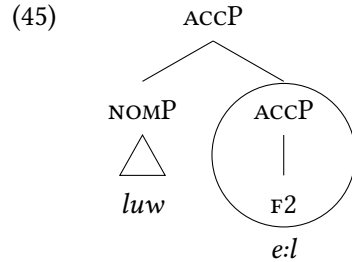
¹⁰In Chapter ?? I introduce the spellout procedure in more detail.

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).

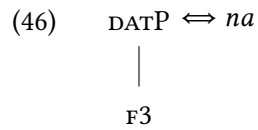
¹²This type of movement is different from syntactic movement. It is driven by spellout, it does not have any interpretational effects, and it does not leave any traces (Starke, 2018). In Chapter ?? I return to ‘regular’ syntactic movement in Nanosyntax.

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.

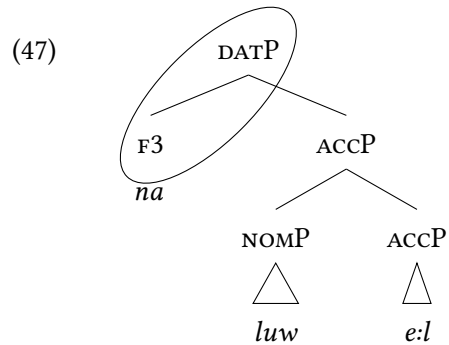
syntactic structure, and ACCP is spelled out as *e:l*.



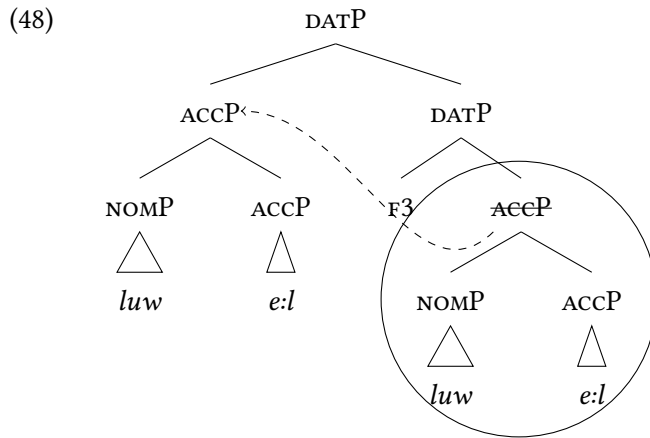
Just as Khanty has an additional morpheme that shows up in the accusative, it also has a morpheme that shows up in the dative. Similarly, just as the accusative has one more feature than the nominative (F1, F2 vs. F1), the dative has one more feature than the accusative (F1, F2, F3 vs. F1, F2). This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



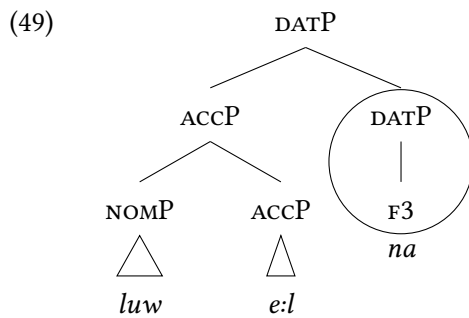
Again, because spellout only targets constituents, F3 cannot be spelled out right after it has been merged, as shown in (47).



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

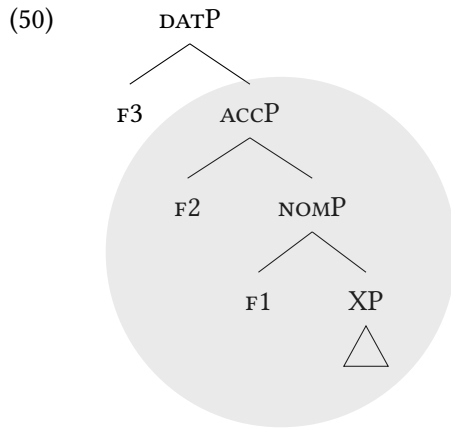
different shadings depending on which cases compete. The dark gray cells are the ones in which dative and the accusative compete, and the dative wins. The light gray cells are the ones in which the dative and the nominative compete, and the dative again wins. The uncolored cells are the ones in which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

Table 3.4: Summary of Gothic headless relative (repeated)

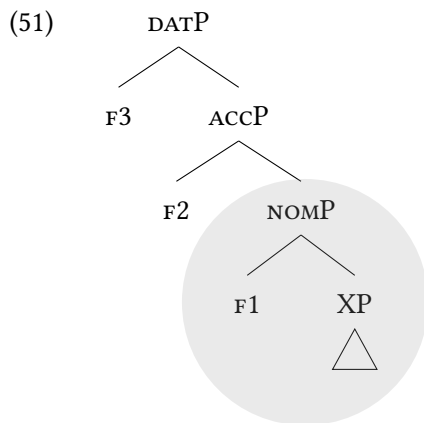
INT^{EXT}	[NOM]	[ACC]	[DAT]
[NOM]		ACC	DAT
[ACC]	ACC		DAT
[DAT]	DAT	DAT	

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 ?? . 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.

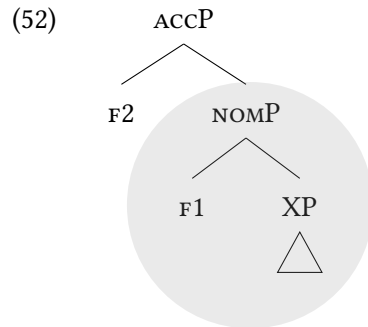


Next is the competition between dative and nominative, in which dative wins. The corresponding cells are marked light gray in Table 3.4. In (51) I show the syntactic structure of a dative relative pronoun. It contains the XP, F1, F2 and F3. Contained in this structure is a nominative relative pronoun,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

The typology

Chapter 4

Languages with case competition

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) NOM < ACC < DAT

In Chapter 3 within 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 more complex 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 aspect is not stable crosslinguistically, but it differs across languages. Languages differ in whether they allow the internal case (the case from the relative

clause) and the external case (the case from the main clause) to surface when either of them wins 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 when either of them wins the case competition, (2) only the internal case is allowed to surface when it wins the case competition, and the external case is not, (3) only the external case is allowed to surface when it wins the case competition, and the internal case is not, (4) neither the internal case nor the external case is allowed to surface when either of them wins the competition.¹ I show in this chapter that one of these logically possible patterns is not attested in any natural language.

In this dissertation I discuss languages of which headless relatives have been described in the literature. As I write about case competition, I only focus on languages that morphologically distinguish between case, specifically the nominative, the accusative and the dative. By no means do I claim that my language sample is representative for the languages of the world. However, they build on independently established facts, which are the case scale from Chapter 2 and the subset requirement of the external head, to be discussed in Chapter ???. Therefore, I predict that my generalizations hold for all natural languages.

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 5, 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

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.

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: from inside of the relative clause (internal) or from outside of the relative clause (external). It is determined per language whether it approves the internal case, the external case, both of them or none 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.

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 case nor the external case is allowed to surface when either of them wins the competition. In what follows, I introduce these four 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. I call this the unrestricted type of language (just as cf. Grosu, 1987; Cinque, 2020): the internal and external case do not need to match. The pattern might look familiar, because it is the one that Gothic has, which I discussed in Chapter 2. Table 4.1 (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 top row shows the external case between square brackets. The other cells indicate the case of the relative pronoun. The top-left to bottom-right diagonal corresponds to the examples in which the internal and external case match. The three cells in the bottom-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 top-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: Internal and external case allowed

INT^{EXT}	[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. I call this the internal-only type of language: the internal and external case do not need to match, but only the internal case is allowed to surface as a winner.

Table 4.2 illustrates what the pattern for such a language looks like. Compared to the unrestricted type, it has three cells in which there is no grammatical relative pronoun. The top-left to bottom-right diagonal corresponds to the examples in which the internal and external case match. The three cells in the bottom-left corner, marked in light gray, are the situations in which the internal case surfaces when it wins the competition. Just as in the unrestricted type, these six instances are grammatical. The three cells in the top-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.

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. I call this the external-only

Table 4.2: Only internal case allowed

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

type of language: the internal and external case do not need to match, but only the external case is allowed to surface as a winner.

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 top-left to bottom-right diagonal corresponds to the examples in which the internal and external case match. Just as in the unrestricted type and the ‘unrestricted – internal-only’ type, these instances are grammatical. The three cells in the bottom-left corner, marked in light gray, are the situations in which the internal case surfaces when it wins the competition. Unlike in the unrestricted type and the ‘unrestricted – internal-only’ type, 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 top-right corner, marked in dark gray, are the situations in which the external case surfaces when it wins the competition. Just as in the unrestricted type but unlike in the ‘unrestricted – internal-only’ type, 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 case nor the external case to surface when either of them wins the competition. In other words, when the internal and the external case differ, there is no grammatical headless relative construction possible. Only when there is a tie, i.e. when the internal and external case match, there is a grammatical result. I call this the matching type of language: the internal and external case need to match.

Table 4.4 illustrates what the pattern for such a language looks like. The top-left to bottom-right diagonal corresponds to the examples in which the internal and external case match. Just as in the other three patterns, these instances are grammatical. The three cells in the bottom-left corner, marked in light gray, are the situations in which the internal case surfaces when it wins the competition. Just as the ‘unrestricted – external-only’ type, but unlike the unrestricted type and the ‘unrestricted – internal-only’ type, these instances are not grammatical for this type of language. The three cells in the top-right corner, marked in dark gray, are the situations in which the external case surfaces when it wins the competition. Just as the ‘unrestricted – internal-only’ type, but unlike the unrestricted type and the ‘unrestricted – external-only’ pattern, these instances are not grammatical for this type of language. The reasoning behind the ungrammaticality of these six cells is that the language allows neither the internal case nor the external case to surface when either of them wins the 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 this type of language, 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 and concluding that the internal case and the external case differ. The grammaticality of the diagonal follows from the conclusion that the internal and the external case match. In Section 5 I discuss languages in which the internal and external case are not compared to each other.

In this chapter I show that three of these four patterns I introduced are attested crosslinguistically. Section 4.2 shows that the unrestricted type, in which either the

Table 4.4: Only matching allowed

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

internal case or the external case can surface, is exemplified by Gothic (repeated from Chapter 2) and by Old High German. The ‘unrestricted – internal-only’ type, 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 only allows the case to surface when there is a tie, i.e. when the internal and external case match, 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 Table 4.5.

Table 4.5: Internal and external case allowed (repeated)

INT^{EXT}	[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. In this section, 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 top-left to bottom-right diagonal corresponds to the examples in which the internal and external case match. The three cells in the bottom-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 top-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. The examples corresponding to the cells in Table 4.6 can be found in Section 2.1.

Table 4.6: Summary of Gothic headless relatives (repeated)

$\begin{smallmatrix} \text{EXT} \\ \text{INT} \end{smallmatrix}$	[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 the internal case and 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.

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.

³I could not find such an instance for this situation in any of the Old High German texts. This

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.

- (4) *sagda* **them** **siu** **uuelda**
 say.PST.3SG_[DAT] REL.PL.M.DAT 3SG.F.NOM wish.PST.3SG_[DAT]
 ‘she said to those, whom she wished for’ (Old Saxon, Hel. 4:293)

These findings can be summarized as in Table 4.7. The top-left to bottom-right diagonal corresponds to the examples I have 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 against 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 against 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 against the external dative case, and the relative pronoun surfaces in the dative case.

Table 4.7: Old High German headless relatives (matching)

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

In Table 4.7, 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.

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.

I start with the competition between the accusative and the nominative. Following the case scale, the relative pronoun appears in the 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 the nominative case are unattested.

- (5) Thíz ist **then** sie zéllent
 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

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.

chisitzitpossess.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 the nominative and the 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 surfaces 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 surfaces in the accusative case.

Table 4.8: 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 the dative and the nominative. Following the case scale, the relative pronoun appears in the 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 the 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 *antworten* ‘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 the 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 the nominative and the 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 surfaces 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 surfaces in the dative case.

I end with the competition between the dative and the accusative. Following the case scale, the relative pronoun appears in the 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 com-

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

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

petes 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 *thémo* ‘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 the 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)

Consider the example in (10). In this example, the internal accusative case competes against the external dative case. The internal case is accusative, as the predicate *zellen* ‘to tell’ takes accusative objects. The external case is dative, as the comparative of the adjective *furiro* ‘great’ takes dative objects. The relative pronoun *thên* ‘REL.PL.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 accusative, the external case is dative and the relative pronoun appears in the accusative case are unattested.

- (10) bis -tú nu zi wáre furira Ábrahame? ouh
 be.PRES.2SG -2SG.NOM now truly great.CMPR_[DAT] Abraham.DAT and
 thén **man** **hiar nu zálta**
 REL.PL.M.DAT one.NOM.M.SG here now tell.PST.3SG_[ACC]
 ‘are you now truly greater than Abraham? and than those, who one talked
 about here now’ (Old High German, Otfrid III 18:33)

The two examples in which the accusative and the dative compete are highlighted in Table 4.10. The light gray marking corresponds to (9), in which the internal dative wins over the external accusative, and the relative pronoun surfaces in the dative case. The dark gray marking corresponds to (10), in which the external dative wins over the internal accusative, and the relative pronoun surfaces in the dative case.

Table 4.10: Old High German headless relatives (ACC – DAT)

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

In my research I encountered a single counterexample to the pattern I just described. Consider the example in (11). In this example, the internal nominative case competes against the external accusative case. The internal case is nominative, as the predicate *giheilen* ‘to save’ takes nominative subjects. The external case is accusative, as the predicate *beran* ‘to bear’ takes accusative objects. Surprisingly, the relative pronoun *thér* ‘REL.SG.M.NOM’ appears in the internal case: the nominative, which is the less complex of the two cases. The relative pronoun is marked in bold, just as the relative clause, showing that the relative pronoun patterns with the relative clause.

- (11) Tház si uns bérán scolti **thér**
 that 3SG.F.NOM 1PL.DAT bear.INF_[ACC] should.SUBJ.PST.3SG REL.SG.M.NOM
unsih gihéilti
 1PL.ACC save.SBJV.PST.3SG_[NOM]
 ‘that she should have beared for us the one, who had saved us’
 (Old High German, Otfrid I 3:38)

This example is unexpected, because the least complex case (the nominative) wins and not the most complex case (the accusative). The only explanation for this I can see is a functional one. The *thér* ‘REL.SG.M.NOM’ in (11) refers to Jesus. In the relative clause he is the subject of *unsih gihéilti* ‘had saved us’, hence the internal nominative case. In the main clause he is the object of *tház si uns bérán scolti* ‘that she should have beared’, hence the external accusative case. Letting the relative pronoun surface in the internal case could be interpreted as emphasizing the role of Jesus as a savior, rather than him being the object of being given birth to. In line with that reasoning, it is expected that certain grammatical facts more often deviate from regular patterns if Jesus is involved. I leave investigating this prediction for future research. Of course, this does not answer the question of what happens to the accusative case required by the external predicate. It also does not explain why not another emphasizing strategy is used, for instance forming a light-headed relative, which would leave space for two cases. I acknowledge this example as a counterexample to the pattern I describe, but I do not change my generalization, as this is a single occurrence.

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 Table 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 the glosses more detailed, and I added translations where they were absent.

First I discuss examples in which the internal and the external case match, and then examples in which they differ. If the internal case and the external case are identical, so there is a tie, 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' also 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' also 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 Maria**
 1SG.NOM invite.PRES.1SG_[ACC] REL.AN.ACC Maria.NOM like.PRES.3SG_[ACC]
mag.

‘I invite who Maria also likes.’

(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 *vertrauen* ‘to please’ takes dative objects. The external case is dative as well, as the predicate *folgen* ‘to follow’ also takes dative objects. The relative pronoun *wem* ‘REL.AN.DAT’ appears in the internal and external case: the dative.

- (14) Ich folge, **wem immer ich**
 1SG.NOM folge.PRES.1SG_[DAT] REL.AN.DAT ever 1SG.NOM
vertraue.
 vertraue.PRES.3SG_[DAT]

‘I follow whoever I trust.’ (Modern German, adapted from Vogel 2001: 342)

These findings can be summarized as in Table 4.12. The top-left to bottom-right diagonal corresponds to the examples I have 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 against 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 against 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 against the external dative case, and the relative pronoun surfaces in the dative case.

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 the accusative and the nominative. Follow-

Table 4.12: Modern German headless relatives (matching)

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

ing the case scale, the relative pronoun appears in the 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 Modern German 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 least 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 example in (17). 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 (17), 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 least complex case (the nominative).⁵

⁵Not every speaker or Modern German agrees with the ungrammaticality of (18). A sentence for which also has been claimed that speakers accept it is given in (i). This example was originally marked as ungrammatical by Groos and van Riemsdijk (1981: 206).

- (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

- (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 the nominative and the 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 surfaces in the accusative case (and not in the losing nominative case as in (16)). The dark gray marking corresponds to (17), 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)).

I continue with the competition between the dative and the nominative. Following the case scale, the relative pronoun appears in the 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 it is possible to have a grammatical Modern German headless relative. Consider

-
- 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)

The relative acceptability of (18) and (i) is unexpected because the relative pronoun appears in the least complex case (the nominative) and not in the more complex case (the accusative). However, the more complex case would also not be grammatical, because it is the external case, and Modern German only allows the relative pronoun to surface in the internal case. My hypothesis is that, because there is no way of making the headless relative grammatical, speakers try to make the construction work by somehow repairing it. I can think of two strategies for that: (1) they can take *wer gutes tut* ‘who does good’ and *wer mich verletzt* ‘who hurts me’ as clauses objects, which are not case-marked in German, or (2) they insert a morphologically silent object as the head of the relative clause.

Notice that this type of example is crucially different from the Old High German counterexample in (11). In the Old High German situation, there was a grammatical possibility which was not used, and in the Modern German situation, there is no grammatical way to make a headless relative.

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

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

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 least 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 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 least 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 the nominative and the dative compete are highlighted in Table 4.14. The light gray marking corresponds to (19), in which the internal dative wins over the external nominative, and the relative pronoun surfaces in the dative case (and not in the losing nominative case as in (20)). 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 nominative case as in (22)).

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

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

I end with the competition between the dative and the accusative. Following the case scale, the relative pronoun appears in the 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 it is possible to have a grammatical Modern German headless relative. 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: al-

though the internal case is more complex, the relative pronoun appears in the least 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 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 mag.**
 1SG.NOM trust.PRES.1SG_[DAT] REL.AN.DAT also Maria.NOM 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 least complex case (the accusative).

- (26) *Ich vertraue, **wen** **auch** Maria **mag**.
 1SG.NOM trust.PRES.1SG_[DAT] REL.AN.ACC also Maria.NOM like.PRES.3SG_[ACC]

‘I trust whoever Maria also likes.’

(Modern German, adapted from Vogel 2001: 345)

The two examples in which the nominative and the 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 surfaces in the dative case (and not in the losing accusative case as in (24)). The dark gray marking corresponds to (25), 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 (26)).

Table 4.15: 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 Table 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, and that 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.

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 *tiktō* ‘to give birth to’ takes accusative objects. The external case is dative, as the predicate *ékho* ‘to provide’ takes dative indirect objects. The relative pronoun *hō* ‘REL.SG.M.DAT’ appears in the internal case: the dative. 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_[DAT] REL.SG.M.DAT MOD

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 the former type). 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.

tékēgives birth.AOR.3SG_[ACC]

‘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 headless relatives 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 type. Considering only the example I have given so far, it is still possible for Classical Greek to be of the unrestricted 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 headless relatives 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 bottom-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 it 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 theoi philoūsin** 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 Table 4.19, the language allows the internal case (marked light gray) and the external 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

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.

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 patterns with Gothic and Old High German in that it allows the internal and the external case to surface.

4.5 Only matching allowed

This section discusses the situation in which the case is neither the internal case nor the external case allowed to surface when either of them wins the competition. In other words, when the internal and the external case differ, there is no grammatical headless relative construction possible. Only when there is a tie, i.e. when the internal and external case match, there is a grammatical result. I repeat the pattern from Section 4.1 in Table 4.20.

Table 4.20: The matching type (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 Citko (2013) after Himmelreich (2017). I only go through 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 the case is allowed to surface in neither the internal case nor in the external case, when either of them wins the case competition. I made the glosses more detailed, and I added translations where they were absent.

First I discuss examples in which the internal and the external case match, and then examples in which they differ. If the internal case and the external case are identical, so there is a tie, 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 are accusative, as the predicate *lubić* ‘to like’ in both clauses takes accusative objects. The relative pronoun *kogo* ‘REL.ACC.AN’ appears in the internal and external case: the accusative.

- (29) Jan lubi kogo **-kolkwiek Maria lubi.**
 Jan like.3SG_[ACC] REL.ACC.AN ever Maria like.3SG_[ACC]
 ‘Jan likes whoever Maria likes.’
 (Polish, adapted from Citko 2013 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, as the predicate *ufać* ‘to trust’ takes dative objects. The external case is dative as well, as the predicate *pomagać* ‘to help’ also takes dative objects. The relative pronoun *them* ‘REL.PL.AN.DAT’ appears in the internal and external case: the dative.

- (30) Jan pomaga komu **-kolkwiek ufa.**
 Jan help.3SG_[DAT] REL.DAT.AN ever trust.3SG_[DAT]
 ‘Jan helps whomever he trusts.’
 (Polish, adapted from Citko 2013 after Himmelreich 2017: 17)

These findings can be summarized as in Table 4.21. The top-left to bottom-right diagonal corresponds to the examples I have 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 against 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 against 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, two 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 the case is neither allowed to surface in the internal case nor in the external case, all examples are ungrammatical.

I start with the situation in which the internal case wins the competition, and there is no grammatical outcome possible, whichever case the relative pronoun appears in. 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 objects. 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 internal case is not allowed to surface when it wins the case competition. Therefore, the example is ungrammatical.

- (31) *Jan lubi **komu** **-kolkwiek dokucza.**
 Jan like.3SG_[ACC] REL.DAT.AN ever tease.3SG_[DAT]
 ‘Jan likes whoever he teases.’

(Polish, adapted from Citko 2013 after Himmelreich 2017: 17)

The example in (32) is identical to (31), 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.

- (32) *Jan lubi kogo **-kolkwiek dokucza**.
 Jan like.3SG_[ACC] REL.ACC.AN ever tease.3SG_[DAT]
 ‘Jan likes whoever he teases.’
 (Polish, adapted from Citko 2013 after Himmelreich 2017: 17)

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 example in (33). In this example, the internal accusative case competes against the external dative case. The internal case is accusative, as the predicate *wpuścić* ‘to let’ takes accusative objects. The external case is dative, 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 external case is (as the internal case) not allowed to surface when it wins the case competition. Therefore, the example is ungrammatical.

- (33) *Jan ufa komu **-kolkwiek wpuścił do domu**.
 Jan trust.3SG_[DAT] REL.DAT.AN ever let.3SG_[ACC] to home
 ‘Jan trusts whoever he let into the house.’
 (Polish, adapted from Citko 2013 after Himmelreich 2017: 17)

The example in (34) is identical to (33), 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.

- (34) *Jan ufa **kogo** **-kolkwiek wpuścił do domu.**
 Jan trust.3SG_[DAT] REL.ACC.AN ever let.3SG_[ACC] to home
 ‘Jan trusts whoever he let into the house.’

(Polish, adapted from Citko 2013 after Himmelreich 2017: 17)

The two examples in which the accusative and the dative compete are highlighted in Table 4.22. The light gray marking corresponds to (31), 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 (32)). The dark gray marking corresponds to (33), 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 (34)).

Table 4.22: Polish headless relatives (ACC — DAT)

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

In sum, Polish is an instance of a language that only allows for matching cases. 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) NOM < ACC < DAT

This generates the pattern shown in Table 4.23. The left column shows the internal case between square brackets. The top row shows the external case between square

brackets. The other cells indicate the case of the relative pronoun. When the dative wins over the accusative, the relative pronoun appears in the dative case. When the dative wins over the nominative, the relative pronoun appears in the nominative case. When the accusative wins over the nominative, the relative pronoun appears in the accusative case.

Table 4.23: Relative pronoun follows case competition

^{EXT} _{INT}	[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 logical possibilities, listed in (36).

(36) Logically possible language types

- i. The unrestricted type: the internal and the external case are allowed to surface when either of them wins the case competition
- ii. The internal-only type: only the internal case is allowed to surface when it wins the case competition
- iii. The external-only type: only the external case is allowed to surface when it wins the case competition
- iv. The matching type: neither the internal case nor in the external case is allowed to surface when either of them wins the case competition

As far as I am aware, not all of these logical possibilities are attested in natural languages. I discuss the types one by one, and I give example when they are attested. In my description, I refer to the differ gray-marking in Table 4.24. The cells marked in light gray are the ones in which the internal case wins the case competition, the cells marked in dark gray are the ones in which the external case wins the case

competition, and the unmarked cells are the ones in which the internal and external case match.

Gothic, Old High German and Classical Greek are examples of the unrestricted type in (36i). In these languages, relative pronouns in the unmarked, light gray and dark gray cells are attested. Modern German is an example of the ‘unrestricted – internal-only’ type in (36ii). In this language, relative pronouns in the unmarked and light gray cells are grammatical. To my knowledge, the ‘unrestricted – external-only’ type in (36iii) is not attested. This would be a language in which relative pronouns in the unmarked and the dark gray cells are grammatical. Polish is an example of a language of the matching type in (36iv). In this language, relative pronoun in only in the unmarked cells are grammatical.

Table 4.24: Relative pronoun follows case competition

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

Figure 4.1 shows a diagram that generates the three attested patterns and not the unattested one. The diamonds stand for parameters that distinguish different types of languages. The texts along the arrows to the rectangles (and to a diamond) indicate how the different types of languages behave with respect to the parameters. The rectangles describe the form that the relative pronoun appears in. Below the rectangle I give examples of languages that are of this particular type.

The first parameter is whether or not a language allows for a mismatch between the internal and external case. If a language does not allow for a mismatch, the matching type of language (36iv) is generated. If a language allows for a mismatch between the internal and external case, the second parameter comes into play. This one is concerned with the case the relative pronoun is allowed to surface when it wins the case competition. Here I give two options: (1) it is allowed to surface in only the internal case or (2) it is allowed to surface in the internal and the external

case.⁸ If a language allows the internal case to surface when it wins the case competition, the ‘unrestricted – internal-only’ type is generated. If a language allows the internal and the external case to surface, the unrestricted type is generated.⁹

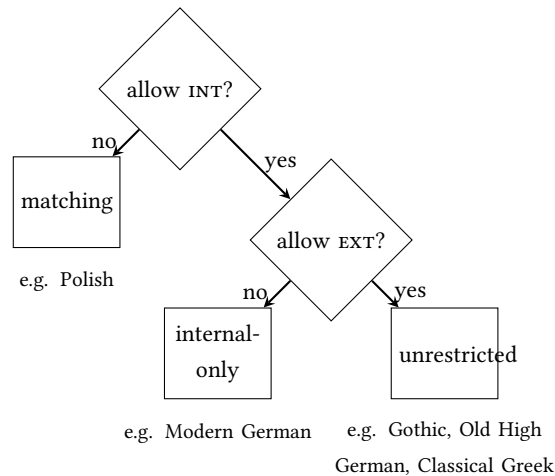


Figure 4.1: Attested patterns in headless relatives with case competition

The main focus of Chapter ?? is the linguistic counterpart of the second parameter. I show with general properties of relative clauses how the difference between the unrestricted and the ‘unrestricted – internal-only’ type can be modeled, and how the exclusion of the ‘unrestricted – external-only’ type follows from these particular properties. I also introduce a linguistic counterpart for the first parameter, which distinguishes matching from unrestricted languages.

⁸I do not introduce the option of allowing the relative pronoun to surface only in the external case. The reason for this is that this pattern is not attested crosslinguistically. If a language like this appears, this option could in principle be added. However, I predict that it will not appear. In Chapter ??, I show how it follows from general properties of relative clauses that this type of language is excluded.

⁹The matching type could also have been generated with the second parameter. The text along the arrow would have been *none*. I choose to not do this, because in Chapter ?? I propose separate mechanisms for each of the parameters in Figure 4.1. The first one distinguishes matching languages from unrestricted (i.e. unrestricted and internal-only) languages, and the second one distinguishes unrestricted from internal-only languages.

Chapter 5

Aside: languages without case competition

In the previous chapter, I discussed languages that show case competition. There are also languages that do not show any case competition. This section discusses these languages, and gives a typology of headless relatives.

In languages without case competition, the internal and 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 internal or the external case. Logically, there are two possible languages without case competition: one that lets the relative pronoun appear in the internal case, and one that lets the relative pronoun appear in the external case.

Table 5.1 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 5.2 shows the pattern of a language in which the relative pronoun always

Table 5.1: Always internal case

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

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 5.2: Always external case

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

Section 5.1 discusses two languages that let their relative pronouns in headless relatives always surface in the external case: Old English and Modern Greek. In Section 5.2 I extend the typology from Section 4.6 by adding the languages without case competition. As I briefly mentioned, I do not know of any language, 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.

5.1 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 5.2 and not of the type I discussed in Section 4.4 (or of the one in Section 4.2).

Table 5.3: Always external case (repeated)

_{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 the 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.

Consider the example in (1). The internal case is nominative, as the predicate *gegyltan* ‘to sin’ takes nominative subjects. The external case is dative, as the predicate *for-gifan* ‘to forgive’ takes dative objects. The relative pronoun *ðam* ‘REL.DAT.PL’ appears in the external case: the dative. The relative pronoun is not marked in bold, unlike the relative clause, showing that the relative pronoun patterns with the main clause.

- (1) *ðæt* is, *ðæt* man for-gife, *ðam* ***ðe*** ***wið*** ***hine***
 that is that one forgive.SUBJ.SG_[DAT] REL.DAT.PL COMP against 3SG.M.ACC

gegyltesin.3SG_[NOM]‘that is, that one₂ forgive him₁, who sins against him₂’

(Old English, adapted from Harbert 1983: 549)

This example is compatible with three patterns. First, Old English 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 5.4, and I mark the cell that corresponds to example (1) in gray.

Table 5.4: Old English headless relatives possibility 1

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

Second, Old English could be a case competition language that allows the internal case and the external case to surface. I repeat Table 4.5 from Section 4.2 as Table 5.5, and I mark the cell that corresponds to example (1) in gray.

Table 5.5: Old English headless relatives possibility 2

INT ^{EXT}	[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 5.3 from the beginning of this section as Table 5.6, and I mark the cell that corresponds to example (1) in gray.

Table 5.6: Old English headless relatives possibility 3

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

What sets Table 5.4, Table 5.5 and Table 5.6 apart is the bottom-left corner of the table. These are situations in which the internal case is more complex than the external case. In Table 5.4 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 5.5 and in Table 5.6 there is a relative pronoun that can surface, but the case of the relative pronouns differs. In Table 5.5, the relative pronoun surfaces in the most complex case that wins the case competition: the internal case. In Table 5.6, 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 5.6. 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 (2). 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 least 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.

- (2) 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 is it 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 5.7, 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 (1), marked here in light gray, or it can be the least complex case, illustrated by the example in (2), marked here in dark gray.

Table 5.7: Summary of Old English headless relatives

INT ^{EXT}	[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 (3). 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.

- (3) Efcharístisa ópjus **me** **voíðisan.**
 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 5.8, and I mark the cell that corresponds to example (3) in gray.

Table 5.8: Modern Greek headless relatives possibility 1

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

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 5.9, and I mark the cell that corresponds to example (3) in gray.

Table 5.9: Modern Greek headless relatives possibility 2

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

Third, Modern Greek could be a language without case competition that lets the relative pronoun appear in the external case. I repeat Table 5.3 from the beginning of this section as Table 5.10, and I mark the cell that corresponds to example (3) in gray.

Table 5.10: Modern Greek headless relatives possibility 3

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

What sets Table 5.8, Table 5.9 and Table 5.10 apart is the bottom-left corner of the table. These are cases in which the internal case is more complex than the external case. In Table 5.8 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 5.9 and in Table 5.10 there is a relative pronoun that can surface, but the case of the relative pronouns differs. In Table 5.9, the relative pronoun surfaces in the most complex case that wins the case competition: the internal case. In Table 5.10, 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 5.10. 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 (4). The internal case is accusative, as the predicate *irθó* ‘to invite’ takes accusative objects. The external case is nominative, 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 least 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.

- (4) Irθan ópji **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 (5) is identical to (4), 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.

- (5) *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 is it 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 5.11, 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 (3), marked here in light gray, or it can be the least complex case, illustrated by the example in (4), marked here in dark gray.

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 (6). The internal case is genitive, as the predicate *eđósó* ‘to give’ takes genitive objects. The external case is accusative, as the predicate *efxarístisó* ‘to thank’ takes nominative subjects. The relative pronoun *ópjon*

Table 5.11: Summary of Modern Greek headless relatives

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

‘REL.PL.M.NOM’ appears in the external case: the nominative. The relative pronoun appears in the external case, although it is the least 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’.¹

- (6) Me efcharistisan ópji **tus** **íxa**
 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

¹In 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.

the reader to Daskalaki (2011: 79-80) and Spyropoulos (2011: 31-34).²

3

In sum, Old English and Modern Greek are languages without case competition in their headless relatives. The relative pronoun always appears in the external case.

5.2 A typology of headless relatives

This section provides a typological overview of headless relatives. First, I describe the difference between the patterns of languages with and without case competition. Second, I include the parameters of non-case competition languages in the diagram I introduced in Section 4.6. Third, I give an overview of all logically possible patterns, I show how the diagram generates the attested ones, and I discuss the non-attested patterns.

In Section 4.2 to 4.5, I discussed four different patterns. These four patterns are all based on a single table, shown in Table 5.12 (repeated from Section 4.2). The cases in the cells are the ones that win the case competition. The variation between the four patterns lies in whether all cells in the table are grammatical, or whether

²When the relative clause is dislocated, both the internal and the external case can be used. In (ia), the internal case is accusative, and the external case is nominative. Normally the relative pronoun should appear in the external case, so the nominative. However, the accusative is also grammatical here. Spyropoulos (2011) argues that in these left-dislocated structure, there is a silent *pro* or a clitic (*ton* in (ib)) that satisfies the external case. This allows the relative pronoun to take the internal case. This makes this construction more of a correlative.

- (i) a. ópjos/ ópjon epiléksune tha pári to
REL.SG.M.NOM/REL.SG.M.ACC choose.1PL_[ACC] FUT take.3SG_[NOM] the price.ACC
vravío

'Whoever we may choose, he will get the price.'
- b. ópjos/ ópjon me ayapá ton ayapó
REL.SG.M.NOM/REL.SG.M.ACC CL.1SG.ACC love.3SG_[NOM] CL.3SG.M.ACC love.1SG_[ACC]
'Whoever loves me, I love him.'

³Then there is also the thing that Modern Greek has oblique accusatives that require a clitic. Difference between S-ACC and B-ACC.

some of them are not. In none of the four patterns in Section 4.2 to 4.5, the cells are filled by a case different from what is given in 5.12.

Table 5.12: 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 5.13 (repeated from Table 5.2).

Table 5.13: Relative pronoun in 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 5.14 (repeated from Table 5.2).

I incorporate the parameters that generates these different patterns into the diagram from Section 4.6 in Figure 5.1. I added two different parameters. First, a language either has case competition or it does not at at ‘case competition?’. If the language has case competition, the pattern shown in Table 5.12 is generated. The two parameters that follow then (‘INT as winner?’ and ‘EXT as winner?’) are described in Section 4.6. If the language does not have case competition, the second parameter is whether the language lets its relative pronouns appear either in the internal case or in the external case at at ‘INT/EXT?’. If the language lets its relative

Table 5.14: Relative pronoun in external case

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

pronouns appear in the internal case, the pattern shown in Table 5.13 is generated. I am not aware of any language that lets its relative pronoun appear in the internal case.⁴ If the language lets its relative pronouns appear in the external case, the pattern shown in Table 5.14 is generated. Old English and Modern Greek are two examples of languages that let their relative pronouns appear in the external case.

In Table 5.15, I give all logically possible patterns for headless relatives. 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 which the relative pronoun appears in, which can be either the internal case (INT) or the external case (EXT).

When the internal case and the external case differ (which holds for both options the top row indicates), the relative pronoun cannot appear in both the internal and external case at the same time. This excluded the possibility of having a checkmark at both INT and EXT in the same situation. This leaves the possibility to have a checkmark at INT, at EXT or at none of them. This gives $3 \times 3 = 9$ logically possible options, which are listed in Table 5.15.

In what follows I show how Figure 5.1 generates all logically possible patterns only the attested patterns (except for the one in which the relative pronoun always takes the internal case).

I start with the leftmost pattern in Figure 5.1, which is number 1 in Table 5.15. In this pattern, there is no case competition, and the relative pronoun surfaces in

⁴In this dissertation I do not offer an explanation for why this type of example should be absent. Future research should determine whether this pattern is actually attested, or whether this option should be excluded and how.

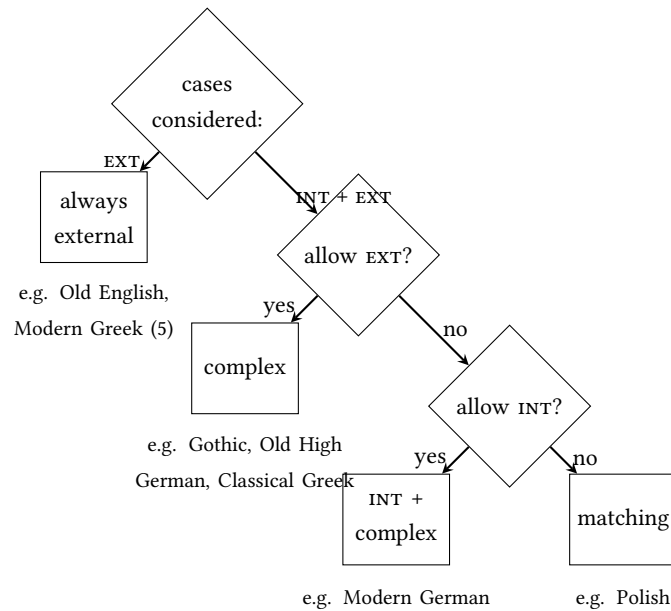


Figure 5.1: Attested patterns in headless relatives

the internal case. As I mentioned earlier, I am not aware of a language that exemplified this pattern and future research should tell whether this option is attested or whether it should be excluded. The second pattern in Figure 5.1 is number 5 in Table 5.15. In this pattern, there is no case competition, and the relative pronoun surfaces in the external case. This pattern is exemplified by Old English and Modern Greek. The third pattern in Figure 5.1 is number 9 in Table 5.15. In this pattern, there is case competition, and the relative pronoun is only allowed to surface in the case when there is a tie, i.e. when the internal and external case match. This pattern is exemplified by Polish. The fourth pattern in Figure 5.1 is number 3 in Table 5.15. In this pattern, there is case competition, and the relative pronoun is only allowed to surface in the internal case when it wins the case competition. This pattern is exemplified by Modern German. The fifth and last pattern in Figure 5.1 is number 2 in Table 5.15. In this pattern, there is case competition, and the relative pronoun is allowed to surface in the internal case and the external case when either of them wins the case competition. This pattern is exemplified by Old High German, Gothic

Table 5.15: Possible patterns for headless relatives

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

and Classical Greek.

This leaves four patterns that are logically possible but not attested in languages: pattern numbers 4, 6, 7 and 8 in Table 5.15. These patterns cannot be generated by the diagram in Figure 5.1. That means that they are not a result of any of the possible parameter settings in the diagram.

In the pattern number 4, the relative pronoun surfaces in the external case when the internal case is the most complex, and the relative pronoun surfaces in the internal case when the external case is the most complex. In other words, the relative pronoun appears in the losing case in the case competition. Pattern number 6 and 7 are both subsets of pattern number 4 in the sense that they allow part of what number 4 allows. In the pattern number 6, the relative pronoun surfaces in the external case when the internal case is the most complex, and there is no grammatical option when the external case is the most complex. Patterns number 7 is the opposite of pattern number 6: there is no grammatical option when the external case is the most complex, and the relative pronoun surfaces in the internal case when the external case is the most complex. The absence of these three patterns across

languages provides further evidence for the case scale in Chapter 2.

In the pattern number 8, the relative pronoun is only allowed to surface in the external case when it wins the case competition. This pattern is excluded as a result of the relative ordering of ‘INT as a winner?’ and ‘EXT as a winner?’ in the diagram in Figure 5.1. The next chapter, Chapter 3, discusses the linguistic counterpart of this ordering.

Part III

Deriving the typology

Chapter 6

Constituent containment

In Chapter 4 I introduced two descriptive parameters that generate the attested languages, as shown in Figure 6.1. The first parameter concerns whether the external case is allowed to surface when it wins the case competition (allow EXT?). This parameter distinguishes between unrestricted languages (e.g. Old High German) on the one hand and internal-only languages (e.g. Modern German) and matching languages (e.g. Polish) on the other hand. The second parameter concerns whether the internal case is allowed to surface when it wins the case competition (allow INT?). This parameter distinguishes between internal-only languages (e.g. as Modern German) on the one hand and unrestricted languages (e.g. Old High German) on the other hand.

“A natural question at this point is whether this typology needs to be fully stipulative, or is to some extent derivable from independent properties of individual languages” Grosu (2003b)¹⁴⁷

In this chapter I show how the typology can be derived from the morphology of the languages.

This chapter is structured as follows.

This section gives the basic idea behind my proposal. Throughout the rest of the chapter I motivate the proposal, and I illustrate it with examples.

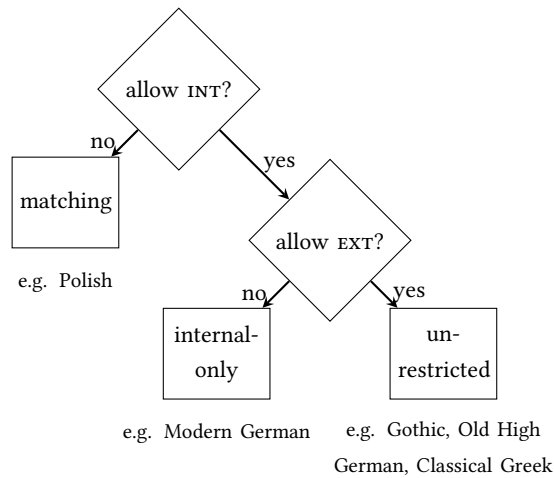


Figure 6.1: Two descriptive parameters generate three language types

6.1 Underlying assumptions

I start with my assumption that headless relatives are derived from light-headed relatives.¹ The light head bears the external case, and the relative pronoun bears the internal case, as illustrated in (1).

- (1) light head_{EXT} [relative pronoun_{INT} ...]

In a headless relative, either the light head or the relative pronoun is absent. This happens under the following condition: a light head or a relative pronoun is absent when each of its constituents is contained in a constituent of the other element (i.e. the light head or the relative pronoun).

To see what a light-headed relative looks like, consider the light-headed relative in (2). *Thér* ‘DEM.SG.M.NOM’ is the light head of the relative clause. This is the element

¹The same is argued for headless relatives with D-pronouns in Modern German by Fuß and Grewendorf 2014; Hanink 2018 and for Polish by Citko 2004. A difference with Modern German and Polish is that one of the elements can only be absent when the cases match. In Section 10 I return to the point why Modern German does not have unrestricted headless relatives that look like Old High German, although it still has syncretic light heads and relative pronouns.

Several others claim that headless relatives have a head, but that it is phonologically empty, cf. Bresnan and Grimshaw 1978; Groos and van Riemsdijk 1981; Himmelreich 2017.

that appears in the external case, the case that reflects the grammatical role in the main clause. *Then* ‘REL.SG.M.ACC’ is the relative pronoun in the relative clause. This is the element that appears in the internal case, the case that reflects the grammatical role within the relative clause.

- (2) eno nist thiz thér **then** **ir**
 now not be.3SG DEM.SG.N.NOM DEM.SG.M.NOM REL.SG.M.ACC 2PL.NOM
suochet zi arslahanne?
 seek.2PL to kill.INF.SG.DAT
 ‘Isn’t this now the one, who you seek to kill?’

The difference between a light-headed relative and a headless relative is that in a headless relative either the light head or the relative pronoun does not surface. The surfacing element is the one that bears the winning case, and the absent element is the one that bears the losing case. This means that what I have so far been glossing as and calling the relative pronoun is actually sometimes the light head and sometimes the relative pronoun. To reflect that, I call the surfacing element from now on the surface pronoun.

Table 6.1 lists the two options that I just laid out plus an additional one. The first option is that the relative pronoun, which bears the internal case, can appear as the surface pronoun. The second option is that the light head, which bears the external case, can appear as the surface pronoun. The third option is that there is no grammatical form for the surface pronoun.

Table 6.1: Options for the surface pronoun

surface pronoun
light head _{EXT}
relative pronoun _{INT}
*

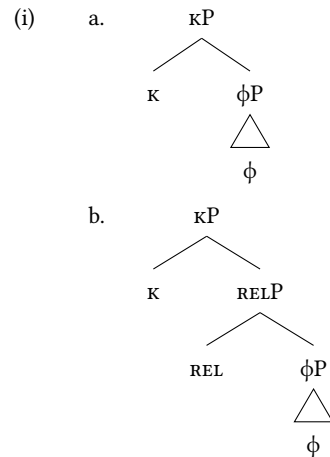
I propose that whether or the surface pronoun is the light head, the relative pronoun or none of them depends on whether one of the elements (i.e. the light

head or the relative pronoun) can delete the other. The light head appears as the surface pronoun when the light head can delete the relative pronoun. The relative pronoun appears as the surface pronoun when the relative pronoun can delete the light head. There is no grammatical surface pronoun possible when neither of them can delete the other one.

Whether or not one element can delete the other depends on the comparison between the two. Specifically, I compare the constituents within light heads and relative pronouns to each other. Light heads and relative pronouns do not only correspond to case features, but also to other features (having to do with number, gender, etc.). It differs per language how language organize these features into constituents. In this chapter, I illustrate how these different constituents within light heads and relative pronouns lead to the differences in whether or not the light head and the relative pronoun can be deleted, and therefore to different language types.

In order to be able to compare the light head and the relative pronoun, I zoom in on their syntactic structures. In Section 7 to 9 I give arguments to support the structures I am assuming here. Figure 6.2 gives a simplified representation of them.²

²The structures in Figure 6.2 are not base structures but derived ones. I assume the base structure of the light head to be as in (ia) and the base structure of the relative pronoun to be as in (ib).



The structure for the relative pronoun in Figure 6.2 cannot be derived from the base structures in (ib). It is a simplification of a more complex situation for which I only give the intuition here.

In Section 7 I show the actual decomposition of the light head and the relative pronoun and how

The light head and the relative pronoun partly contain the same syntactic features. The features they have in common are case (κ) and what I here simplify as phi-features (ϕ). The light head and the relative pronoun differ from each other in that the relative pronoun in addition has a relative feature (REL).

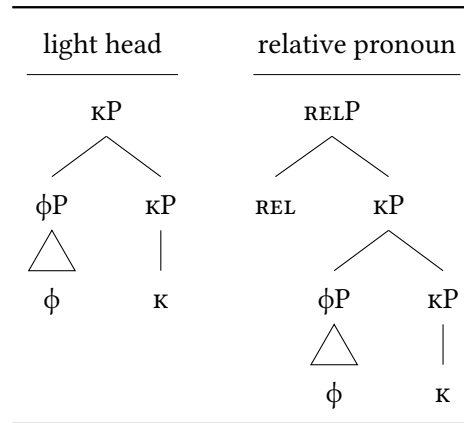


Figure 6.2: Light head and relative pronoun

I compare the light head and the relative pronoun in terms of containment. The relative pronoun can delete the light head because the relative pronoun contains all constituents the light head contains. I illustrate this in Figure 6.3. I draw a dashed circle around the constituent that is a constituent in both the light head and the relative pronoun. The κP is contained in the RELP , so the relative pronoun can delete the light head. I illustrate this by marking the content of the dashed circle for the κP gray.

The light head cannot delete the relative pronoun, because it does not contain all constituents of the relative pronoun. The light head has a constituent κP , but it does not contain the feature REL to make it an RELP .

With the set of assumptions I introduced in this section, I can account for the internal-only type of language. Moreover, the system I set up excludes the external-only type of language. An external-only type of language would be one in which the light head can delete the relative pronoun, but the relative pronoun cannot delete

I reach the derived structure. I work with the derived structure in the main text because this is the configuration in which the containment relations under discussion hold.

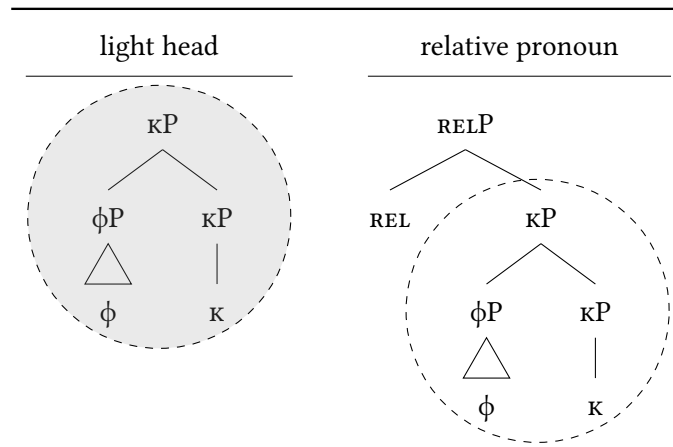


Figure 6.3: Light head and relative pronoun

the light head. In my proposal, an element can delete the other one if it contains all of the other's constituents. Relative pronouns always contain one more feature than light heads: *REL*. From that it follows that the light head does not contain all features that the relative pronoun contains. Therefore, it is impossible for a light head to contain all constituents of the relative pronoun.

However, not all languages are of the internal-only type. I argue that the other two attested languages differ from the internal-only type in how light heads and relative pronouns are spelled out. Before I come back to how the different spell-out leads to different language types, I show how the internal-only type fares with differing internal and external cases.

6.2 The internal-only type

I start with the example in Figure 6.4, in which the relative pronoun bears a more complex case than the light head.

I draw a dashed circle around each constituent that is a constituent in both the light head and the relative pronoun. There are two separate constituents. I start with the right-most constituent of the light head: *NOMP*. This constituent is also a constituent in the relative pronoun, contained in the lower *ACCP*. I continue with the left-most constituent of the light head: the *φP*. This constituent is also a constituent

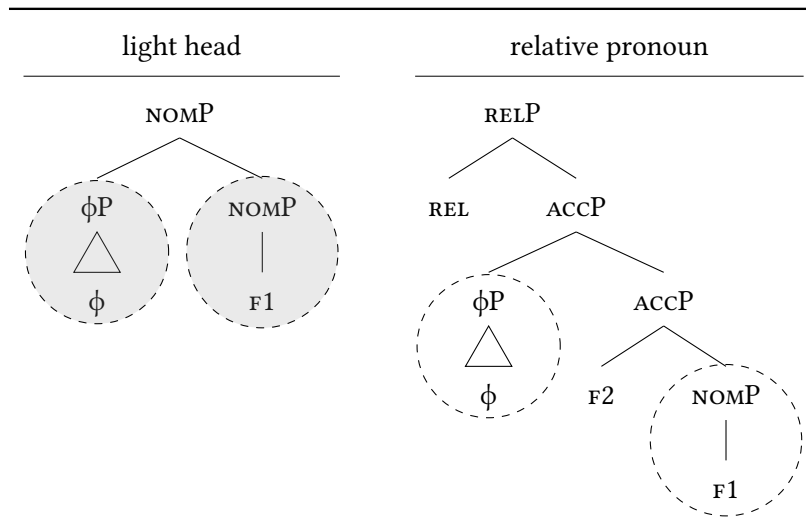


Figure 6.4: NOM extra light head and ACC relative pronoun

in the relative pronoun, contained in the higher ACCP. As each constituent of the light head is also a constituent within the relative pronoun, the light head can be absent. I illustrate this by marking the content of the dashed circles for the light head gray.

I continue with the example in Figure 6.5, in which the light head bears a more complex case than the relative pronoun.

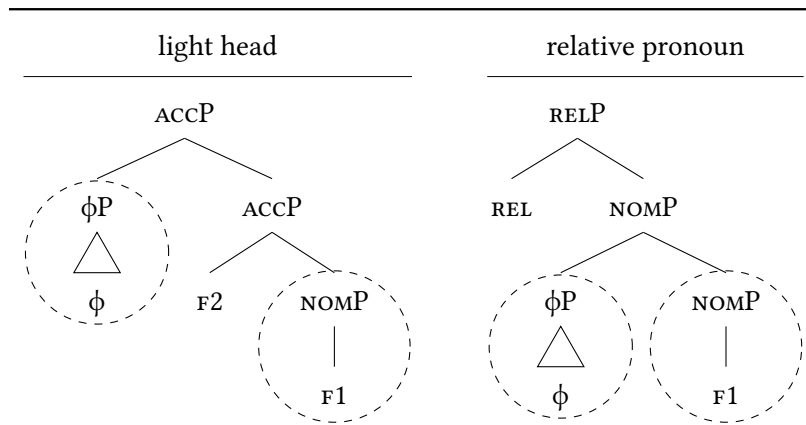


Figure 6.5: NOM relative pronoun and ACC extra light head

I draw a dashed circle around each constituent that is a constituent in both the light head and the relative pronoun. Different from the example in Figure 6.4, neither of the elements contains all of the other's constituents. The relative pronoun has a constituent *NOMP*, but it lacks the *F2* to make it an *ACCP*. The light head has a constituent that is not a constituent in the relative pronoun, so the light head cannot be absent. The light head has a constituent *NOMP*, but it does not contain *REL* to make it a *RELP*. The relative pronoun has a constituent that is not a constituent in the light head, so the relative pronoun cannot be absent. As a result, none of the elements can be absent.

Now I return to the other two attested language types. The differences between the languages do not arise from changing the feature content of the light head and relative pronoun per language.³ Instead, the differences come from how the light heads and relative pronouns are spelled out.

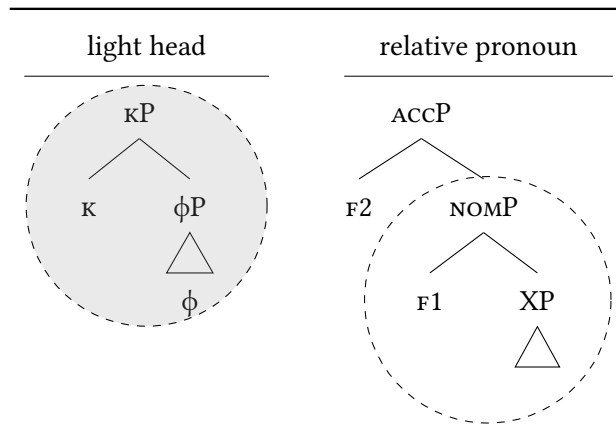
6.3 The matching type

In matching languages like Polish, the light head cannot delete the relative pronoun and the relative pronoun cannot delete the light head. The intuition for this type of language is that they package their features together differently from internal-only languages like Modern German. The packaging happens in such a way that the constituents of the relative pronoun do not contain the constituents of the light head. As a result, the relative pronoun cannot delete the light head anymore. This account crucially relies on constituent containment being the containment requirement that needs to be fulfilled. Feature containment is too weak of a requirement.

I illustrate the difference between feature and constituent containment with two structures. In Figure 6.6, I repeated the light head and relative pronoun from Figure 6.4.

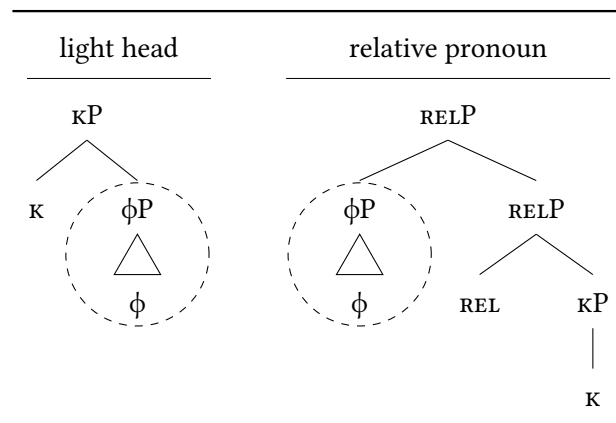
In Figure 6.6, two different types of containment hold: feature containment and constituent containment. I start with feature containment. Each feature of the *KP*

³The feature content of the unrestricted languages differs slightly from that of the internal-only and matching languages. This is due to the fact that this language type uses a different type of relative pronoun. The basic idea of the relative pronoun having at least one more feature than the light head remains the same.

Figure 6.6: LH vs. REL \rightarrow REL (repeated)

(i.e. ϕ and κ) is also a feature within the RELP, so the RELP contains the κ P. Constituent containment works as follows. Each constituent of the κ P (i.e. ϕ P and κ P that contains κ and ϕ P) is also a constituent of the κ P. Therefore, RELP contains contains the κ P.

Constituent containment is a stronger requirement than feature containment. In Figure 6.7 I show a situation in which the feature containment requirement holds but the constituent containment requirement does not. It is the same picture as in Figure 6.6 except for that the ϕ P has moved out of the RELP.

Figure 6.7: LH vs. REL after extraction \rightarrow REL

There is still feature containment: the κP contains ϕ and κ and so does the $REL P$. However, there is no longer constituent containment: the κP constituent containing ϕP and κP that contains κ and ϕP is no longer a constituent within the $REL P$.

In Section 8 I show that only the stronger requirement of constituent containment is able to distinguish the internal-only from the matching type of language, and that the weaker requirement of feature containment is not.

Constituent containment is also what seems to be crucial in the deletion of nominal modifiers. Cinque argues that nominal modifiers can only be absent if they form a constituent with the NP (Cinque, 2020). If they are not, they can also not be interpreted.

In (3), I give an example of a conjunction with two noun phrases in Dutch. The first conjunct consists of a demonstrative, an adjective and a noun, and the second one only of a demonstrative.

- (3) *deze witte huizen en die*
 these white houses and those
 ‘these white houses and those white houses’ (Dutch)

The adjective *witte* ‘white’ forms a constituent with *huizen* ‘houses’. I showed this in Figure 6.8 under first conjunct. In the second conjunct, the constituent with the adjective and the noun in it is deleted. The adjective can still be interpreted in (3), because it forms a constituent with the noun.

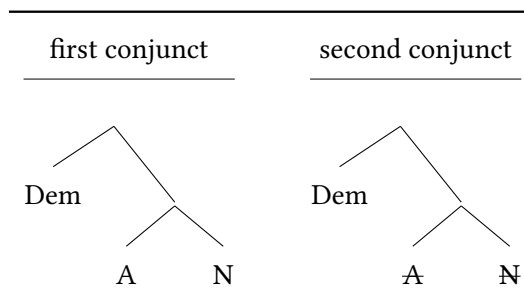


Figure 6.8: Nominal ellipsis in Dutch

The situation is different in Kipsigis, a Nilotic Kalenjin language spoken in Kenya. In (4), I give an example of a conjunction of two noun phrases in Kipsigis.

The first conjunct consists of a noun, a demonstrative and an adjective, and the second one only of a demonstrative (Cinque, 2020).

- (4) kaarii-chuun leel-ach ak chu
 houses-those white-PL and these
 ‘those white houses and these houses’
 not: ‘those white houses and these white houses’ (Kipsigis, Cinque 2020: 24)

The adjective *leel* ‘white’ does not form a constituent with *kaarii* ‘houses’. I showed this in Figure 6.9 under first conjunct. In the second conjunct, the adjective and the noun are deleted. Different from the Dutch example in 6.8, this is not a single constituent. The adjective cannot be interpreted in (4), because it does not form a constituent with the noun.

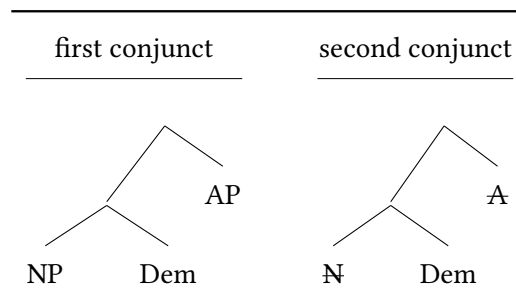


Figure 6.9: Nominal ellipsis in Kipsigis

To sum up, the comparison between light heads requires constituent containment. Feature containment is not enough.

6.4 The unrestricted type

In unrestricted languages like Old High German, the light head can delete the relative pronoun and the relative pronoun can delete the light head. The property of unrestricted languages that I connect to this behavior is that their light heads and relative pronoun are syncretic. I suggest that if there is no constituent containment, but the two forms are spelled out by the same morpheme, one element can

still delete the other. Consider Figure 6.10, in which the relative pronoun deletes the light head.

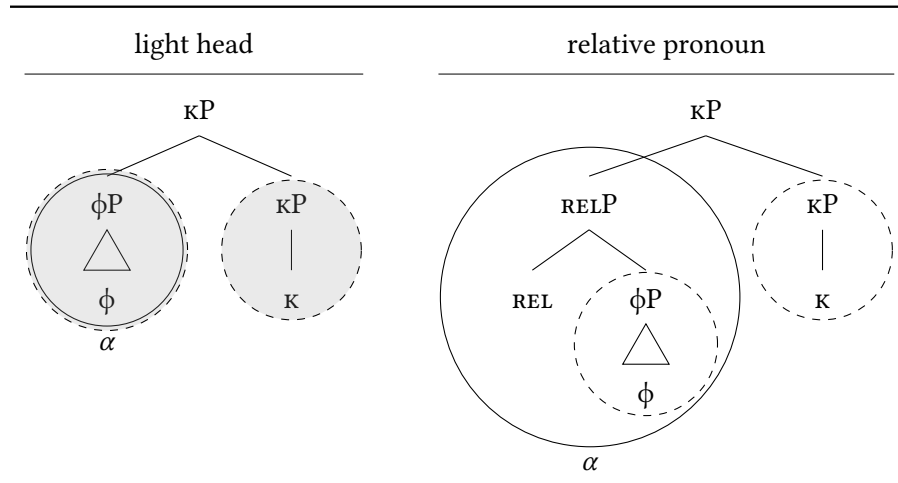


Figure 6.10: Syncretism: relative pronoun deletes light head

The ϕP in the light head is spelled out as α , illustrated by the circle around the ϕP and the α under it. The $REL P$ in the relative pronoun is spelled out as α too, illustrated in the same way. I draw a dashed circle around each constituent that is a constituent in both the light head and the relative pronoun.

I start with the right-most constituent of the light head: κP . This constituent is also a constituent in the relative pronoun. I continue with the left-most constituent of the light head: the ϕP . This constituent is also a constituent in the relative pronoun, contained in the $REL P$. As each constituent of the light head is also a constituent within the relative pronoun, the light head can be absent. I illustrate this by marking the content of the dashed circles for the light head gray.

Consider Figure 6.11, in which the light head deletes the relative pronoun.

Just as in Figure 6.10, the ϕP in the light head is spelled out as α and the $REL P$ in the relative pronoun is spelled out as α too. I draw a dashed circle around each constituent that is a constituent in both the light head and the relative pronoun.

I start with the right-most constituent of the relative pronoun: κP . This constituent is also a constituent in the relative pronoun. I continue with the left-most constituent of the relative pronoun: the $REL P$. This constituent is not contained in

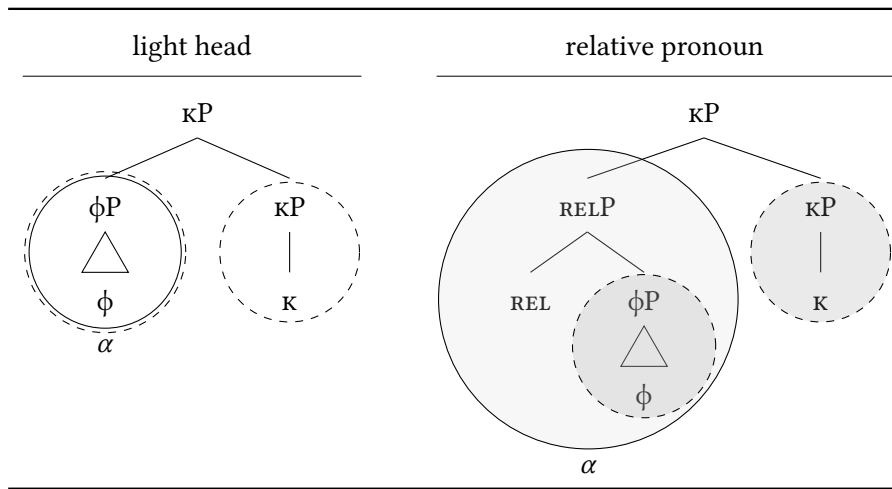


Figure 6.11: Syncretism: light head deletes relative pronoun

the light head. The ϕP lacks the REL to make it a $RELP$. However, the two constituents are syncretic: the ϕP is also spelled out as α . I suggest that this syncretism is also enough to license the deletion. I illustrate this by marking the content of the dashed circles for the relative pronoun gray and the portion that is deleted by syncretism in a lighter shade of gray.

To sum up, each constituent of the relative pronoun is either also a constituent within the light head or it is syncretic with a constituent within the light head. Therefore, the relative pronoun can be absent. The fact that syncretism licenses deletion is not specific to the portion of the structure that corresponds to ϕ and REL . Syncretic cases can have the same effect, the inanimate nominative and inanimate accusative singular in Modern German being an instance of it. I give examples of this in Section 9.

6.5 Everything is constituent containment

In summing up this section, I return to the metaphor with the committee that I introduced in Chapter 4. I wrote that first case competition takes place, in which a more complex case wins over a less complex case. This case competition can now be reformulated into a more general mechanism, namely constituent comparison.

A more complex case corresponds to a constituent that contains the constituent of a less complex case.

Subsequently, I noted that there is a committee that can either approve the winning case or not approve it. In Chapter 4 I wrote that the approval happens based on where the winning case comes from: from inside of the relative clause (internal) or from outside of the relative clause (external). I argued in this section that headless relatives are derived from light-headed relatives. The light head bears that external case and the relative pronoun bears the internal case. The ‘approval’ of an internal or external case relies on the same mechanism as case competition, namely constituent comparison. If each constituent of the light head is contained in a constituent of the relative pronoun, the relative pronoun can delete the light head. The light head with its external case is absent, and the relative pronoun with its internal case surfaces. This is what corresponds to the the internal case ‘being allowed to surface’. If each constituent of the relative pronoun is contained in a constituent of the light head, the light head can delete the relative pronoun. The relative pronoun with its internal case is absent, and the light head with its external case surfaces. This is what corresponds to the the external case ‘being allowed to surface’.

In other words, the grammaticality of a headless relative depends on several instances of constituent comparison. The constituents that are compared are those of the light head and the relative pronoun, which both bear their own case. Case is special in that it can differ from sentence to sentence within a language. Therefore, the grammaticality of a sentence can differ within a language depending on the internal and external case. The part of the light head and relative pronoun that does not involve case features is stable within a language. Therefore, whether the internal or external case is ‘allowed to surface’ does not differ within a language.

In this dissertation I describe different language types in case competition in headless relatives. In my account, the different language types are a result of a comparison of the light head and the relative pronoun in the language. The larger syntactic context in which this takes place should be kept stable. The operation that deletes the light head or the relative pronoun is the same for all language types. In this work, I do not specify on which larger syntactic structure and which deletion operation should be used. In Section 9.5 I discuss existing proposals on these topics and to what extent they are compatible with my account.

To conclude, in this section I introduced the assumptions that headless relatives are derived from light-headed relatives and that relative pronouns contain at least one more feature than light heads. A headless relative is grammatical when either the light head or the relative pronoun contains all constituents of the other element. This set of assumptions derives that only the most complex case can surface and that there is no language of the external-only type.

Chapter 7

Deriving the internal-only type

Internal-only languages can be summarized as in Table 7.1.

Table 7.1: The surface pronoun with differing cases in Modern German

$K_{INT} > K_{EXT}$		$K_{EXT} > K_{INT}$	Modern German
internal-only	relative pronoun _{INT}	*	

A language of the internal-only type (like Modern German) allows only the internal case to surface when it wins the case competition. This means that the relative pronoun with its internal case can be the surface pronoun. A language of this type does not allow the external case to surface when it wins the case competition. This means that the light head with its external case cannot be the surface pronoun. The goal of this section is to derive these properties from the way light heads and relative pronouns are spelled out in Modern German.

The section is structured as follows. First, I discuss the relative pronoun. According to my assumptions in Section 6, relative pronouns are part of the relative clause. I confirm this independently for Modern German with data from extraposition. I decompose the relative pronouns into three morphemes, and I show which features each of the morphemes corresponds to. Then I discuss the light head. I argue that Modern German headless relatives are derived from a light-headed relative clause that does not surface in the language. I show that the light head corresponds

to one of the morphemes of the relative pronoun. Finally, I compare the constituents of the light head and the relative pronoun. When the internal and the external case match, the relative pronoun can delete the light head, because it contains all its constituents. When the internal case is more complex than the external case, the relative pronoun can still delete the light head, for the same reason: the relative pronoun contains all constituents of the light head. This is no longer the case when the external case is more complex than the internal case. The light head does not contain all constituents of the relative pronoun, and the relative pronoun does not contain all constituents of the light head. As a result, there is no grammatical form to surface when the external case is more complex.

7.1 The relative pronoun

In this section I discuss the relative pronoun in Modern German headless relatives. First, I show, independent from case facts, that the surface pronoun is the relative pronoun. The evidence comes from extraposition data.

The sentences in (1) show that it is possible to extrapose a CP. In (1a), 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 (1b).

- (1) 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)

(2) illustrates that it is impossible to extrapose a DP. The clausal object of (1) is replaced by the simplex noun phrase *die Sache* ‘that matter’. In (2a) the object, marked in bold, appears in its base position. In (2b) it is extraposed, and the sentence is no longer grammatical.

- (2) 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 (3) 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*.¹ In (3a), the relative clause and its head appear in base position. In (3b), the relative clause is extraposed. This is grammatical, because it is possible to extrapose CPs in Modern German. In (3c), the relative clause and the head are extraposed. This is ungrammatical, because it is possible to extrapose DPs.

- (3) 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.' (Modern German)

The same can be observed in relative clauses without a head. (4) is the same sentence as in (3) only without the overt head. The relative clause is marked in bold again. In (4a), the relative clause appears 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 is extraposed without the relative pronouns.

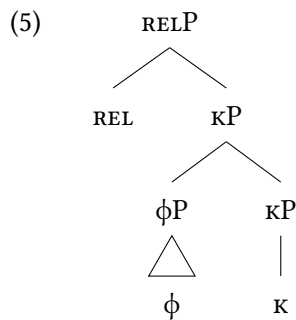
¹Not all speakers of Modern German accept the combination of *das* as a light head and *was* as a relative pronoun and prefer *das* as a relative pronoun instead. I use the combination of *das* and *was* to have a more minimal pair with the headless relatives (that uses the relative pronoun *was*).

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.

- (4) 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.' (Modern German)

In conclusion, extraposition facts show that the surface pronoun in Modern German headless relatives is the relative pronoun.

Now I turn to the internal structure of the relative pronoun. In Section 6 I gave the structure in (5) as a simplified representation of the relative pronoun.



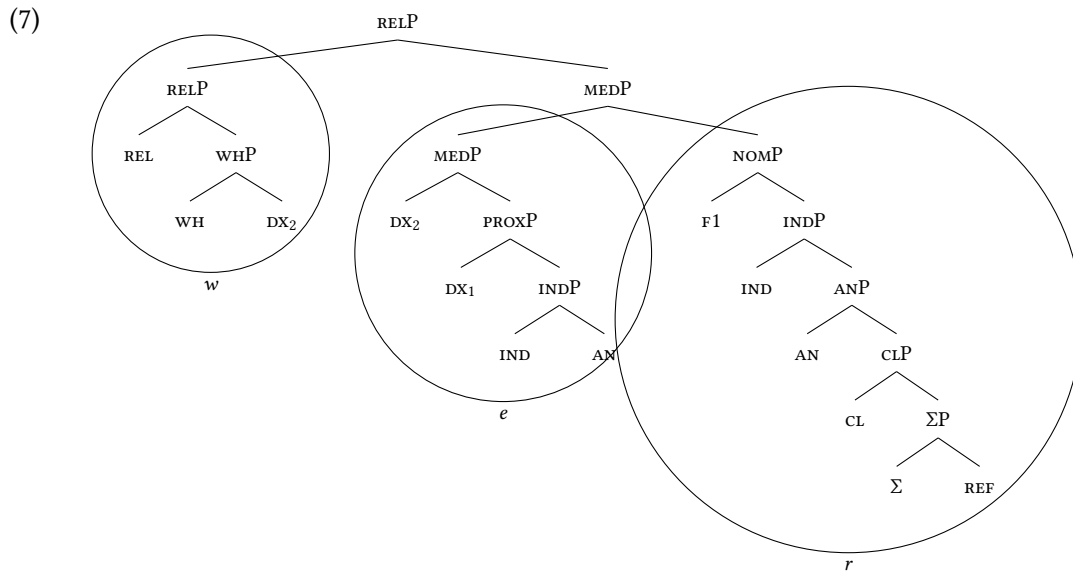
In what follows, I give the non-simplified representation. It is important to carefully establish the feature content of the relative pronoun. This constituents that it forms are namely determining whether the relative pronoun can delete the light head or not. Moreover, the features that I introduce for Modern German are present in the same way in the other two language types.

I discuss two relative pronouns: the animate nominative singular and in the animate accusative singular. These are the two forms that I compare the constituents

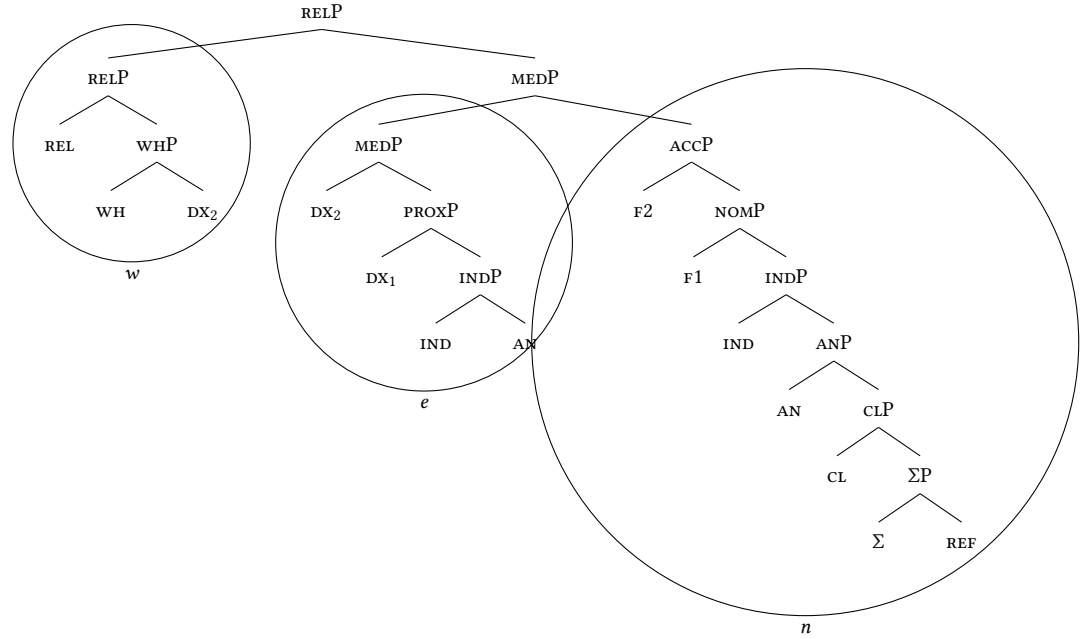
of in Section 7.4. I show them in (6).

- (6) a. w-e-r
 ‘REL.AN.SG.NOM’
 b. w-e-n
 ‘REL.AN.SG.ACC’

I decompose the relative pronouns in three morphemes: the *w*, the *e* and the final consonant. For each morpheme, I discuss which features they spell out, and I give their lexical entries. In the end, I derive the relative pronouns, given here in (7) and (8).



(8)



I continue with the final consonants: *r* and *n*. They can be observed in several contexts besides relative pronouns. Table 7.2 gives an overview of the demonstrative *dieser* ‘this’ in Modern German in two numbers, three genders and three cases.² Compare the final consonants in Table 7.3 and Table 7.2.

Table 7.2: Modern German demonstrative *dieser* ‘this’ (Durrell 2011: Table 5.2)

	M.SG	N.SG	F.SG	PL
NOM	dies-ə-r	dies-ə-s	dies-ə	dies-ə
ACC	dies-ə-n	dies-ə-s	dies-ə	dies-ə
DAT	dies-ə-m	dies-ə-m	dies-ə-r	dies-ə-n

Table 7.2 and 7.3 show that the final consonants take different shapes depending on gender, number and case. I conclude from that that the consonant realizes

²The vowel preceding the final consonant is written as *e*. I write it as *ə*, because this is how it is pronounced. I make this distinction to emphasize that this differs from the vowel used in the relative pronouns.

Table 7.3: Modern German relative pronouns (Durrell 2011: 5.3.3) (repeated)

	AN	INAN
NOM	w-e-r	w-a-s
ACC	w-e-n	w-a-s
DAT	w-e-m	(w-e-m)

features having to do with these three aspects.

Another context in which this consonant appears is in their use as a pronoun. More specifically, the final consonant corresponds to the weak pronoun in Modern German, which I illustrate in the following examples. I only give examples of the nominative and accusative masculine singular, because these are the forms used in the relative pronoun.

First, I show that the consonant is not a strong pronoun. The example in (9) illustrates this by showing that the weak pronoun cannot be coordinated.

- (9) a. Jan und er/ *r essen gerne Dampfnudeln.
 Jan und he.STR/ he.WK eat with pleasure *Dampfnudeln*
 ‘Jan and he like to eat *Dampfnudeln*.’
 b. Ich habe Jan und ihn/ n gesehen.
 I have Jan and him.STR/ him.WK seen
 ‘I saw Jan and him.’

The example in (10) illustrates the same point by showing that the weak pronoun cannot be focused.

- (10) a. Nur er/ *r isst gerne Saumagen.
 only he.STR/ he.WK eats with pleasure *Saumagen*
 ‘Only he likes *Saumagen*.’
 b. Ich habe nur ihn/*n gesehen.
 I have only him.STR/ him.WK seen
 ‘I saw only him.’

Second, I show that the consonant is not a clitic. The example in (11) illustrates this by showing that the weak pronoun obligatorily follows dative objects.

- (11) a. .. dass Jan Ursel ihn/ n empfohlen hat.
 that Jan Ursel him.STR/ him.WK recommended has
 ‘that Jan recommended him to Ursel.’
 b. *.. dass Jan ihn/ n Ursel empfohlen hat.
 that Jan him.STR/ him.WK Ursel recommended has
 ‘that Jan recommended him to Ursel.’

The example in (12) illustrates the same point by showing that the weak pronoun can appear after prepositions (which clitics cannot).

- (12) a. Ich habe schon ein Geschenk für n gekauft.
 I have already a gift for him.WK bought
 ‘I already bought a gift for him.’
 b. Ich habe gestern gegen n gespielt.
 I have yesterday against him.WK played
 ‘Yesterday I played against him.’
 c. Ich habe ein schönen Brief an n geschrieben.
 I have a nice letter to him.WK written
 ‘I wrote a nice letter to him.’
 d. Ich bin schnell auf n zu gelaufen.
 I am fast on him.WK to walked
 ‘I walked toward him fast.’

In sum, besides gender, number and case features, the final consonant of relative pronoun spell out pronominal features.

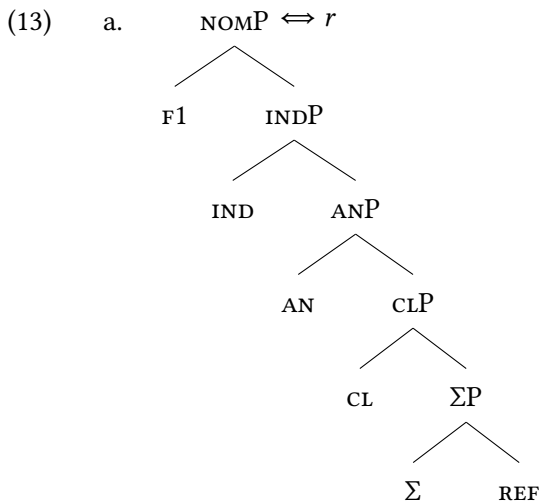
Since I discuss the animate nominative singular and in the animate accusative singular, I only introduce features that are realized by these morphemes. For case, I adopt the features of Caha (2009), already introduced in Chapter 3. The feature *r1* corresponds to the nominative, and the features *F1* and *F2* correspond to the accusative.

For number and gender, I adopt the features that are distinguished by Harley and

Ritter (2002) for pronouns. The feature CL corresponds to a gender feature, which is inanimate or neuter if it is not combined with any other features. Combining CL with the feature AN gives the animate or masculine gender.³ The feature IND corresponds to number, which is singular if it is not combined with any other features.

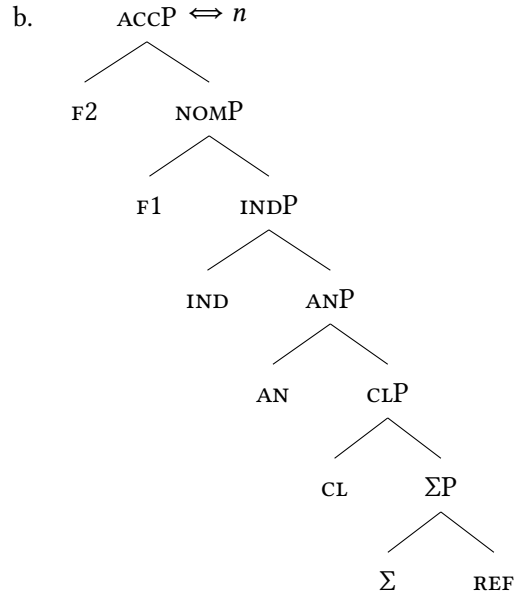
Regarding pronominal features, I assume the feature REF to be present. Harley and Ritter (2002) claim that all pronouns contain this feature, because they are referential expressions. In addition, the feature Σ is present because it is a weak pronoun (Cardinaletti and Starke, 1994).⁴

I give the lexical entries for *r* and *n* in (13a) and (13b). The *r* is the nominative masculine singular, so it spells out the features REF, Σ , CL, AN, IND and F1. The *n* is the accusative masculine singular, so it spells out the features that the *r* spells out plus F2.



³If the features CL and AN are combined with the feature FEM, it becomes the feminine gender.

⁴I assume that clitics lack the features REF (which corresponds to the LP in Cardinaletti and Starke 1994: 61) and the feature Σ . Strong pronouns have, in addition to REF and Σ , another feature (C in terms of Cardinaletti and Starke 1994: 61).



Note that the ordering of the features here is not random. I motivate this later on in this section.

This leaves the *e* in the relative pronoun. This morpheme is present in elements such as demonstratives and (WH-)relative pronouns. It spells out gender and number features and features regarding deixis. I start with the deixis features. In relative pronouns it does not express spatial deixis, but discourse deixis: it establishes a relation with an antecedent.

I assume that the WH-relative pronoun combines with the medial or the distal (when distinguishing between proximal, medial and distal). English has morphological evidence for this claim. Demonstratives in English can combine with either the proximal (*this*) or this medial/distal (*that*). WH-pronouns combine with the medial/distal (*what*) and are ungrammatical when combined with the proximal (**whis*).

The use of the medial in WH-pronouns can be understood conceptually if one connects spatial deixis to discourse deixis (cf. Colasanti and Wiltschko, 2019). The proximal is spatially near the speaker, and it refers to knowledge that the speaker possesses. The medial is spatially near the hearer, and it refers to knowledge that the hearer possesses. The distal is spatially away from the speaker and the hearer, and refers to knowledge that neither of them possess. In WH-pronouns, the speaker

is not aware of the knowledge, so the use of the proximal is excluded. Since I do not have explicit evidence for the presence of the distal, I assume that it is the medial that combines with the WH-pronoun.

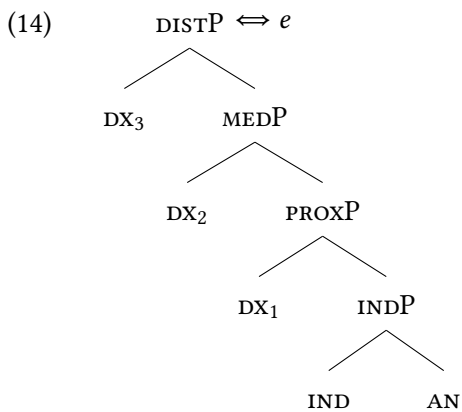
I adopt the features for deixis distinguished by Lander and Haegeman (2018). The feature DX_1 corresponds to the proximal, the features DX_1 and DX_2 correspond to the medial, and the features DX_1 , DX_2 and DX_3 correspond to the distal. The difference between the proximal, the medial and the distal cannot be observed in Modern German, because it is syncretic all of them (Lander and Haegeman 2018: 387), see Table 7.6.

What can be distinguished in Modern German is the differences of the vowel depending on number and gender.

Table 7.4: Modern German demonstratives (Durrell 2011: 5.4.1)

	M	N
SG	d-e-r	d-a-s
PL	d-ie	d-ie

So, in sum:



This leaves the morpheme *w* of the relative pronoun. Compare Table 7.5 (repeated from Table 7.3) and Table 7.6. The *w* combines with the same endings as the

d does in demonstratives (or relative pronouns in headed relatives).⁵

Table 7.5: Modern German relative pronouns (Durrell 2011: 5.3.3)

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

Table 7.6: Modern German demonstrative pronouns (Durrell 2011: 5.4.1)

	M	N	F
NOM	d-er	d-as	d-ie
ACC	d-en	d-as	d-ie
DAT	d-em	d-em	d-er

This identifies the *d* and, more importantly for the discussion here, the *w* as a separate morpheme. Three features that *w* spells out are important for the discussion here.

The first feature I refer to as *WH*. This is a feature that *WH*-pronouns, such as *WH*-relative pronouns and interrogatives, share. The *WH*-element triggers the construction of a set of alternatives in the sense of Rooth (1985, 1992) (Hachem, 2015). This contrasts with the *D* in Table 7.6, which is responsible for establishing a definite reference.

⁵Note here that the *WH*-relative pronouns, unlike the demonstratives, do not have a feminine form for the relative pronouns in Table 7.5. Demonstratives also have plural forms (which are not given here), and *WH*-relative pronouns do not. As far as I know, this holds for all relative pronouns in languages of the internal-only type (cf. also for Finnish, even though it makes a lot of morphological distinctions) and of the matching type. Relative pronouns in languages of the unrestricted type do inflect for feminine, as well as always-external languages. In Chapter 10 I return to this observation in relation with the always-external languages.

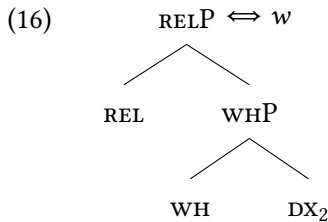
The second relevant feature is REL, which establishes a relation. A language that overtly shows that WH-relative pronouns consist of two features is Hungarian. (15) gives three examples of WH-pronouns that combine with the marker *a* to become a WH-relative pronoun.

- (15) *a-mi*, *a-ki*, *a-melyik*
 REL-what REL-who REL-which

(Kenesei et al. 1998: 40)

The third feature is DX₂. WH-element + ‘away from the speaker’

In sum, the *w* spells out the features WH and REL, shown in (16).



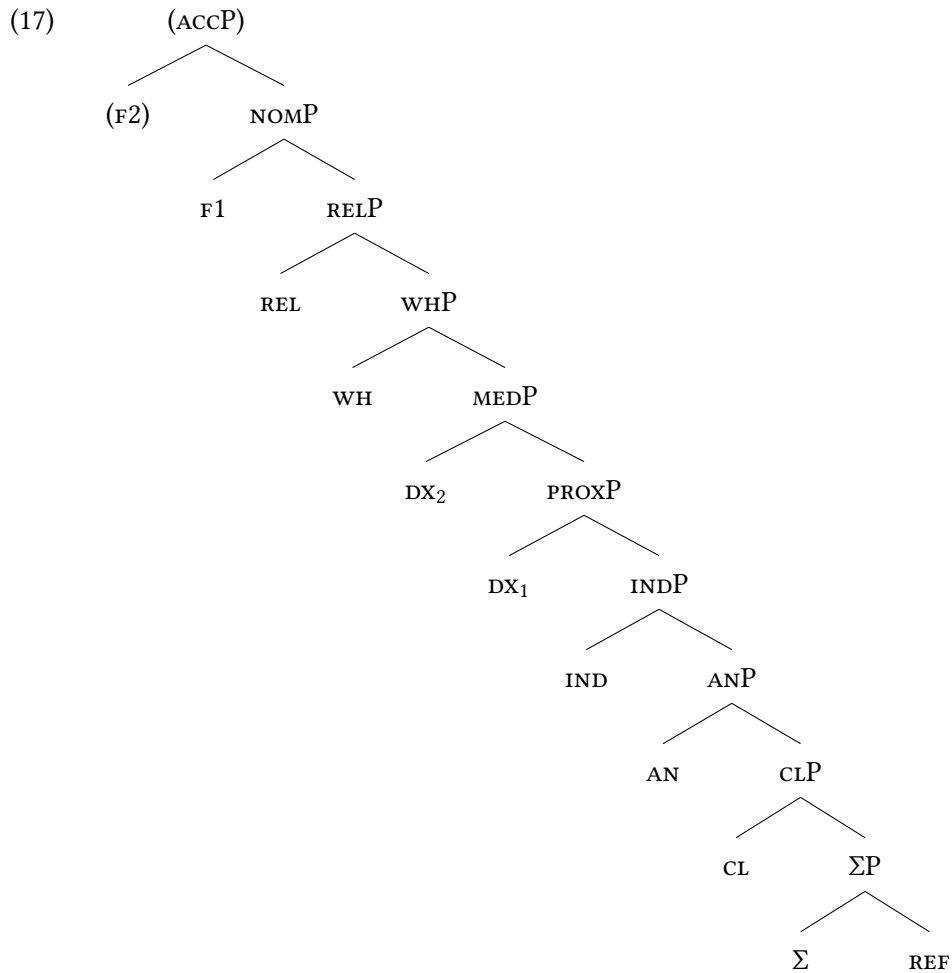
At this point, I gave lexical entries for each of the morphemes (in (13a), (13b), (14) and (16)) and I showed what the relative pronouns as a whole look like (in ?? and ??). What is still needed, is a theory for combining these morphemes into a relative pronoun. This theory should determine which morphemes should be combined with each other in which order. Ideally, the theory is not language-specific, but the same for all languages. In what follows I show how this is accomplished in Nanosyntax. Readers who are not interested in the precise mechanics can proceed directly to Section 7.3.

7.2 Combining morphemes in Nanosyntax

The way Nanosyntax combines different morphemes is not by glueing them together directly from the lexicon. Instead, features are merged one by one using two components that drive the derivation. These two components are (1) a functional sequence, in which the features that need to be merged and their order in which they are merged are specified, and (2) the Spellout Algorithm, which describes the

spellout procedure. The lexical entries that are available within a language interact with the derivation in such a way that the morphemes get combined in the right way. Note that the functional sequence and the Spellout Algorithm are stable across languages. The only difference between languages lies in their lexical entries.

(17) shows the functional sequence for relative pronouns. It gives all features it contains and their hierarchical ordering.



Starting from the bottom, these are pronominal features (REF and Σ), deixis features (DX₁ and DX₂), gender features (CL and AN), number features (IND), operator features (WH and REL) and case features (F1 and F2). This order is independently supported by

work in the literature. Both Picallo and Kramer argue that number is hierarchically higher than gender. Case is agreed to be higher than number (cf. Bittner and Hale).

REF, Σ , DEIX, WH/REL?

Before I derive construct the relative pronouns, I explain how the spellout procedure in Nanosyntax works. Features (Fs) are merged one by one according to the functional sequence, starting from the bottom. After each instance of merge, the constructed phrase must be spelled out, as stated in (18).

(18) **Cyclic phrasal spellout** (Caha, 2020a)

Spellout must successfully apply to the output of every Merge F operation. After successful spellout, the derivation may terminate, or proceed to another round of Merge F.

Spellout is successful when the phrase that contains the newly merged feature forms a constituents in a lexical tree that is part of the language's lexicon. When the new feature is merged, it forms a phrase with all features merged so far. If this created phrase cannot be spelled out successfully (i.e. when it does not form a constituent in a lexical tree), there are two movement operations possible that modify the syntactic structure in such a way that the newly merged feature becomes part of a different syntactic structure. These movements are triggered because spellout needs to successfully apply, and, therefore, they are called spellout-driven movements. A Spellout Algorithm specifies which movement operations apply and in which order this happens. I give it in (19).

(19) **Spellout Algorithm** (as in Caha 2020a, based on Starke 2018)

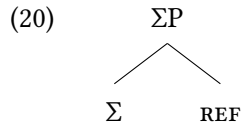
- a. Merge F and spell out.
- b. If (a) fails, move the Spec of the complement and spell out.
- c. If (b) fails, move the complement of F and spell out.

I informally reformulate what is in (19). I start with the first line in (19a). This says that a feature F is merged, and the newly created phrase FP is attempted to spell out. The next two lines, (19b) and (19c), describe the two types of rescue movements that take place when the spellout in (19a) fails (i.e. when there is no match in the lexicon). In the discussion about Modern German, only the first line leads to

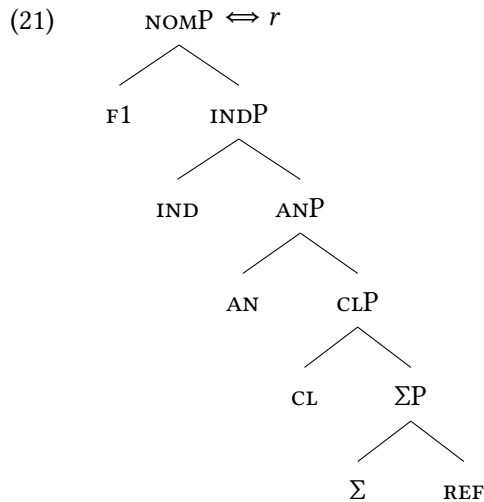
successful spellout. In the next section in which I discuss Polish derivations, second and third line also lead to successful spellouts. I give the full algorithm here to give the complete picture from the start.

If these two movement operations still do not lead to a successful spellout, there are two more derivational options possible: Backtracking and Spec Formation. I return to these options later in this section, when they are relevant in the derivation of Modern German relative pronouns.

I start constructing the nominative relative pronoun. Starting from the bottom of the functional sequence, the first two features that are merged at REF and Σ , creating a ΣP .

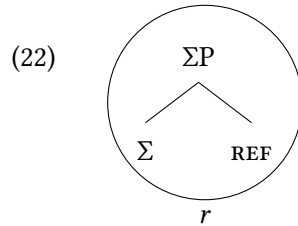


The syntactic structure forms a constituent in the lexical tree in (21), repeated from (13a), which corresponds to the *r*.

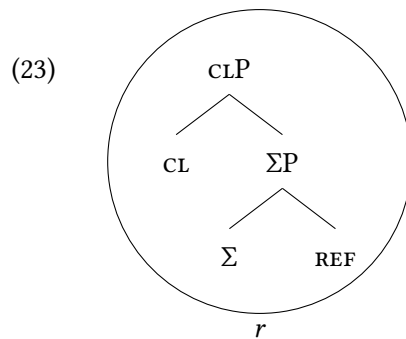


Therefore, the ΣP is spelled out as *r*. As usual, I mark this by circling the part of the structure that corresponds to the lexical entry, and placing the corresponding phonology under it. This spellout option corresponds to (19a) in the Spellout Algo-

rithm.

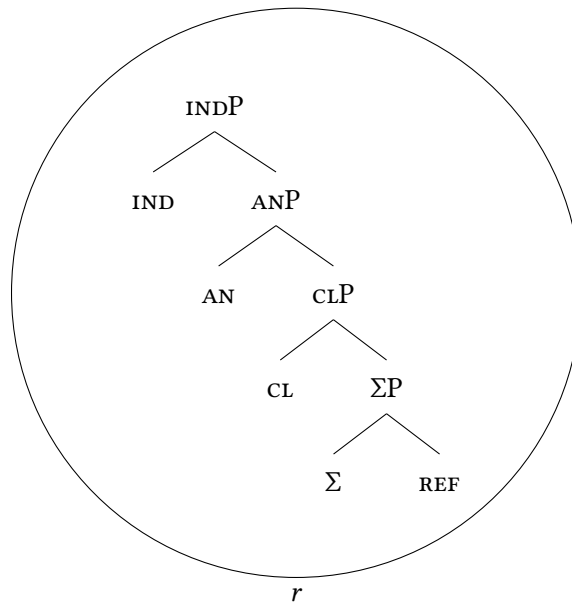


There are more features in the functional sequence, so the next feature is merged. This next feature is the feature CL, and a CLP is created. The syntactic structure forms a constituent in the lexical tree in (21). Therefore, the CLP is spelled out as *r*, shown in (23).



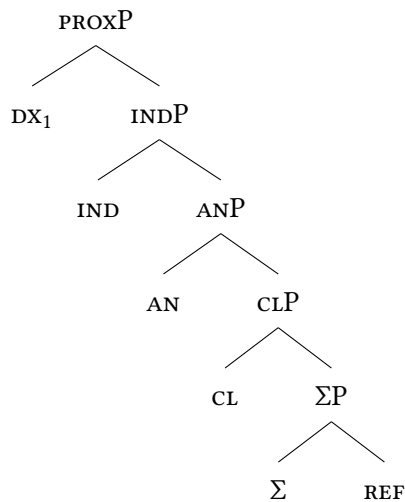
The features AN and IND are merged and spelled out in the same way. First, the feature AN is merged, and a ANP is created. The syntactic structure forms a constituent in the lexical tree in (21). Therefore, the ANP is spelled out as *r*. Then, the feature IND is merged, and a INDP is created. The syntactic structure forms a constituent in the lexical tree in (21). Therefore, the INDP is spelled out as *r*, shown in (24).

(24)



The next feature in the functional sequence is the feature DX_1 . This feature can not be spelled out as the other ones before. I show that in what follows. The feature DX_1 is merged, and a PROXP is created, as shown in (25)

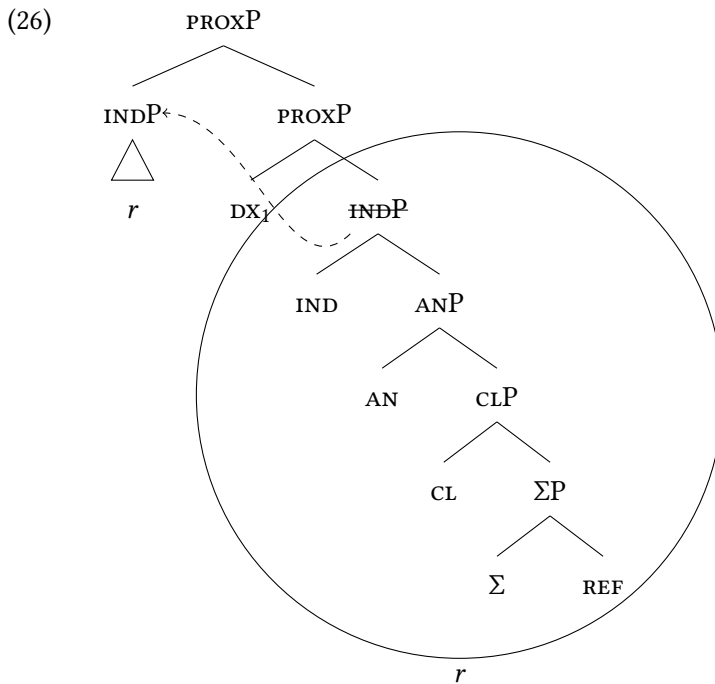
(25)



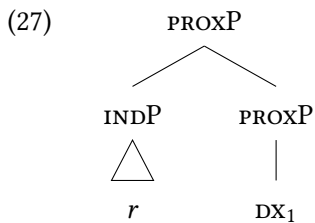
This syntactic structure does not form a constituent in the lexical tree in (21). There is also no other lexical tree that contains the structure in (25) as a constituent. There-

fore, there is no successful spellout for the syntactic structure in the derivational step in which the structure is spelled out as a single phrase ((19a) in the Spellout Algorithm).

The first movement option in the Spellout Algorithm is moving the specifier, as described in (19b). As there is no specifier in this structure, so the first movement option is irrelevant. The second movement option in the Spellout Algorithm is moving the complement, as described in (19c). In this case, the complement of DX_1 , the $INDP$, is moved to the specifier of $INDP$. This movement is displayed in (26).



The result that arises after the movement is shown in (27).



The PROXP is a different constituent now. It still contains the feature DX_2 , but it no longer contains the IND_P. However, also for this constituent there is no lexical tree that contains it, so there is no successful spellout yet.

As I mentioned earlier, there are two more derivational options possible: Backtracking and Spec Formation. Derivationally, Backtracking comes first. However, since this does not lead to a successful spellout here I first introduce Spec Formation first and I return to Backtracking later. Spec Formation is a last resort operation, when the feature cannot be spelled out by any of the preceding options. It is formalized as in (28).

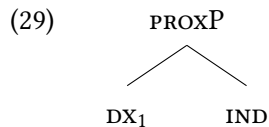
(28) **Spec Formation** (Starke, 2018):

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

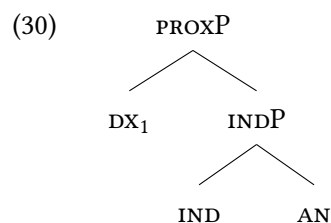
To reformulate this informally, if none of the preceding spellout options led to a successful spellout, a last resort operation applies. The feature that has not been spelled out yet, is merged with some other features (to which I come back next) in a separate workspace. Crucially, the phrase that is created is contained in a lexical tree in the language's lexicon. Finally, the feature is spelled out successfully. The newly created phrase (the spec) is merged as a whole with the already existing structure.

Now I come back to the 'other' features that the feature is merged with to create a phrase that can be spelled out. This cannot be just any feature. What is crucial here again is the functional sequence. The newly merged feature is merged with features that precede it in this sequence. This can be a single feature or more than one. I illustrate this with the Modern German relative pronouns.

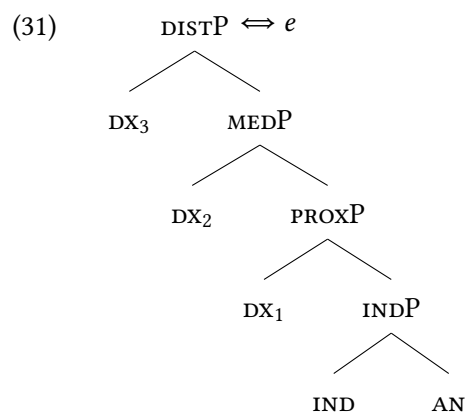
For DX_1 this means that it is merged with IND. Then, the lexicon is checked for a lexical tree that contains the phrase PROXP that contains DX_1 and IND, as shown in (29).



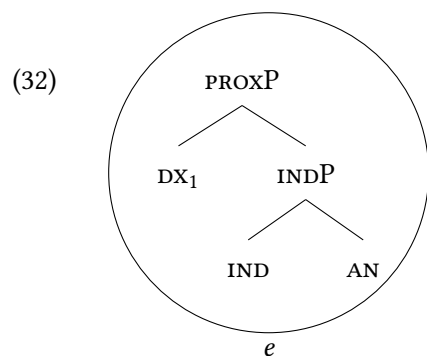
This syntactic structure does not form a constituent in any of the lexical trees in the language's lexicon. Therefore, the feature DX_1 combines not only with the feature merged before it, but with a phrase that consists of the two features merged before it: IND and AN. I give the phrase this creates in (30).



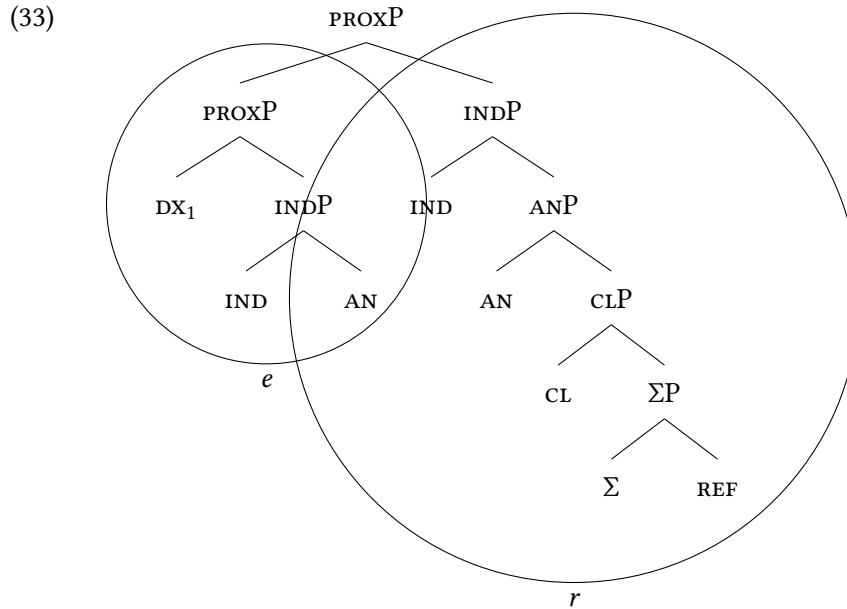
This syntactic structure forms a constituent in the lexical tree in (31), repeated from (14), which corresponds to the *e*.



Therefore, the PROXP is spelled out as *e*, as shown in (32).



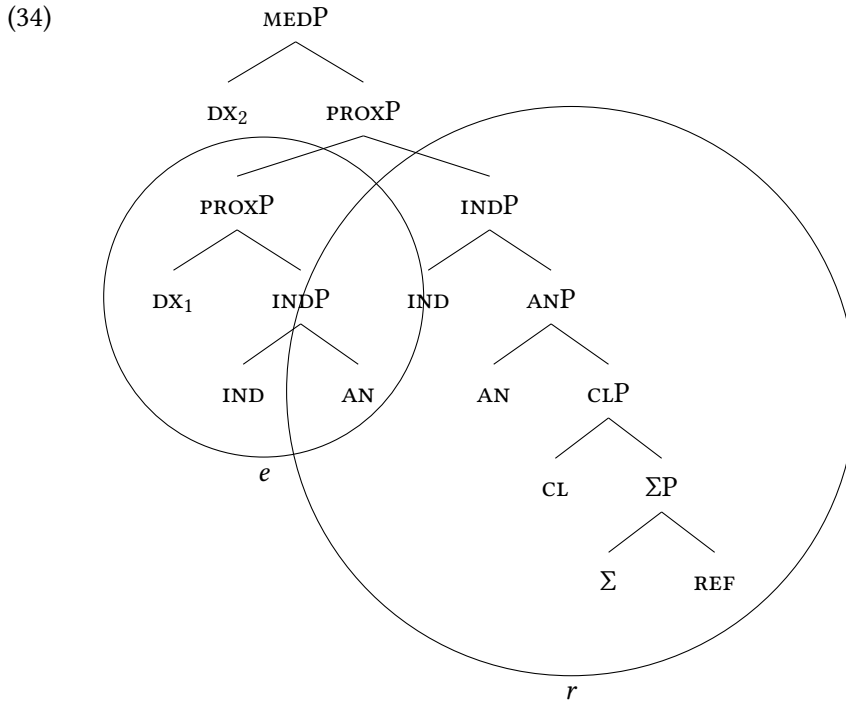
The newly created phrase is merged as a whole with the already existing structure. As specified in (28), the feature *PROX* projects to the top node. I show the results in (33).



Notice here that there is an overlap of multiple features between the phrase on the right and the phrase on the left.⁶

The next feature in the functional sequence is the feature *DX₂*. As always, it merged to the existing syntactic structure, which is now the *PROXP*. The result is the *MEDP* shown in (34).

⁶There are two other proposals in the literature. Caha (2019) argue that there can only be a single feature overlap between the two phrases. De Clercq and Vanden Wyngaerd (2018) argue that there cannot be any overlap at all, and the features used in the second workspace are removed from the structure in the other workspace. In this dissertation, I work with the proposal in Starke (2018) I introduced in the main text, which is the only one of the three that allows me to derive all the forms I encounter.



This whole structure does not form a constituent in any of the lexical trees in the language's lexicon. Neither of the spellout driven movement operations leads to a successful spellout. This means that, once again, the derivation reaches a point at which one of the two more possible derivational options come into play. As I mentioned before, Backtracking comes first, and this is the operation that leads to a successful spellout here.

Consider the syntactic structure in (34) again. The feature DX_2 is merged with the highest $PROXP$. In this position it cannot be spelled out. Consider now the lexical entry in (31). This is a lexical tree that contains DX_2 . This means that the feature DX_2 somehow needs to end up in the Spec that has just been merged. I follow Caha (2019) who proposes that this happens via Backtracking. He argues that the main idea of Backtracking is that a feature is merged with a different tree than the one it was merged with before, as stated in (35).⁷

⁷In this dissertation I do not discuss the effect that Backtracking 'normally' has, namely to try a different spellout option at the previous cycle. That does not mean that I assume it is not part of the derivation: I actually assume it a step that attempted is. I refrain from mentioning it, because this

(35) **The logic of backtracking** (Caha 2019: 198)

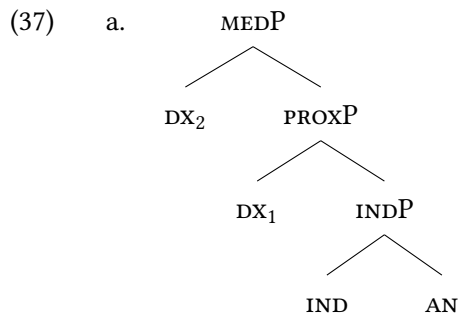
When spellout of F fails, go back to the previous cycle, and provide a different configuration for Merge F.

Imagine a situation in which the previous feature was spelled out with a complex specifier and the next feature reaches the derivational option Backtracking. This is exactly the situation that arises after DX_2 is merged. Providing a different configuration means splitting up the two phrases, and then merging the feature again. Specifically, I adopt the proposal in which the features is merged in both workspaces, as stated in (36).

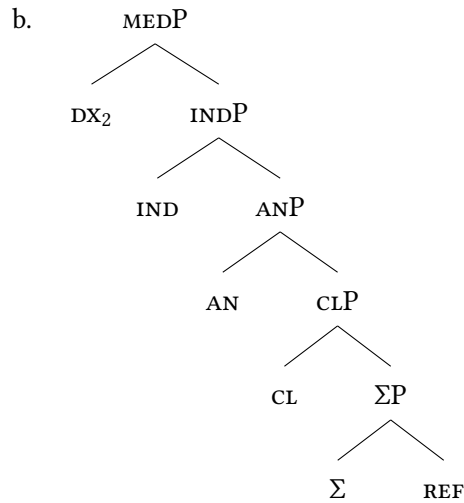
(36) **Multiple Merge** (Caha 2019: 227)

When backtracking reopens multiple workspaces, merge F in each such workspace.

For the example under discussion, the situation looks as in (37).



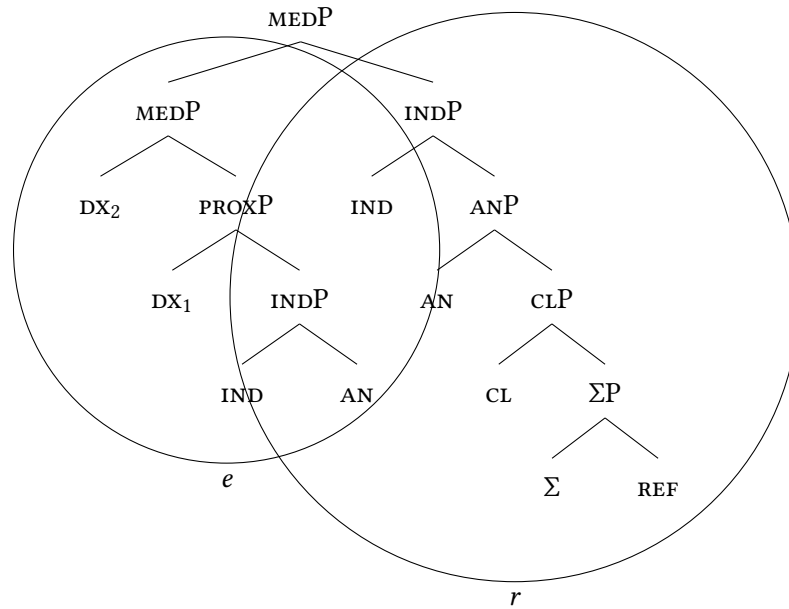
does not lead to a successful spellout in any of the derivations I discuss.



The feature DX_2 is merged in both workspaces, so it combines with the $PROXP$ in (37a) and with the $INDP$ (37b). Spellout has to be successful in at least one of the two workspaces. From here on, the derivation proceeds, as usual, according to the Spellout Algorithm, with the only difference that it happens in two workspaces simultaneously.

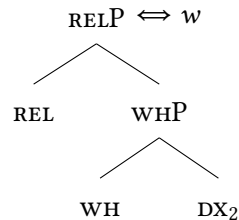
In the case of (37), the spellout of DX_2 is successful in the syntactic structure in (37a). This syntactic structure namely forms a constituent in the lexical tree in (31), which corresponds to the e . As spellout has succeeded, the workspaces can be merged back together. The result is shown in (38).

(38)



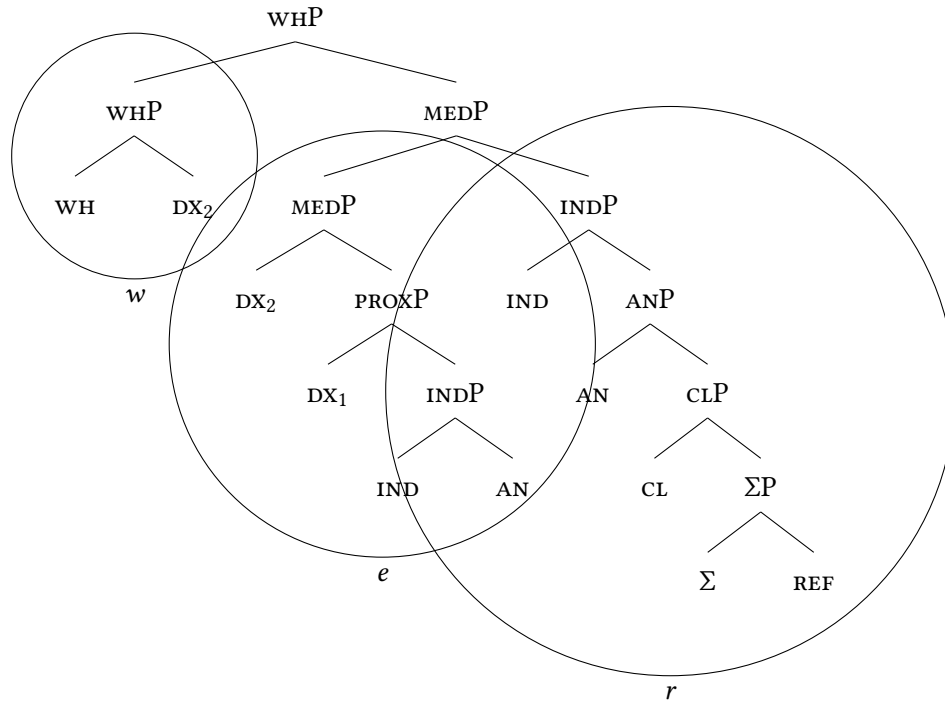
The next feature on the functional sequence is *WH*. The derivation for *WH* resembles the derivation of *DX*₁. The feature is merged with the existing syntactic structure, creating a *WHP*. This structure does not form a constituent in any of the lexical trees in the language's lexicon, and neither of the spellout driven movements leads to a successful spellout. Backtracking also does not lead to a successful spellout. Therefore, in a second workspace, the feature *WH* is merged with the feature *DX*₂ (the previous syntactic feature on the functional sequence) into a *WHP*. This syntactic structure forms a constituent in the lexical tree in (39), repeated from (16), which corresponds to the *w*.

(39)



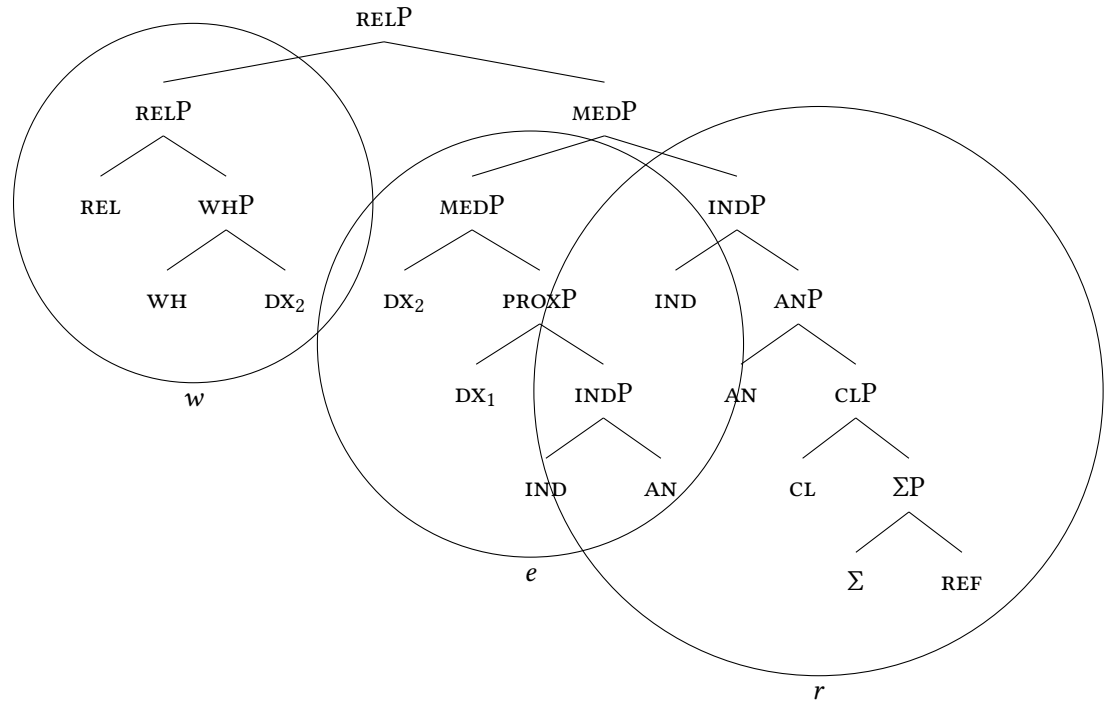
Therefore, the *WHP* is spelled out as *w*, and *WHP* is merged back to the existing syntactic structure, as shown in (40).

(40)



The next feature on the functional sequence is REL. The derivation for REL resembles the derivation of DX_2 . The feature is merged with the existing syntactic structure, creating a RELP. This structure does not form a constituent in any of the lexical trees in the language's lexicon, and neither of the spellout driven movements leads to a successful spellout. Backtracking leads splitting up the WHP from the (higher) MEDP (which contains the lower MEDP and the INDP). The feature REL is merged in both workspaces, so with WHP and with MEDP. The spellout of REL is successful when it is combined with the WHP. It namely forms a constituent in the lexical tree in (39), which corresponds to the w . The RELP is spelled out as w , and the RELP is merged back to the existing syntactic structure, as shown in (41).

(41)

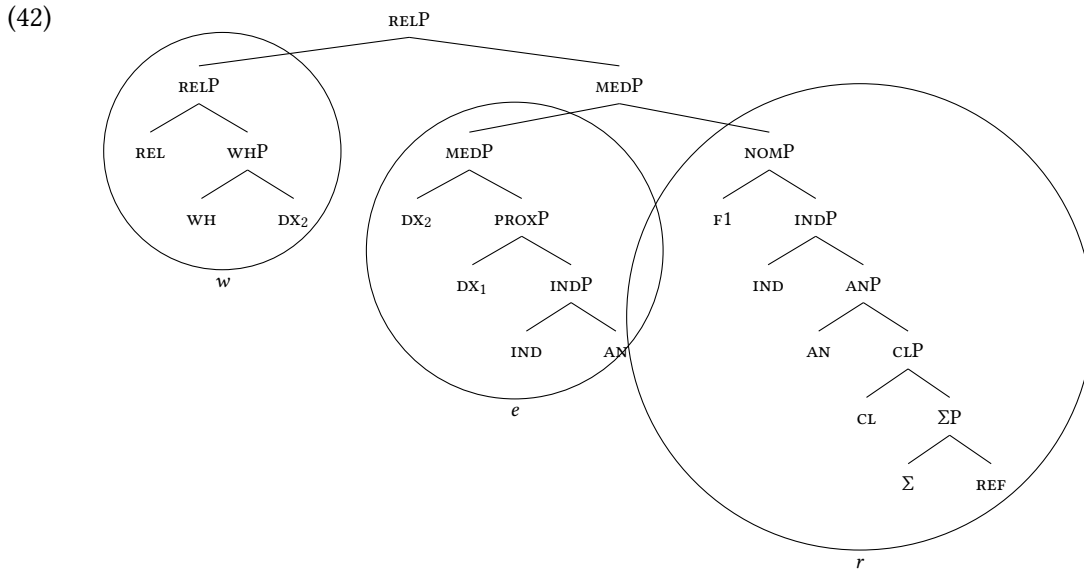


For the nominative relative pronoun, the last feature on the functional sequence is the feature F1. This feature should somehow end up merging with INDP, because it forms a constituent in the lexical tree in (21), which corresponds to the *r*. This is achieved via two instances of Backtracking in which phrases are split up. I go through the derivation step by step.

The feature F1 is merged with the existing syntactic structure, creating a NOMP. This structure does not form a constituent in any of the lexical trees in the language's lexicon, and neither of the spellout driven movements leads to a successful spellout. Backtracking leads splitting up the RELP from the (higher) MEDP (which contains the lower MEDP and the INDP). The feature F1 is merged in both workspaces, so with the RELP and and with the MEDP. None of these phrases form a constituent in any of the lexical trees in the language's lexicon, and neither of the spellout driven movements leads to a successful spellout.

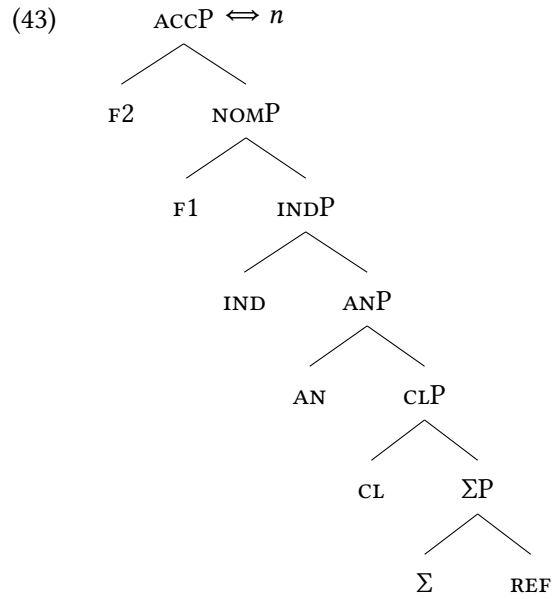
Further Backtracking leads to splitting up the MEDP from the INDP. The feature F1 is merged in both workspaces, so with the MEDP and and with the INDP. The spellout of F1 is successful when it is combined with the INDP. It namely forms

a constituent in the lexical tree in (21), which corresponds to the *r*. The *NOMP* is spelled out as *r*, and all constituents are merged back into the existing syntactic structure, as shown in (42).

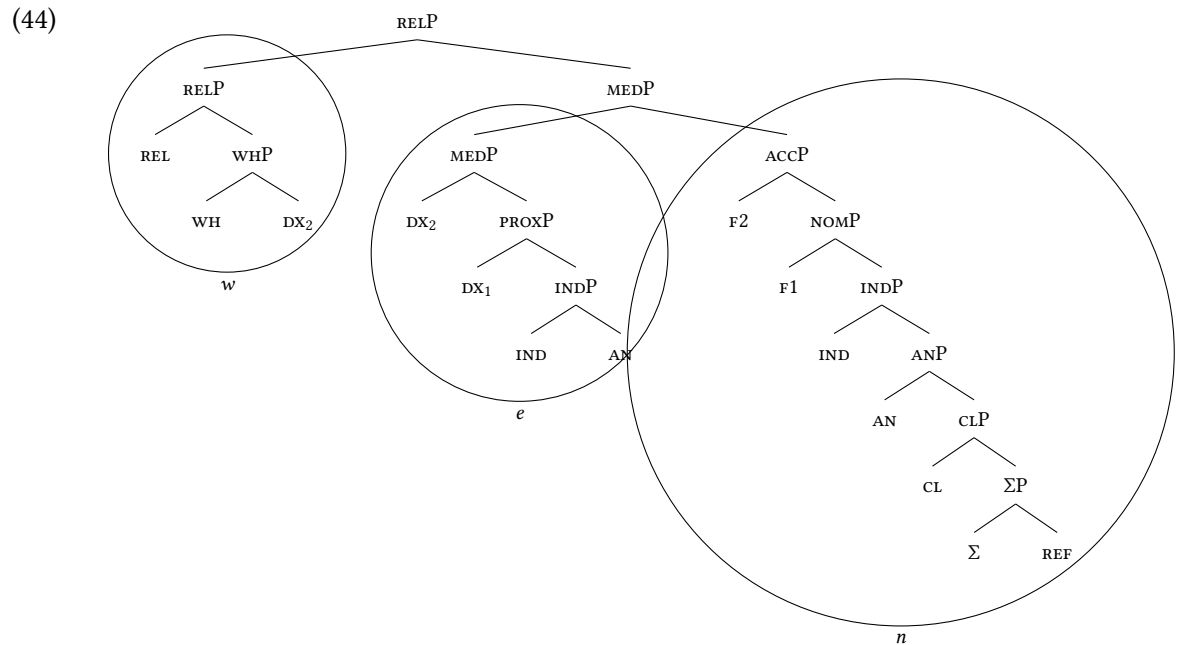


For the accusative relative pronoun, one more feature is merged: the *F2*. The derivation for *F2* resembles the derivation of *F1*. The feature is merged with the existing syntactic structure, creating a *ACCP*. This structure does not form a constituent in any of the lexical trees in the language's lexicon, and neither of the spellout driven movements leads to a successful spellout. Backtracking leads splitting up the *RELP* from the (higher) *MEDP* (which contains the lower *MEDP* and the *NOMP*). The feature *F2* is merged in both workspaces, so with the *WHP* and and with the *MEDP*. None of these phrases form a constituent in any of the lexical trees in the language's lexicon, and neither of the spellout driven movements leads to a successful spellout.

Further Backtracking leads to splitting up the *MEDP* from the *NOMP*. The feature *F2* is merged in both workspaces, so with the *MEDP* and and with the *NOMP*. The spellout of *F2* is successful when it is combined with the *NOMP*. It namely forms a constituent in the lexical tree in (43), repeated from (13b), which corresponds to the *n*.



The ACCP is spelled out as n , and all constituents are merged back into the existing syntactic structure, as shown in (42).



To summarize, I decomposed the relative pronoun into the three morphemes *w*, *e* and the final consonant (*r* and *n*). I showed which features each of the morphemes spells out, and in which constituents the features are combined. It is these constituency that determine whether the relative pronoun can delete the light head or not.

7.3 The (extra) light head

In Section 6, I argued that headless relatives are derived from light-headed relatives. The relative pronoun can delete the light head when the relative contains all constituents of the light head. I suggested that this holds in Modern German, as long as the external case is not more complex than the internal case. In the previous section, I gave the internal structure of the relative pronoun, i.e. which constituents the relative pronoun consists of. In this section, I first need to identify the light head, as it does not surface in headless relatives. Then I show what its internal structure looks like: it is a constituent within the relative pronoun.

In this section, I consider two kinds of light-headed relatives as the source of the headless relative. First, the light-headed relative is derived from an existing light-headed relative, and the deletion of the light head is optional. Second, the light-headed relative is derived from a light-headed relative that does not surface in Modern German, and the deletion of the light head is obligatory. I consider the first option first, and I give two reasons against it. I take the light head from the existing light-headed relative as a point of departure, and I modify it in such a way that it is appropriate as a light head for a headless relative.

I give an example of a Modern German light-headed relative in (45).⁸

⁸Modern German also has another light-headed relative, in which the relative pronoun is the *D*-pronoun. I give an example in (i).

- (i) Jan umarmt den **den** **er mag**.
 Jan hugs D.M.SG.ACC REL.M.SG.ACC he likes
 ‘Jan hugs the man that he likes.’

This relative pronoun generally appears in headed relatives, shown in (ii).

- (45) Jan umarmt den **wen** **er mag**.
 Jan hugs DEM.M.SG.ACC REL.AN.ACC he likes
 ‘Jan hugs the man that he likes.’

In (45), the relative pronoun is the WH-pronoun *wen* ‘REL.AN.ACC’, and the light head is the D-pronoun *den* ‘DEM.M.SG.ACC’. For easy reference, I call this light-headed relative the *den-wen* relative.

One hypothesis is that the demonstrative *den* ‘DEM.M.SG.ACC’ is deleted from the light-headed relative in (45) and that the headless relative in (46) remains.⁹ For easy reference, I call this headless relative the *wen* relative.

- (46) Jan umarmt **wen** **er mag**.
 Jan hugs REL.AN.ACC he likes
 ‘Jan hugs who he likes.’

I give two arguments against this hypothesis. First, in headless relatives the morpheme *auch immer* ‘ever’ can appear, as shown in (47).

- (47) Jan unarmt **wen** **auch immer er mag**.
 Jan hugs REL.AN.ACC ever he likes
 ‘Jan hugs whoever he likes.’

Light-headed relatives do not allow this morpheme to be inserted, illustrated in (48).

- (48) *Jan unarmt den **wen** **auch immer er mag**.
 Jan hugs DEM.M.SG.ACC REL.AN.ACC ever he likes
 ‘Jan hugs him whoever he likes.’

-
- (ii) Jan umarmt den Mann **den** **er mag**.
 Jan hugs D.M.SG.ACC man REL.M.SG.ACC he likes
 ‘Jan hugs the man that he likes.’

I directly exclude the possibility that Modern German headless relatives are derived from these light-headed relatives, because they appear with the incorrect relative pronoun.

⁹This is exactly what Hanink (2018) argues for. She claims that the feature content of the light head matches the feature content of the relative pronoun. Therefore, the light head is by default deleted. Only if the light head carries an extra focus feature it surfaces.

I assume that the headless relative is not derived from an ungrammatical structure.¹⁰

The second argument against the *den-wen* relative being the source of the *wen* relative comes from the interpretation differences between the two. Broadly speaking, the *wen* relative has two interpretations (see Šimík 2020 for a recent elaborate overview on the semantics of free relatives). The *den-wen* has only one of them. I show this schematically in Table 7.7.

Table 7.7: Interpretations of *wen* and *den-wen* relatives

	<i>wen</i>	<i>den-wen</i>
definite-like	✓	✓
universal-like	✓	*

The first interpretation of the *wen* relative is a definite-like one. This interpretation corresponds to a definite description: Jan hugs the person that he likes. The interpretation is available for the *wen* relative and for the *den-wen* relative. The second interpretation of the *wen* relative is a universal-like one. This interpretation corresponds to a universal quantifier: Jan hugs everybody that he likes. This interpretation is available for the *wen* relative, but not for the *den-wen* relative.

There are some indications that the universal-like interpretation of headless relatives is the main interpretation that should be accounted for. First, informants have reported to me that headless relatives with case mismatches become more acceptable in the universal-like interpretation compared to the definite-like interpretation. Second, Šimík (2020: 4) notes that some languages do not easily allow for the definite-like interpretation of headless relatives with an *ever*-morpheme. There is no language documented that does not allow for the universal-like interpretation, but does allow the definite-like interpretation.

In sum, there are two arguments against the *den-wen* relative being the source of the *wen* relative. In what follows, I show how the presence of *den* leads to having only the definite-like interpretation. I suggest that the problem lies in the feature content of the light head *den*. I point out how the feature content should be modified

¹⁰I am aware that such an analysis is common for sluicing.

such that it is a suitable light head.

The light head in the *den-wen* relative is a demonstrative. A demonstrative refers back to a linguistic or extra-linguistic antecedent. Consider the context which facilitates a definite-interpretation and the repeated *den-wen* relative in (49a).

- (49) a. Context: Yesterday Jan met with two friends. He likes one of them.
The other one he does not like so much.
- b. Jan umarmt den **wen** **er** mag.
Jan hugs DEM.M.SG.ACC REL.AN.ACC he likes
'Jan hugs the man that he likes.'

The demonstrative *den* in the *den-wen* relative refers back to the friend of Jan that he likes.

Consider the context which facilitates a universal-interpretation and the repeated *den-wen* relative in (50a).

- (50) a. Jan has a general habit of hugging everybody that he likes.
- b. #Jan umarmt den **wen** **er** mag.
Jan hugs DEM.M.SG.ACC REL.AN.ACC he likes
'Jan hugs the man that he likes.'

In this case, there is no antecedent for the demonstrative *den* to refer back to.

I zoom in on the internal structure of the demonstrative *den* to investigate what it is about the demonstrative that forces the definite-like interpretation. The demonstrative consists of the three morphemes *d*, *e* and *n*. Two of its morphemes are identical to the WH-relative pronoun: (1) *n*, which spells out pronominal, number, gender and case features, and (2) the *e* which spells out deictic features. One morpheme differs: the *d*, which establishes a definite reference. The two morphemes that force the definite-interpretation are the *d* and the *e*. The *e* establishes a reference, and the *d* makes this reference a definite one.

I propose that the light head is the element that is left once the morphemes *d* and *e* are abandoned. This is the morpheme that is the final consonant of the relative pronoun.¹¹ I give the light-headed relative from which the *wen*-relative is derived

¹¹The two light heads I discuss resemble the strong and weak definite in Schwarz (2009), at least

in (51). The brackets around the light head indicate that it is obligatorily deleted.

- (51) Jan umarmt [n] **wen** **er mag**.
 Jan hugs LH.AN.ACC REL.AN.ACC he likes
 ‘Jan hugs who he likes.’

In Section 6, I gave the simplified structure of the light head, repeated here in (52).

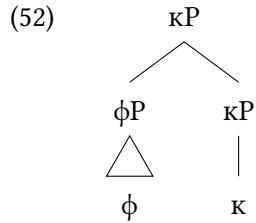
morphologically (although my light head is always obligatorily deleted). Schwarz’s (2009) strong definite is anaphoric in nature, and the weak definite encodes uniqueness. I give an example of a strong definite in (i). The strong definite is *dem* that precedes *Freund* ‘friend’. It refers back to the linguistic antecedent *einen Freund* ‘a friend’.

- (i) Hans hat heute einen Freund zum Essen mit nach Hause gebracht. Er hat uns
 Hans has today a friend to the dinner with to home brought he has us
 vorher ein Foto von dem Freund gezeigt.
 beforehand a photo of the_{STRONG} friend shown
 ‘Hans brought a friend home for dinner today. He had shown us a photo of the friend beforehand.’

Weak definites are used when situational uniqueness is involved. This uniqueness can be global or within a restricted domain. I give two examples in (ii). In (iia), the dog is unique in this specific situation of the break-in. In (iib), the moon is unique for us people on the planet.

- (ii) a. Der Einbrecher ist zum Glück vom Hund verjagt worden.
 the burglar is luckily by the_{WEAK} dog chased away been
 ‘Luckily, the burglar was chased away by the dog.’
 b. Armstrong flog als erster zum Mond.
 Armstrong flew as first one to the_{WEAK} moon
 ‘Armstrong was the first one to fly to the moon.’ (Modern German, Schwarz 2009: 40)

The meaning of Schwarz’s (2009) strong definite seems similar to the meaning of the light head in the *den-wen* relative. I do not see right away how the light head in headless relatives could encode uniqueness. One possibility is that the feature content of his and my form differs slightly after all. Another possibility is that the fact that his form combines with a preposition and an overt nouns leads to a change in interpretation.



The idea was that the structures of the relative pronoun and the light heads match, but that the relative pronoun contains at least one feature more. I just argued that the light head has four features less: WH, REL, DX₁ and DX₂.

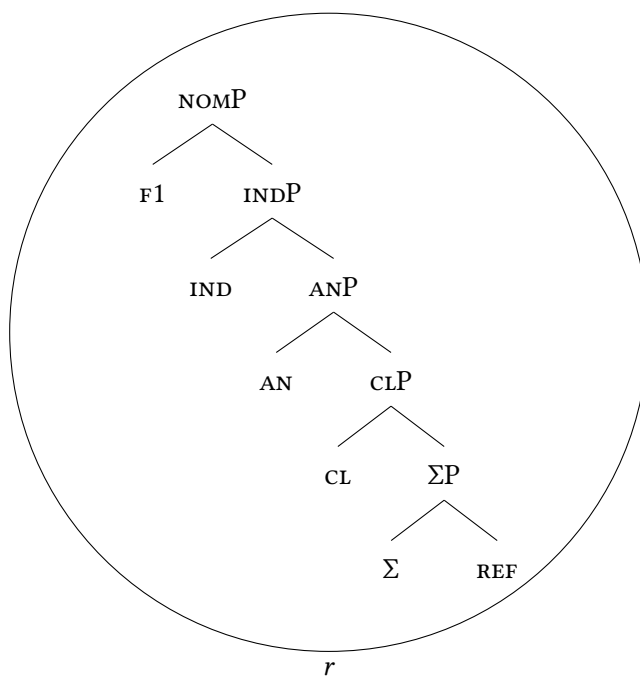
I discuss two light heads: the animate nominative singular and in the animate accusative singular. These are the two forms that I compare the constituents of in Section 7.4. I show them in (53).

- (53)
- a. r
 ‘LH.AN.SG.NOM’
 - b. n
 ‘LH.AN.SG.ACC’

The derivations of the light heads are simple ones. The features are merged one by one, and after each new phrase is created, it is spelled out as a whole.

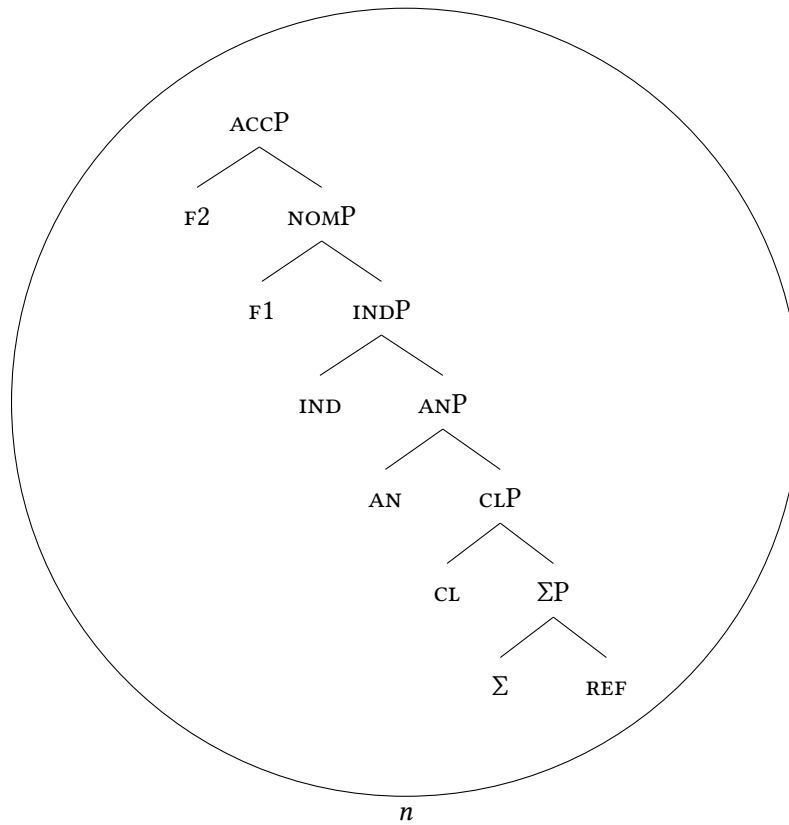
I give the structures of the animate nominative singular light head in (54).

(54)



I give the structures of the animate accusative singular light head in (55).

(55)



7.4 Comparing constituents

Consider the example in (56), in which the internal nominative case competes against the external nominative case. The relative clause is marked in bold, and the extra light head and the relative pronoun are underlined. The internal case is nominative, as the predicate *mögen* ‘to like’ takes nominative subjects. The relative pronoun *wer* ‘REL.AN.NOM’ appears in the nominative case. This is the element that surfaces. The external case is nominative as well, as the predicate *besuchen* ‘to visit’ also takes nominative subjects. The extra light head *er* ‘DEM.AN.NOM’ appears in the nominative case. It is placed between square brackets because it does not surface.

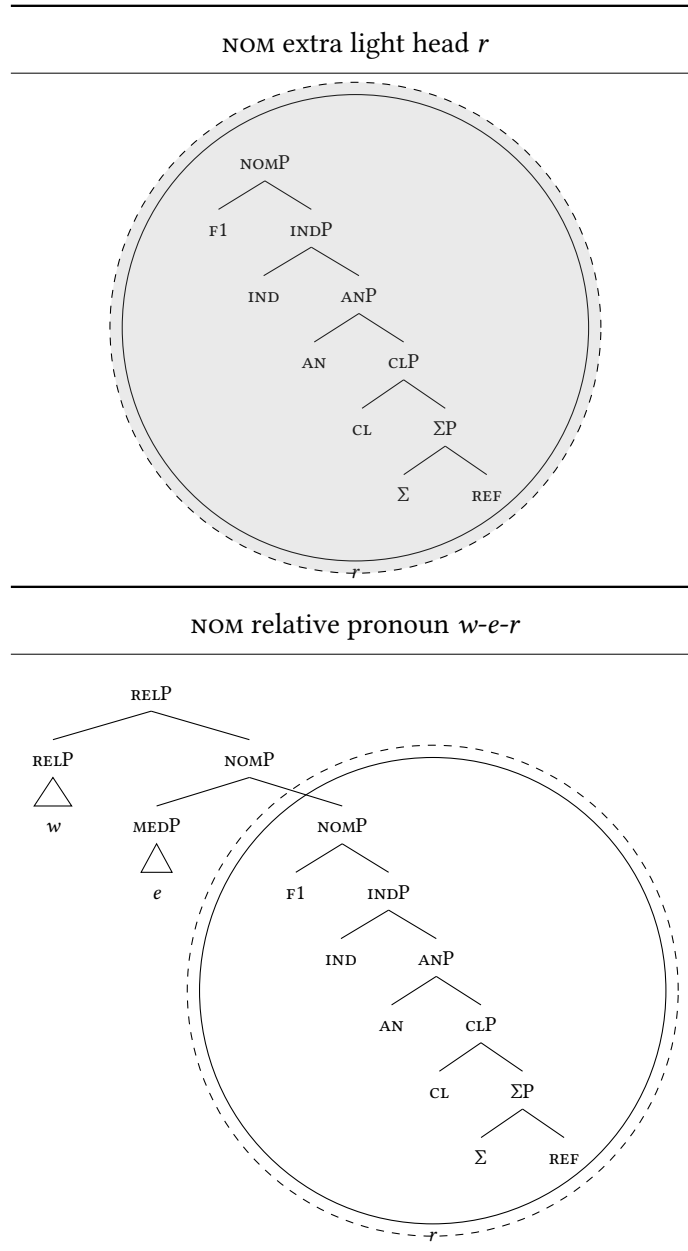
- (56) Uns besucht [r], wer Maria
 2PL.ACC visit.PRES.3SG_[NOM] ELH.AN.NOM REL.AN.NOM Maria.ACC
mag.
 like.PRES.3SG_[NOM]
 ‘Who visits us likes Maria.’
 (Modern German, adapted from Vogel 2001: 343)

In Figure 7.1, I give the syntactic structure of the extra light head at the top and the syntactic structure of the relative pronoun at the bottom.

The relative pronoun consists of three morphemes: *w*, *e* and *r*. The extra light head consists of two morphemes: *a* and *r*. As usual, I circle the part of the structure that corresponds to a particular lexical entry, and I place the corresponding phonology under it. I draw a dashed circle around each constituent that is a constituent in both the extra light head and the relative pronoun. As each constituent of the extra light head is also a constituent within the relative pronoun, the extra light head can be absent. I illustrate this by marking the content of the dashed circles for the extra light head gray.

I explain this constituent by constituent. I start with the right-most constituent of the extra light head that spells out as *r* (NOMP). This constituent is also a constituent in the relative pronoun. I continue with the left-most constituent of the extra light head that spells out as *a* (PROXP). This constituent is also a constituent in the relative pronoun, contained in MEDP. Both constituent of the extra light head are also a constituent within the relative pronoun, and the extra light head can be absent.

Consider the example in (57), in which the internal accusative case competes against the external nominative case. The relative clause is marked in bold, and the extra light head and the relative pronoun are underlined. The internal case is accusative, as the predicate *mögen* ‘to like’ takes accusative objects. The relative pronoun *wen* ‘REL.AN.ACC’ appears in the accusative case. This is the element that surfaces. The external case is nominative, as the predicate *besuchen* ‘to visit’ takes nominative subjects. The extra light head *ar* ‘DEM.AN.NOM’ appears in the nominative case. It is placed between square brackets because it does not surface.

Figure 7.1: Modern German EXT_{NOM} VS. $\text{INT}_{\text{NOM}} \rightarrow \textit{wer}$

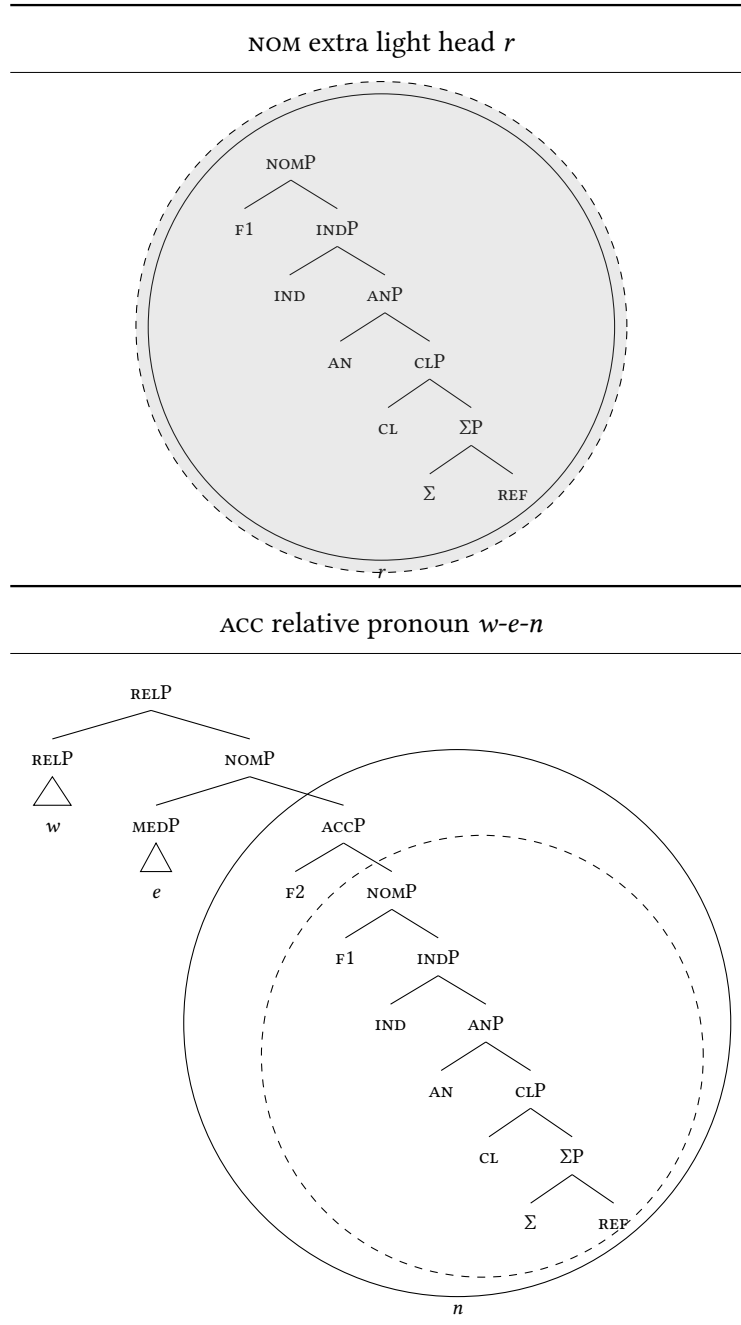
- (57) Uns besucht [r] **wen** **Maria** mag.
 we.ACC visit.3SG_[NOM] ELH.NOM.AN REL.ACC.AN Maria.NOM like.3SG_[ACC]
 ‘Who visits us, Maria likes.’ (adapted from Vogel 2001: 343)

In Figure 7.2, I give the syntactic structure of the extra light head at the top and the syntactic structure of the relative pronoun at the bottom.

The relative pronoun consists of three morphemes: *w*, *e* and *n*. The extra light head consists of one morpheme: *r*. Again, I circle the part of the structure that corresponds to a particular lexical entry, and I place the corresponding phonology under it. I draw a dashed circle around each constituent that is a constituent in both the extra light head and the relative pronoun. As each constituent of the extra light head is also a constituent within the relative pronoun, the extra light head can be absent. I illustrate this by marking the content of the dashed circles for the extra light head gray.

I explain this constituent by constituent. I start with the right-most constituent of the extra light head that spells out as *r* (NOMP). This constituent is also a constituent in the relative pronoun, contained in ACCP. I continue with the left-most constituent of the extra light head that spells out as *a* (PROXP). This constituent is also a constituent in the relative pronoun, contained in MEDP. Both constituent of the extra light head are also a constituent within the relative pronoun, and the extra light head can be absent.

Consider the examples in (58), in which the internal nominative case competes against the external accusative case. The relative clauses are marked in bold, and the extra light heads and the relative pronouns are underlined. It is not possible to make a grammatical headless relative in this situation. The internal case is nominative, as the predicate *sein* ‘to be’ takes nominative subjects. The relative pronoun *wer* ‘REL.AN.NOM’ appears in the nominative case. The external case is accusative, as the predicate *einladen* ‘to invite’ takes accusative objects. The extra light head *an* ‘DEM.AN.ACC’ appears in the accusative case. (58a) is the variant of the sentence in which the extra light head is absent (indicated by the square brackets) and the relative pronoun surfaces, and it is ungrammatical. (58b) is the variant of the sentence in which the relative pronoun is absent (indicated by the square brackets) and the extra light head surfaces, and it is ungrammatical too.

Figure 7.2: Modern German EXT_{NOM} vs. $\text{INT}_{\text{ACC}} \rightarrow \text{wen}$

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

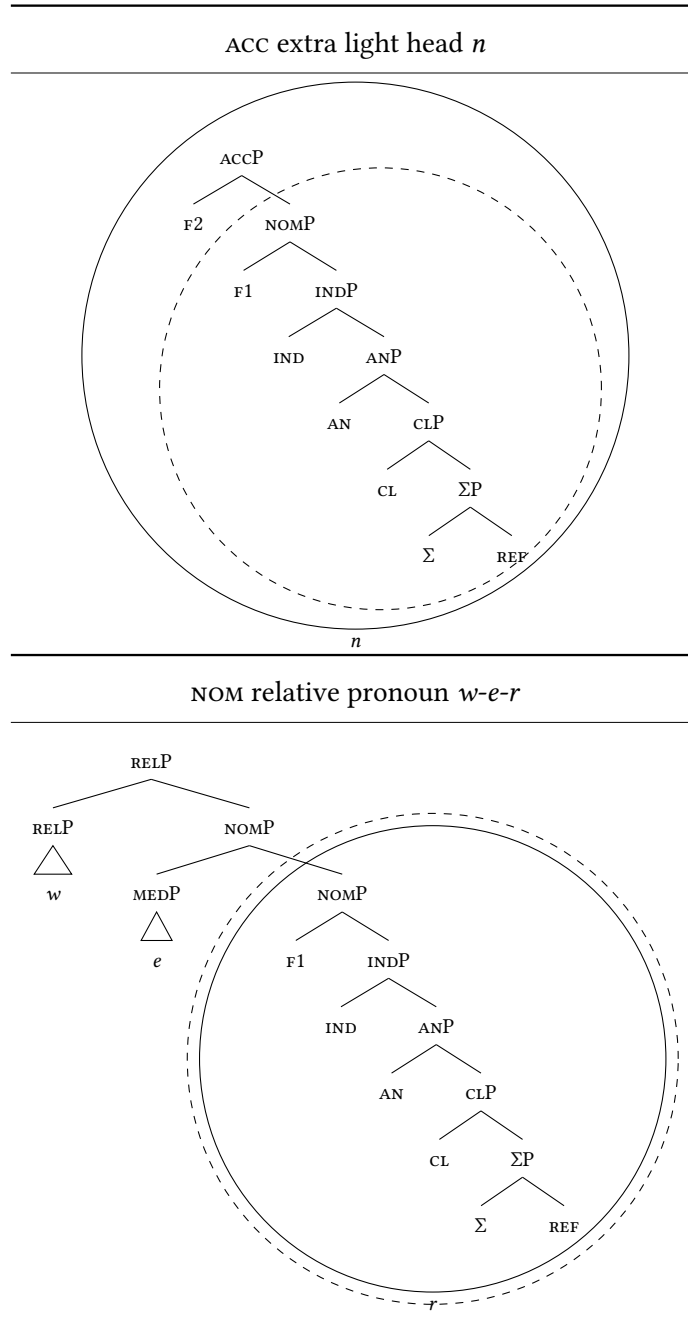
In Figure 7.3, I give the syntactic structure of the extra light head at the top and the syntactic structure of the relative pronoun at the bottom.

The relative pronoun consists of three morphemes: *w*, *e* and *r*. The extra light head consists of two morphemes: *a* and *n*. Again, I circle the part of the structure that corresponds to a particular lexical entry, and I place the corresponding phonology under it. I draw a dashed circle around each constituent that is a constituent in both the extra light head and the relative pronoun. Neither of the elements contains all constituents that the other element contains. The relative pronoun does not contain all constituents that the extra light head contains, and the extra light head does not contain all constituents that the relative pronoun contains. As a result, none of the elements can be absent.¹²

I explain this constituent by constituent. I start by showing that the extra light head cannot be absent. Consider the right-most constituent of the extra light head that spells out as *n* (ACCP). This constituent is not a constituent in the relative pronoun: the relative pronoun has a constituent *NOMP*, but it does not contain *F2* to make it an *ACCP*. The extra light head has a constituent that is not a constituent in the relative pronoun, so the extra light head cannot be absent.

The relative pronoun can also not be absent. Consider the middle constituent of the relative pronoun that spells out as *e* (*MEDP*). This constituent is not a constituent in the extra light head: the extra light head has a constituent *MEDP*, but it does

¹²Why do we not see this result surface? Very good question.

Figure 7.3: Modern German EXT_{ACC} VS. $\text{INT}_{\text{NOM}} \rightarrow w-e-r/n$

not contain DX_3 to make it an MEDP. The same hold for the left-most constituent of the relative pronoun that spells out as w (REL P). The extra light head lacks the features WH and REL that form the REL P . The relative pronoun has constituents that are not constituents in the extra light head, so the relative pronoun cannot be absent. In sum, neither of the elements contains all constituents that the other element contains, and none of the elements can be absent, so none of them is marked gray.

Chapter 8

Deriving the matching type

Matching languages can be summarized as in Table 8.1.

Table 8.1: The surface pronoun with differing cases in Polish

	$K_{INT} > K_{EXT}$	$K_{EXT} > K_{INT}$	
matching	*	*	Polish

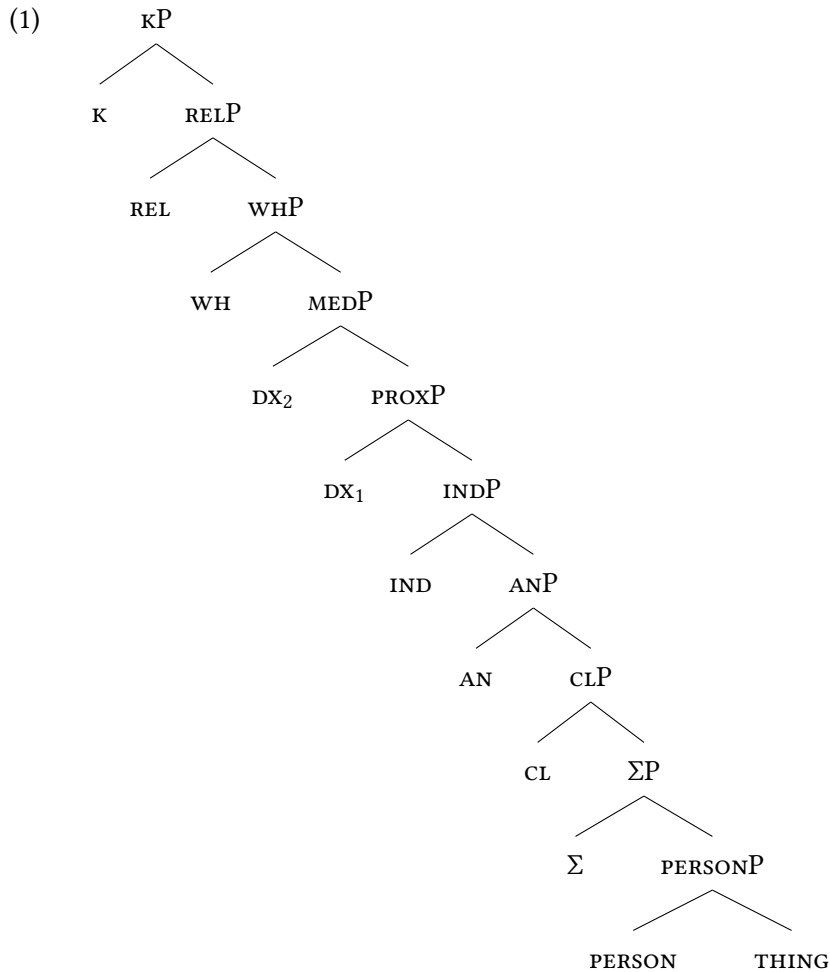
A language of the matching type (like Polish) allows neither the internal nor the external case to surface when either of them wins the case competition. Only when the internal and external case match, there is a grammatical outcome. This means that neither the relative pronoun with a more complex internal case nor the light head with a more complex external case can be the surface pronoun. The goal of this section is to derive these properties from the way light heads and relative pronouns are spelled out in Polish.

The section is structured as follows. First, I discuss the relative pronoun. I decompose it into three morphemes, and I show which features each morpheme corresponds to. Then I discuss the light head. I argue that Polish headless relatives are derived from light-headed relative clauses that do not surface in the language. I show that the features of the light head are spread over two morphemes. The fact that the light head has two morphemes is what leads Polish to be a matching type of language.

Finally, I compare the constituents of the light head and the relative pronoun. When the internal and the external case match, the relative pronoun can delete the light head, because the light head forms a single constituent within the relative pronoun. When the internal case is more complex than the external case, the light head is not a single constituent within the relative pronoun anymore. The relative pronoun contains all features of the light head, but they are spread over separate constituents. As a result, there is no grammatical form to surface when the internal case is more complex. When the external case is more complex than the internal case, the relative pronoun is not a single constituent within the light head. The relative pronoun contains features that are not part of the light head. As a result, there is no grammatical form to surface when the internal case is more complex.

8.1 The relative pronoun

In this section I discuss the internal structure of relative pronoun in Polish headless relatives. In Section 7.1 I argued that Modern German relative pronouns consist of the features given in the functional sequence in (1).



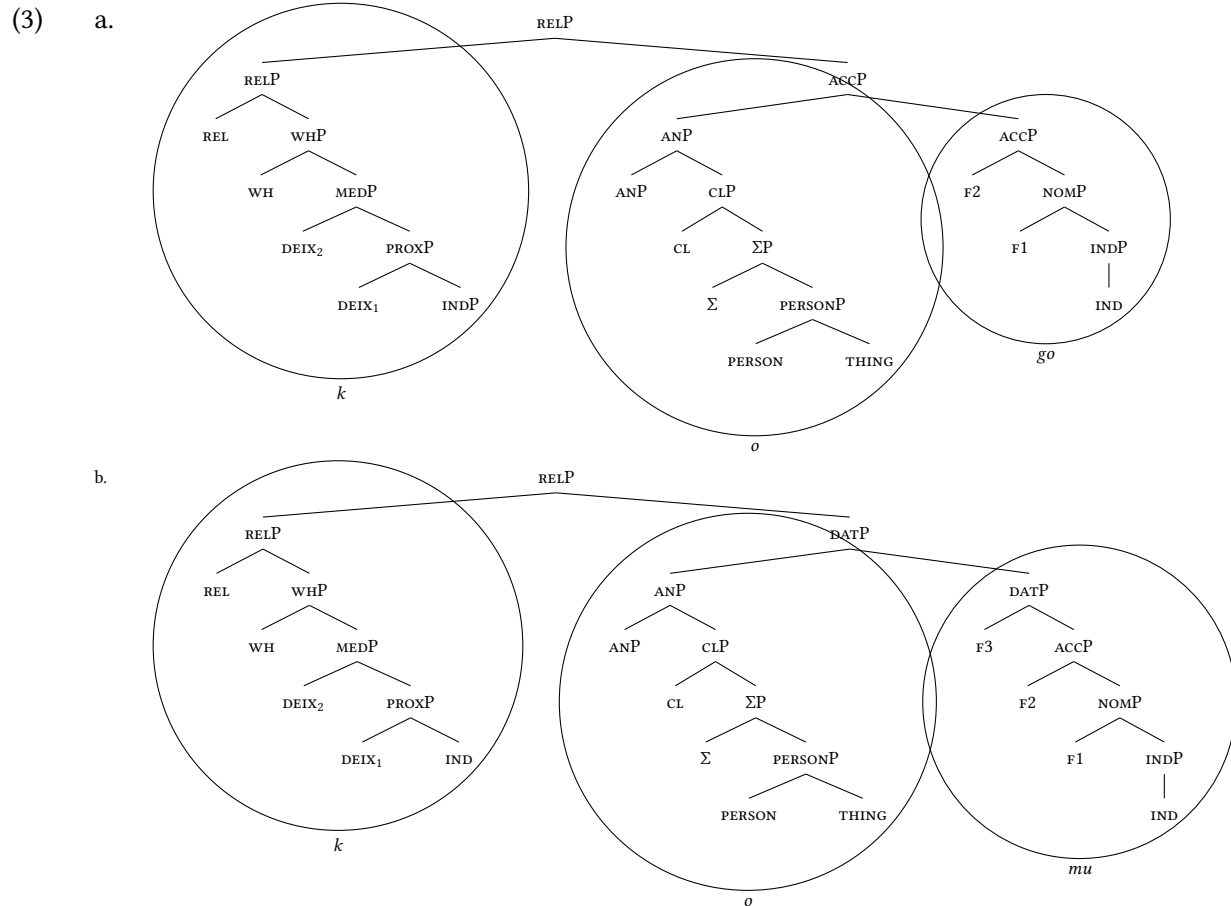
As I pointed out in Chapter 6, I propose that the difference between Modern German and Polish headless relatives comes from whether the relative pronoun can delete the light head. This depends on whether the light head forms a constituent within the relative pronoun. That, in turn, depends on which constituents are formed to spell out the relative pronoun and the light head. The difference in spellout is the only difference between Modern German and Polish: the features that are spelled out are the same ones, namely the ones in (1).

I discuss two relative pronouns: the animate accusative singular and the animate dative singular. These are the two forms that I compare the constituents of in Section

8.3. I show them in (2).

- (2) a. k-o-go
'REL.AN.SG.ACC'
b. k-o-mu
'REL.AN.SG.DAT'

I decompose the relative pronouns in three morphemes: the *k*, the *o* and the final suffix (*go* and *mu*). For each morpheme, I discuss which features they spell out, and I give their lexical entries. In the end, I derive the relative pronouns, of which I give the accusative here in (3a) and the dative here in (3b).



ideas on getting trees on
the page are very
welcome

I start with the morphemes *go* and *mu*. Consider the masculine and neuter personal pronouns in Table 8.2.¹

Table 8.2: 3SG personal pronouns (Swan 2002: 156)

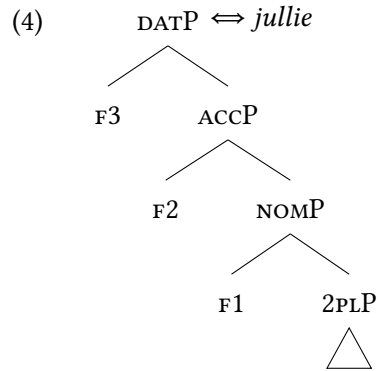
	M.SG	N.SG
ACC	je-go	je
GEN	je-go	je-go
DAT	je-mu	je-mu

Notice that the morpheme *mu* does not only appear as the dative suffix in the masculine, but also in the neuter. The morpheme *go* appears as the accusative and genitive suffix in the masculine and as the genitive suffix in the neuter.² Moreover, the complete pronouns are syncretic: in all cases, the suffix combines with the morpheme *je*. I set up a system that can derive the syncretism between the two genders. Doing this allows me to establish which features the morphemes *go* and *mu* spell out.

I discussed in Chapter 3 that syncretisms can be derived in Nanosyntax via the Superset Principle. The lexicon contains a lexical entry that is specified for the form that corresponds to the most features. To illustrate this, I repeat the lexical entry for the Dutch *jullie* ‘you’ in (4).

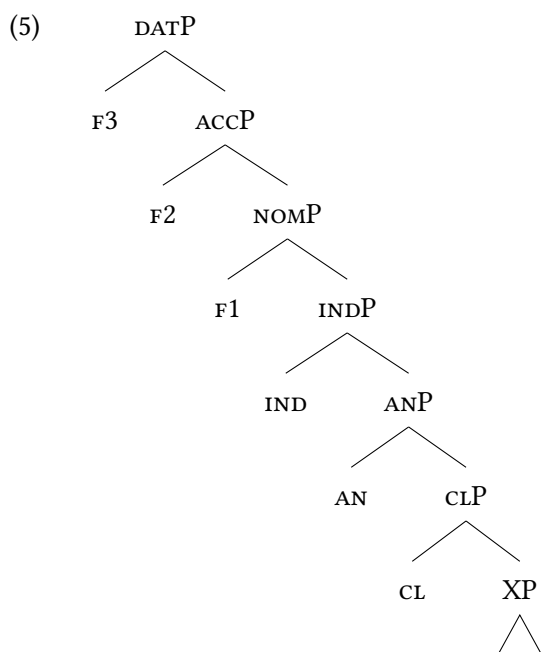
¹Polish has three types of third person pronouns (Swan 2002: 156-157). Not all types of pronouns exist for all numbers and genders, but they do for the masculine accusative and dative singular. *Je*-pronouns are used in clause-initial position or when emphasis or a contrast is expressed. *Ni*-pronouns are used after prepositions. Clitics are used in non-stressed contexts. The only third person clitics that exist are *go* and *mu*. According to Franks, Junghanns, and Law (2004: 22), these clitics are not ‘real’ clitics, since they syntactically behave like phrases. The deficiency is only just prosodic.

²I include genitive in the paradigms to show that the patterns observed in the dative are not standing on themselves. Instead, they are more generally attested in Polish, and they deserve an explanation. However, I do not incorporate them in the syntactic structures. The reason for that is that the genitive in Polish is comes between the accusative and the dative, i.e. it is more complex than the accusative and less complex than the dative. This does not change anything about the main point about case I want to make: the dative is more complex than the accusative.

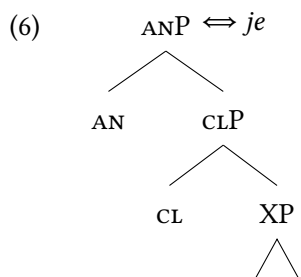


jullie is syncretic between nominative, accusative and dative. It is specified for dative in the lexicon, because the dative contains the accusative and the nominative. The nominative and accusative second person plural in Dutch are spelled out as *jullie* as well, because the DATP contains the ACCP which contains NOMP (Superset Principle), and there is no more specific lexical entry available in Dutch (Elsewhere Condition). It is important that the potentially unused features (so the F3 or F3 and the F2) are at the top, so that the constituent that needs to be spelled out is still contained in the lexical tree.

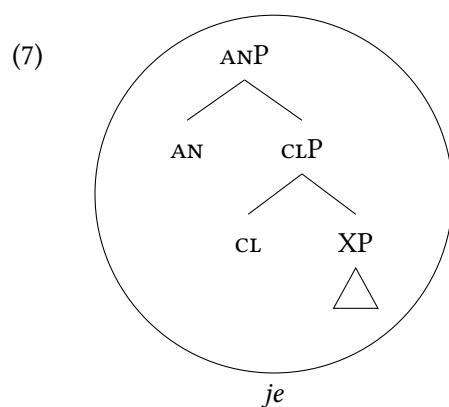
I show how I get this syncretism for *jemu*. Different from *jullie*, *jemu* consists of two morphemes: *je* and *mu*. I give the functional sequence that I assume *jemu* spells out. These are case features up to the dative, the feature IND for singular number, the gender features CL and AN and some XP for whatever other features *jemu* contains.



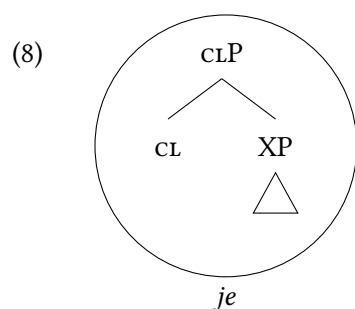
The morpheme *je* is syncretic between the masculine and neuter. That means that the highest feature in the lexical tree needs to be the feature AN. I give the lexical entry in (6).



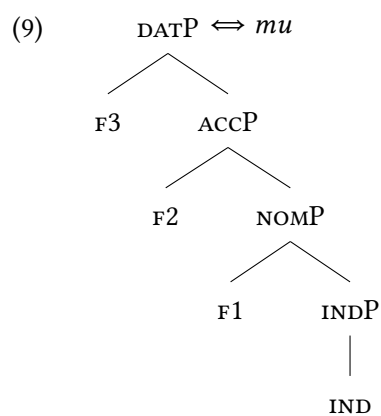
When the lexical entry for *je* is as in (6), it can be inserted if there is a animate or an inanimate syntactic structure. In (7) I give a syntactic structure of an animate. The syntactic structure forms a constituent within the lexical tree in (6), and the structure can be spelled out as *je*.



In (8) I give a syntactic structure of an animate. The syntactic structure also forms a constituent within the lexical tree in (6), and the structure can be spelled out as *je*.

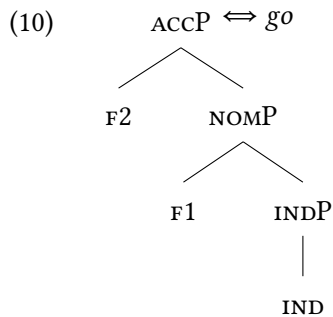


What follows from this is that the lexical trees for the suffix *mu* should contain all features in (5) that are not spelled out by *je* so far. These are the feature **IND** and all case features up to the dative. I give the lexical entry for *mu* in (9).



Notice here that *mu* has a unary bottom. Therefore, it can be inserted as the result of movement. That means that the lexical entry follows the existing structure and is spelled out as a suffix. This is how the correct order of *je* and *mu* comes about. I show how this works when I construct the relative pronouns.

The morpheme *go* is not used in the accusative neuter, but it is in the genitive. What I take away from this is that the morpheme *go* needs to have IND as the lowest feature too, so that it can combine with the feature AN if that is present and with the feature CL if AN is absent. I give the lexical entry for *go* in (10).



I continue with the morpheme *k*. I argue that *k* spells out five features: WH, REL, DX₁, DX₂ and IND. I discuss them one by one.

I start with the operator features WH and REL. Compare the animate relative pronoun to the masculine demonstrative in Table 8.3.

Table 8.3: Polish relative pronouns and demonstratives (Swan 2002: 160,171)

	REL.AN	DEM.M
NOM	kto	t-en
ACC	k-ogo	t-ego
GEN	k-ogo	t-ego
DAT	k-omu	t-emu

The relative pronouns are WH-pronouns, which are also used as interrogatives in Polish. Therefore, just like the Modern German *w*, the Polish *k* spells out the features WH and REL.

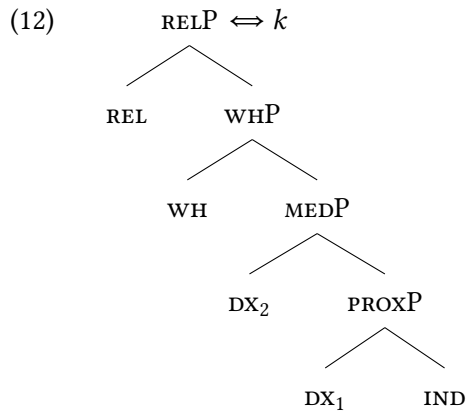
I continue with the deixis features. Consider Table 8.3 again. The *k* and the *t* combine with the same endings, which identifies both of them as a morpheme. Unlike Modern German, Polish demonstratives are not marked for definiteness. The demonstratives I gave in Table 8.3 are used as proximal and medial. I give an example in (11a). There is a separate marker for the distal, as shown in (11b).

- (11) a. to auto
DEM.PROX/MED car.N.NOM
- b. tam-to auto
DEM.DIST car.N.NOM

(Polish, Wiland 2019: 93)

The *t* in (11a) spells out deixis features: DX_1 and DX_2 features. As the *t* is not present in the relative pronoun (compare e.g. *temu* and *komu* in Table 8.3), I assume that *k* spells out the deixis features itself. Finally, since the relative pronouns do not have a morphological plural, I assume that *k* contains the feature IND.

In sum, the morpheme *k* realizes the features WH, REL, DX_1 , DX_2 and IND.



I continue with the morpheme *o*. I propose that *o* spells out the features THING, PERSON, Σ , CL and AN. Compare the animate and inanimate relative pronouns in Table 8.4.

The animate and the inanimate combine with the same suffix in the genitive and the dative. They differ, however, in the initial consonant and the following vowel.

Table 8.4: Polish (in)animate relative pronouns (Swan 2002: 160)

	AN	INAM
NOM	kto	c-o
ACC	k-o-go	c-o
GEN	k-o-go	cz-e-go
DAT	k-o-mu	cz-e-mu

why is c-o? also a c and not a k? is there a way to say that it was e for quite a while before it got overridden as a o?

The animate form starts with a *k* and has the *o* as a vowel, and the inanimate form starts with a *cz* and has the *e* as a vowel. In Polish, the consonant *k* is replaced by a *cz* when it is followed by an *e* (Swan 2002: 24).^{3,4} Therefore, I assume that the change from *k* to *cz* is phonology. The lexical entry for the *o* differs from the one for the *e* in that it spells out the feature **THING** plus the feature **PERSON** (and not only the feature **THING**), and the feature **ANIMATE** plus the feature **CLASS** (and not only the feature **CLASS**).

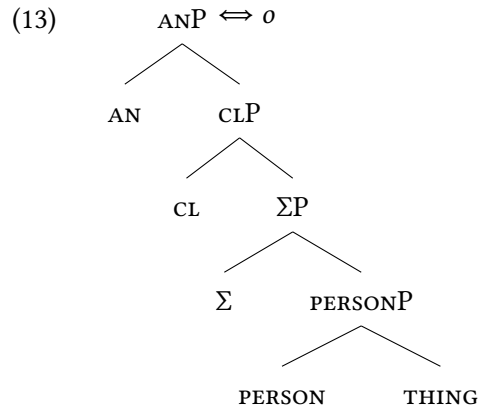
Finally, as it is a pronominal element which is not a clitic, I assume that the *o* spells out the feature Σ .

I give the lexical entry for *o* in (13).

³I assume that the change from *c* to *cz* is palatalization as a consequence of the combination of /tʂ/ and /ɛ/ (Swan 2002: 26).

⁴In demonstratives, there is no alternation between the masculines and the neuters, even though they combine with the same suffixes as WH-pronouns do. I attribute this difference to how WH-pronouns and demonstratives differ regarding gender. Demonstratives get their gender from the (possibly phonologically empty) head noun, and the gender is syntactic (i.e. it depends on the grammatical gender of the head noun). WH-pronouns do not combine with a noun, so they get their gender from themselves. I assume that this difference translates into that the demonstratives always have only **THING** as their lowest feature and WH-pronouns can have **THING** or **THING** plus **PERSON**.

with animate and person I of course have everything double now.. not sure how to deal with that yet

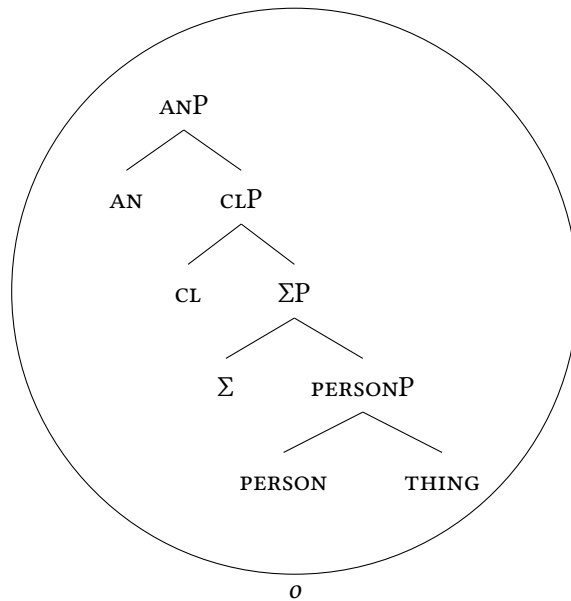


In what follows, I construct the Polish relative pronouns. I follow the same functional sequence as I did for Modern German. Also, of course, the spellout procedure is identical. The outcome is different because of the different lexical entries Polish has.

Starting from the bottom, the first two features that are merged at **THING** and **PERSON**, creating a **PERSONP**. The syntactic structure forms a constituent in the lexical tree in (13), repeated from (13), which corresponds to the *o*. Therefore, the **PERSONP** is spelled out as *o*, which I do not show here.

The features Σ , **CL** and **AN** are merged and spelled out in the same way. First, the feature Σ is merged, and a ΣP is created. The syntactic structure forms a constituent in the lexical tree in (13). Therefore, the ΣP is spelled out as *o*. Then, the feature **CL** is merged, and a **CLP** is created. The syntactic structure forms a constituent in the lexical tree in (13). Therefore, the **CLP** is spelled out as *o*. Finally, the feature **AN** is merged, and a **ANP** is created. The syntactic structure forms a constituent in the lexical tree in (13). Therefore, the **CLP** is spelled out as *o*, shown in (14).

(14)



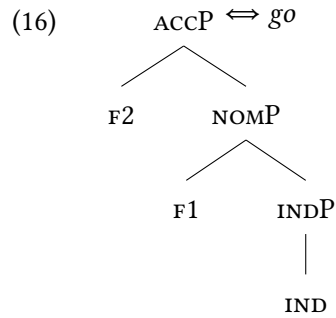
The next feature in the functional sequence is the feature *IND*. This feature cannot be spelled out as the other ones before. The feature *IND* is merged, and a *INDP* is created. This syntactic structure does not form a constituent in the lexical tree in (13). There is also no other lexical tree that contains the syntactic structure as a constituent. Therefore, there is no successful spellout for the syntactic structure in the derivational step in which the structure is spelled out as a single phrase ((15a) in the Spellout Algorithm, repeated from Chapter 7).

(15) **Spellout Algorithm** (as in Caha 2020a, based on Starke 2018)

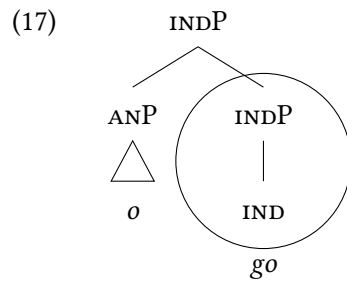
- a. Merge *F* and spell out.
- b. If (a) fails, move the Spec of the complement and spell out.
- c. If (b) fails, move the complement of *F* and spell out.

The first movement option in the Spellout Algorithm is moving the specifier, as described in (15b). As there is no specifier in this structure, so the first movement option is irrelevant. The second movement option in the Spellout Algorithm is moving the complement, as described in (19c). In this case, the complement of *IND*, the *ANP*, is moved to the specifier of *INDP*. The *INDP* is a different constituent now. It still contains the feature *IND*, but it no longer contains the *ANP*. The syntactic structure

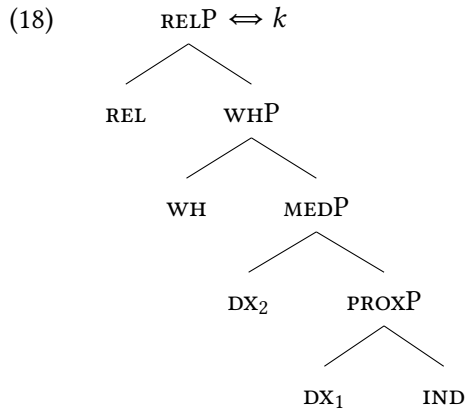
forms a constituent in the lexical tree in (16).



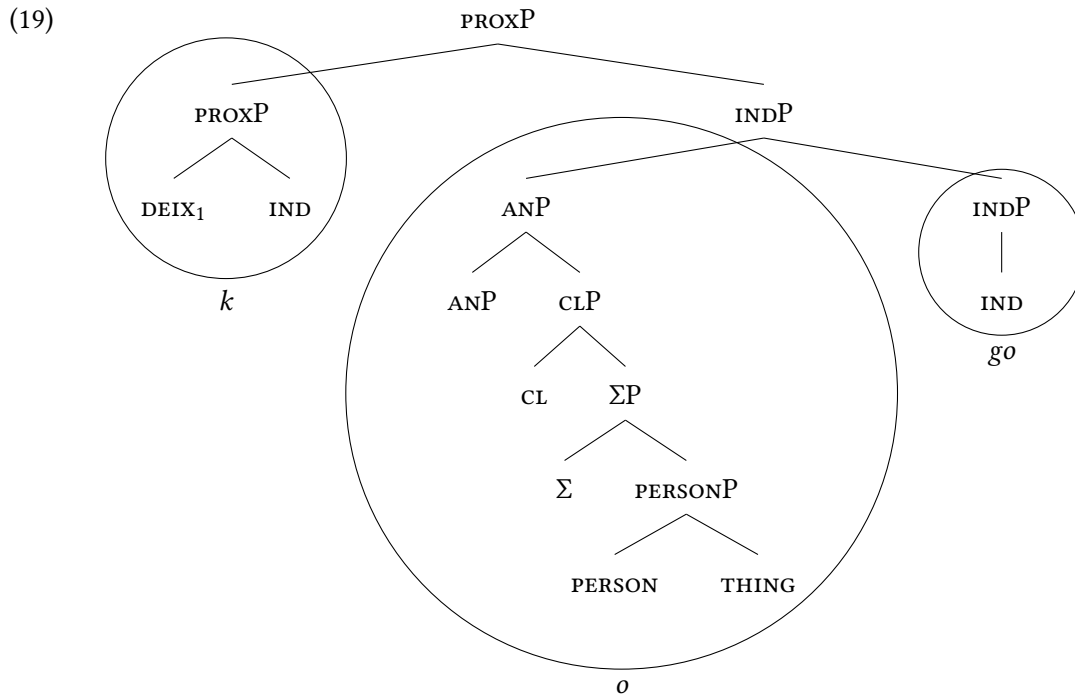
Therefore, the INDP is spelled out as *go*, as shown in (17).



The next feature in the functional sequence is the feature DX_1 . The derivation for this feature resembles the derivation of DX_1 in Modern German. The feature is merged with the existing syntactic structure, creating a $PROXP$. This structure does not form a constituent in any of the lexical trees in the language's lexicon, and neither of the spellout driven movements leads to a successful spellout. Therefore, in a second workspace, the feature DX_1 is merged with the feature IND (the previous syntactic feature on the functional sequence) into a $PROXP$. This syntactic structure forms a constituent in the lexical tree in (18), repeated from (12), which corresponds to *k*.



Therefore, the PROXP is spelled out as *k*. The newly created phrase is merged as a whole with the already existing structure, and projects to the top node, as shown in (19).



The next feature in the functional sequence is the feature dx_2 . The derivation for this feature resembles the derivation of dx_2 in Modern German. The feature is merged

with the existing syntactic structure, creating a MEDP. This structure does not form a constituent in any of the lexical trees in the language's lexicon, and neither of the spellout driven movements leads to a successful spellout. Backtracking leads splitting up the PROXP from the INDP. The feature DX_2 is merged in both workspaces, so with PROXP and and with INDP. The spellout of DX_2 is successful when it is combined with the PROXP. It namely forms a constituent in the lexical tree in (18), which corresponds to the k . The MEDP is spelled out as k , and the MEDP is merged back to the existing syntactic structure.

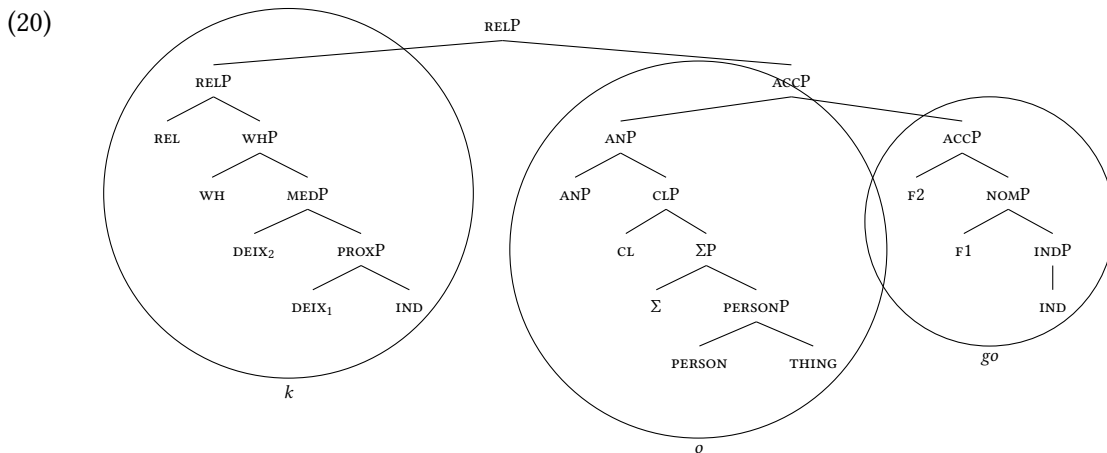
The derivations for the features WH and REL happen the same way. The feature WH is merged with the existing syntactic structure, creating a WHP. This structure does not form a constituent in any of the lexical trees in the language's lexicon, and neither of the spellout driven movements leads to a successful spellout. Backtracking leads splitting up the INDP from the INDP. The feature WH is merged in both workspaces, so with MEDP and and with INDP. The spellout of WH is successful when it is combined with the MEDP. It namely forms a constituent in the lexical tree in (18), which corresponds to the k . The WHP is spelled out as k , and the WHP is merged back to the existing syntactic structure.

Similarly, the feature REL is merged with the existing syntactic structure, creating a RELP. This structure does not form a constituent in any of the lexical trees in the language's lexicon, and neither of the spellout driven movements leads to a successful spellout. Backtracking leads splitting up the WHP from the INDP. The feature REL is merged in both workspaces, so with WHP and and with INDP. The spellout of REL is successful when it is combined with the MEDP. It namely forms a constituent in the lexical tree in (18), which corresponds to the k . The RELP is spelled out as k , and the RELP is merged back to the existing syntactic structure.

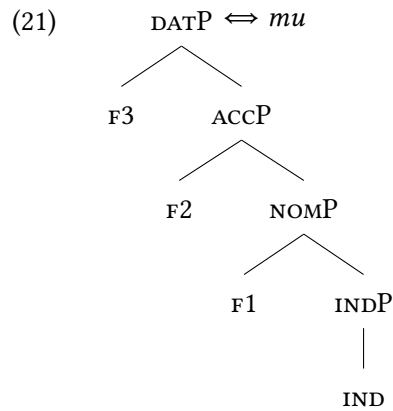
The next feature on the functional sequence is F1. This feature should somehow end up merging with INDP, because it forms a constituent in the lexical tree in (16), which corresponds to the *go*. This is achieved via Backtracking in which phrases are split up and going through the Spellout Algorithm. I go through the derivation step by step. The feature F1 is merged with the existing syntactic structure, creating a NOMP. This structure does not form a constituent in any of the lexical trees in the language's lexicon, and neither of the spellout driven movements leads to a successful spellout. Backtracking leads splitting up the RELP from the INDP. The feature F1

is merged in both workspaces, so with the RELP and and with the INDP. None of these phrases form a constituent in any of the lexical trees in the language's lexicon. The first movement option in the Spellout Algorithm is moving the specifier. In the RELP there is no specifier, so this movement option is irrelevant. In the INDP, however, there is a specifier, which is moved to the specifier of NOMP. This syntactic structure forms a constituent in the lexical tree in (16), which corresponds to the *go*. The NOMP is spelled out as *go*, and the NOMP is merged back to the existing syntactic structure.

For the accusative relative pronoun, the last feature on the functional sequence is the feature F2. Its derivation preceeds the same as the one for the feature F1. The feature F2 is merged with the existing syntactic structure, creating a ACCP. This structure does not form a constituent in any of the lexical trees in the language's lexicon, and neither of the spellout driven movements leads to a successful spellout. Backtracking leads splitting up the RELP from the NOMP. The feature F2 is merged in both workspaces, so with the RELP and and with the NOMP. None of these phrases form a constituent in any of the lexical trees in the language's lexicon. The first movement option in the Spellout Algorithm is moving the specifier. In the RELP there is no specifier, so this movement option is irrelevant. In the NOMP, however, there is a specifier, which is moved to the specifier of ACCP. This syntactic structure forms a constituent in the lexical tree in (16), which corresponds to the *go*. The ACCP is spelled out as *go*, and the ACCP is merged back to the existing syntactic structure.

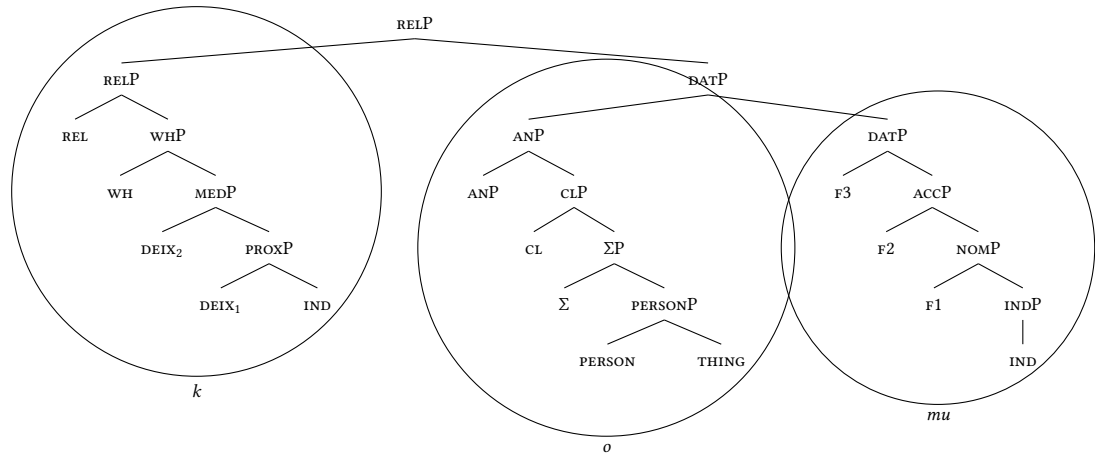


For the accusative relative pronoun, the last feature on the functional sequence is the feature F3. Its derivation preceeds the same as the one for the feature F2. The feature F3 is merged with the existing syntactic structure, creating a DATP. This structure does not form a constituent in any of the lexical trees in the language's lexicon, and neither of the spellout driven movements leads to a successful spellout. Backtracking leads splitting up the RELP from the ACCP. The feature F3 is merged in both workspaces, so with the RELP and and with the ACCP. None of these phrases form a constituent in any of the lexical trees in the language's lexicon. The first movement option in the Spellout Algorithm is moving the specifier. In the RELP there is no specifier, so this movement option is irrelevant. In the ACCP, however, there is a specifier, which is moved to the specifier of DATP. This syntactic structure forms a constituent in the lexical tree in (21), which corresponds to the *mu*.



The DATP is spelled out as *mu*, and the DATP is merged back to the existing syntactic structure.

(22)



To summarize, I decomposed the relative pronoun into the three morphemes *k*, *o* and the suffix (*go* and *mu*). I showed which features each of the morphemes spells out, and in which constituents the features are combined. It is these constituents that determine whether the relative pronoun can delete the light head or not.

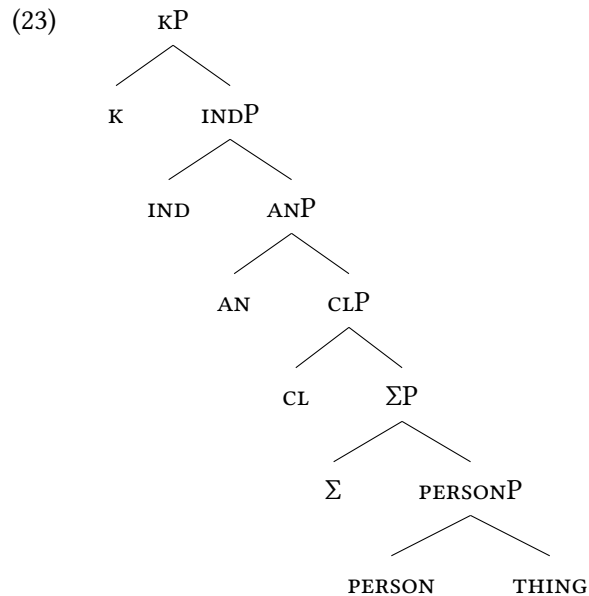
8.2 The (extra) light head

In my proposal, headless relatives are derived from light-headed relatives. The relative pronoun can delete the light head when the relative contains the light head as a single constituent. I suggest that this only holds for Polish when the internal and the external case match. In the previous section, I gave the internal structure of the Polish relative pronoun, i.e. which constituents the relative pronoun consists of. In this section, I show the internal structure of the Polish light head.

I take the functional sequence of the extra light head in Modern German, and I show how these features are spelled out in Polish. In Modern German the extra light head spells out as a single constituent, in Polish it consists of two constituents. This is what leads Polish to be of a different language type than Modern German. Just like for Modern German, the extra light head is not attested in existing light-headed relatives in Polish. For Modern German, I gave two reasons for not taking the existing light-headed relative as source of the headless relative. I show both of them hold for Polish too.

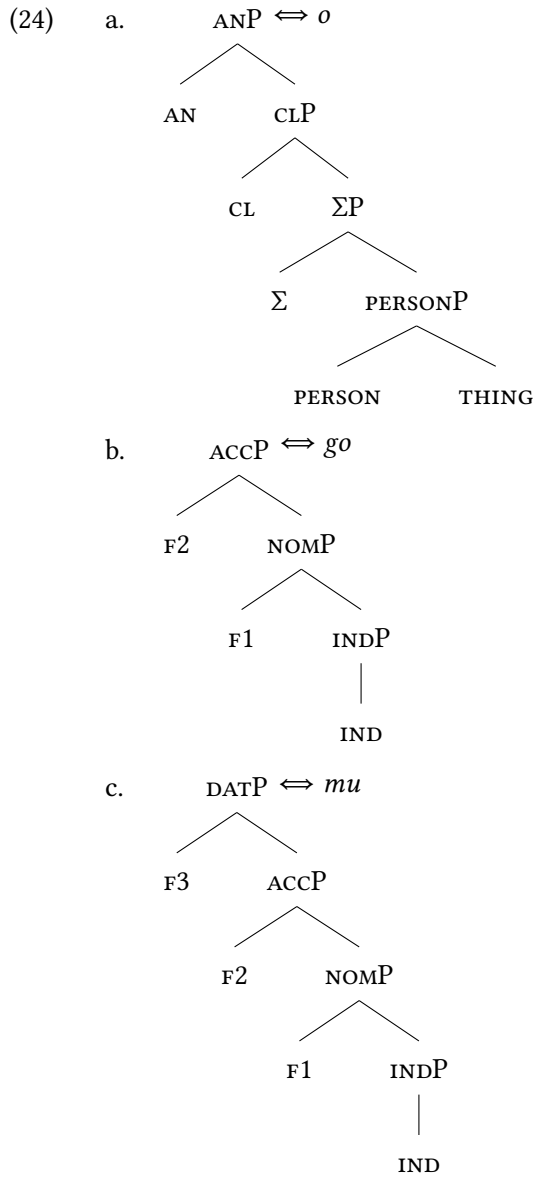
In Section 7.3, I argued for a particular feature content of the extra light head

in Modern German. In my proposal, the difference in spellout is the only difference between Modern German and Polish: the features that are spelled out are the same ones. Therefore, I assume that the extra light head in Polish spells out the same features as the extra light head in Modern German. I give the functional sequence for the extra light head in (23).



The κP is a placeholder for multiple case projections. When the extra light head is the accusative, the κP consists of the features $F1$ and $F2$, and they form the $ACC P$. When the extra light head is the dative, the κP consists of the features $F1$, $F2$ and $F3$, and they form the $DAT P$.

Three lexical entries are needed to spell out the accusative and dative extra light heads. I motivated their feature content in Section 8.1. The morpheme *o* spells out the features $THING$, $PERSON$, Σ , CL and AN , as shown in (24a). The morpheme *go* spells out the features IND , $F1$ and $F2$, as shown in (24b). The morpheme *mu* spells out the features that *go* spells out plus the feature $F3$, as shown in (24c).

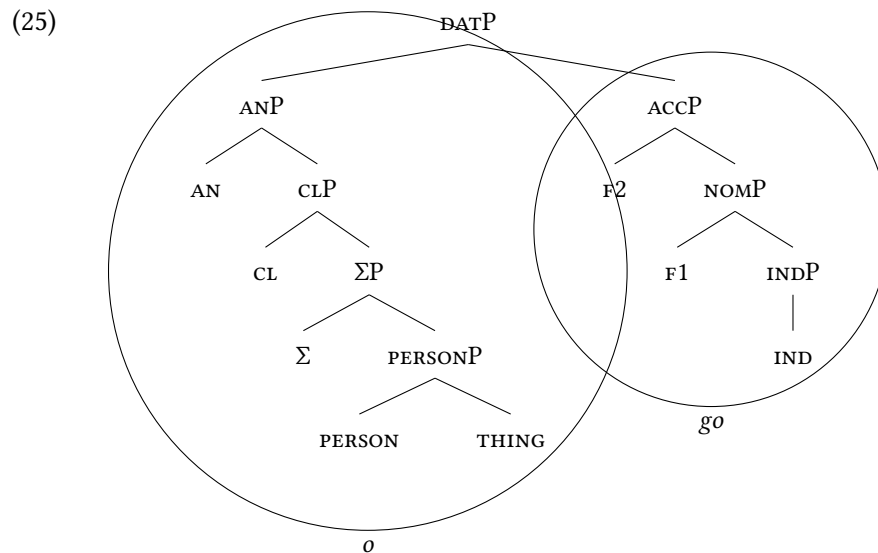


The accusative extra light head is derived as follows. The feature `PERSON` is merged with the feature `THING`, forming the `PERSONP`. This phrase is contained in the lexical tree in (24a), so it is spelled out as *o*. The feature `Σ` is merged with the `PERSONP`, forming the `ΣP`. This phrase is contained in the lexical tree in (24a), so it is spelled out as *o*. The feature `CL` is merged with the `ΣP`, forming the `CLP`. This phrase is

contained in the lexical tree in (24a), so it is spelled out as *o*. The feature AN is merged with the CLP, forming the ANP. This phrase is contained in the lexical tree in (24a), so it is spelled out as *o*.

The feature IND is merged with the ANP, forming the INDP. This phrase (an INDP containing more features besides IND) is not contained in any of the lexical entries in (24). There is no specifier to move, so the first movement in the spellout algorithm is irrelevant. The second movement is tried: the complement of IND, the ANP, is moved to the specifier of INDP. This phrase is contained in the lexical tree in (24b), so it is spelled out as *go*. The feature F1 is merged with the INDP, forming an NOMP. This phrase is not contained in any of the lexical entries in (24). The first movement is tried: the specifier of the INDP, the ANP, is moved to the specifier of NOMP. This phrase is contained in the lexical tree in (24b), so it is spelled out as *go*. The feature F2 is merged with the NOMP, forming an ACCP. This phrase is not contained in any of the lexical entries in (24). The first movement is tried: the specifier of the NOMP, the ANP, is moved to the specifier of ACCP. This phrase is contained in the lexical tree in (24b), so it is spelled out as *go*.

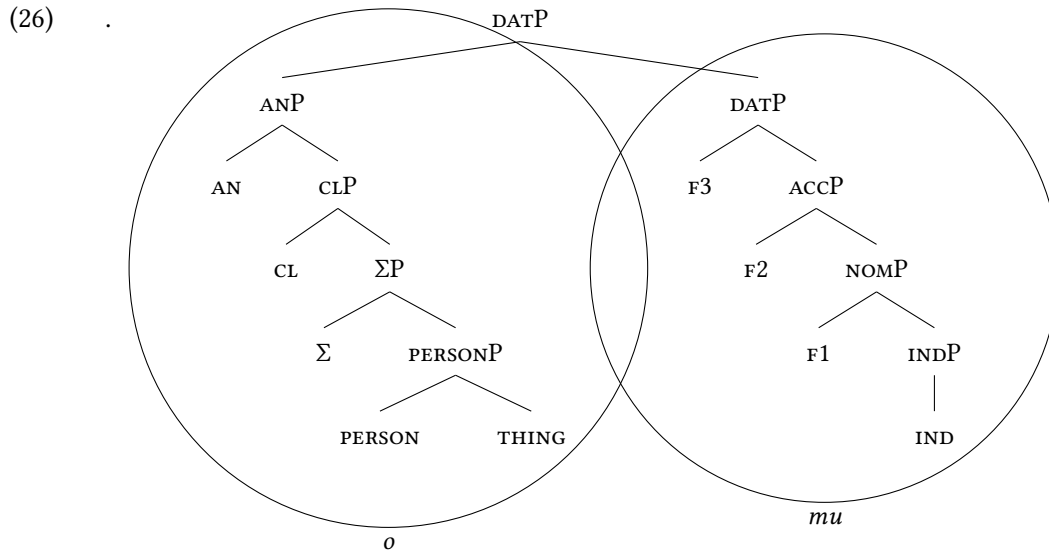
The accusative animate extra light head is shown in (25).



The dative animate extra light head is constructed as its accusative counterpart, except for that the feature F3 is added to create a dative.

The feature F3 is merged with the ACCP, forming an DATP. This phrase is not contained in any of the lexical entries in (24). The first movement is tried: the specifier of the ACCP, the ANP, is moved to the specifier of DATP. This phrase is contained in the lexical tree in (24c), so it is spelled out as *mu*.

The dative animate extra light head is shown in (26).



So, the light-headed relative that headless relatives are derived from is:

- (27) Jan lubi [ogo] kogo -kolkwiek Maria lubi.
 Jan like.3SG_[ACC] ELH.ACC.AN REL.ACC.AN ever Maria like.3SG_[ACC]
 ‘Jan likes whoever Maria likes.’
 (Polish, adapted from Citko 2013 after Himmelreich 2017: 17)

For Modern German, I considered two kinds of light-headed relatives as the source of the headless relative. First, the light-headed relative is derived from an existing light-headed relative, and the deletion of the light head is optional. Second, the light-headed relative is derived from a light-headed relative that does not surface in Modern German, and the deletion of the light head is obligatory. For Modern German I concluded it was the second, and I proposed which features this extra light head should consist of. This set of features in Polish corresponds to the extra

light head *ogo* or *omu*, which is not attested as a light head in an existing light-headed relative in Polish.

In the rest of this section I consider the existing Polish light-headed relative that could potentially be the source for headless relatives. This is the light-headed relative that in which the demonstrative is the light head, as shown in (28).

- (28) Jan śpiewa to, co Maria śpiewa.
 Jan sings DEM.M.SG.ACC REL.AN.ACC Maria sings
 ‘John sings what Mary sings.’ (Polish, Citko 2004: 103)

For Modern German, I gave two arguments for not taking this existing light-headed relative as source of the headless relative. In what follows, I show that these arguments hold for Polish in the same way do for Modern German.

First, in headless relatives the morpheme *kolwiek* ‘ever’ can appear, as shown in (29).

- (29) Jan śpiewa co -kolwiek Maria śpiewa.
 Jan sings REL.AN.ACC ever Maria sings
 ‘Jan sings everything Maria sings.’ (Polish, Citko 2004: 116)

Light-headed relatives do not allow this morpheme to be inserted, illustrated in (30).

- (30) *Jan śpiewa to, co -kolwiek Maria śpiewa.
 Jan sings DEM.M.SG.ACC REL.AN.ACC ever Maria sings
 ‘John sings what Mary sings.’ (Polish, Citko 2004: 116)

Just like for Modern German, I assume that the headless relative is not derived from an ungrammatical structure.⁵

⁵Citko (2004) takes the complementary distribution of *kolwiek* ‘ever’ and the light head to mean that they share the same syntactic position. I have nothing to say about the exact syntactic position of *ever*, but in my account it cannot be the head of the relative clause, as this position is reserved for the extra light head. My reason for the incompatibility of *ever* and the light head is that they are semantically incompatible.

For concreteness, I assume *ever* to be situated within the relative clause. Placing it in the main clause generates a different meaning, illustrated by the contrast in meaning between (ia) and (ib) in Czech.

The second argument against the existing light-headed relatives being the source of headless relatives comes from their interpretation. Headless relatives have two possible interpretations, and light-headed relatives have only one of these. Just like in Modern German, Polish headless relatives can be analyzed as either universal or definite (Citko 2004: 103). Light-headed relatives, such as the one in (28), only have the definite interpretation.

In sum, just like Modern German, Polish headless relatives do not seem to be derived from light-headed relatives in which the light head is a demonstrative. A difference between Polish and Modern German demonstratives is that Polish ones do not spell out definite features. The fact that Polish demonstratives are also not the light head of a headless relative confirm that deixis features have to be absent from the extra light head.

8.3 Comparing constituents

In this section, I compare the constituents of extra light heads to those of relative pronouns in Polish. I give three examples, in which the internal and external case vary. I start with an example with matching cases: the internal and the external case are both accusative. Then I give an example in which the internal case is more complex than the external case: the internal case is the dative and the external case is the accusative. I end with an example in which the external case is more complex than the internal case: the internal case is the accusative and the external case is the dative. In Polish, a matching language, only the first example is grammatical. I derive this by showing that only in this situation the relative pronoun can delete the light head. When the cases match, the light head forms namely a constituent that is contained in the structure of the relative pronoun.

-
- (i) a. Sním, co -koliv mi uvaříš.
eat.1sg what ever I.DAT cook.2SG
'I will eat whatever you will cook for me.'
- b. Sním co -koliv, co mi uvaříš.
eat.1sg what ever what I.DAT cook.2SG
'I will eat anything that you will cook for me.'
- (Czech, Šimík 2016: 115)

I start with the matching cases. Consider the example in (31), in which the internal accusative case competes against the external accusative case. The relative clause is marked in bold. The internal case is accusative, as the predicate *lubić* ‘to like’ takes accusative objects. The relative pronoun *kogo* ‘REL.AN.ACC’ appears in the accusative case. This is the element that surfaces. The external case is accusative as well, as the predicate *lubić* ‘to like’ also takes accusative objects. The extra light head *ogo* ‘ELH.AN.ACC’ appears in the accusative case. It is placed between square brackets because it does not surface.

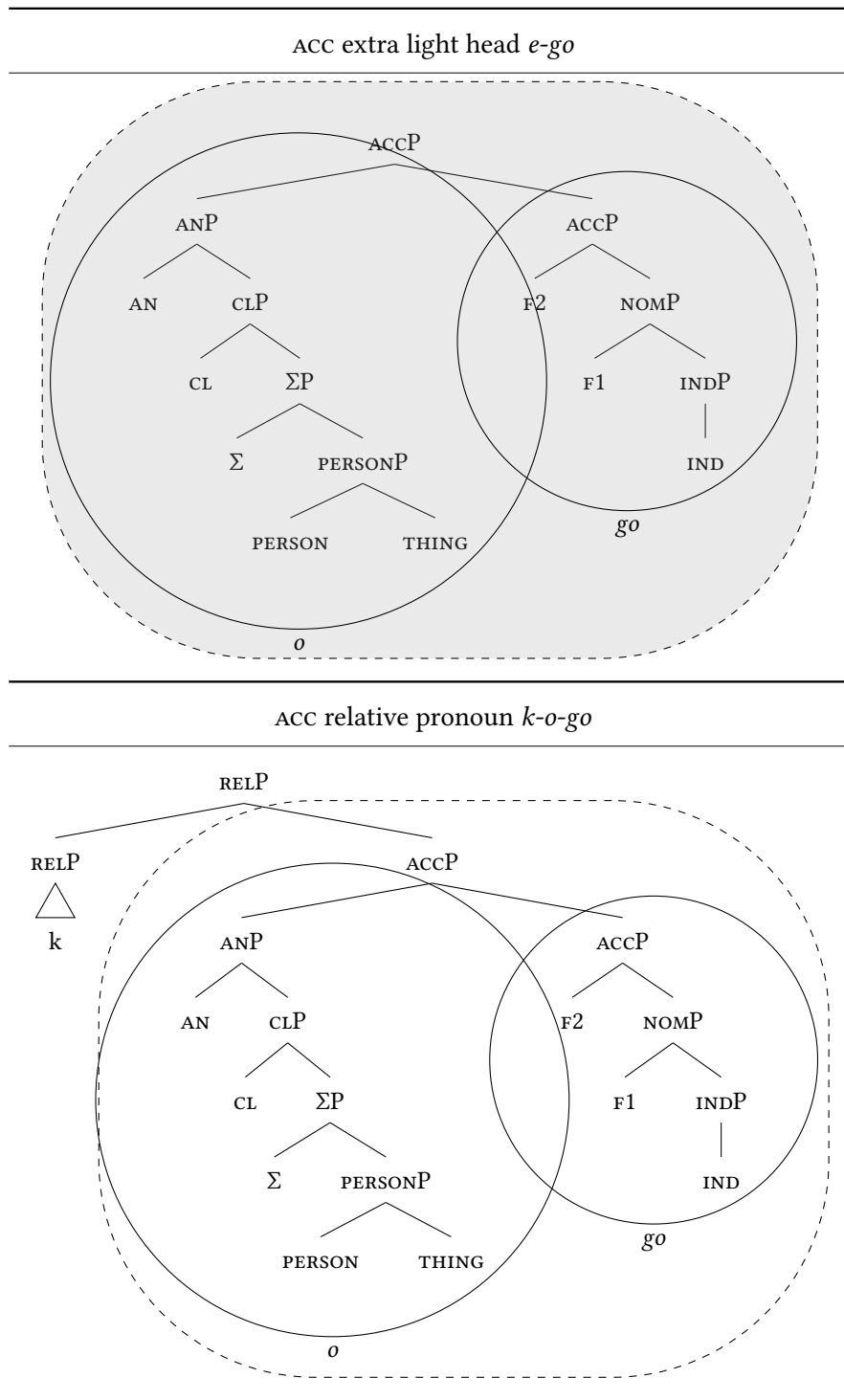
- (31) Jan lubi [ogo] **kogo** -kolkwiek Maria lubi.
 Jan like.3SG_[ACC] DEM.ACC.AN.SG REL.ACC.AN ever Maria like.3SG_[ACC]
 ‘Jan likes whoever Maria likes.’
 (Polish, adapted from Citko 2013 after Himmelreich 2017: 17)

In Figure 8.1, I give the syntactic structure of the extra light head at the top and the syntactic structure of the relative pronoun at the bottom.

The relative pronoun consists of three morphemes: *k*, *o* and *go*. The extra light head consists of two morphemes: *o* and *go*. As usual, I circle the part of the structure that corresponds to a particular lexical entry, and I place the corresponding phonology under it. I draw a dashed circle around each constituent that is a constituent in both the extra light head and the relative pronoun.

The extra light head consists of two constituents: the ANP and the (lower) ACCP. Together they form the (higher) ACCP. This ACCP is also a constituent within the relative pronoun. Therefore, the relative pronoun can delete the extra light head. I signal the deletion of the extra light head by marking the content of its circle gray.

I continue with the example in which the internal case is more complex than the external case. Consider the examples in (32), in which the internal dative case competes against the external accusative case. The relative clauses are marked in bold. It is not possible to make a grammatical headless relative in this situation. The internal case is dative, as the predicate *dokuczać* ‘to tease’ takes dative objects. The relative pronoun *komu* ‘REL.AN.DAT’ appears in the dative case. The external case is accusative, as the predicate *lubić* ‘to like’ takes accusative objects. The extra light head *ogo* ‘ELH.AN.ACC’ appears in the accusative case. (32a) is the variant of the

Figure 8.1: Polish EXT_{ACC} vs. $\text{INT}_{\text{ACC}} \rightarrow kogo$

sentence in which the extra light head is absent (indicated by the square brackets) and the relative pronoun surfaces, and it is ungrammatical. (32b) is the variant of the sentence in which the relative pronoun is absent (indicated by the square brackets) and the extra light head surfaces, and it is ungrammatical too.

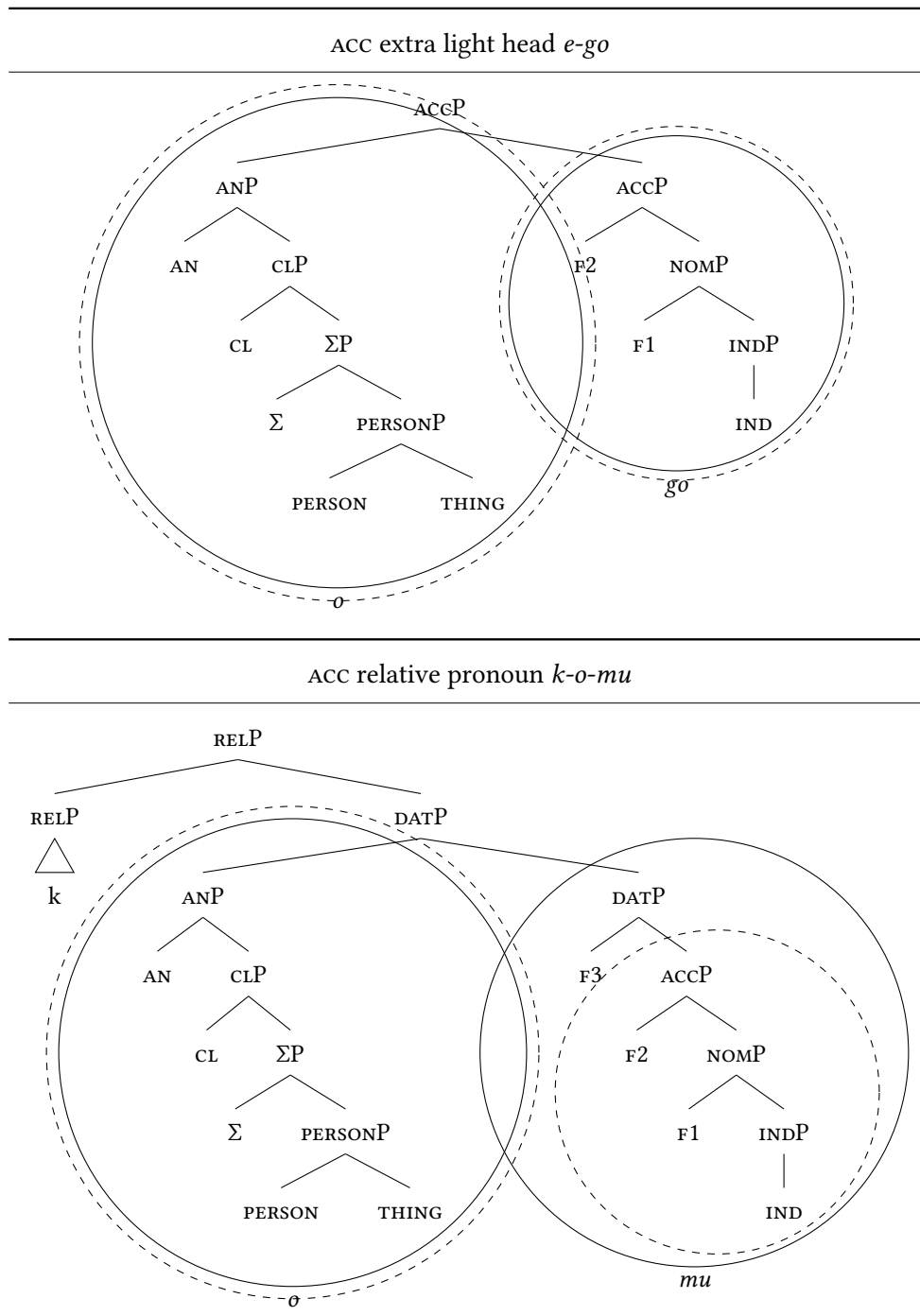
- (32) a. *Jan lubi [ogo] **komu** **-kolkwiek dokucza.**
 Jan like.3SG_[ACC] ELH.ACC.AN REL.DAT.AN.SG ever tease.3SG_[DAT]
 ‘Jan likes whoever he teases.’
 (Polish, adapted from Citko 2013 after Himmelreich 2017: 17)
- b. *Jan lubi ogo [komu] **-kolkwiek dokucza.**
 Jan like.3SG_[ACC] ELH.ACC.AN REL.DAT.AN.SG ever tease.3SG_[DAT]
 ‘Jan likes whoever he teases.’
 (Polish, adapted from Citko 2013 after Himmelreich 2017: 17)

In Figure 8.2, I give the syntactic structure of the extra light head at the top and the syntactic structure of the relative pronoun at the bottom.

The relative pronoun consists of three morphemes: *k*, *o* and *mu*. The light head consists of two morphemes: *o* and *go*. Again, I circle the part of the structure that corresponds to a particular lexical entry, and I place the corresponding phonology under it. I draw a dashed circle around each constituent that is a constituent in both the extra light head and the relative pronoun.

The extra light head consists of two constituents: the ANP and the (lower) accP. Together they form the (higher) accP. Both of these constituents are also constituents within the relative pronoun. However, the (higher) accP is not a constituent within the relative pronoun. The constituent in which the accP is contained namely also contains the feature *F3* that makes it a DATP. In other words, each feature and even each constituent of the extra light head is contained in the relative pronoun. However, they are not contained in the relative pronoun as a single constituent. Therefore, the relative pronoun cannot delete the extra light head.

Recall from Section 7.4 that this is the crucial example in which Modern German and Polish differ. The contrast lies in that the extra light head in Modern German forms a single constituent and in Polish it forms two constituents. In Modern German, relative pronouns in a more complex case contain the extra light head in a

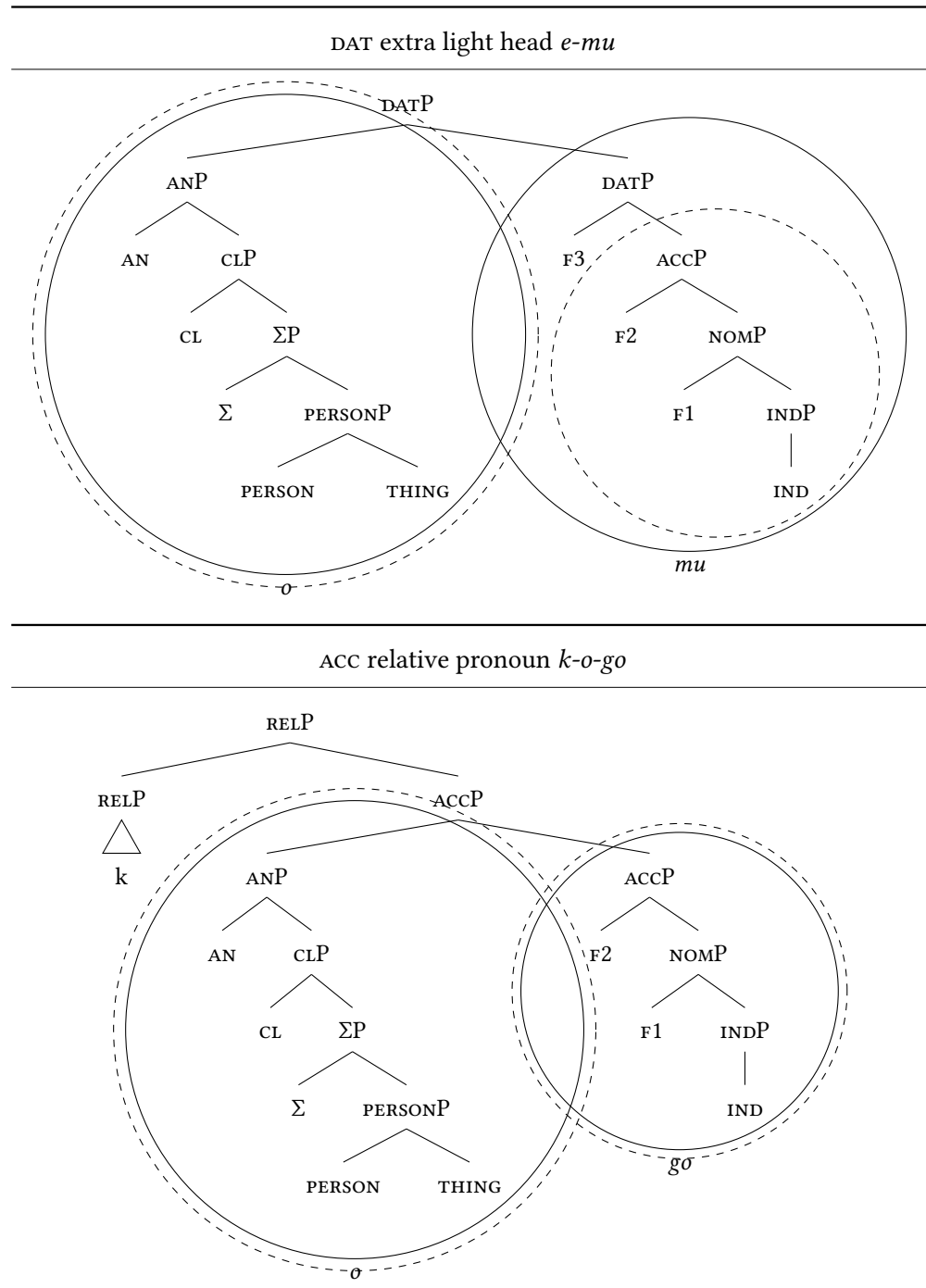
Figure 8.2: Polish EXT_{ACC} vs. $\text{INT}_{\text{DAT}} \rightarrow \text{ogo/komu}$

syntactic structure of the relative pronoun at the bottom.

The relative pronoun consists of three morphemes: *k*, *o* and *go*. The light head consists of two morphemes: *o* and *mu*. Again, I circle the part of the structure that corresponds to a particular lexical entry, and I place the corresponding phonology under it. I draw a dashed circle around each constituent that is a constituent in both the extra light head and the relative pronoun.

The extra light head consists of two constituents: the ANP and the (lower) DATP. In this case, the relative pronoun does not contain both these constituents. The relative pronoun only contains the ACCP, and it lacks the F3 that makes a DATP. Since the weaker feature containment requirement is not met, the stronger constituent requirement cannot be met either. The extra light head also does not contain all constituents or features that the relative pronoun contains, because it lacks the complete RELP. Therefore, the relative pronoun cannot delete the extra light head, and the extra light head can also not delete the relative pronoun.

8.4 Summary

Figure 8.3: Polish EXT_{DAT} vs. $\text{INT}_{\text{ACC}} \rightarrow \text{omu/kogo}$

Chapter 9

Deriving the unrestricted type

Unrestricted languages can be summarized as in Table 9.1.

Table 9.1: The surface pronoun with differing cases in Polish

$K_{INT} > K_{EXT}$		$K_{EXT} > K_{INT}$	Old High German
unrestricted	relative pronoun _{INT}	light head _{EXT}	

A language of the unrestricted type (like Old High German) allows both the internal case and the external case to surface when either of them wins the case competition. Either the light head with its external case or the relative pronoun with its internal case can be the surface pronoun. The goal of this section is to derive this from the way light heads and relative pronouns are spelled out in Old High German.

The section is structured as follows. Old High German differs from the other two languages I discussed in that its headless relatives have a different interpretation: they have an individuating or definite reading. This leads me to argue for slightly different functional sequences in Old High German. I argue that Old High German headless relatives are derived from regular light-headed relatives. I decompose the light heads and relative pronouns into smaller morphemes, and I show which features each of the morphemes corresponds to. Then I compare the constituents of the light head and the relative pronoun. When the internal and the external case

match, the relative pronoun can delete the light head, because it contains all its constituents. When the internal case is more complex than the external case, the relative pronoun can still delete the light head, for the same reason: the relative pronoun contains all constituents of the light head. The situation becomes a bit more complicated when the external case is more complex than the internal case. The light head does not contain all constituents of the relative pronoun. However, the constituent that is not contained in a constituent of the light head is syncretic with a constituent of the light head. I suggest that this syncretism is also enough to license the deletion of the relative pronoun. Finally, I show that the effect of syncretism is not limited to Old High German and the part of the light head and relative pronoun that does not involve case. I give examples from Modern German that show that syncretism can also license the deletion of a more complex case by a less complex case.

9.1 The relative pronoun

What is different here, is that the relative pronoun is a *D*-pronoun instead of a *WH*.

Relative and demonstrative pronouns are syncretic in Old High German (Braune 2018: 338). Table 9.2 gives an overview of the forms in singular and plural, neuter, masculine and feminine and nominative, accusative and dative. The pronouns consist of two morphemes: a *d* and suffix that differs per number, gender and case.^{1,2}

The suffixes that combine with the *d* in demonstrative and relative pronouns also appear on adjectives. This is illustrated in Table 9.3.

I conclude from this that the suffix expresses features that are specific to being nominal, like number, gender and case. Not part of the suffix are features that are specific to being a demonstrative or relative pronoun, like anaphoricity and definiteness. I assume that these are expressed by the morpheme *d*.

split the suffix up in two morphemes

In this section, I only discuss two forms: the nominative and accusative masculine singular relative and demonstrative pronoun. The nominative is *dēr* and the

¹ *d* can also be written as *dh* and *th*, *ē* and *ē* can also be *e* and *é* (Braune 2018: 339).

² The suffix could also be further divided into a vowel and a suffix. As this is not relevant for the discussion here, I refrain from doing that.

Table 9.2: Relative/demonstrative pronouns in Old High German (Braune 2018: 339)

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

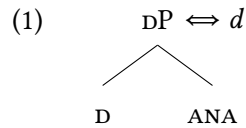
Table 9.3: Adjectives on *-a/-ō-* in Old High German Braune 2018: 300

	N.SG	M.SG	F.SG
NOM	jung, jung-az	jung, jung-ēr	jung, jung-iu
ACC	jung, jung-az	jung-an	jung-a
DAT	jung-emu/jung-emo	jung-emu/jung-emo	jung-eru/jung-ero
	N.PL	M.PL	F.PL
NOM	jung-iu	jung-e	jung-o
ACC	jung-iu	jung-e	jung-o
DAT	jung-ēm/jung-ēn	jung-ēm/jung-ēn	jung-ēm/jung-ēn

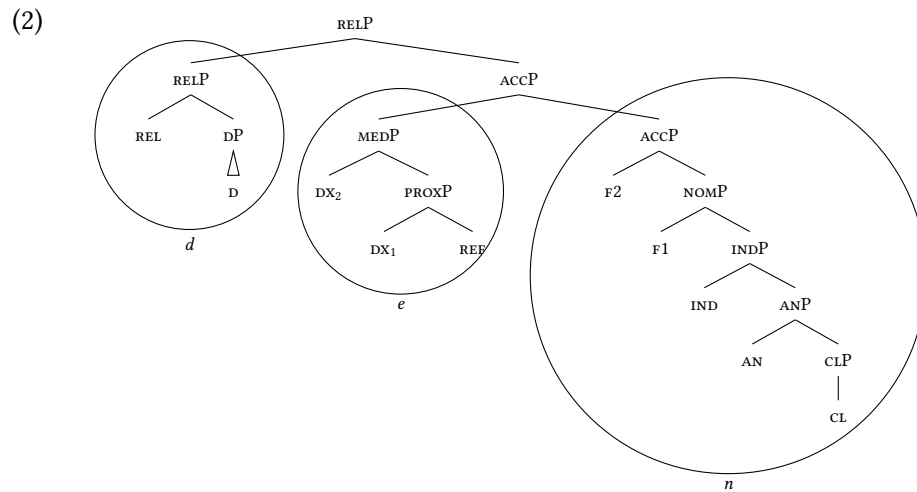
accusative is *dën*. In what follows, I discuss the feature content of the morphemes *d*, *ër* and *ën*. I start with the features that are expressed by the suffixes *ër* and *ën*.

This allows me to propose the following lexical entries for the two suffixes.

The *d* morpheme corresponds to definiteness and anaphoricity. Anaphoricity establishes a relation with another element in the (linguistic) discourse. Definiteness encodes that the referent is specific.

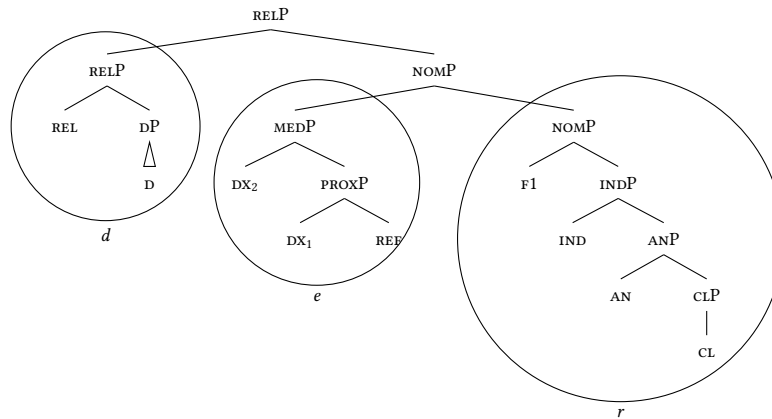


So, the two relative pronouns look like this.³



(3) Old High German: INT NOM

³A question that arises here is how the case features can form a constituent to the exclusion of definiteness and anaphoricity. I come back to this issue in Chapter 10.



9.2 The light head

Headless relatives in which the relative pronoun starts with a *d*, such as in Old High German, seem to be linked to individuating or definite readings and not to generalizing or indefinite readings (cf. Fuß, n.d.). I illustrate this with the two examples I repeat from Chapter 4.

Consider the example in (4), repeated from Chapter 4. In this example, the author refers to the specific person which was talked about, and not to any or every person that was talked about.

- (4) Thíz ist then sie zéllent
 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’
 not: ‘this is whoever they talk about’ (Old High German, Otfrid III 16:50)

Consider also the example in (4), repeated from Chapter 4. In this example, the author refers to the specific person who spoke to someone, and not to any or every person who spoke to someone.

- (5) enti aer ant uurta demo zaimo
 and 3SG.M.NOM reply.PST.3SG_[DAT] REL.SG.M.DAT to 3SG.M.DAT

sprahspeak.PST.3SG_[NOM]

‘and he replied to the one who spoke to him’

not: ‘and he replied to whoever spoke to him’

(Old High German, Mons. 7:24, adapted from Pittner 1995: 199)

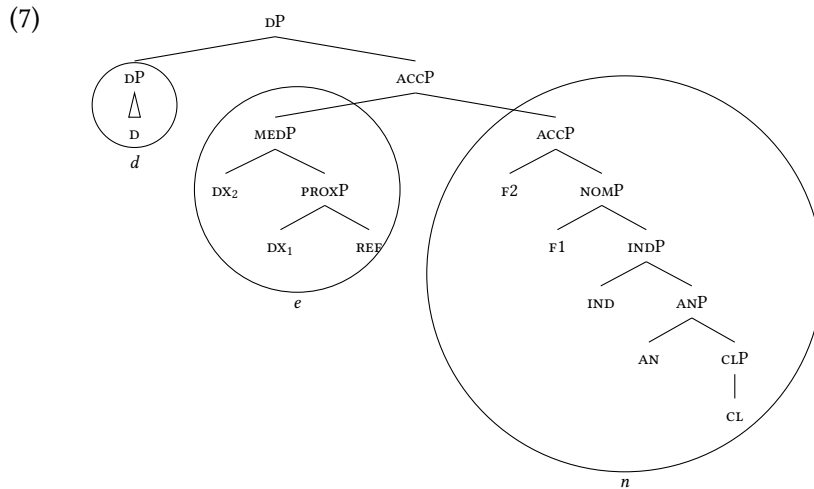
Consider the light-headed relative in (6). *Thér* ‘DEM.SG.M.NOM’ is the head of the relative clause, which is the external element. *Then* ‘REL.SG.M.ACC’ is the relative pronoun in the relative clause, which is the internal element.

- (6) eno nist thiz thér then ir
 now not be.3SG DEM.SG.N.NOM DEM.SG.M.NOM REL.SG.M.ACC 2PL.NOM
 suochet zi arslahanne?
 seek.2PL to kill.INF.SG.DAT
 ‘Isn’t this now the one, who you seek to kill?’

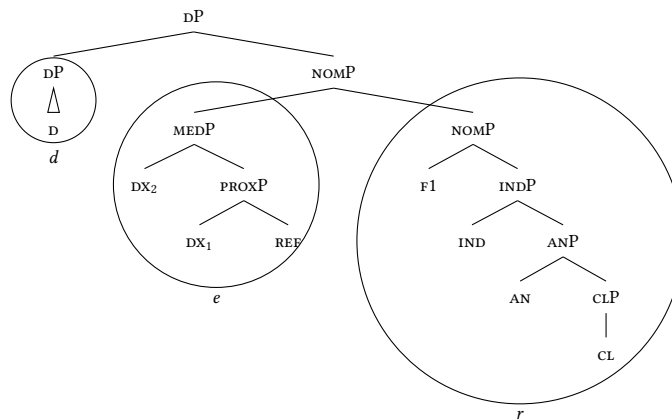
The difference between a light-headed relative and a headless relative is that in headless relatives, either the internal or the external is absent. The absent element is the one that has the least complex case. This shows the presence of two elements in Old High German is optional.⁴ In Old High German, there are three possible constructions: the internal and external element can both surface, only the internal element can surface and only the external element can surface. If only one of the two elements surfaces, this is the element that bears the most complex case, which is either the internal or the external one, as I have shown in Chapter 4. I assume that whether both or only one of the elements surfaces is determined by information structure. In (6), the external element *thér* ‘DEM.SG.M.NOM’ is the candidate to be absent. However, it seems plausible that this is emphasized in this sentence and that it, therefore, cannot be absent.

The light head in a light-headed relative is a demonstrative pronoun.

⁴This sharply contrasts with headless relatives in Modern German, which are always ungrammatical when both the internal and external elements surface. I come back to this in Section 7.



(8) Old High German: EXT NOM



9.3 Comparing constituents

Consider the examples in (9), in which the internal nominative case competes against the external nominative case. The relative clauses are marked in **bold**, and the light heads and the relative pronouns are underlined. As the light head and the relative pronoun are identical it is impossible to see which of them surfaces. The internal case is nominative, as the predicate *senten* ‘to send’ takes nominative subjects. The relative pronoun *dher* ‘REL.SG.M.NOM’ appears in the nominative case. The external case is nominative as well, as the predicate *queman* ‘to come’ also takes nominative subjects. The light head *dher* ‘DEM.SG.M.NOM’ appears in the nominative

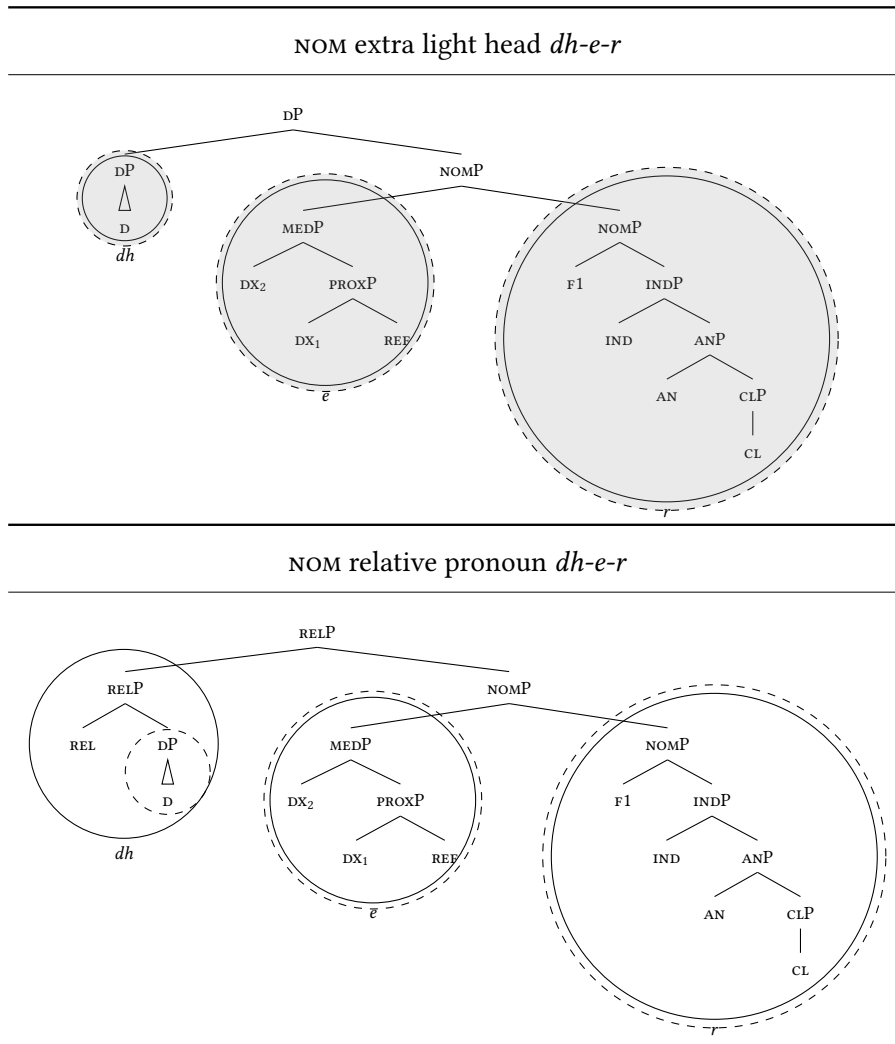
case. (9a) is the variant of the sentence in which the light head is absent (indicated by the square brackets) and the relative pronoun surfaces. (9b) is the variant of the sentence in which the relative pronoun is absent (indicated by the square brackets) and the light head surfaces.

- (9) a. quham [dher] **dher** **chisendit**
 come.PST.3SG_[NOM] DEM.SG.M.NOM REL.SG.M.NOM send.PST.PTCP_[NOM]
 scolda **uuerdhan**
 should.PST.3SG become.INF
 ‘the one, who should have been sent, came’
 (Old High German, Isid. 35:5)
- b. quham dher [**dher**] **chisendit**
 come.PST.3SG_[NOM] DEM.SG.M.NOM REL.SG.M.NOM send.PST.PTCP_[NOM]
 scolda **uuerdhan**
 should.PST.3SG become.INF
 ‘the one, who should have been sent, came’
 (Old High German, Isid. 35:5)

In Figure 9.1, I give the syntactic structure of the light head at the top and the syntactic structure of the relative pronoun at the bottom.

The relative pronoun consists of three morphemes: *dh*, *e* and *r*. The light head consists of three morphemes: *dh*, *e* and *r*. As usual, I circle the part of the structure that corresponds to a particular lexical entry, and I place the corresponding phonology under it. I draw a dashed circle around each constituent that is a constituent in both the light head and the relative pronoun. As each constituent of the light head is also a constituent within the relative pronoun, the light head can be absent. I illustrate this by marking the content of the dashed circles for the light head gray.

I explain this constituent by constituent. I start with the right-most constituent of the light head that spells out as *r* (NOMP). This constituent is also a constituent in the relative pronoun. I continue with the middle constituent of the light head that spells out as *e* (MEDP). This constituent is also a constituent in the relative pronoun. I end with the left-most constituent of the light head that spells out as *d* DP. This constituent is also a constituent in the relative pronoun, contained in RELP. All three

Figure 9.1: Old High German EXT_{NOM} VS. $\text{INT}_{\text{NOM}} \rightarrow \text{dher}$

constituent of the light head are also a constituent within the relative pronoun, and the light head can be absent.

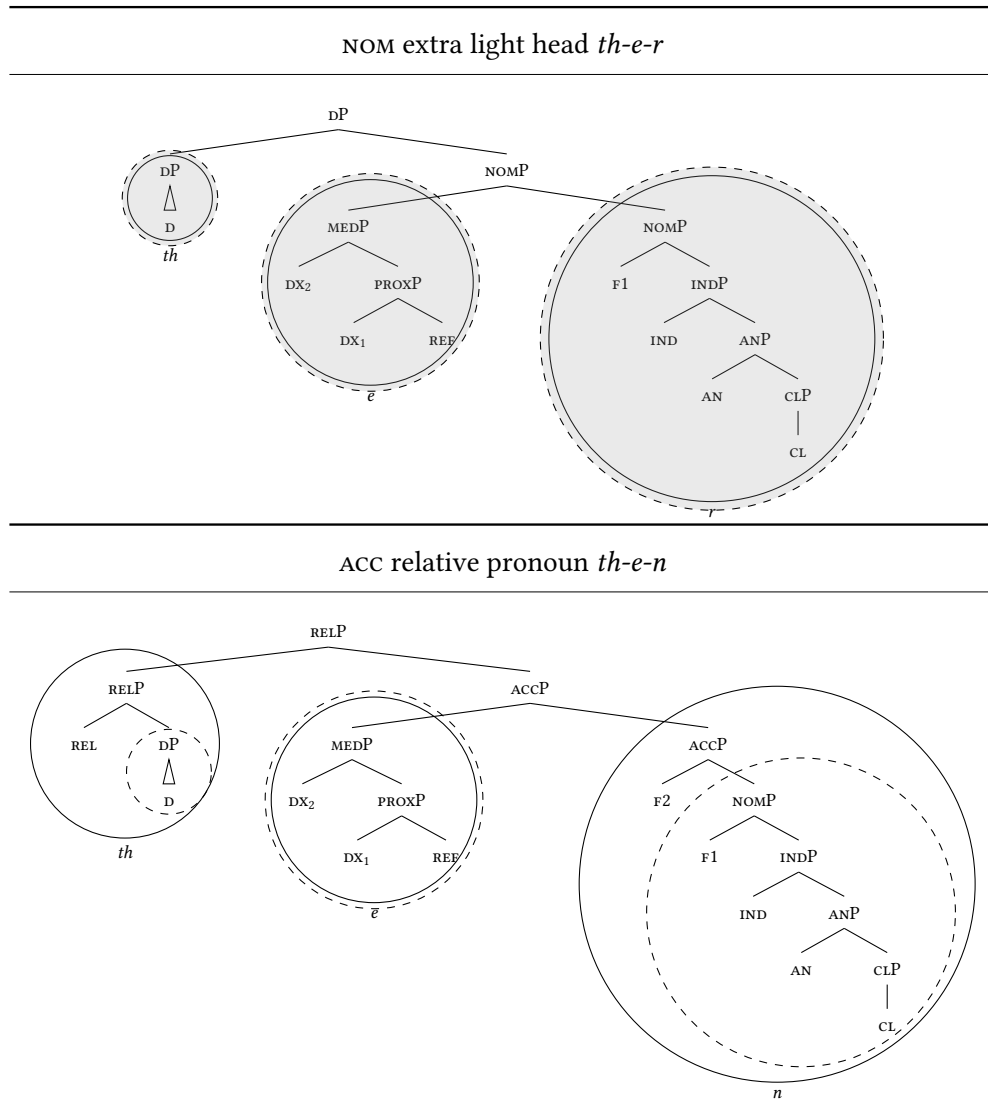
Consider the example in (10), in which the internal accusative case competes against the external nominative case. The relative clause is marked in bold, and the light head and the relative pronoun are underlined. The internal case is accusative, as the predicate *zellen* ‘to tell’ takes accusative objects. The relative pronoun *then* ‘REL.SG.M.ACC’ appears in the accusative case. This is the element that surfaces. The external case is nominative, as the predicate *sin* ‘to be’ takes nominative objects. The light head *ther* ‘DEM.SG.M.NOM’ appears in the nominative case. It is placed between square brackets because it does not surface.

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

In Figure 9.2, I give the syntactic structure of the light head at the top and the syntactic structure of the relative pronoun at the bottom.

The relative pronoun consists of three morphemes: *th*, *e* and *n*. The light head consists of three morphemes: *th*, *e* and *r*. Again, I circle the part of the structure that corresponds to a particular lexical entry, and I place the corresponding phonology under it. I draw a dashed circle around each constituent that is a constituent in both the light head and the relative pronoun. As each constituent of the light head is also a constituent within the relative pronoun, the light head can be absent. I illustrate this by marking the content of the dashed circles for the light head gray.

I explain this constituent by constituent. I start with the right-most constituent of the light head that spells out as *r* (NOMP). This constituent is also a constituent in the relative pronoun, contained in ACCP. I continue with the middle constituent of the light head that spells out as *e* (MEDP). This constituent is also a constituent in the relative pronoun. I end with the left-most constituent of the light head that spells out as *d* DP. This constituent is also a constituent in the relative pronoun, contained in RELP. All three constituent of the light head are also a constituent within the

Figure 9.2: Old High German EXT_{NOM} VS. $\text{INT}_{\text{ACC}} \rightarrow \text{then}$

relative pronoun, and the light head can be absent.

Consider the examples in (11), in which the internal nominative case competes against the external accusative case. The relative clauses are marked in bold, and the light heads and the relative pronouns are underlined. The internal case is nominative, as the predicate *gisizzen* ‘to possess’ takes nominative subjects. The relative pronoun *dher* ‘REL.SG.M.NOM’ appears in the nominative case. It is placed between square brackets because it does not surface. The external case is accusative, as the predicate *bibringan* ‘to create’ takes accusative objects. The light head *dhen* ‘DEM.SG.M.ACC’ appears in the accusative case. This is the element that surfaces.

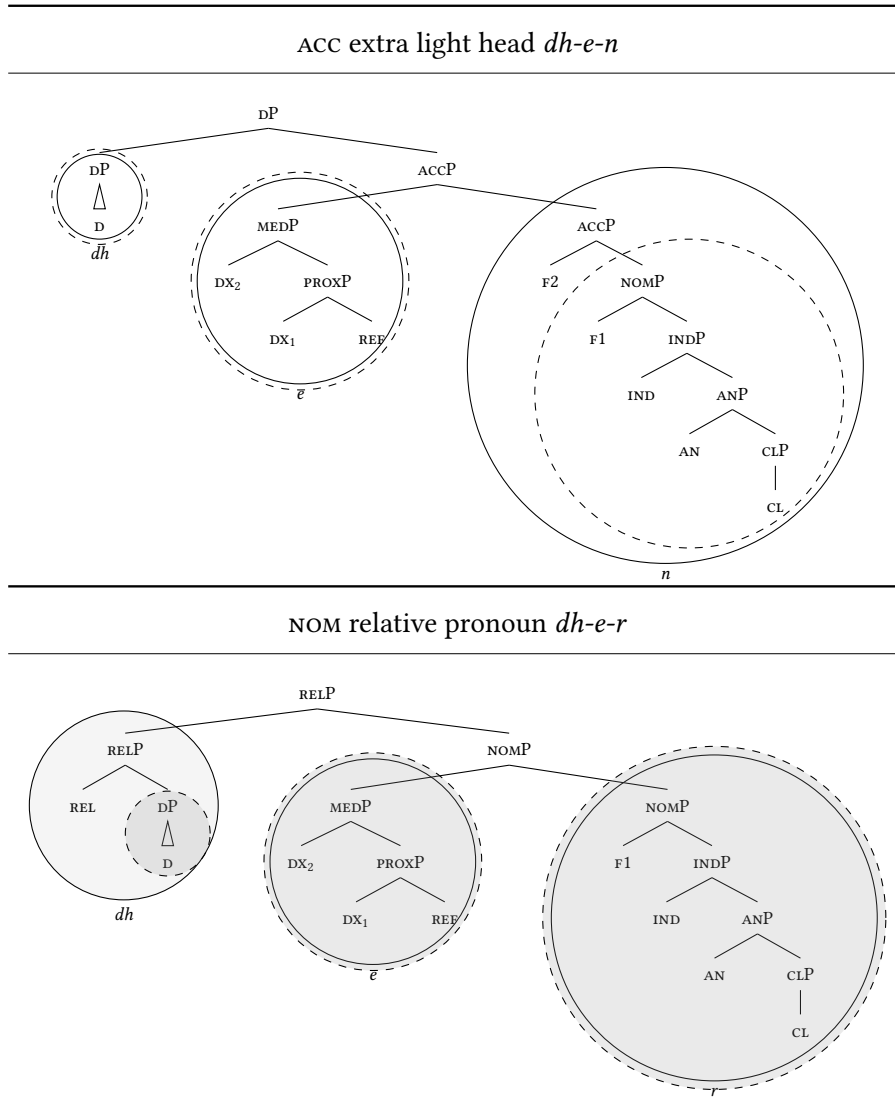
- (11) *ih* *bibringu* *fona iacobes* *samin* *endi fona*
 1SG.NOM create.PRES.1SG_[ACC] of Jakob.GEN seed.SG.DAT and of
 iuda *dhen* [*dher*] ***mina***
 Judah.DAT REL.SG.M.ACC my.ACC.M.PL mountain.ACC.PL
 berga ***chisitzit***
 possess.PRES.3SG_[NOM]
 ‘I create of the seed of Jacob and of Judah the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

(Old High German, Isid. 34:3)

In Figure 9.3, I give the syntactic structure of the light head at the top and the syntactic structure of the relative pronoun at the bottom.

The relative pronoun consists of three morphemes: *dh*, *e* and *r*. The light head consists of three morphemes: *dh*, *e* and *n*. Again, I circle the part of the structure that corresponds to a particular lexical entry, and I place the corresponding phonology under it. I draw a dashed circle around each constituent that is a constituent in both the light head and the relative pronoun. As each constituent of the light head is also a constituent within the relative pronoun or is syncretic with one, the relative pronoun can be absent. I illustrate this by marking the content of the dashed circles for the relative pronoun gray.

I explain this constituent by constituent. I start with the right-most constituent of the relative pronoun head that spells out as *r* (NOMP). This constituent is also a constituent in the light head, contained in ACCP. I continue with the middle con-

Figure 9.3: Old High German EXT_{ACC} vs. $\text{INT}_{\text{NOM}} \rightarrow \text{dhen}$

stituent of the relative pronoun that spells out as *e* (MEDP). This constituent is also a constituent in the light head. I end with the left-most constituent of the relative pronoun that spells out as *d* RELP. This constituent is not contained in the light head, but it is syncretic with it. The dP is also spelled out as *d*. All three constituent of the light head are also a constituent within the relative pronoun or are syncretic with them, and the relative pronoun can be absent.

9.4 Summary

Table 9.4 shows per language type which of the three options in Table 6.1 is chosen when the internal and external case differ.

Table 9.4: The surface pronoun with differing cases per language

	$K_{INT} > K_{EXT}$	$K_{EXT} > K_{INT}$	
unrestricted	relative pronoun _{INT}	light head _{EXT}	Old High German
internal-only	relative pronoun _{INT}	*	Modern German
matching	*	*	Polish
external-only	*	light head _{EXT}	not attested

The first column list the types of languages. The second column shows the situation in which the internal case is the most complex. The relative pronoun that bears the internal case is the potential surface pronoun. The third column shows the situation in which the external case is the most complex. The light head that bears the external case is the potential surface pronoun. The asterisk (*) indicates that there is no grammatical form for the surface pronoun. The fourth column gives the example of the language type that I discuss in this chapter. A language of the unrestricted type (like Old High German) allows both the internal case and the external case to surface when either of them wins the case competition. Either the light head with its external case or the relative pronoun with its internal case can be the surface pronoun. A language of the internal-only type (like Modern German) allows only the internal case to surface when it wins the case competition, and it does not allow the external case to do so. The relative pronoun with its internal case can be the surface pronoun and the light head with its external case cannot. A language of the matching type (like Polish) allows neither the internal nor the external case to surface when either of them wins the case competition. Neither the relative pronoun with its internal case nor the light head with its external case can be the surface pronoun.⁵ The language type that is not attested is the external-only type. That means that there is no language that allows only the external case to surface when

⁵This holds for the situation in which the internal and external case differ. In Section 8, I show

it wins the case competition, and it does not allow the internal case to do so. In other words, there exist no language, in which the surface pronoun can only be the light head and not the relative pronoun.

What I have done in this section so far is reformulate the two descriptive parameters from Figure 6.1 into two other descriptive parameters. Whether the internal case is allowed to surface corresponds to whether the relative pronoun surfaces. That implicates that the light head has been deleted and is therefore absent. Similarly, whether the external case is allowed to surface corresponds to whether the light head surfaces. That implicates that the relative pronoun has been deleted and is therefore absent. I show this in Figure 9.4.

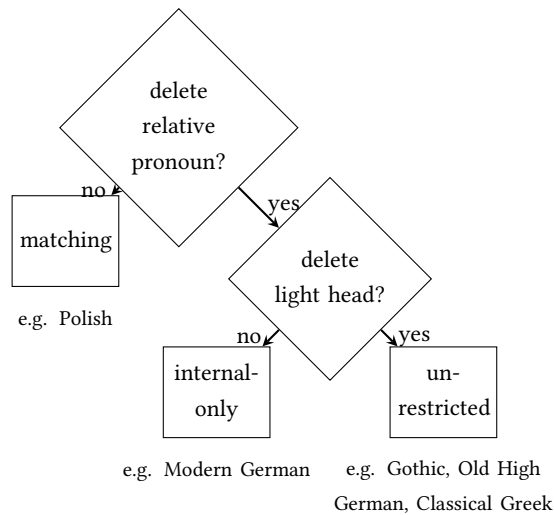


Figure 9.4: Delete relative pronoun/light head as parameters

Reformulating these parameters is not just restating the generalization in different terms. With this new formulation, I am able to identify the elements (i.e. the light head and the relative pronoun) that bear the internal and external cases. The difference between languages lies in whether or not it is possible to delete the light head (and with it the external case) and the relative pronoun (and with it the internal case).

that the relative pronoun surfaces in matching contexts.

9.5 Aside: a larger syntactic context

If you talk about different patterns, there can be different locations to put your parameters. Himmelreich put her parameters in the structure. I put my parameters in the elements themselves. I show what an analysis like Himmelreich looks like, and I show then that it is difficult to reduce that then to differences in the lexicon (because it has to do with agree?).

So what I do is keep the parameters that she was differing stable. I change the things that she kept constant, the internal and external element. Does her structure then work with what I want? Not entirely, because I have to do a c-command that is going in the wrong direction. Then I show a syntactic structure that could be compatible with mine, and I show why a grafting one is not.

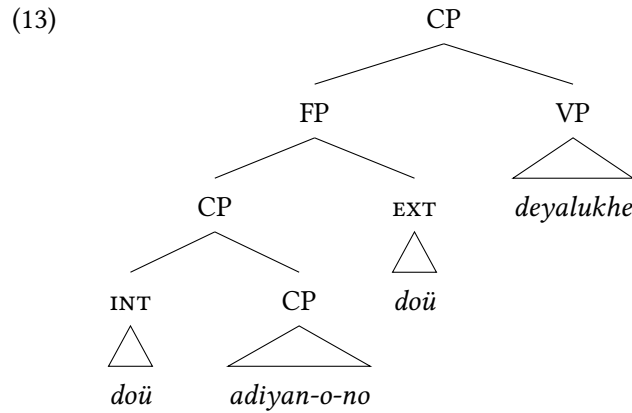
In this dissertation I focus on when languages allow the internal and external case to win the case competition. In my proposal, this depends on the comparison between the internal and external base. The larger syntactic context in which this takes place should be kept stable. For concreteness, I show a possible implementation in Cinque's double-headed analysis of relative clause. I do by no means claim that claim this is the only or even correct implementation.

According to Cinque, every type of relative clause in every language is underlyingly double-headed. Evidence for this claim comes from languages that show this morphologically. An example from Kombai is given in (12). The head of the relative clause is *doü* 'sago', and it appears inside the relative clause and outside.

- (12) [**doü** adiyān-o-no] **doü** deyalukhe
 sago give.3PL.NONFUT-tr-CONN sago finished.ADJ
 'The sago that they gave is finished.' (Kombai, Vries 1993: 78)

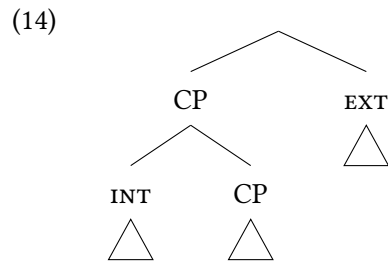
The internal and external instances of *doü* correspond to the internal and external element I assume to be there in the headless relatives.

(13) shows the syntactic structure of the sentence in (12).



In most languages one of the two heads is deleted throughout the derivation.

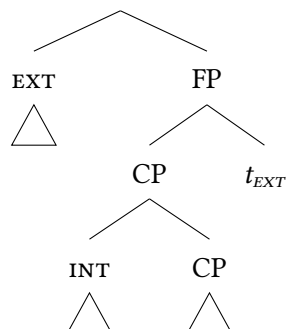
According to Cinque 2020, the internal element can delete the external element, because the internal element c-commands the external element. This is c-command according to Kayne's definition of it: the internal element is in the specifier of the specifier of the FP.



In order for the internal element to be able to delete the external element, a movement needs to take place. The external element moves over the relative clause.⁶ From this position, the external element can delete the internal one, because the external element c-commands the internal one.

⁶What remains unclear is what the trigger is for the movement of the external element over relative clause is.

(15)



Also talk about \bar{D} here, and that maybe Old High German deletes a thing without a \bar{D} when the internal thing wins. does that also have a not so definite interpretation?

What does not work:

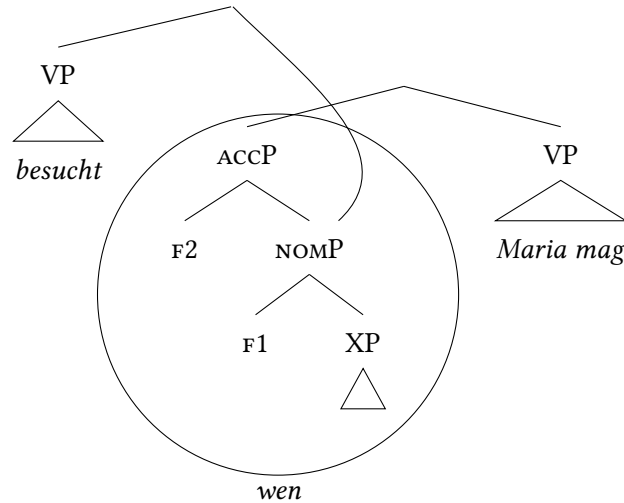
For this pattern a single element analysis seems intuitive, if you assume that case is complex and that syntax works bottom-up. First you built the relative clause, with the big case in there. Then you build the main clause and you let the more complex case in the embedded clause license the main clause predicate.

Consider the example in (16). Here the internal case is accusative and the external one nominative.

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

(17)

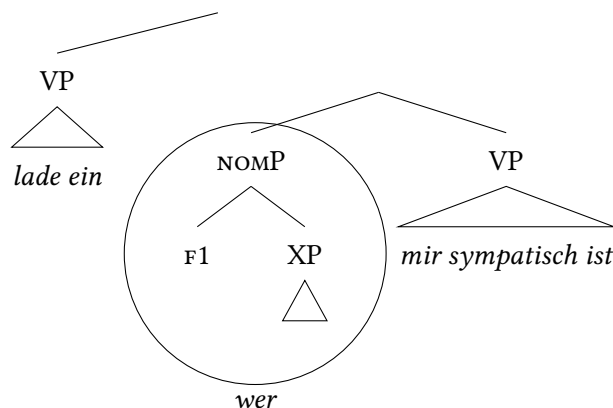


The other way around does not work. Consider (18). This is an example with nominative as internal case and accusative as external case.

- (18) *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.

(19)



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.

Himmelreich

there are agree relations between - V_{EXT} and $EXT - V_{INT}$ and $INT - INT$ and EXT
 three parameters: 1 relation between V_{EXT} and $EXT + V_{INT}$ and INT are symmetric
 or asymmetric 2 relation between EXT and INT are symmetric or asymmetric 3 if EXT
 - INT is asymmetric, EXT or INT probes

I keep the parameters she has stable, the bigger syntactic context is the same everywhere. I vary the content of EXT

Chapter 10

Discussion

10.1 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.

Why are all languages of the ‘matching’ type dead languages? Was it a common thing that wh-pronouns were not used as relative pronouns?

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.

10.2 Suppletive nominatives in Gothic

10.3 Towards deriving the always-external pattern

grosu: morphological distinctions correlate with ‘freedom’

Why FEM does not have WH-pronouns?

10.4 On clitics

I am saying things about clitics with this story. Polish clitics start at IND/F1. The fact that they have different bottoms seems to suggest that there needs to be a zero element to fill up the space. Actually, REF plus some gender/number might be the zero element? Although then I do not have the analysis in which in clitics some low structure is missing. Modern German does not really have clitics. Instead, it has weak pronouns that start at CLASS (but lack the REF or the REF is schwa).

10.5 More languages

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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