CASE COMPETITION IN HEADLESS RELATIVES

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vorgelegt von

Fenna Bergsma

aus

Boarnsterhim, Niederlande

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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

INAN	inanimate
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 marker
RP	relative pronoun
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* 'RP.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* 'RP.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 RP.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 RP.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)* 'RP.SG.M.ACC' appears in accusative case.[2]

(3) gaarma   þan   -ei   arma
     pity.PRES.1SG$_{[ACC]}$ RP.SG.M.ACC -COMP pity.PRES.1SG$_{[ACC]}$
     'I pity him whom I pity'

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[1] This '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 III.

[2] The 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)* 'RP.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)* 'RP.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.

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

Consider the example in (4), in which the internal case is accusative and the external case is nominative. The internal case is accusative. The predicate *frijon* 'to love' takes accusative objects, as indicated by the subscript on the predicate. The external case is accusative. The predicate *wisan* 'to be' takes nominative subjects, indicated by the subscript on the predicate. The relative pronoun *þan(a)* 'RP.SG.M.ACC' appears in accusative. This accusative can only come from the predicate *frijon* 'to love', which is the internal case here. The relative pronoun is marked in bold, just as the relative clause, showing that the relative pronoun patterns with the relative clause.

(4) **þan   -ei   frijos**   siuks ist
     RP.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)

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

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

(5) jah þo   **-ei**   ist   **us Laudeikaion** jus
     and RP.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 question regarding this phenomenon. The first one is which case is going to win the case competition, i.e. which case surfaces. I discuss this in Part I. The second question is whether both competitors are able to compete in the competition, i.e. whether one of the cases is surfacing or both are ungrammatical. I discuss this in Part II. For

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

1.3 The scope of this dissertation

1.3.1 Case attraction

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

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

(7) Den   schilt   den   er vür bôt der   wart schiere
     the.ACC shield.ACC which.ACC he held_{ACC}, that.NOM was quickly

     zeslagen
     shattered_{NOM}
     'The shield he held was quickly shattered'   Iwein 6722f., Lenerz 1984: 116)

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

1.3.2 Syncretism

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

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

(8) Jan unika   kogokolwiek   wczoraj obraził.
     Jan avoid.3SG_{[GEN]} RP.SG.M.ACC/GEN yesterday offend.3SG.PST_{[ACC]}.
     'Jan avoided whoever he offended yesterday.'

I won't talk about the details.

1.3.3   The genitive

In Gothic headless relatives, there is data available of the genitive in case competition with the accusative. The genitive wins in this competition. I give an example in which the internal case is accusative and the external case is genitive in (9). The relative clause is marked in bold, the relative pronoun is not. The internal case is accusative. The predicate *gasehvun* 'saw' takes accusative objects. The external case is genitive. The noun *waiht* 'thing' combines with a genitive. The relative pronoun *þiz(e)* 'what.GEN' appears in the external case: the genitive.

(9)   ni   waiht   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)

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

The same holds for the two other main languages discussed in this thesis: Modern German and Old High German. In Modern German, case competitions have been reported between all possible case combinations, so also between genitives and nominatives, between genitives and accusatives, and between genitives and datives (cf. Vogel, 2001). The genitive wins over the nominative and the accusative. In a competition between the genitive and the dative neither of them gives a grammatical result. Old High German might show some examples of case competition between genitives and accusatives and genitives and nominative. In these cases, the genitive always wins. No examples of datives against genitives are attested (Behaghel, 1923-1932). In sum, the genitive does not appear in all possible case competition combinations in all three languages, and is therefore excluded.

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

then the predictions would be..

The genitive differs from the other cases in a particular way. That is, nominative, accusative and dative are dependents of the verb (or prepositions). Genitives can be dependents of verbs, or they can be dependents of nouns, as possessors or partitives. Consider the example in (9). The genitive relative pronoun *þiz(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 hiearchy.

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)   NOM < ACC < 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

relatives in Gothic. The cases I discuss are nominative, accusative and dative.

The description of Gothic is mostly based on (Harbert, 1978). The spelling of the examples follows the Wulfila Project website.[1] The glossing comes from the detailed tagging on that same website. The translations are my own.

Consider the example in (2), in which the internal nominative case competes against the external nominative case. The internal case is nominative, as the predicate *matjan* 'to eat' takes nominative subjects. The external case is nominative as well, as the predicate *ga-dauþnan* 'to die' also takes nominative subjects. The relative pronoun *sa* 'RP.SG.M.NOM' appears in the internal and external case: the nominative.

(2) ei   **sa**   **-ei** þis   **matjai**,   ni
     COMP RP.SG.M.NOM -COMP DEM.SG.M.GEN eat.OPT.3SG$_{[NOM]}$ not

     gadauþnai
     die.OPT.3SG$_{[NOM]}$
     'that the one, who eats of this may not die'

                                           (Gothic, John 6:50, after Harbert 1978: 337)

Consider the example in (3), repeated from the introduction. In this example, the internal accusative case competes against the external accusative case.

The internal case is accusative, as the predicate *arman* 'to pity' takes accusative objects. The external case is accusative as well, as the predicate *ga-arman* 'to pity' also takes accusative objects. The relative pronoun *þan(a)* 'RP.SG.M.ACC' appears in the internal and external case: the accusative.

(3) gaarma   **þan**   **-ei** **arma**
     pity.1SG$_{[ACC]}$ RP.SG.M.ACC -COMP pity.1SG$_{[ACC]}$
     'I pity him, whom I pity'   (Gothic, Rom. 9:15, after Harbert 1978: 339)

Consider the example in (4), in which the internal dative case competes against the external dative case. The internal case is dative, as the predicate *manwjan* 'to prepare' takes dative indirect objects. The external case is dative as well, as the

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[1] <http://www.wulfila.be>

predicate *giban* 'to give' also takes dative indirect objects. The relative pronoun *þaim)* 'RP.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 RP.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'
     <div align="right">(Gothic, Mark 10:49, after Harbert 1978: 339)</div>

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 ains] 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 a to 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)* 'RP.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
     RP.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)

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[2]In 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.

Consider the example in (7), repeated from the introduction. In this example, the the internal nominative case competes against the external accusative case. The internal case is nominative, as the predicate *wisan* 'to be' takes nominative subjects. The external case is accusative, as the predicate *ussiggwan* 'to read' takes accusative objects. The relative pronoun *þo* 'RP.SG.N.ACC' appears in the external case: the accusative. The relative pronoun is not marked in bold, just like as the main clause, showing that the relative pronoun patterns with the main clause. Examples in which the internal case is nominative, the external case is accusative and the relative pronoun appears in the nominative case are unattested.

(7) jah þo   **-ei**   **ist**   **us** **Laudeikaion** jus
     and RP.SG.N.ACC -COMP be.PRES.3SG[NOM] from Laodicea   2.PL.NOM
     ussiggwaid
     read.[ACC]
     'and you read the one which is from Laodicea'
                        (Gothic, Col. 4:16, adapted from Harbert 1978: 357)

The two examples in which the nominative and the accusative compete are showed in Table 2.2. Within the newly filled out cells, two cases are given. The case in the bottom-left corner stands for the relative pronoun in the internal case. The case in the top-right corner stands for the relative pronoun in the external case. The grammatical examples are marked in light and dark gray. The unattested examples are preceded by an asterix and are unmarked.[3]

The light gray marking corresponds to (6), in which the internal accusative wins the case competition over the external nominative, and the relative pronoun surfaces in the accusative case. The dark gray marking corresponds to (7), in which the external accusative wins the case competition over the internal nominative, and the relative pronoun surfaces in the accusative case. The instances of *NOM that appear in the same cells indicate that there are no examples, in which the nominative and the accusative compete and the relative pronoun appears in the nominative case.

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[3]Throughout 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)* 'RP.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)   iþ **þamm**   **-ei**   **leitil fraletada**   leitil frijod
      but RP.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* 'RP.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**   fraþjaiþ
     RP.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)* 'RP.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] RP.SG.N.DAT -COMP lie.PRET.3SG
       'picking up that what he lay on'

---

[4]The 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 *insand-jan* 'to send' takes accusative objects. The external case is dative, as the predicate *galaubjan* 'to believe' takes dative objects. The relative pronoun *þamm(a)* 'RP.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] RP.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

INT \ EXT	[NOM]	[ACC]	[DAT]
[NOM]	NOM	ACC	DAT
[ACC]	ACC	ACC	DAT
[DAT]	DAT	(DAT)	DAT

To sum up, case competition in headless relative is subject to the case scale, repeated 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 NOM < ACC < 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: NOM < ACC < 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).

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[6]Modern 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.
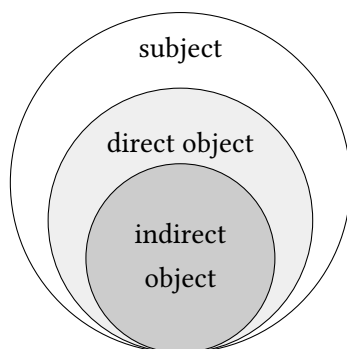
Figure 2.1: Agreement hierarchy

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

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[7]Moravcsik (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 portmonteau 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.
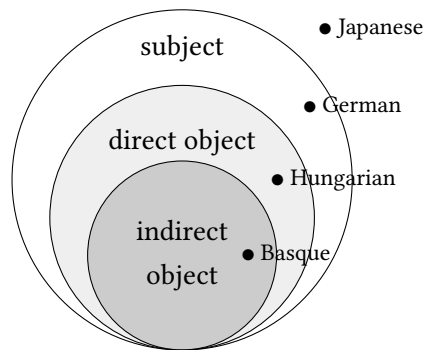
Figure 2.2: Agreement hierarchy with languages

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			
subject	direct object	indirect object	number of languages	example
*	*	*	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.
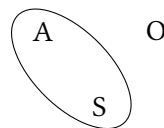
Figure 2.3: Nominative-accusative alignment

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.
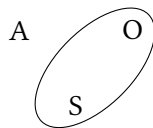
Figure 2.4: Ergative-absolutive alignment

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 absolutives and ergatives behave with respect to whether they show agreement. There are languages that show agreement with both absolutives and ergatives. There are also languages that show only agreement with absolutives. Crucially, there is no language that shows only agreement with ergatives. Absolutives are a heterogenous 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 absolutives 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
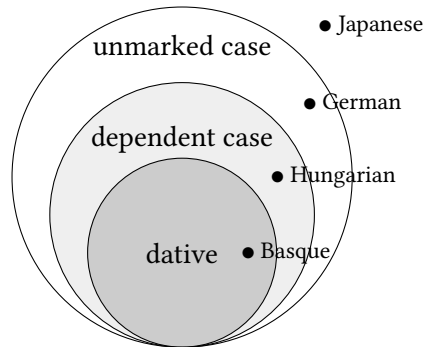
Figure 2.5: Agreement hierarchy (case)

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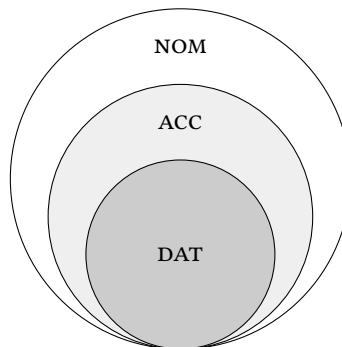
Figure 2.6: Agreement hierarchy (NOM/ACC/DAT)

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.

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[8]Keenan 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.
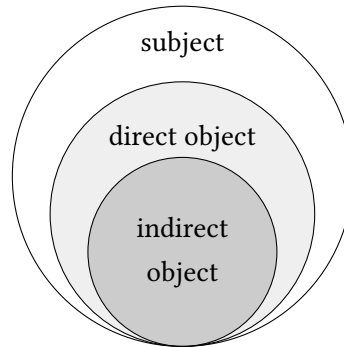
Figure 2.7: Relativization hierarchy

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 in ungrammatical. The example in (28b) differs from (28a) in that the preposition *kapada* 'to' has been moved such that it precedes the relativizer *yang* 'that'. This example is ungrammatical as

well, indicating this was not the reason for the ungrammaticality.

(28) a. ***perempuan** yang Ali beri ubi kentang itu kapada
           woman   that Ali give potato   the to

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

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

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

(29) shows how examples of relativized subjects and direct objects. (29a) is an example of a subject relative: *poika* 'boy' has been relativized from the clause in which it was the subject of *tanssinut* 'danced'. The head of the relative clause is *poika* 'boy', marked in bold, is preceded by the relative clause *pöydällä tanssinut* 'who had danced on the table'. The predicate of the relative clause appears in the non-finite form: *tanssinut* 'having danced'. (29b) is an example of a subject relative: *poika* 'boy' has been relativized from the clause in which it was the subject of *näkemäni* 'saw'. The head of the relative clause is *poika* 'boy', marked in bold, is preceded by the relative clause *näkemäni* 'that I saw'. The predicate of the relative clause appears in the non-finite form: *näkemäni* 'having seen'.

(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.'

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.'

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 man', 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'

---

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

[10]The 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)
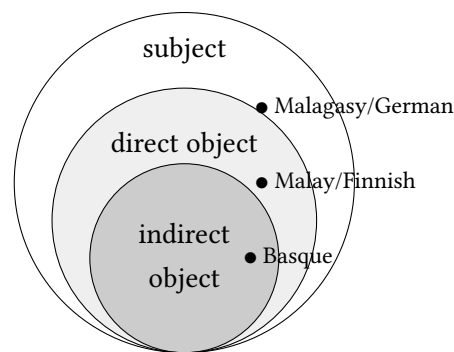
Figure 2.8: Relativization hierarchy with languages

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 ḍugumbil* 'the woman' is marked absolutive. In the transtive sentence in (32b), the subject *ŋaḍa* 'I' is marked ergative, and the object

balan ḍugumbil 'the woman' is marked absolute.

(32)   a.   balan   ḍugumbil   ɲina-ɲu
              DET.ABS woman.ABS sit-PASS
              'The woman is sitting down.'

        b.   ŋaḍa balan   ḍugumbil   buṛa-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 *ḍugumbil* 'woman' from (32a) is relativized. The head *ḍugumbil* '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 *ḍugumbil* 'woman' from (32b) is relativized. The head *ḍugumbil* 'woman', marked in bold, precedes the relative clause *ŋaḍa buṛa-ɲu* 'whom I am watching'. The predicate in the relative clause *buṛa* 'see' is followed by the relative suffix *-ɲu.*

(33)   a.   ŋaḍa balan   **ḍugumbil** ɲina-ɲu buṛa-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   **ḍugumbil** ŋaḍa buṛa-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 *ŋaḍa* '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.
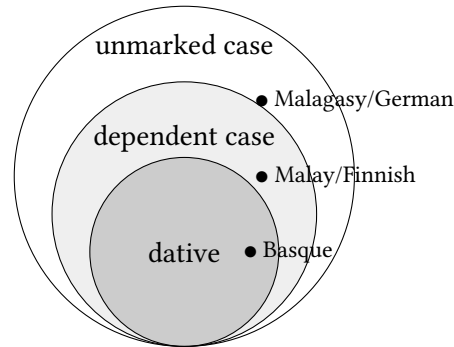
Figure 2.9: Relativization hierarchy (case)

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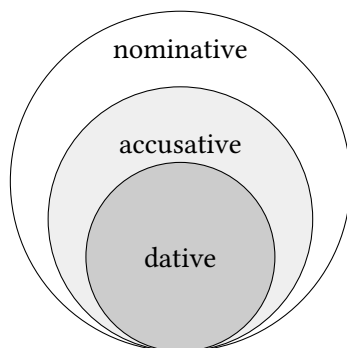
Figure 2.10: Relativization hierarchy (NOM/ACC/DAT)

2.3 In morphology

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

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

2.3.1 Syncretism

Syncretism refers to the phenomenon whereby two or more different functions are fulfilled by a single form (cf. Baerman, Brown, and Corbett, 2002). In this section I discuss literature that shows that syncretism patterns among nominative, accusative and dative are not random. Instead, they pattern along the case scale NOM < ACC < DAT.

It has widely been observed that syncretism is restricted by the linear sequence NOM — ACC — 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	ma	luw	muŋ
ACC	ma:-**ne:m**	luw-**e:l**	muŋ-**e:w**
DAT	ma:-**ne:m-na**	luw-**e:l-na**	muŋ-**e:w-na**

Other languages that show this phenomenon are West Tocharian (Gippert, 1987)

and Vlakh 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 NOM < ACC < 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)   NOM < ACC < DAT

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

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

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

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

Chapter 3

Case decomposition

At the beginning of the previous chapter I showed that the case scale NOM < ACC < 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 NOM < ACC < DAT is a wide-spread phenomenon: it recurs in several phenomena across different languages. The scale can be observed in at least two more syntactic phenomena: agreement and relativization.[1] The case scale also appears within morphology in syncretism patterns and morphological case containment. Pittner (1995: 201:fn.4) makes this link to morphology as well: "Furthermore, the Case hierarchies receive some independent support by morphology as shown by the various inflectional paradigms."

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

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[1]In 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,

---

[2]Himmelreich (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; Zompì, 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 a 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

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

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

[5]The 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 entires 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.

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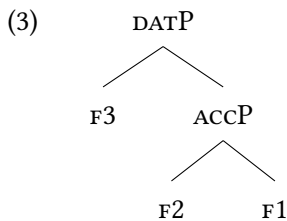
This structure leads to the concept of phrasal spellout: not terminals but multiple syntactic heads (phrases) are realized with a single piece of phonology (i.e. a single morpheme). Applying this to (3), not the terminals F1, F2 and F3 receive a realization, but ACCP and DATP are spelled out. A necessary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

(4)   NOMP ⟺ *tú*

        F1   2sGP
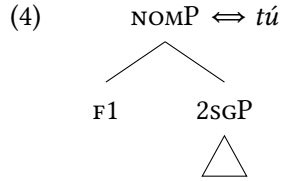
The lexical entry for *teg* is given in (5). The lexical tree consists of all the features of the lexical tree in (4), plus F2, making it an ACCP. The linked phonological representation is *teg*.

(5)   ACCP ⟺ *teg*

      F2   NOMP

           F1   2sGP
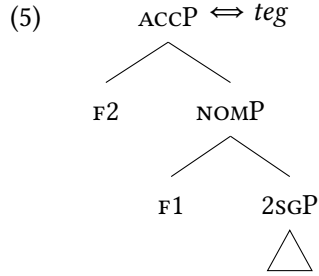
The lexical entry for *tær* is given in (6). The lexical tree consists of all the features of the lexical tree in (5), plus F3, making it an DATP. The linked phonological representation is *tær*.

---

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

(6)   DATP ⟺ *tær*

F3   ACCP

F2   NOMP

F1   2SGP
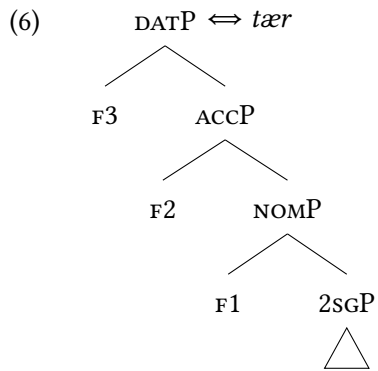
The lexical trees and their phonological counterparts I gave in (4) to (6) are lexical entries. These lexical entries are used to spell out syntactic structures. I give examples of syntactic structures in (7) to (9).

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

(7)

NOMP

F1   2SGP

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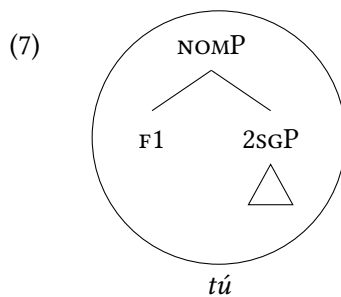
The lexical tree in (5) is identical to the syntactic structure in (8), and it is spelled out as *teg*.

---

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

(8)

```
                    ACCP
                   ╱    ╲
                 F2      NOMP
                        ╱    ╲
                      F1      2SGP
                               △
```

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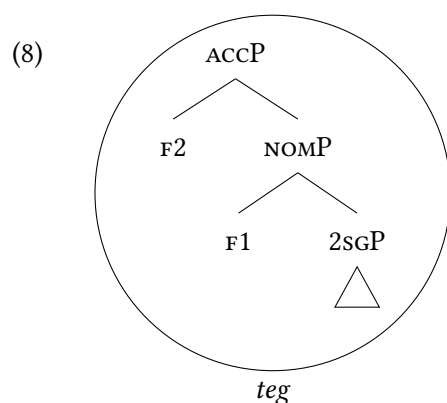
The lexical tree in (6) is identical to the syntactic structure in (9), and it is spelled out as *tær*.

(9)

```
                    DATP
                   ╱    ╲
                 F3      ACCP
                        ╱    ╲
                      F2      NOMP
                             ╱    ╲
                           F1      2SGP
                                    △
```

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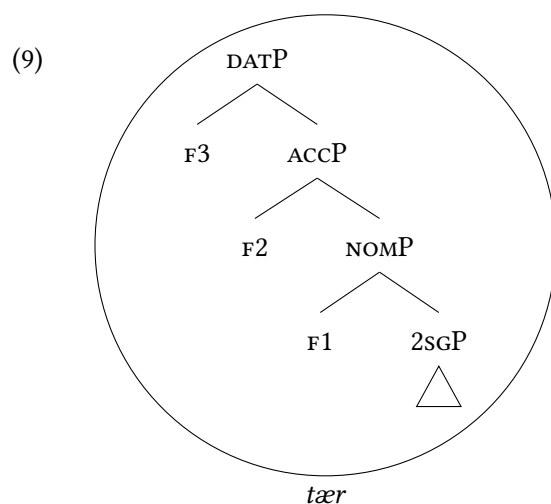
In the Faroese examples above, the syntactic structures are all identical to the lexical trees. However, Nanosyntax assumes that to be a successful match, identity is not a necessary requirement. Instead, matching relies on a containment relation. A lexical entry applies when it contains all features.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

(11)   DATP ⟺ *jullie*

    F3   ACCP

        F2   NOMP

           F1   2PLP
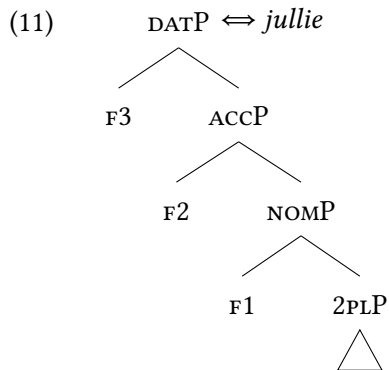
The syntactic structure of the dative, given in (12), is the least exciting of the three. It is identical to the lexical tree (11), and therefore, spelled out as *jullie*.

(12)

          DATP

      F3   ACCP

        F2   NOMP

          F1   2PLP
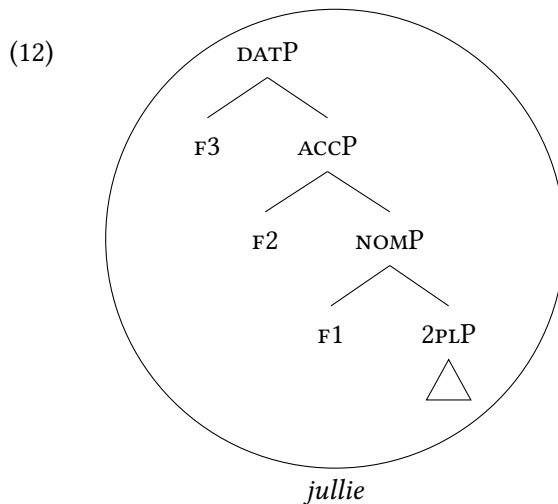
        jullie

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

(13)   AᴄᴄP
          ⟋   ⟍
       F2   ɴᴏᴍP
                ⟋   ⟍
             F1   2ᴘʟP
                          △
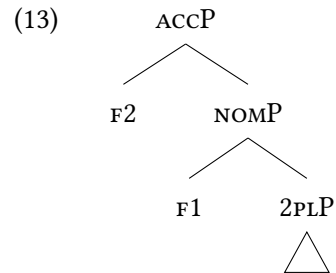
The lexical entry in (11) is not identical to this syntactic structure. However, the lexical tree contains the syntactic structure of the accusative. I repeat the lexical entry for *jullie* in (14), marking the subpart of the tree that matches the syntactic structure in gray.

(14)   ᴅᴀᴛP ⟺ *jullie*
          ⟋   ⟍
       F3   AᴄᴄP
                ⟋   ⟍
             F2   ɴᴏᴍP
                      ⟋   ⟍
                   F1   2ᴘʟP
                                △
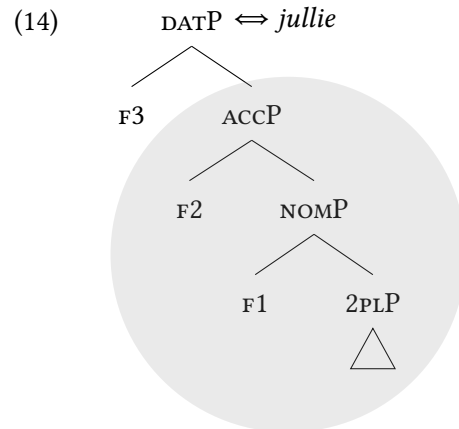
As a result, the accusative is spelled out as *jullie*, shown in (15).

(15)

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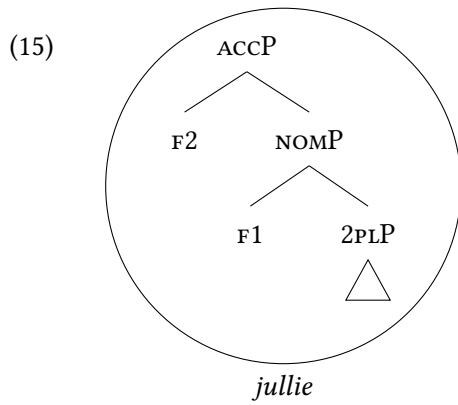
The same holds for the nominative. The syntactic structure is given in (16).

(16)
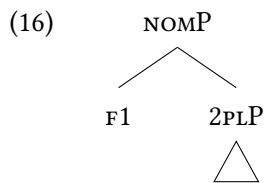
The lexical tree in (11) is not identical to this syntactic structure. However, again, the lexical tree contains the syntactic structure of the nominative. I repeat the lexical entry for *jullie* in (17), marking the subpart of the tree that matches the syntactic structure in gray.

(17)
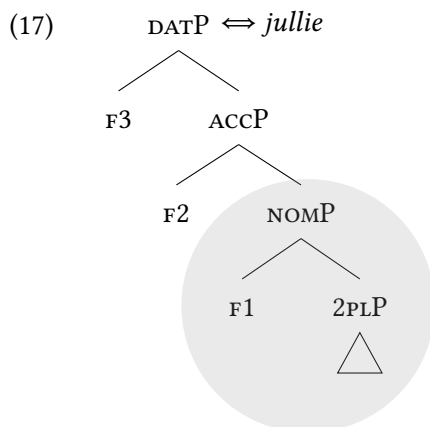
As a result, the nominative is spelled out as *jullie*, as shown in (18).

(18)

NOMP

F1   2PLP

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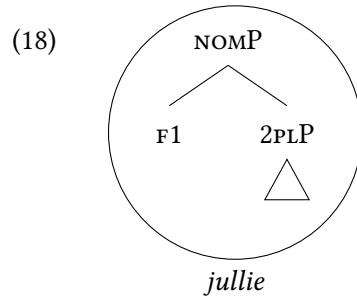
A question arises at this point. Why are the accusative and nominative in Faroese not spelled out by the lexical entry for the dative (and why is the nominative not spelled out by the lexical entry for the accusative)? These syntactic structures are namely contained in the lexical tree for the dative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

(20)
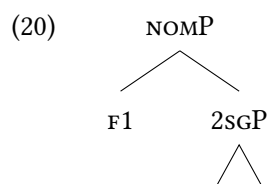
The three lexical entries for *tú* in (4), *teg* in (5) and *tær* in (6) are candidates for this syntactic structure. I repeat the lexical entries for *tú*, *teg* and *tær* in (21), marking the subpart of the tree that matches the syntactic structure in gray.

(21)   a.

        b.

c.   DATP ⟺ *tær*
         ┌────┴────┐
        F3   ACCP
               ┌───┴───┐
              F2   NOMP
                   ┌───┴───┐
                  F1   2SGP
                           △
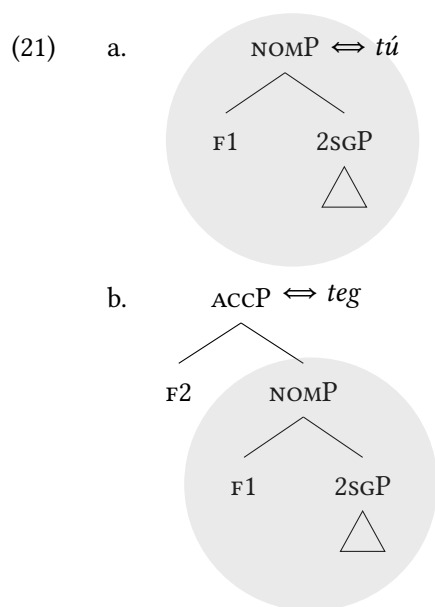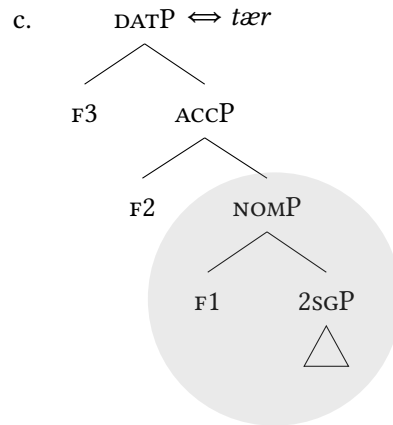
The first, (21a), has no unused features. The second, (21b), has one unused feature:
F2. The third, (21c), has two unused features: F2 and F3. Because (21a) has the least
amount of unused features, it wins the competition, and the syntactic structure is
spelled out as *tú*. This is shown in (22).

(22)   NOMP
             ┌─────┴─────┐
            F1   2SGP
                         △

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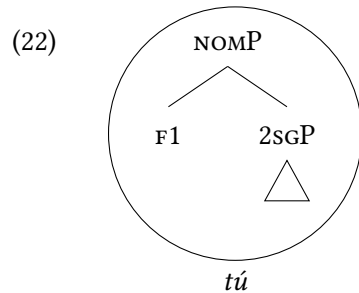
Consider the syntactic structure for the accusative in (23), repeated from (8).

(23)   ACCP
        ┌────┴────┐
       F2   NOMP
             ┌───┴───┐
            F1   2SGP
                     △
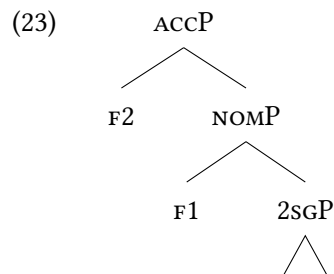
The two lexical entries for *teg* in (5) and *tær* in (6) are candidates for this syntactic

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.

(24)   a.

AccP ⟺ *teg*

F2   NomP

F1   2sgP

b.

DatP ⟺ *tær*

F3   AccP

F2   NomP

F1   2sgP
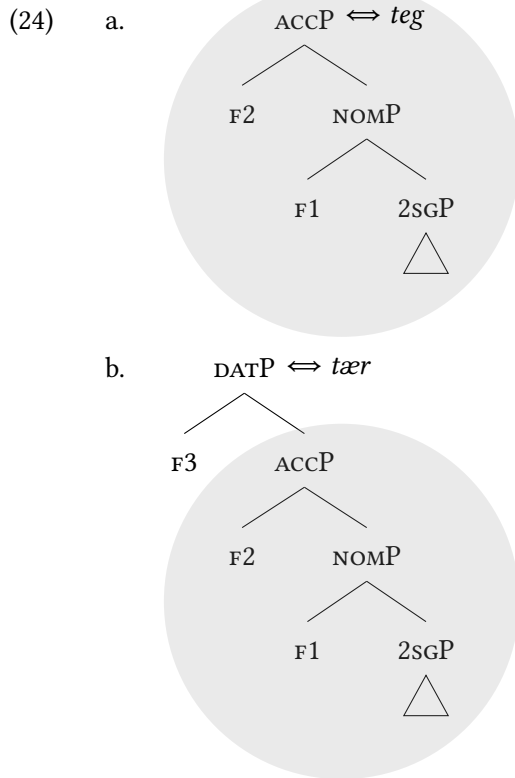
The former, (24a), has no unused features. The latter, (24b), has one unused feature: F2. Because (24a) has fewer unused features than (24b), it wins the competition, and the syntactic structure is spelled out as *teg*. This is shown in (25).

(25)

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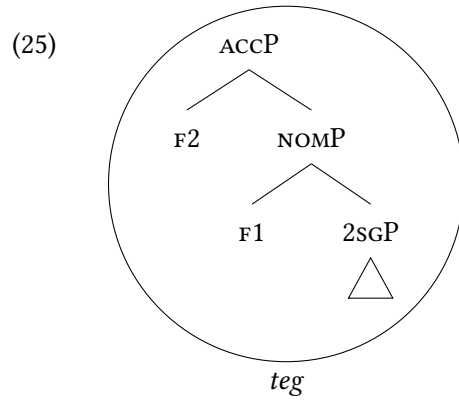
Table 3.2 contains two more attested patterns: the ABB in Icelandic and the AAB in German. In the remainder of this section I show how these two patterns are derived, and that the unattested one cannot be derived. I also show how the system is unable to derive an ABA pattern, which is crosslinguistically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

(26)   a.   NOMP ⟺ *við*

b.　DATP ⟺ *okkur*

```
            DATP
           /    \
         F3     ACCP
               /    \
             F2     NOMP
                   /    \
                  F1    1PLP
                         △
```

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.

(27)

```
            DATP
           /    \
         F3     ACCP
               /    \
             F2     NOMP
                   /    \
                  F1    1PLP
                         △

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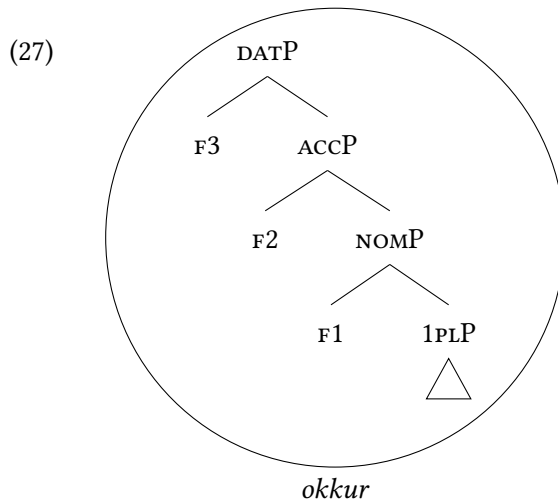
The syntactic structure for the accusative is given in (28). It is contained in the lexical tree in (26b), and therefore, spelled out as *okkur*. The lexical entry in (26a) is not considered, because it does not contain F2.

(28)
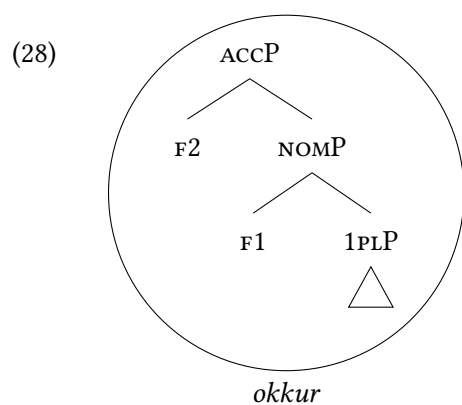
okkur

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

(29)
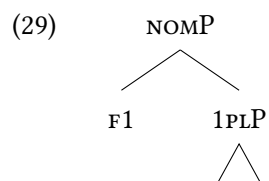
It is contained in the lexical tree for *við* in (26a) and in the one for *okkur* in (26b). I repeat the lexical entries for *við* and *okkur* in (30), marking the subparts of the trees that match the syntactic structure in gray.

(30)   a.

b.   DATP ⟺ *okkur*

F3   ACCP

F2   NOMP

F1   1PLP
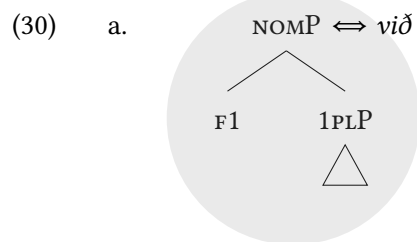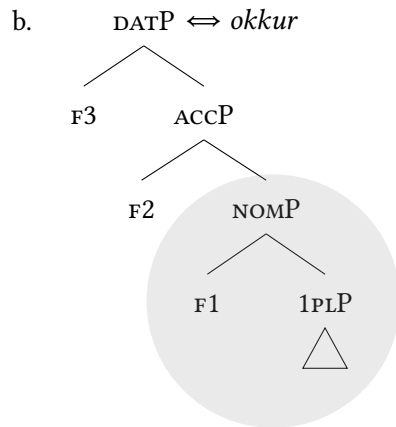
The former, (30a), has no unused features. The latter, (30b), has two unused features: F2 and F3. Because (30a) has fewer unused features, it wins the competition, and the syntactic structure is spelled out as *við*. This is shown in (31).

(31)   NOMP

F1   1PLP

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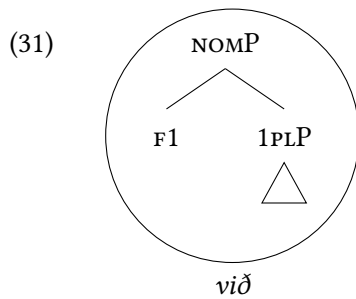
For the third person singular feminine, German uses *sie* as nominative and accusative, and *ihr* as dative. Two lexical entries are needed for that. The first one in (32a) contains pronominal features, F1 and F2. It corresponds to the phonology *sie*. The second one is given in (32b). It contains in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

(32)   a.   ACCP ⟺ *sie*

                 F2   NOMP

                        F1   3SG.FP
                                   △

       b.   DATP ⟺ *ihr*

                 F3   ACCP

                        F2   NOMP

                              F1   3SG.FP
                                          △
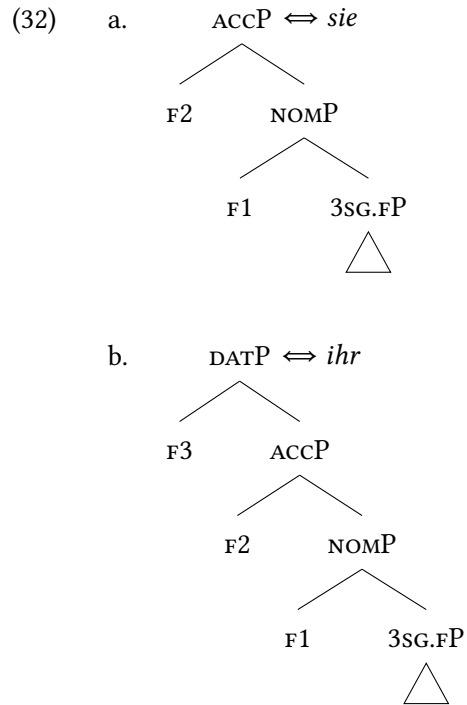
The syntactic structure for the dative is given in (33). It is contained in the lexical tree in (32b), and therefore, spelled out as *ihr*. The lexical entry in (32a) is not considered, because it does not contain F3.

(33)

DATP

F3   ACCP

      F2   NOMP

            F1   3SG.FP
                        △

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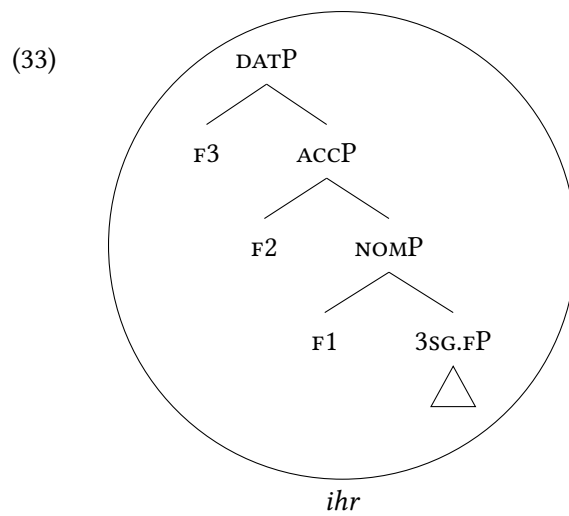
The syntactic structure for the accusative is given in (34).

(34)

```
        ACCP
        /  \
      F2   NOMP
           /  \
          F1  3SG.FP
               △
```
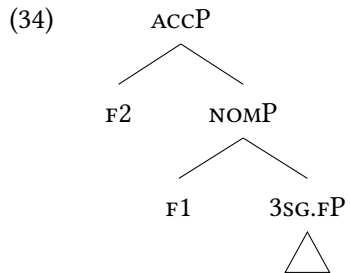
It is contained in the lexical tree for *sie* in (32a) and in the one for *ihr* in (32b). I repeat the lexical entries for *sie* and *ihr* in (35), marking the subparts of the trees that match the syntactic structure in gray.

(35)   a.

```
        ACCP ⟺ sie
        /  \
      F2   NOMP
           /  \
          F1  3SG.FP
               △
```

b.

```
        DATP ⟺ ihr
        /  \
      F3   ACCP
           /  \
         F2   NOMP
              /  \
             F1  3SG.FP
                  △
```
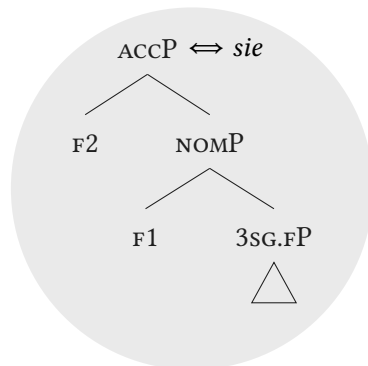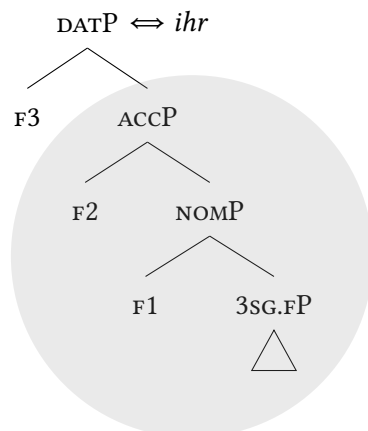
The former, (35a), has one no unused features. The latter, (35b), has one unused feature: F3. Because (35a) has fewer unused features, it wins the competition, and the syntactic structure is spelled out as *sie*. This is shown in (36)

(36)

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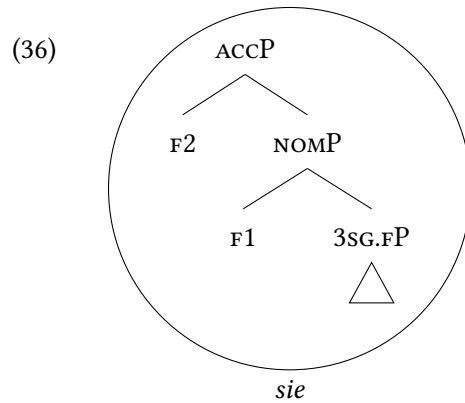
The syntactic structure for the nominative is given in (37).

(37)
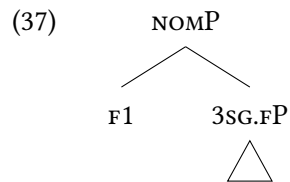
It is contained in the lexical tree for *sie* in (32a) and in the one *ihr* in (32b). I repeat the lexical entries for *sie* and *ihr* in (38), marking the subparts of the trees that match the syntactic structure in gray.

(38)   a.   ACCP ⟺ *sie*

b.   DATP ⟺ *ihr*

          F3   ACCP

                   F2   NOMP

                          F1   3SG.FP
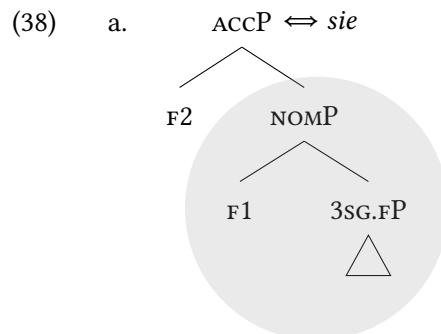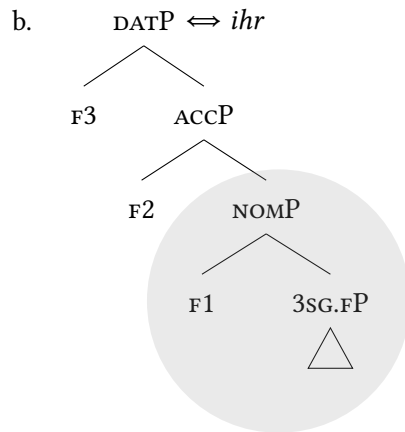
The former, (38a), has one unused feature: F2. The latter, (38b), has two unused features: F2 and F3. Because (38a) has fewer unused features, it wins the competition, and the syntactic structure is spelled out as *sie*. This is shown in (39).

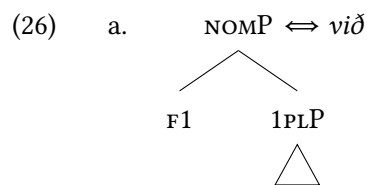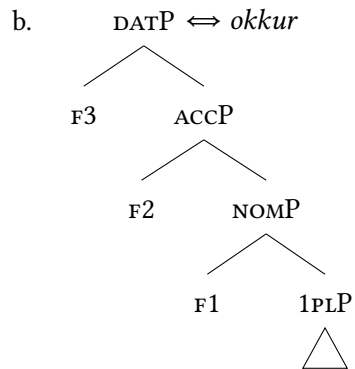(39)   NOMP

          F1   3SG.FP

                    sie
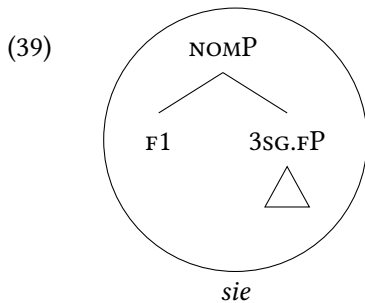
This last example also illustrates that the laid out system is unable to derive an ABA pattern. The unability of the system to derive such a pattern is a welcome one, since the pattern is unattested cross-linguistically. In an ABA pattern, the nominative and the dative are syncretic, to the exclusion 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 NOM < ACC < 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).

(40)   NOMP ⟺ *luw*

      F1   3sgP
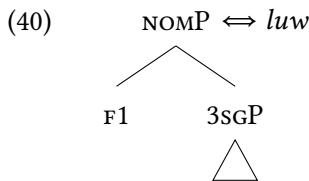
The syntactic structure in for the nominative is given in (41). It is contained in the lexical tree in (41), and the nominative is spelled out as *luw*.

(41)   NOMP

      F1   3sgP

           luw
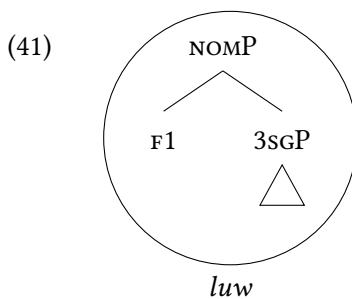
As shown in Table 3.3, the morphological form of the accusative contains the morphological form of the nominative (*luw*) plus an extra morpheme (*e:l*). As shown in Table 3.1, the syntactic features of the accusative contain the syntactic features of

the nominative (F1) plus an extra feature (F2). Accordingly, I give the lexical entry
for the accusative marker *e:l* in (42).[8]

(42)   ACCP ⟺ *e:l*
         │
         F2

Luw-e:l consists of two morphemes that both correspond to their own piece of syn-
tactic 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 con-
stituents. That means that it is impossible to let ACCP spell out as *e:l* while it contains
NOMP.[9]

(43)
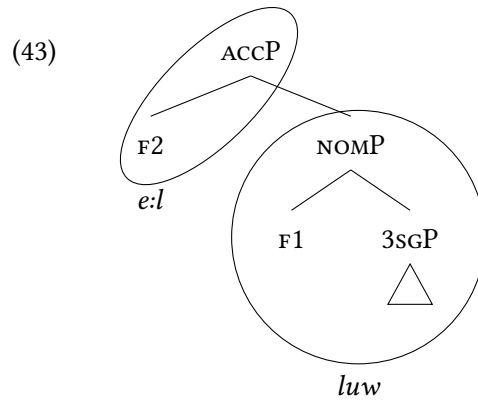
The lexical entry in (42) can only match the syntactic structure if NOMP moves away,
leaving the ACCP containing F2 behind. In other words, the syntactic structure needs
to be modified in such a way that the complement of F2 is not in the way anymore.

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

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[8]Note 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.

[9]Notice 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]

(44)

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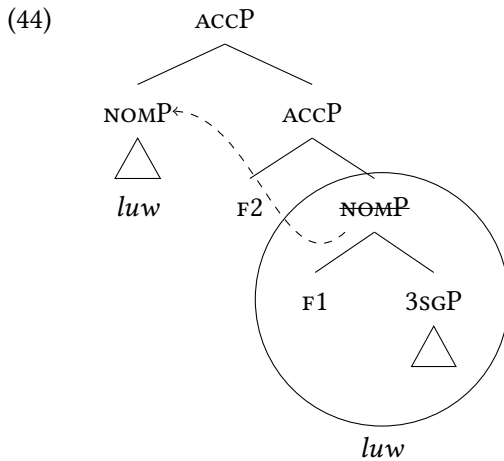
The result of the movement is given in (45). The lexical tree in (42) matches the

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[10]In Chapter III I introduce the spellout procedure in more detail.

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

[12]This 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 III I return to 'regular' syntactic movement in Nanosyntax.

[13]In 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*.

(45)

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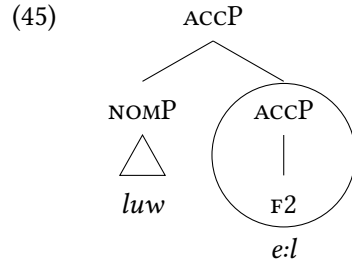
Just as Khanty has an additional morpheme that shows up in the accusative, it also has a morpheme that shows up in the dative. Similarly, just as the accusative has one more feature than the nominative (F1, F2 vs. F1), the dative has one more feature than the accusative (F1, F2, F3 vs. F1, F2). This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

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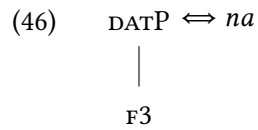
Again, because spellout only targets constituents, F3 cannot be spelled out right after it has been merged, as shown in (47).

(47)

```
              DATP
             /    \
          F3       ACCP
          na       /    \
                NOMP      ACCP
                 /\        /\
               luw        e:l
```
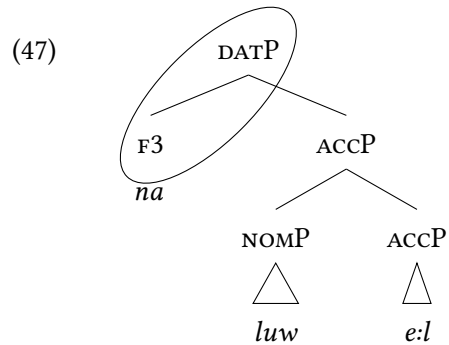
The same complement movement as before has to take place, which is shown in (48). The complement of F3, the ACCP, moves to the specifier of DATP.

(48)

DATP
```
              DATP
        ┌───────┴───────┐
      ACCP            DATP
    ┌───┴───┐      ┌───┴───┐
  NOMP    ACCP   F3    ACCP
    △       △         ┌──┴──┐
   luw      e:l     NOMP   ACCP
                      △      △
                     luw     e:l
```
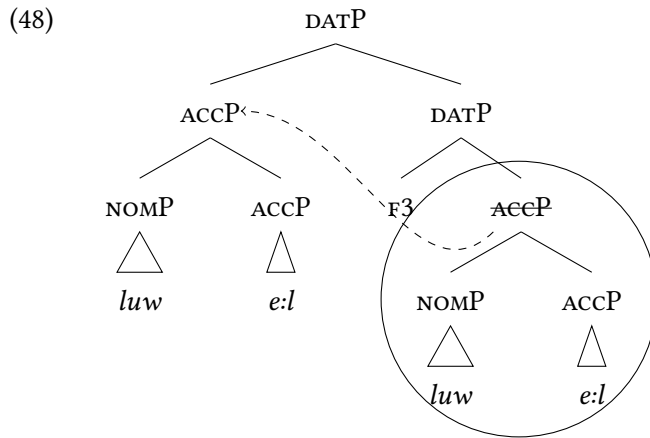
The result of the movement is given in (49). The lexical tree in (46) matches the syntactic structure, and DATP is spelled out as *na*.

(49)

```
                    DATP
            ┌────────┴────────┐
          ACCP              DATP
        ┌───┴───┐            │
      NOMP    ACCP          F3
        △       △           na
       luw      e:l
```
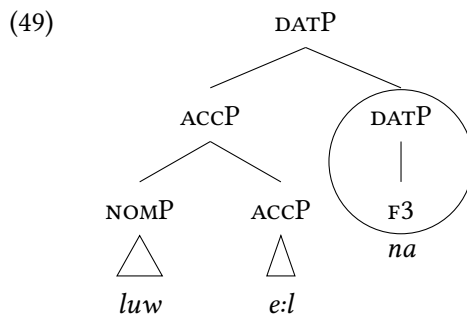
In sum, the cumulative case decomposition from Table 3.1 can derive the morphological case containment facts.

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 NOM < ACC < 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 III. 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.

(50)

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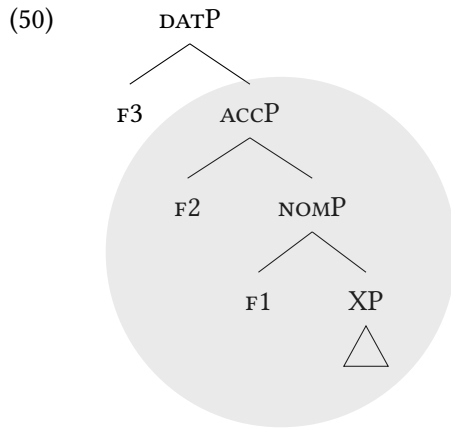
Next is the competition between dative and nominative, in which dative wins. The corresponding cells are marked light gray in Table 3.4. In (51) I show the syntactic structure of a dative relative pronoun. It contains the XP, F1, F2 and F3. Contained in this structure is a nominative relative pronoun,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

(51)

```
            DATP
           /    \
         F3      ACCP
                /    \
              F2      NOMP
                     /    \
                   F1      XP
                           △
```
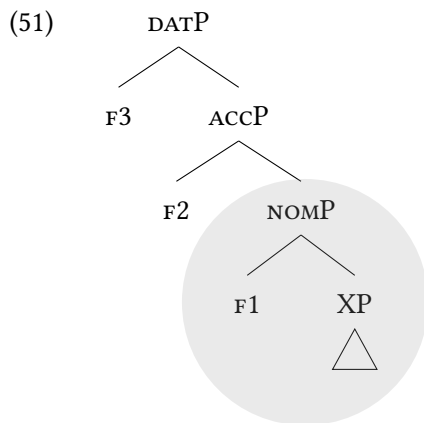
Finally there is the competition between accusative and nominative, in which accusative wins. The corresponding cells are uncolored in Table 3.4. In (52) I show the syntactic structure of an accusative relative pronoun. It contains the XP, F1 and F2. Contained in this structure is a nominative relative 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.

(52)   ᴀᴄᴄP

        ᴀᴄᴄP
       /   \
     ꜰ2   ɴᴏᴍP
          /   \
        ꜰ1   XP
               △
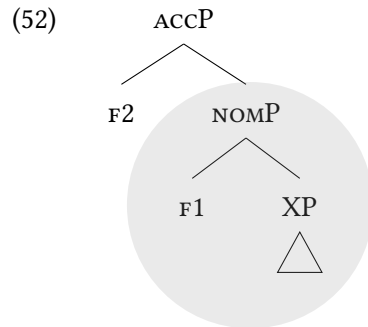
In sum, the cumulative case decomposition from Table 3.1 can derive the case scale observed for case competition in headless relatives.

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 ꜰ1, ꜰ2 and ꜰ3), it wins over the accusative (which consists of ꜰ1 and ꜰ2) and the nominative (which contains only ꜰ1). 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 III. 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 aspects is the topic of Part II of the

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[1]On 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 pattern, 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)

INT ᴱˣᵀ	[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.

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[2]Old 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.

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

(2) quham   **dher**   **chisendit**   **scolda**

     come.PST.3SG[NOM] RP.SG.M.NOM send.PST.PTCP[NOM] should.PST.3SG

     uuerdhan

     become.INF

     'the one, who should have been sent, came'   (Old High German, Isid. 35:5)

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

(3) gihortut   ir   **thiu**   **ih**   **íu**   **quad**

     listen.PST.2PL[ACC] 2PL.NOM RP.PL.N.NOM 1SG.NOM 2PL.DAT speak.PST.1SG[ACC]

     'you listened to those things, that I said to you'

                                                    (Old High German, Tatian 165:6)

Consider the example in (4), in which the internal dative case competes against the external dative case.[3] The internal case is dative, as the predicate *willian* 'to wish'

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

takes dative objects. The external case is dative as well, as the predicate *seggian* 'to say' takes dative indirect objects. The relative pronoun *them* 'RP.PL.M.DAT' appears in the internal and external case: the dative.

(4)   sagda   **them**   **siu**   **uuelda**
       say.PST.3SG$_{[DAT]}$ RP.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.

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* 'RP.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] RP.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* 'RP.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**   **chisitzit**
      Judah.DAT RP.SG.M.ACC my.ACC.M.PL mountain.ACC.PL possess.PRES.3SG[NOM]
      'I create of the seed of Jacob and of Judah the one, who possess my mountains'

                                                          (Old High German, Isid. 34:3)

The two examples in which the nominative and the accusative compete are high-

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[4]At 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.

lighted 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* 'RP.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
     RP.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 com-

petes against the external dative case. The internal case is nominative, as the predicate *sprehhan* 'to speak' takes nominative subjects. The external case is dative, as the predicate *antwurten* 'to reply' takes dative objects. The relative pronoun *demo* 'RP.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] RP.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.

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)

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 competes against the external accusative case. The internal case is dative, as the predicate *zawen* 'to tell' takes dative subjects. The external case is accusative, as the predicate *weizan* 'to know' takes accusative objects. The relative pronoun *thémo* 'RP.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] RP.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* 'RP.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
       RP.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 inter-

nal 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* 'RP.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   béran   scolti   **thér**
      that 3SG.F.NOM 1PL.DAT bear.INF_[ACC] should.SUBJ.PST.3SG RP.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* 'RP.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 béran 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* 'RP.AN.NOM' appears in the internal and external case: the nominative.

(12)   Uns   besucht,   **wer**   **Maria**   **mag**.
      2PL.ACC visit.PRES.3SG$_{[NOM]}$ RP.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* 'RP.AN.ACC' appears in the internal and external case: the accusative.

(13)   Ich   lade ein,   **wen**   **auch**   **Maria**   **mag**.
      1SG.NOM invite.PRES.1SG$_{[ACC]}$ RP.AN.ACC Maria.NOM like.PRES.3SG$_{[ACC]}$
      '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* 'RP.AN.DAT' appears in the internal and external case: the dative.

(14)   Ich   folge,   **wem   immer ich**
       1SG.NOM folge.PRES.1SG$_{[DAT]}$ RP.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.

Table 4.12: Modern German headless relatives (matching)

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

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

I start with the competition between the accusative and the nominative. Following 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* 'RP.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] RP.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] RP.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* 'RP.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] RP.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]

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[5]Not 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**   **mich**
       1SG.NOM love.1SG[ACC] RP.AN.NOM good.NMLZ do.3SG[NOM] and hate.1SG[ACC] RP.AN.NOM ISG.ACC

       verletzt.
       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.

(18)   *Ich   lade ein,   **wer   mir   sympathisch**
       1SG.NOM invite.PRES.1SG[ACC] RP.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 high-lighted 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)).

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

INT ᴱˣᵀ	[NOM]	[ACC]	[DAT]
[NOM]	NOM	*	
[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. 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 (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* 'RP.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] RP.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] RP.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* 'RP.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] RP.AN.DAT Hitchcock.ACC like.PRES.3SG[NOM]
       'I trust who likes Hitchcock.'

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] RP.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* 'RP.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] RP.AN.DAT also   Maria.NOM

        vertraut.
        trust.PRES.3SG[DAT]
        'I invite whoever Maria also trusts.'
                                        (Modern German, adapted from Vogel 2001: 344)

The example in (24) is identical to (23), except for that the relative pronoun appears in the external less complex accusative case. This example is ungrammatical: although the internal case is more complex, the relative pronoun appears in the 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] RP.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* 'RP.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$_{[DAT]}$ RP.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$_{[DAT]}$ RP.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)).

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.

Table 4.15: Modern German headless relatives (ACC — DAT)

INT ᴱˣᵀ	[NOM]	[ACC]	[DAT]
[NOM]	NOM	*	*
[ACC]	ACC	ACC	*
[DAT]	DAT	DAT	DAT

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

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[6]It 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

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 *tíktō* 'to give birth to' takes accusative objects. The external case is dative, as the predicate *ékhō* 'to provide' takes dative indirect objects. The relative pronoun *hỗ̜* 'RP.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) pãn tò tekòn   trophḕn   ékhei   hỗ̜   **án**
      any parent.SG.NOM food.SG.ACC provide.PRES.3SG[DAT] RP.SG.M.DAT MOD

      tékę̄
      gives 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

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.

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 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 is has to be of the type shown in Table 4.18. In other words, it is not of the type that only allows the external case to surface when it wins the case competition.

Consider the example in (28). In this example, the internal accusative case competes against the external nominative case. The internal case is accusative, as the predicate *philéō* 'to love' takes accusative objects. The external case is nominative, as the predicate *apothnéiskō* 'to die' takes nominative subjects. The relative pronoun *hòn* 'RP.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]

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

(28) **hòn hoi theoì philoũsin** apothnḗskei néos
RP.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 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 is 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* 'RP.ACC.AN' appears in the internal and external case: the

accusative.

(29)   Jan lubi   kogo   -**kolkwiek Maria lubi**.
       Jan like.3SG[ACC] RP.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* 'RP.PL.AN.DAT' appears in the internal and external case: the dative.

(30)   Jan pomaga   komu   -**kolkwiek ufa**.
       Jan help.3SG[DAT] RP.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* 'RP.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] RP.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] RP.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 ap-

pears 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* 'RP.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 wpuścil   do domu**.
Jan trust.3SG$_{[DAT]}$ RP.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 wpuścil   do domu**.
Jan trust.3SG$_{[DAT]}$ RP.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)).

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

Table 4.22: Polish headless relatives (ACC — DAT)

INT \ EXT	[ACC]	[DAT]
[ACC]	ACC	*
[DAT]	*	DAT

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

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

The second aspect is whether the internal and the external case are allowed to surface when either of them wins the case competition. This differs across languages. There are four logical possibilities, listed in (36).

(36)   Logically possibile 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.

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)

Table 4.24: Relative pronoun follows case competition

INT $^{\text{EXT}}$	[NOM]	[ACC]	[DAT]
[NOM]	NOM	ACC	DAT
[ACC]	ACC	ACC	DAT
[DAT]	DAT	DAT	DAT

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]

The main focus of Chapter III is the linguistic counterpart of the second parameter. I show with general properties of relative clauses how the difference between

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[8]I 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 III, I show how it follows from general properties of relative clauses that this type of language is excluded.

[9]The 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 III 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.
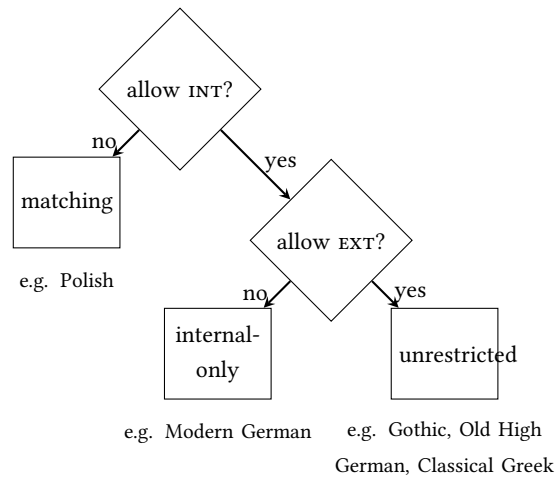
Figure 4.1: Attested patterns in headless relatives with case competition

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.

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* 'RP.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] RP.DAT.PL COMP against 3SG.M.ACC

gegylte

sin.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 pulversize' takes accusative objects. The relative pronoun *ðone* 'RP.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] RP.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 *efχarístisó* 'to thank' takes accusative objects. The relative pronoun *ópjus*

'RP.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) Efχarístisa   ópjus   **me**   **voíϑisan**.
     thank.PST.3PL$_{[ACC]}$ RP.PL.M.ACC CL.1SG.ACC help.PST.3PL$_{[NOM]}$
     'I thanked whoever helped me.'

<div align="right">(Modern Greek, adapted from Daskalaki 2011: 80)</div>

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.

<div align="center">Table 5.8: Modern Greek headless relatives possibility 1</div>

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.

<div align="center">Table 5.9: Modern Greek headless relatives possibility 2</div>

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 *ópji* 'RP.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] RP.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] RP.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 *eðósó* 'to give' takes genitive objects. The external case is accusative, as the predicate *efχarístisó* '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

'RP.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   efχarístisan   ópji   **tus**   íχa

CL.1SG.ACC thank.PST.3PL$_{[NOM]}$ RP.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

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[1] In 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 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.

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[2]When 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   epiléksume θa   pári to   vravío
             RP.SG.M.NOM/RP.SG.M.ACC choose.1PL[ACC] FUT   take.3SG[NOM] the price.ACC
             'Whoever we may choose, he will get the price.'
       b.   ópjos/   ópjon   me   aɣapá   ton   aɣapó
             RP.SG.M.NOM/RP.SG.M.ACC CL.1SG.ACC love.3SG[NOM] CL.3SG.M.ACC love.1SG[ACC]
             'Whoever loves me, I love him.'

[3]Then there is also the thing that Modern Greek has oblique accusatives that require a clitic.

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).

Table 5.14: Relative pronoun in external case

INT ᴱˣᵀ	[NOM]	[ACC]	[DAT]
[NOM]	NOM	ACC	DAT
[ACC]	NOM	ACC	DAT
[DAT]	NOM	ACC	DAT

Difference between S-ACC and B-ACC.

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 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.
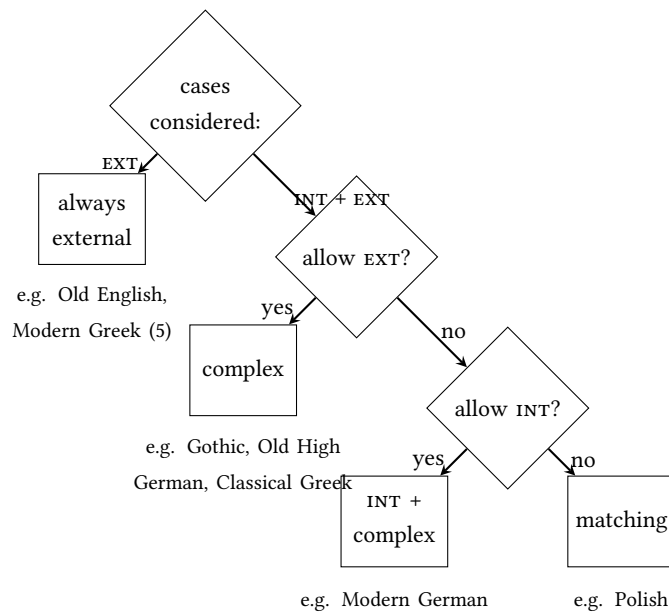

Figure 5.1: Attested patterns in headless relatives

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[4] In 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.

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 ([INT]>[EXT]) and one in which the external case is the most complex ([EXT]>[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 × 3 = 9 logically possible options, which are listen in Table 5.15.

Table 5.15: Possible patterns for headless relatives

	[INT]>[EXT]		[EXT]>[INT]		
	INT	EXT	INT	EXT	language
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

In what follows I show how Figure 5.1 generates of 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

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 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 chapter gives the basic idea behind my proposal. Throughout the rest of the chapter I motivate the proposal, and I illustrate it with examples.
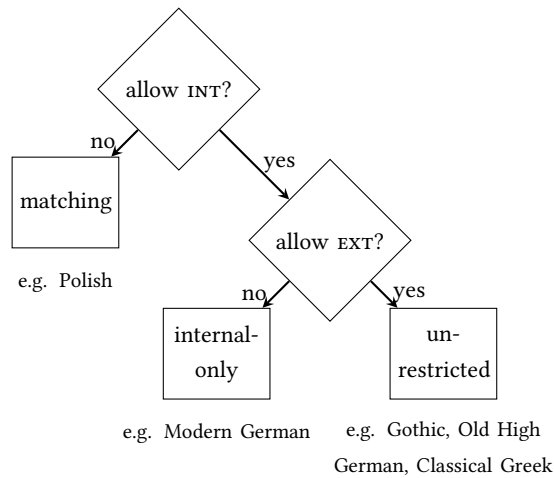
Figure 6.1: Two descriptive parameters generate three language types

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$_{\text{EXT}}$ [RP$_{\text{INT}}$ ...]

In a headless relative, either the light head or the relative pronoun is absent. A light head or relative pronoun can be absent under the following condition: when it forms a constituent within 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* 'LH.SG.M.NOM' is the light head of the relative clause. This is the element

---

[1]The 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 Chapter 11 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* 'RP.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**   **suochet**
     now not be.3SG DEM.SG.N.NOM LH.SG.M.NOM RP.SG.M.ACC 2PL.NOM seek.2PL

     zi arslahanne?
     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$_{\text{EXT}}$
RP$_{\text{INT}}$
*

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, it depends on the comparison of the constituents they consist of. 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 Chapter 7 to 9 I give arguments to support the structures I am assuming here. Figure 6.2 gives a simplified representation of them.[2]

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

[2]The structure of the relative pronoun in Figure 6.2 is not a base structure but a derived one. I assume the base structure of the relative pronoun to be as in (i).

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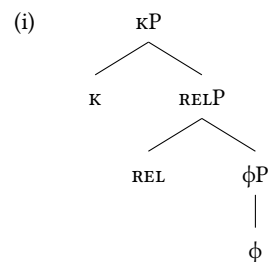
The structure in Figure 6.2 cannot be derived from the base structure in (i). It is a simplification of a more complex situation for which I only give the intuition here.

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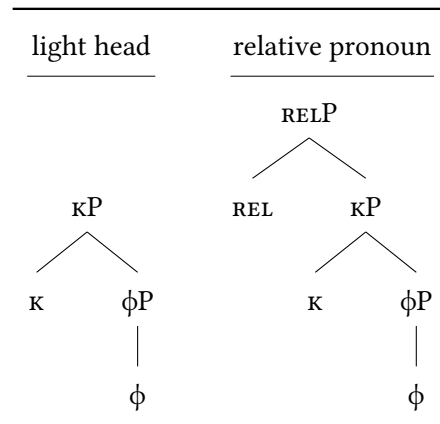
light head   relative pronoun

RELP

κP   REL   κP

κ   φP   κ   φP

φ   φ

Figure 6.2: LH and RP in the internal-only type

each other in that the relative pronoun has at least one feature in addition, which I call here REL.

This system excludes the external-only type. An external-only type would be one in which the light head can delete the relative pronoun, but the relative pronoun cannot delete the light head. In my proposal, an element can be deleted if forms a constituent within the other element. 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 relative pronoun to form a constituent within the light head.

I propose that the three attested different language types can be derived from this set of assumptions. The differences between them do not arise from changing the feature content of the light head and relative pronoun per language. Instead, the differences come from how the light heads and relative pronouns are spelled out.

In the next three sections, I briefly give the intuition behind how spellout generates the three attested language types. I take the internal-only type as the point of departure. The matching type differs from the internal-only type in that different constituents are formed. This is a consequence of having multiple morphemes spelling out different portions of the structure instead of having a single morpheme. The unrestricted type differs from the two other types in that it even different constituents are formed. In addition, it uses the same lexical entry for different portions of the structure. This is the consequence of there being a sycnretism.

6.2   The point of departure

As I mentioned, I take the internal-only type as the point of departure. In internal-only languages, headless relatives are grammatical when the internal and the external case match and when the internal case is more complex than the external case. Headless relatives are ungrammatical when the external case is more complex than the internal case. That means that the relative pronoun can delete the light head, but the light head cannot delete the relative pronoun. I show this in 6.2.

Table 6.2: Grammaticality in the internal-only type

|	surface pronoun
$K_{INT} = K_{EXT}$	$RP_{INT/EXT}$
$K_{INT} > K_{EXT}$	RP_{INT}
$K_{INT} < K_{EXT}$	*

I go through the three types of situations in given in Table 6.2. I show that the relative pronoun can delete the light head when they have the same case and when it has a more complex case. There is no grammatical result when the external case is more complex.

In Figure 6.3, I give an example in which the relative pronoun and the light head bear the same case.

I draw a dashed circle around each constituent that is a constituent in both the light head and the relative pronoun. The light head (the NOMP) forms a constituent within the relative pronoun (the RELP), so the relative pronoun can delete the light head. I illustrate this by marking the content of the dashed circles for the light head gray.

In Figure 6.4, I give an example 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. The light head (the NOMP) still forms a constituent within the relative pronoun (the RELP), so the relative pronoun can delete the light head. I illustrate this by marking the content of the dashed circles for the
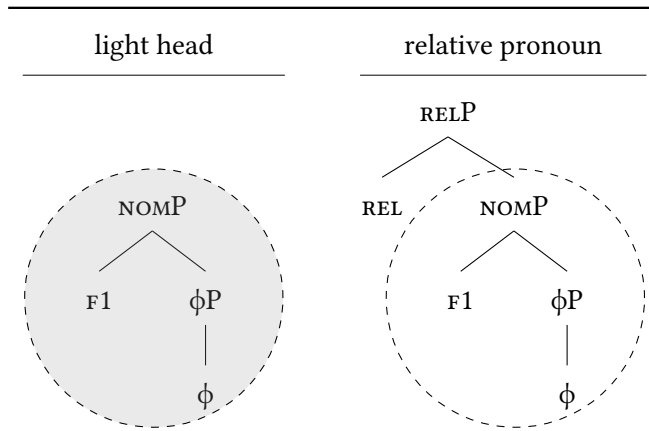
Figure 6.3: EXT_NOM vs. INT_NOM in the internal-only type
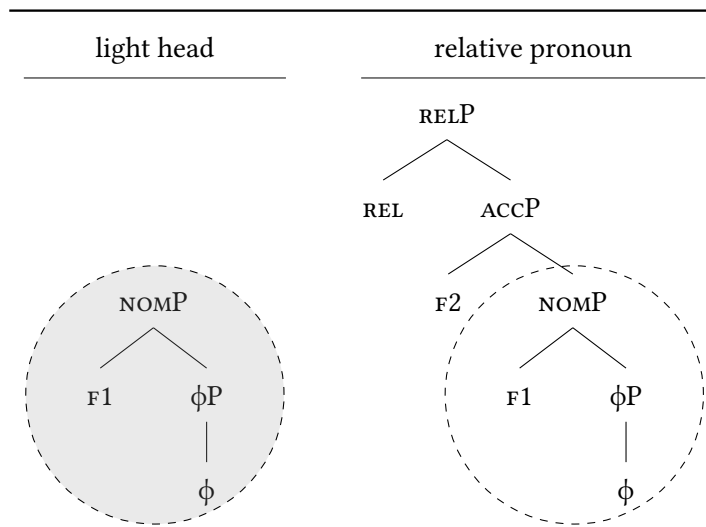
Figure 6.4: EXT_NOM vs. INT_ACC in the internal-only type

light head gray.

In Figure 6.5, I give an example in which the light head bears a more complex case than the relative pronoun.
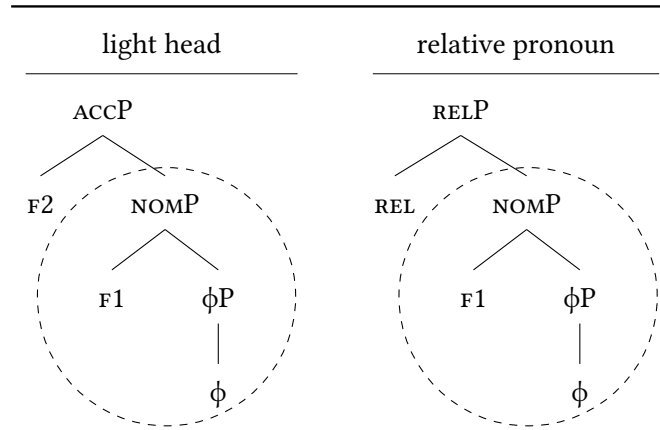
Figure 6.5: EXT_{ACC} vs. INT_{NOM} in the internal-only type

I draw a dashed circle around each constituent that is a constituent in both the light head and the relative pronoun. Different from the examples in Figure 6.3 and 6.5, the light head does not form a constituent within the relative pronoun. The NOMP of the light head forms a constituent within the relative pronoun, but the relative pronoun does not contain the feature F2 that forms an ACCP. The NOMP of the relative pronoun forms a constituent within the relative pronoun, but the light head does not contain the feature REL that forms a RELP. As a result, none of the elements can be absent. I illustrate this by leaving the content of both dashed circles unfilled.

6.3   Changing constituency

The difference between the internal-only type and the matching type lies in when the internal case is more complex than the external case. In the internal-only type this is grammatical, and in the matching type, it is not. This means that the relative pronoun can only delete the light head when the two cases match. I show overview of the language in 6.3.

Table 6.3: Grammaticality in the matching type

	surface pronoun
$K_{INT} = K_{EXT}$	RP_{INT}
$K_{INT} > K_{EXT}$	*
$K_{INT} < K_{EXT}$	*

I derive this difference by placing the constituents that the relative pronoun and light heads consist of in a different order. This is a simplification of the real proposal, in which I derive the difference in constituency by movement from the same base structure.

In the internal only type, the case features appear higher in the structure than the phi-features, as shown in Figure 6.6
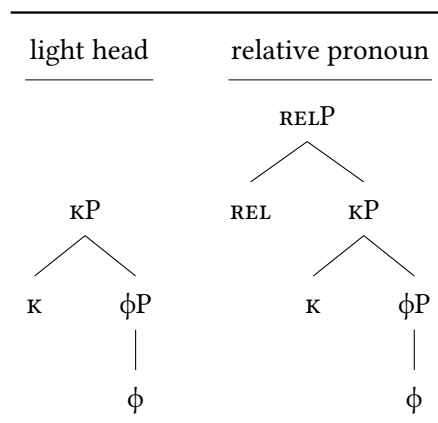
Figure 6.6: LH and RP in the internal-only type (repeated)

I suggest that in the matching type, the case features appear lower in the structure than the phi features, as shown in Figure 6.7.

This is a result of having multiple morphemes spelling out different portions of the structure instead of having a single morpheme spelling this structure out at once. In Chapter 7 and 8 I motivate this claim for Modern German and Polish.

In this section, I show how this idea works out the matching type language. I discuss how the relative pronoun can still delete the light head when the internal

light head	relative pronoun

RELP

φP   REL   φP

φ   κP   φ   κP

κ   κ
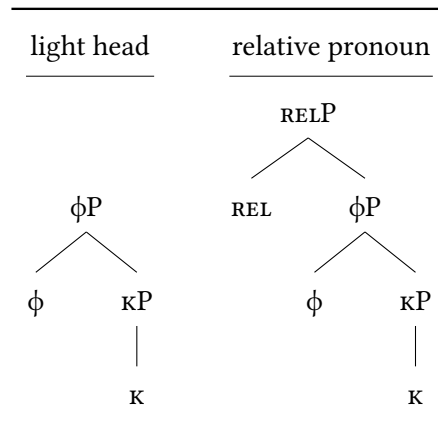
Figure 6.7: LH and RP in the matching type

and the external case match and how this does no longer work when the two cases differ.

In Figure 6.8, I give an example in which the light head and the relative pronoun bear the same case.

light head	relative pronoun

RELP

φP   REL   φP

φ   NOMP   φ   NOMP

F1   F1
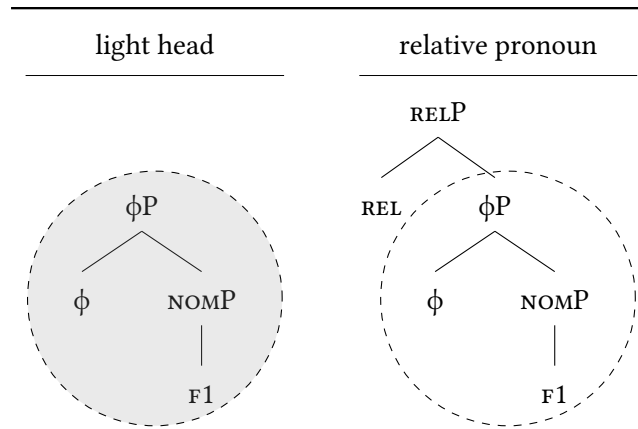
Figure 6.8: EXT_NOM vs. INT_NOM in the matching type

I draw a dashed circle around each constituent that is a constituent in both the light head and the relative pronoun. In this instance it no problem that the phi-features appear higher in the structure than the case feature F1. The light head (the φP) still forms a constituent within the relative pronoun (the RELP), so the relative

pronoun can delete the light head. I illustrate this by marking the content of the dashed circles for the light head gray.

In Figure 6.9, I give an example in which the relative pronoun bears a more complex case than the light head.
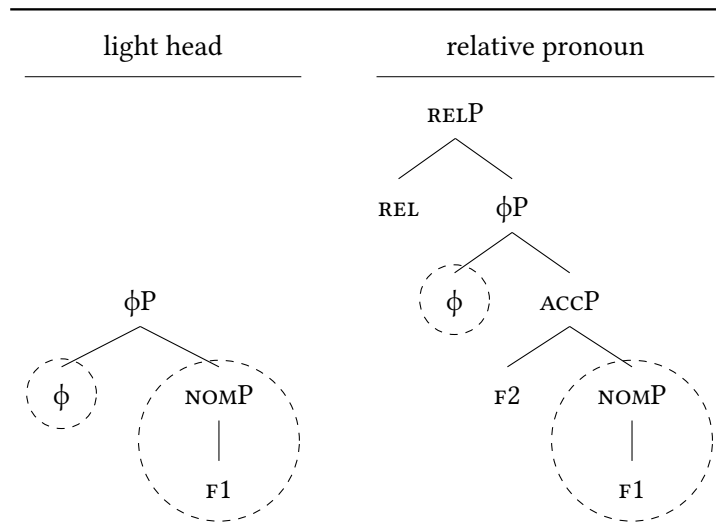
Figure 6.9: EXT_{NOM} vs. INT_{ACC} in the matching type

I draw a dashed circle around each constituent that is a constituent in both the light head and the relative pronoun. The light head (the ɸP) no longer forms a constituent within the relative pronoun (the RELP). Therefore, the relative pronoun cannot delete the light head, which I illustrate this by leaving the content of both dashed circles unfilled. It shows that in this instance it is a problem problem that the phi-features appear higher in the structure than the case features.

Something else the example shows is the necessity to formulate the proposal in terms of constituent containment instead of feature containment. To illustrate the difference, I show the example from the internal-only type in which the relative pronoun could delete the light head in Figure 6.10, repeated from 6.4.

In Figure 6.10, two different types of containment hold: feature containment and constituent containment. I start with feature containment. Each feature of the light head (i.e. ɸ and F1) is also a feature within the relative pronoun. Therefore, the relative pronoun contains the light head. Constituent containment works as

light head	relative pronoun
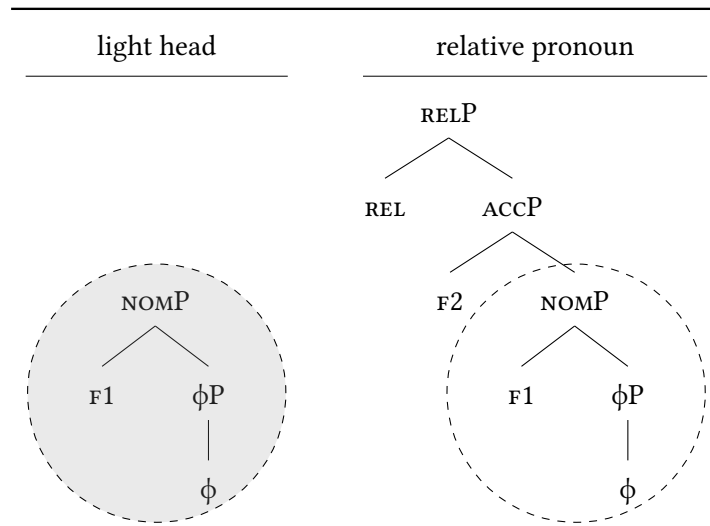
Figure 6.10: EXT$_{\text{NOM}}$ vs. INT$_{\text{ACC}}$ in the internal-only type (repeated)

follows. The NOMP forms a constituent within the RELP. Therefore, the relative pronoun contains contains the light head.

Consider Figure 6.9 again. Here feature containment holds, but constituent containment does not. The light head and the relative pronoun contain exactly the same features as in 6.10, so also here each feature of the light head (i.e. ϕ and F1) is also a feature within the relative pronoun However, the features are structured differently, in such a way that the light head does no longer form a single constituent within the relative pronoun.

In sum, constituent containment is a stronger requirement than feature containment. Only this stronger requirement is able to distinguish the internal-only from the matching type. Therefore, this account crucially relies on constituent containment being the containment requirement that needs to be fulfilled.

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

In (3), I give an example of a conjunction with two noun phrases from 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 show this in Figure 6.11 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.
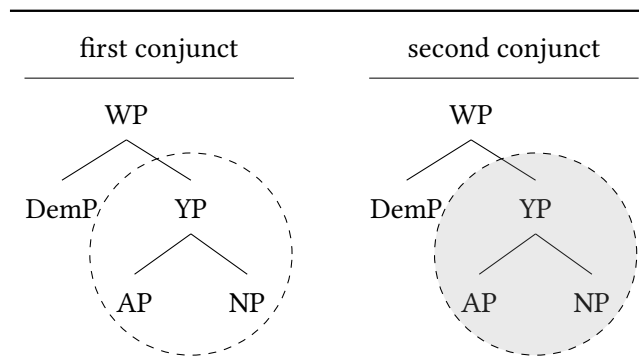
Figure 6.11: Nominal ellipsis in Dutch

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 forms a constituent with *kaarii* 'houses'. I showed this in Figure 6.12 under first conjunct. In the second conjunct, the adjective and the noun are deleted. Different from the Dutch example in 6.11, this is not a single

constituent. The adjective cannot be interpreted in (4), because it does not form a constituent with the noun.
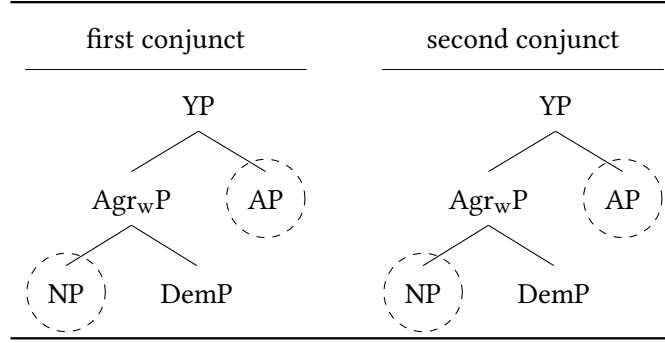
Figure 6.12: Nominal ellipsis in Kipsigis

In conclusion, a deleted phrase must form a single constituent within the deleting phrase. For light heads and relative pronouns that means that the light head must form a single constituent within the relative pronoun.

6.4   Syncretism

The difference between the internal-only type and the unrestricted type lies in when the external case is more complex than the internal case. In the internal-only type this is ungrammatical, and in the unrestricted type, it is grammatical. This means that the light head can delete the relative pronoun when its case is more complex. I show overview of the language in 6.4.

Table 6.4: Grammaticality in the matching type

	surface pronoun
$K_{INT} = K_{EXT}$	$RP_{INT/EXT}$
$K_{INT} > K_{EXT}$	RP_{INT}
$K_{INT} < K_{EXT}$	LH_{EXT}

In order to let the relative pronoun form a constituent within the light head,

I suggest two modifications should be made from the internal-only structure: a change in constituency and a syncretism.[3] I start with the change in constituency. Again, what I display here is a simplification of the real proposal, in which I derive the difference in constituency by movement from the same base structure. In the internal only type, the case features appear between the phi-features and the relative features, as shown in Figure 6.6

light head	relative pronoun

$$\text{{\sc rel}P}$$

$$\begin{array}{cc} \text{{\sc rel}} & \kappa\text{P} \end{array}$$

$$\kappa\text{P}$$

$$\begin{array}{cc} \kappa & \phi\text{P} \end{array} \qquad \begin{array}{cc} \kappa & \phi\text{P} \end{array}$$

$$\phi \qquad\qquad \phi$$
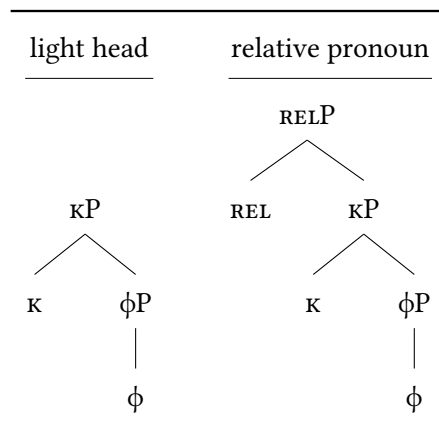
Figure 6.13: LH and RP in the internal-only type (repeated)

In the matching type, I suggested that the case features appear lower in the structure, namely below the phi features. For the unrestricted type, I suggest that the case features appear higher in the structure, namely above the relative features, as shown in Figure 6.14. Of course, this difference compared to the internal-only type can only be noticed in the relative pronoun, since the light head does not have relative features.

This brings me to the second change: syncretism. I suggest that there is a syncretism between the phi-features and the phi-features plus the relative features. That is, there is a lexical entry for the RELP which contains the feature REL and fea-

---

[3]Another option is that the relative pronoun does not actually form a constituent within the light head. Instead, the relative features form a separate constituent which is not deleted. In this chapter I only discuss the situation in which the relative pronoun as a whole forms a constituent within the light head, and the relative pronoun is deleted as a whole. I return to the deletion of separate constituents in Chapter 9.

light head	relative pronoun

$$
\begin{array}{cc}
 & \text{кP} \\[2pt]
 & \diagup\diagdown \\[2pt]
\text{кP} & \text{к} \qquad \text{RELP} \\[2pt]
\diagup\diagdown & \diagup\diagdown \\[2pt]
\text{к} \quad \phi\text{P} & \text{REL} \quad \phi\text{P} \\[2pt]
| & | \\[2pt]
\phi & \phi
\end{array}
$$
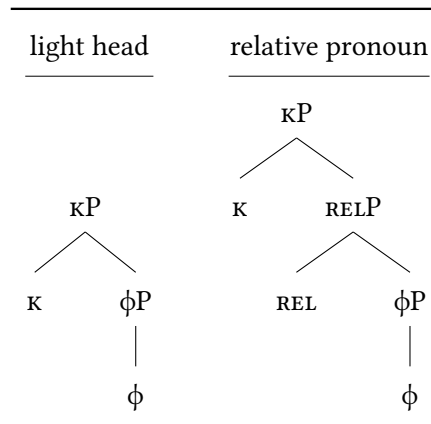
Figure 6.14: LH and RP in the unrestricted type (to be revised)

ture ϕ, but not a more specific one that spells out ϕ on its own. In (5), I give the lexical entry, which spells out as /α/.

(5) RELP $\Longleftrightarrow \alpha$
     $\diagup\diagdown$
  REL ϕP
          |
          ϕ
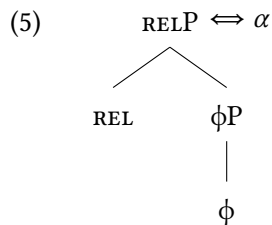
In Figure 6.15, I added the syncretism to the structures.

There are two ways of looking at the structures in Figure 6.15. Looking only at the features, the light head is a кP which contains the feature к and the ϕP. Similarly, the relative pronoun is a кP which contains the feature к and the RELP which contains the feature REL and the ϕP. From this perspective, the light head and the relative pronoun differ.

Looking also at the constituents that are formed within the structure, the light head and the relative pronoun are the same. The light head is a кP that contains the feature к and the constituent that corresponds to α. The relative pronoun is also a кP that contains the feature к and the constituent that corresponds to α. Syncretism has the effect that it 'overwrites' syntactic structure.

I suggest that these structures are the ones that generate the unrestricted type.
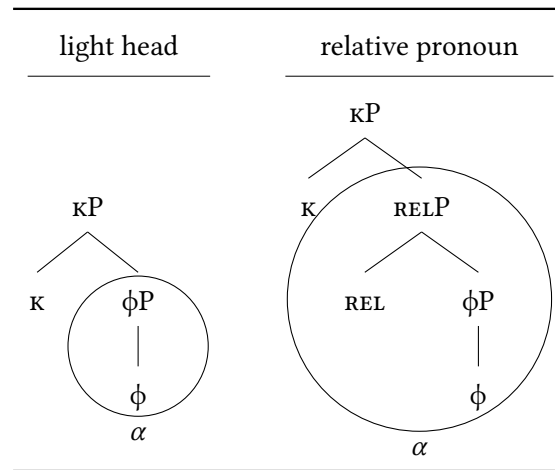
Figure 6.15: ʟʜ and ʀᴘ in the unrestricted type

However, these are not the structures found in Old High German. In Chapter 9 I discuss how Old High German differs from the image I sketched here.

In this section, I show how the structures in Figure 6.15 derive the unrestricted pattern. I show how the relative pronoun can still delete the light head when the internal case is more complex and how the light head can delete the relative pronoun when the external case is more complex.

In Figure 6.16, I give an example in which the relative pronoun bears a more complex case than the light head.

The ϕP in the light head corresponds to α, illustrated by the circle around the ϕP and the α under it. The ʀᴇʟP in the relative pronoun corresponds to α too, illustrated in the same way. The light head (the ɴᴏᴍP) consists of the feature ꜰ1 and a constituent that corresponds to α. This constituent, a ɴᴏᴍP that consists of the feature ꜰ1 and a constituent that corresponds to α is contained in the relative pronoun (the ᴀᴄᴄP). I illustrate this by drawing a dashed circle around each constituent that is a constituent in both the light head and the relative pronoun and by marking the content of the dashed circles for the light head gray.

In Figure 6.17, I give an example in which the light head bears a more complex case than the relative pronoun.

The ϕP in the light head corresponds to α, illustrated by the circle around the ϕP and the α under it. The ʀᴇʟP in the relative pronoun corresponds to α too, illustrated
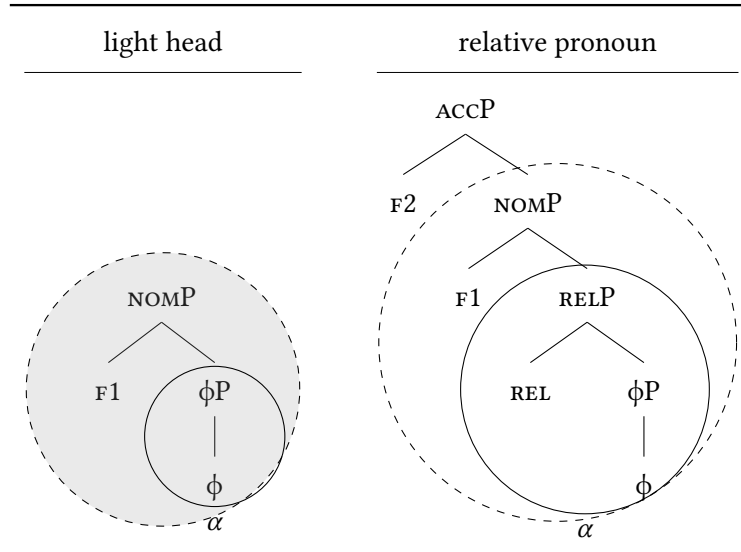
Figure 6.16: EXT_NOM vs. INT_ACC in the unrestricted type
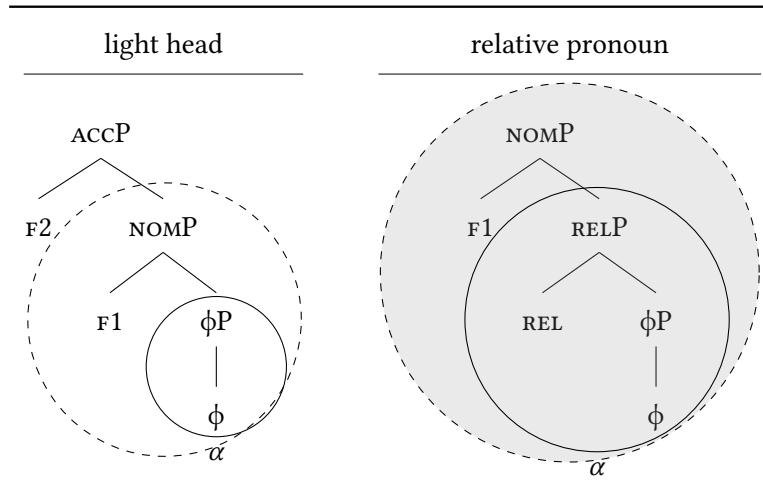
Figure 6.17: EXT_ACC vs. INT_NOM in the unrestricted type

in the same way. The relative pronoun (the NOMP) consists of the feature F1 and a constituent that corresponds to α. This constituent, a NOMP that consists of the feature F1 and a constituent that corresponds to α is contained in the relative pronoun (the ACCP). I illustrate this by drawing a dashed circle around each constituent that is a constituent in both the light head and the relative pronoun and by marking the content of the dashed circles for the relative pronoun gray. This means that a light head can delete a relative pronoun when there is a syncretic form between the two, even though the light head lacks the feature REL that the relative pronoun contains.

The fact that syncretism licenses deletion is not specific to the portion of the structure that corresponds to the RELP that contains the ϕP. Syncretism between different cases have the same effect. I illustrate this with an example from Modern German.

Consider the example in (6), in which the internal nominative case competes against the external accusative case. The relative clause is marked in bold. The internal case is nominative, as the predicate *gefällen* 'to please' takes nominative subjects. The external case is accusative, as the predicate *erzählen* 'to tell' takes accusative objects. The relative pronoun *was* 'REL.INAN.NOM/ACC' is syncretic between the nominative and the accusative.

(6) Ich   erzähle   **was**   **immer mir**
     1SG.NOM tell.PRES.1SG$_{[ACC]}$ RP.INAN.NOM/ACC ever   1SG.DAT

     gefällt.
     pleases.PRES.3SG$_{[NOM]}$
     'I tell whatever pleases me.'

                                   (Modern German, adapted from Vogel 2001: 344)

There is a syncretism between the nominative and the accusative. That is, there is a lexical entry for the ACCP which contains the feature F2 and the NOMP, but not a more specific one that spells out the NOMP on its own. In (7), I give the lexical entry, which spells out as /β/.

(7)   ACCP ⟺ β

        F2   NOMP

              F1   ϕP

                          |

                          ϕ
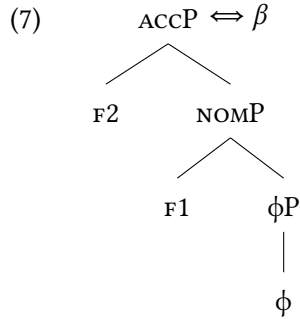
In Figure 6.18, I give an example in which the light head bears a more complex case than the relative pronoun and there is a syncretism between the nominative and the accusative case.
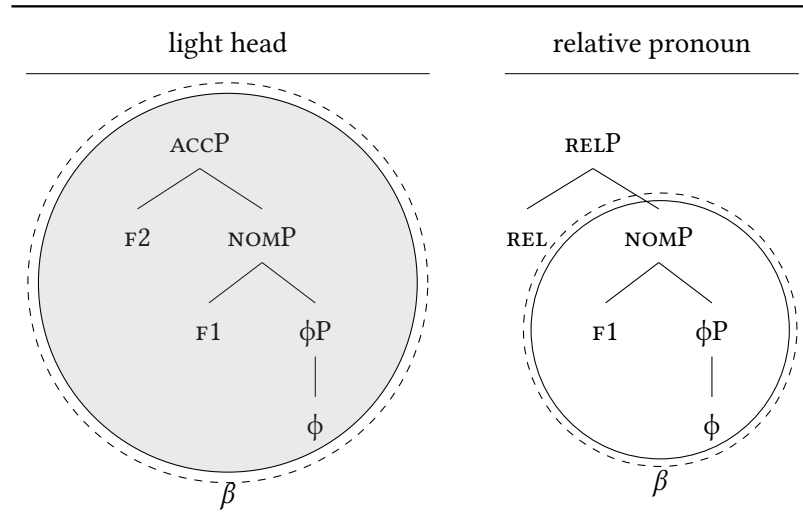
Figure 6.18: EXT_{ACC} vs. INT_{NOM} with case syncretism

The ACCP in the light head corresponds to β, illustrated by the circle around the ACCP and the β under it. The NOMP in the relative pronoun corresponds to β too, illustrated in the same way. The light head (the ACCP) forms a constituent that corresponds to β. A constituent that corresponds to α is contained in the relative pronoun (namely the NOMP). I illustrate this by drawing a dashed circle around each constituent that is a constituent in both the light head and the relative pronoun and by marking the content of the dashed circles for the light head gray. This means

that a less complex case can delete a more complex case when there is a syncretic form between the two.

Summing up, syncretic forms overwrite syntactic structure. A less complex structure can delete a more complex structure when there is a syncretism between the two.

6.5 Summary

In summing up this chapter, 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 chapter 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 the light head forms a constituent within 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 the relative pronoun forms a constituent within 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 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 Chapter 10 I discuss existing proposals on these topics and to what extend they are compatible with my account.

To conclude, in this chapter 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 forms a constituent within 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

Languages of the internal-only type can be summarizes as in Table 7.1.

Table 7.1: Grammaticality in the internal-only type

	surface pronoun
$K_{INT} = K_{EXT}$	$RP_{INT/EXT}$
$K_{INT} > K_{EXT}$	RP_{INT}
$K_{INT} < K_{EXT}$	*

When the internal and the external case match, and there is a tie, the relative pronoun surfaces in the this particular case (just like in all other language types). When the internal case wins the case competition, this type of language allows the internal case to surface. This means that the relative pronoun with a more complex internal case can be the surface pronoun. When the external case wins the case competition, this type of language does not allow the external case to surface. This means that the light head with a more complex external case cannot be the surface pronoun.

In Chapter 6, I suggested that the relative pronoun contains at least one feature more than the light head. In the internal-only type of language, these features are spelled out in such a way that they form the constituency shown in Figure 7.1.

When the internal and the external case match, the relative pronoun can delete

light head	relative pronoun

```
                                                    RELP
                                                   /    \
              κP                          REL          κP
             /  \                                     /  \
           κ      ϕP                      κ          ϕP
                  /\                                 /\
                 /__\                               /__\
                  ϕ                                  ϕ
```
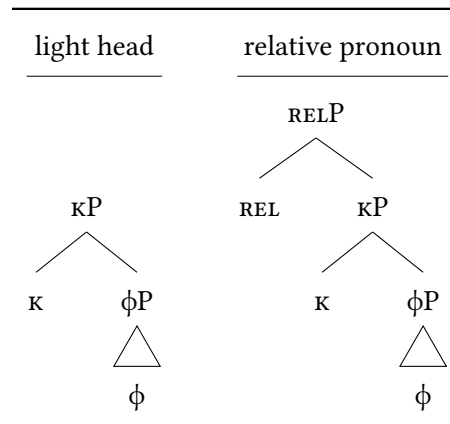
Figure 7.1: LH and RP in the internal-only type

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 relative pronoun can still delete the light head, because it still forms a constituent within the relative pronoun. 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.

In this chapter, I show that Modern German light heads and relative pronouns have this type of structure. I give a compact version of the structures in Figure 7.2.

In what follows, I compare the light head and the relative pronoun in Figure 7.2 to the light head and the relative pronoun in Figure 7.1.

Consider the light head in Figure 7.2. Light heads in Modern German are spelled out by a single morpheme, which I indicate by circling the structure. I show the internal structure of κP to make clear that it contain the INDP (which is the highest feature of what corresponds to the ϕP). Therefore, the structure of the light head in Figure 7.2 is identical to the one in Figure 7.1.

Consider the relative pronoun in Figure 7.2. Relative pronouns in Modern German consist of three morphemes: the κP (which is the constituent that forms the light head) and the MEDP and the RELP, again indicated by the circles. This shows that the relative pronoun contains more a single feature more than the light head, namely whatever is in the MEDP and in the RELP. Besides that, the structure of the
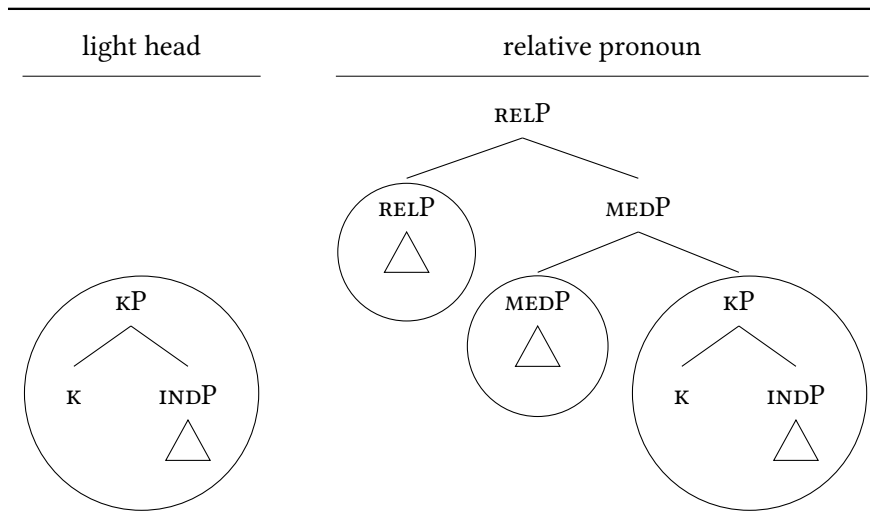
Figure 7.2: ʟʜ and ʀᴘ in Modern German

relative pronoun in Figure 7.2 is identical to the one in Figure 7.1.

Crucially, the constituency relevant for the deletion of the light head is the same in Figure 7.2 as it is in Figure 7.1. Throughout this chapter, I discuss what the exact feature content of relative pronouns and light heads is. I motivate that these features form the constituents shown in Figure 7.2.

The chapter is structured as follows. First, I discuss the relative pronoun. I decompose the relative pronouns into the three morphemes I showed in Figure 7.2, and I show which features each of the morphemes corresponds to. I illustrate how different morphemes are combined using Nanosyntax. Then I discuss the light head. I argue that Modern German headless relatives are derived from a type of 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 (the ᴋP in Figure 7.2). Finally, I compare the constituents of the light head and the relative pronoun. I show that the relative pronoun can delete the light head when the internal case matches the external case or when the internal case is more complex than the external one. When the external case is more complex, I show that none of the elements can delete the other one.

7.1 The Modern German relative pronoun

In Chapter 6, I argued that in the internal-only type, the features of the relative pronoun are spelled out in such a way that they form the constituency shown in Figure (1).

(1)

```
        RELP
        /  \
      REL   KP
            /  \
           K    φP
                /\
               /  \
              φ
```
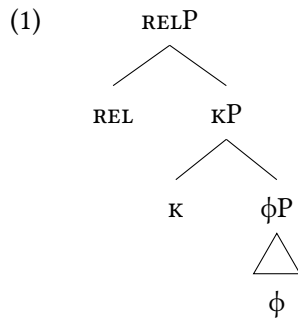
In this section, I give decompose the Modern German relative pronouns and I determine which features they correspond to. I carefully establish the feature content of the relative pronoun, because the features that I introduce for Modern German are present in the same way in the other two language types. In the end, I argue that Modern German relative pronoun have the structure shown in (2).

(2)
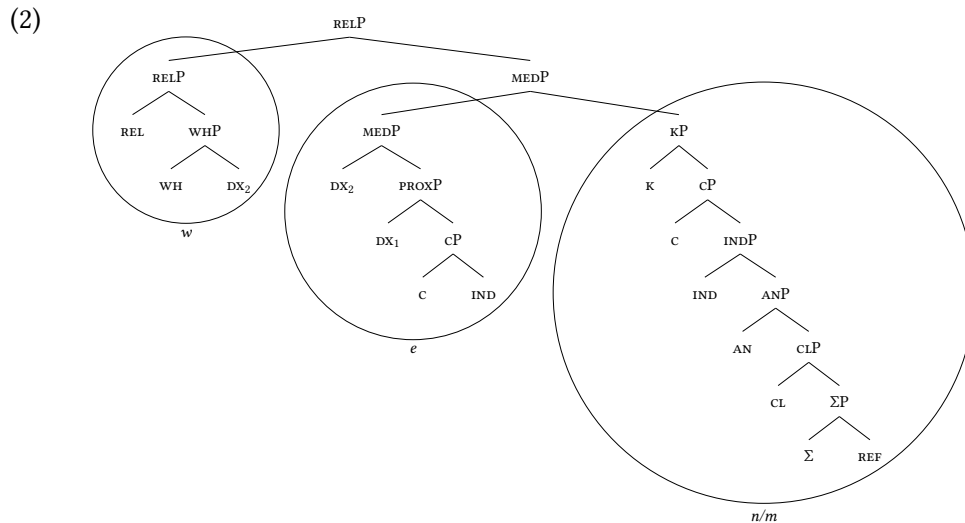
I discuss two relative pronouns: the animate accusative and the animate dative.

These are the two forms that I compare the constituents of in Section 7.4. I show them in (3).

(3)   a.   w-e-n
            'RP.AN.ACC'

       b.   w-e-m
            'RP.AN.DAT'

I decompose the relative pronouns in three morphemes: the *w*, the *e* and the final consonant (*n* or *m*). For each morpheme, I discuss which features they spell out, and I give their lexical entries. In the next section, I show how I construct the relative pronouns by combining the separate morphemes.

I start with the final consonants: *n* and *m*. I argue that these consonants spell out gender features, number features, case features and pronominal features. Consider Table 7.2.

Table 7.2: Modern German relative pronouns (Durrell 2011: 5.3.3)

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

The final consonants depending on animateness and case.[1] The differing final consonant can be observed in several contexts besides relative pronouns. Table 7.3 gives an overview of the demonstrative *dieser* 'this' in Modern German in two numbers, three genders and three cases.[2,3]

---

[1]The vowel also differs between animateness. I return to this point when I discuss the feature content of the *e*.

[2]The 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.

[3]Notice that the animate forms in Table 7.2 are the masculine forms in Table 7.3 and that the inanimate forms in Table 7.2 are the neuter forms in Table 7.3. This is a pattern that appears more

Table 7.3: 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 7.3 shows that the final consonant differs depending on gender, number and case. There is no vowel that differs between the different forms. I conclude from this that the consonant realizes features having to do with gender, number and case.

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.[4] The feature IND corresponds to number, which is singular if it is not combined with any other features.

For case, I adopt the features of Caha (2009), already introduced in Chapter 3. The feature F1 and F2 corresponds to the accusative, and the features F1, F2 and F3 correspond to the dative.

I continue with the pronominal features. Another context in which the final consonants appear is in their use as a pronoun. More specifically, the final consonants correspond to the weak pronoun in Modern German. In (4), I give examples of the masculine accusative singular and masculine dative singular.

(4)   a.   Ich wollte   n   gestern   schon   anrufen.
           I   wanted 3SG.M.ACC.WK yesterday already call
           'I already wanted to call him yesterday.'
      b.   Ich helfe   m   sein Fahrrad zu reparieren.
           I   help   3SG.M.DAT.WK his   bike   to repare
           'I help him reparing his bike.'

---

often.

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

Cardinaletti and Starke (1994) split pronouns in three classes: strong pronouns, weak pronouns and clitics. There are several tests that distinguish the types from each other. In what follows, I show that the pronouns in (4) are neither strong pronouns nor clitics, and therefore, should be classified as weak pronouns. The tests I are are taken from Cardinaletti and Starke (1994).

First, I show that *n* and *m* are not strong pronouns because of how they behave under coordination and under focus. Strong pronouns can be coordinated. The examples in (5) illustrate that *n* and *m* cannot be coordinated.

(5)   a.   *Ich wollte Jan und n   gestern   schon anrufen.
               I   wanted Jan and 3SG.M.ACC.WK yesterday already call
               'I already wanted to call Jan and him yesterday.'
    b.   *Ich helfe Jan und m   sein Fahrrad zu reparieren.
               I   help Jan and 3SG.M.ACC.WK his   bike   to repare
               'I help Jan and him repairing his bike.'

Strong pronouns can be focused. The examples in (6) show that *n* and *m* cannot be focused.

(6)   a.   *Ich wollte nur n   anrufen.
               I   wanted only 3SG.M.ACC.WK call
               'I wanted to call only him.'
    b.   *Ich helfe nur m   sein Fahrrad zu reparieren.
               I   help only 3SG.M.DAT.WK his   bike   to repare
               'I help only him repairing his bike.'

Second, I show that the consonant is not a clitic because of how they behave with respect to following dative objects and combining with prepositions. Clitics can either follow a dative object or precede it. Strong and weak pronouns can only follow it. The examples in (7) and (8) show that *n* and *m* can only follow the dative object *Jan*.

(7)   a.   .. dass Ursel Jan n   empfohlen   hat.
             that Ursel Jan 3SG.M.ACC.WK recommended has
             'that Ursel recommended him to Jan.'

      b. *.. dass Ursel n   Jan empfohlen   hat.
             that Ursel 3SG.M.ACC.WK Jan recommended has
             'that Ursel recommended him to Jan.'

(8)   a.   .. dass Ursel m   Jan empfohlen   hat.
             that Ursel 3SG.M.DAT.WK Jan recommended has
             'that Ursel recommended Jan to him.'

      b. *.. dass Ursel Jan m   empfohlen   hat.
             that Ursel Jan 3SG.M.DAT.WK recommended has
             'that Ursel recommended Jan to him.'

Clitics cannot combine with prepositions. The examples in (9) and (10) show that *n* and *m* can combine with prepositions.

(9)   a.   Ich habe schon   ein Geschenk für n   gekauft.
             I   have already a   gift   for 3SG.M.ACC.WK bought
             'I already bought a gift for him.'

      b.   Ich bin schnell auf n   zu gelaufen.
             I   am fast   on 3SG.M.ACC.WK to walked
             'I walked toward him fast.'

(10)   a.   Ich war mit   m im Wald wandern.
             I have already a gift for   3SG.M.DAT.WK bought
             'I was hiking with him in the woods.'

      b.   Ich habe Blumen von m   bekommen.
             I   have flowers from 3SG.M.DAT.WK received
             'I received flowers from him.'

In sum, *n* and *m* are not strong pronouns and not clitics, so they are weak pronouns. This means that the forms also contain pronominal features. I propose that two pronominal features are present: REF and Σ. Harley and Ritter (2002) claim that all pronouns contain the feature REF, because they are referential expressions. The

feature Σ is present because the consonants are weak pronouns (Cardinaletti and Starke, 1994).[5]

    I give the lexical entries for *n* and *m* in (11a) and (11b). The *n* is the nominative masculine singular, so it spells out the features REF, Σ, CL, AN, IND F1 and F2. The *m* is the accusative masculine singular, so it spells out the features that the *r* spells out plus F3.

(11)   a.

ACCP ⟺ *n*
- F2
- NOMP
  - F1
  - INDP
    - IND
    - ANP
      - AN
      - CLP
        - CL
        - ΣP
          - Σ
          - REF

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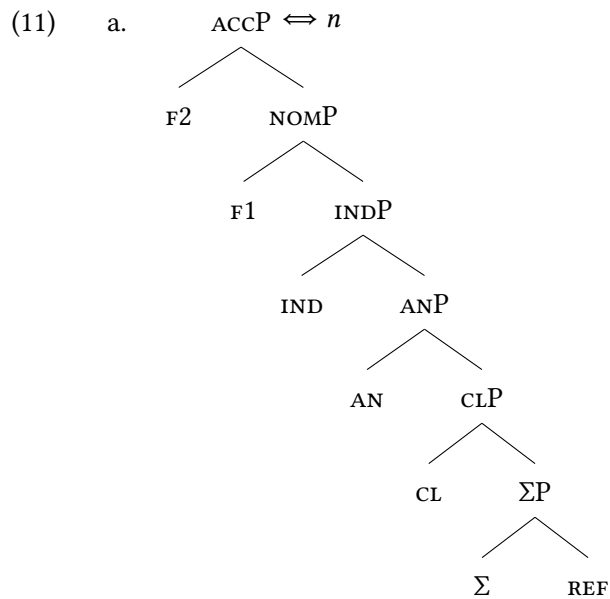
[5]I assume that clitics lack the features REF (which corresponds to the LP in Cardinaletti and Starke 1994: 61) and the feature Σ. Strong pronouns have, in addition to REF and Σ, another feature (C in terms of Cardinaletti and Starke 1994: 61).

b.

$$\text{DAT}P \iff m$$
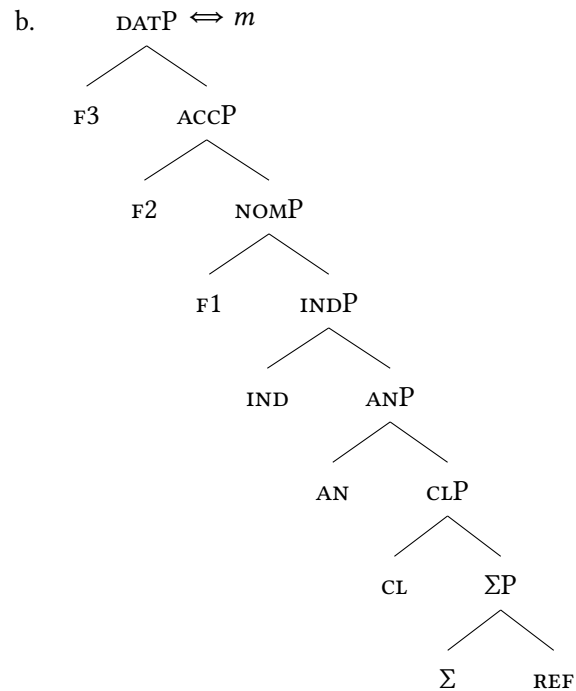
Note that the ordering of the features here is not random. I motivate this later on in this section.

I continue with the *e*. This morpheme is present (wh-)relative pronouns, but also in demonstratives, as shown in 7.4.[6]

---

[6]Note that wh-relative pronouns, unlike the demonstratives, do not have a feminine form for the relative pronouns in Table 7.2. Demonstratives also have plural forms, 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 11 I return to this observation in relation with the always-external languages.

Table 7.4: Modern German demonstrative pronouns (Durrell 2011: 5.4.1)

	M	N	F	PL
NOM	d-e-r	d-a-s	d-ie	d-ie
ACC	d-e-n	d-a-s	d-ie	d-ie
DAT	d-e-m	d-e-m	d-e-r	d-e-n

I suggest that the morpheme *e* spells out deixis features, pronominal features and gender and number features. 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. Generally, three types of deixis are distinguished: proximal, medial and distal. I argue that *e* in the relative pronoun corresponds to the medial. Generally speaking, WH-pronouns combine with the medial or the distal. English has morphological evidence for this claim. Demonstratives in English can combine with either the proximal or this medial/distal, as shown in (12).

(12)   a.   this
            DEM.PROX

       b.   that
            DEM.MED/DIST

WH-pronouns combine with the medial/distal and are ungrammatical when combined with the proximal, shown in (13).

(13)   a.   *whis
            WH.PROX

       b.   what
            WH.MED/DIST

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 pos-

sesses. 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 7.4.

I continue with gender and number features. Table 7.4 shows that the vowel changes depending on gender and number. The masculine singular uses the *e*, the neuter singular uses the *a*, the feminine singular uses the *ie* and the plural uses for all genders the *ie*.[7] Therefore, I suggest that *e* spells out the features AN and IND.

Finally, I assume that the *e* corresponds to the feature c, a feature that strong pronouns have in addition to REF and Σ. Demonstratives, which contain the *e* can namely be coordinated and focused, which is typical for strong pronouns (Cardinaletti and Starke, 1994). I give an example of a coordinated demonstrative and a

---

[7]Note that the dative forms in all gender and numbers have the *e*, which I assigned to masculine gender. This holds for the genitive forms too, which I have not given here. I see these as arguments in favor the following analysis.

The phonological part of the lexical entries in (11) should not be *n* and *m* but *en* and *em*. Additionally, the lexical entry carries additional information: the lexical entries in (11) only bring a single slot for a single consonant. The lexical entry for the neuter singular nominative and accusative is *as* but only the *s* surfaces due the single consonant slot. The feminine singular and the plurals do not have a weak pronoun and they do not have a marker in forms like *diese* 'this' (see Table 7.3), because their lexical entry does not contain a consonant.

Under this analysis, the lexical entry does not correspond to the phonology *e*. Its phonological contribution is to bring a slot for a vowel. The lexical entry is then also not specified for gender, which correctly captures the observation that *e* appears outside of the masculine.

As this matter is not relevant for the core of my analysis, I put it aside for now. For ease of exposition I assign a phonological exponent to each lexical entry.

focused demonstrative in (14).[8]

(14) a. Ich wollte Jan und den   gestern   schon anrufen.
          I   wanted Jan and DEM.SG.M.ACC. yesterday already call
          'I already wanted to call Jan and him yesterday.'

      b. Ich helfe nur dem   sein Fahrrad zu reparieren.
          I   help only DEM.SG.M.DAT his   bike   to repare
          'I help only him repairing his bike.'

In sum, the *e* spells out the features AN, IND, C, DX_1, DX_2 and DX_3, as shown in (15).

(15)   DISTP ⟺ *e*
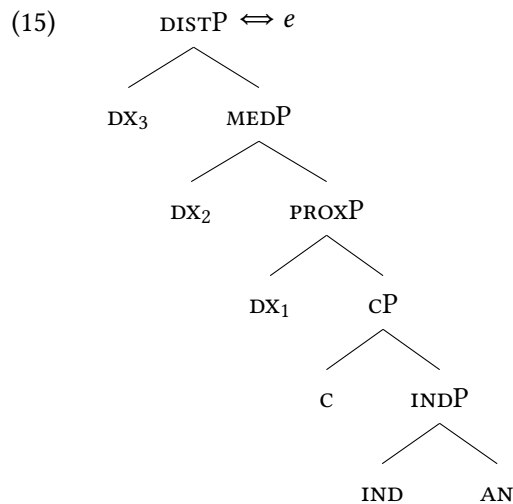
This leaves the morpheme *w* of the relative pronoun. I showed in this section that *w* combines with the same endings as the *d* does in demonstratives (or relative pronouns in headed relatives). This identifies the *d* and, more importantly for the discussion here, the *w* as a separate morpheme. I suggest that the morpheme *w* spells out three features: WH, REL and DX_2.

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 7.4, which is responsible for establishing a

---

[8]The feature C could in principle also be contained in the morpheme *d*.

definite reference. The second relevant feature is REL, which establishes a relation. The third feature is DX_2, which ?

In sum, the *w* spells out the features WH REL and DX_2, as shown in (16).

(16)   RELP $\Longleftrightarrow$ *w*

         REL   WHP

               WH DX_2
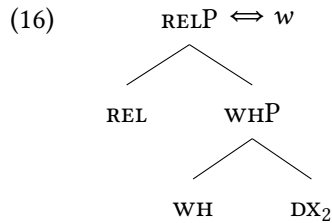
At this point, I gave lexical entries for each of the morphemes (in (11a), (11b), (15) and (16)) and I showed what the relative pronouns as a whole look like (in (2)). What is still needed, is a theory for combining these morphemes into a relative pronoun. This theory should determine which morphemes 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.

(17)

```
                    κP
                   /  \
                  K    RELP
                      /   \
                    REL    WHP
                          /   \
                        WH     MEDP
                              /   \
                           DX₂    PROXP
                                 /    \
                              DX₁      cP
                                      /  \
                                     C    INDP
                                         /   \
                                       IND    ANP
                                             /   \
                                           AN     CLP
                                                 /   \
                                               CL     ΣP
                                                     /  \
                                                    Σ    REF
```
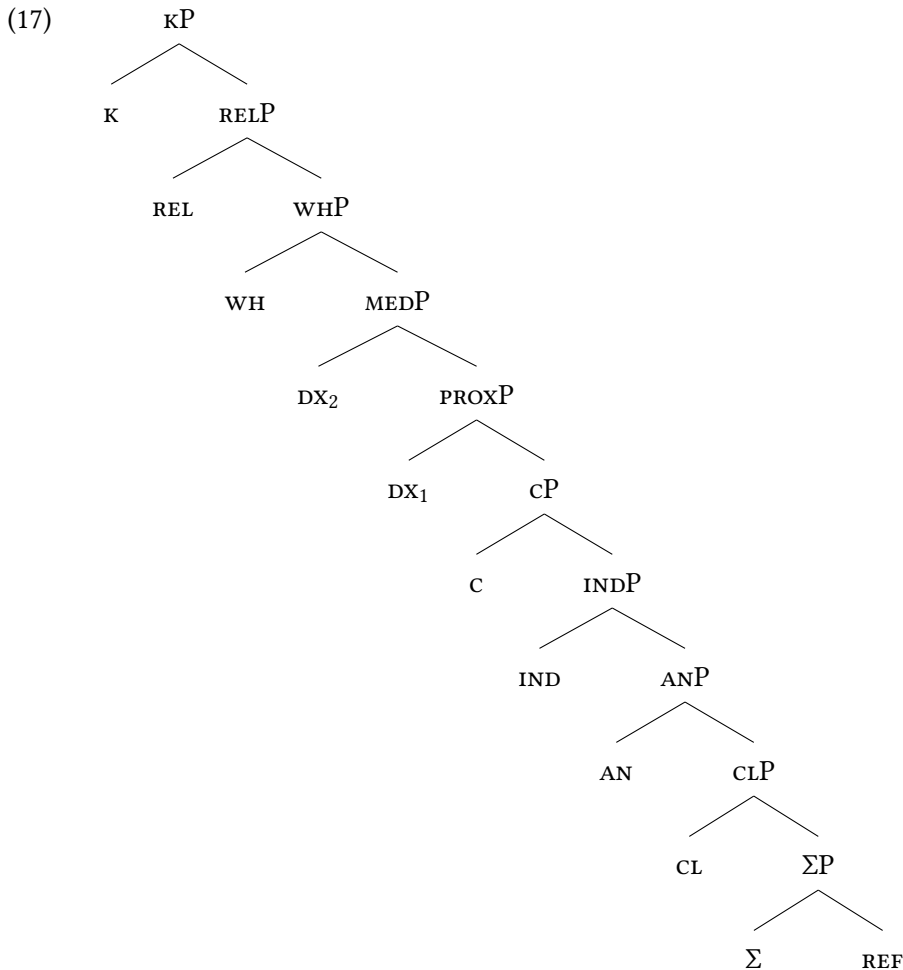
Starting from the bottom, these are pronominal features REF and Σ, deixis features DX_1 and DX_2, gender features CL and AN, a number feature IND, the strong pronoun feature C, operator features WH and REL and case features K.[9] This order is independently supported by work in the literature. Both Picallo and Kramer argue that number is hierarchically higher than gender. Case is agreed to be higher than number (cf. Bittner and Hale).

---

[9]The κP in this functional sequence 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 ACCP. When the extra light head is the dative, the κP consists of the features F1, F2 and F3, and they form the DATP.

(18)   a.   of those children

        b.   of which children

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 (19).

(19)   **Cyclic phrasal spellout** (Caha, 2020a)
        Spellout must successfuly 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 successfuly (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 successully 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 (20).

(20)   **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 (20). I start with the first line in (20a). This says that a feature F is merged, and the newly created phrase FP is attempted to spell out. The next two lines, (20b) and (20c), describe the two types of rescue movements that take place when the spellout in (20a) 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.

(21)
```
        ΣP
       /  \
      Σ    REF
```
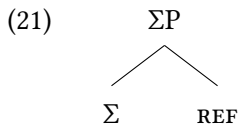
The syntactic structure forms a constituent in the lexical tree in (22), repeated from (11a), which corresponds to the *n*.

(22)
```
        ACCP ⟺ n
       /    \
      F2    NOMP
           /    \
          F1    INDP
               /    \
             IND    ANP
                   /    \
                  AN    CLP
                       /    \
                      CL    ΣP
                           /   \
                          Σ    REF
```
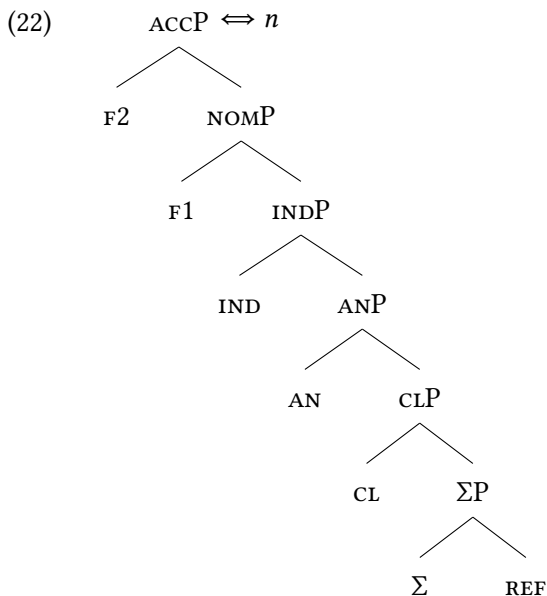
Therefore, the ΣP is spelled out as *n*. As usual, I mark this by circling the part of

the structure that corresponds to the lexical entry, and placing the corresponding phonology under it. This spellout option corresponds to (20a) in the Spellout Algorithm.

(23)

ΣP

Σ   REF

n
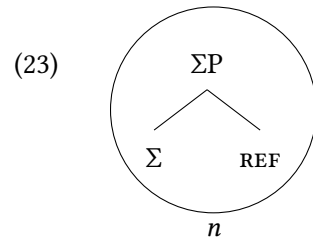
There are more features in the functional sequence, so the next feature is merged. This next feature is the feature CL, and a CLP is created. The syntactic structure forms a constituent in the lexical tree in (22). Therefore, the CLP is spelled out as *n*, shown in (24).

(24)

CLP

CL   ΣP

Σ   REF

n
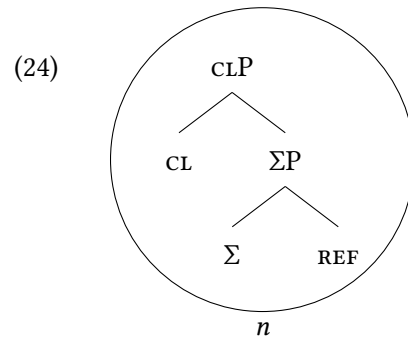
The features AN and IND are merged and spelled out in the same way. First, the feature AN is merged, and a ANP is created. The syntactic structure forms a constituent in the lexical tree in (22). Therefore, the ANP is spelled out as *n*. Then, the feature IND is merged, and a INDP is created. The syntactic structure forms a constituent in the lexical tree in (22). Therefore, the INDP is spelled out as *n*, shown in (25).

(25)

```
              INDP
             /    \
          IND      ANP
                  /   \
                AN     CLP
                      /   \
                    CL     ΣP
                          /  \
                         Σ    REF
```

n
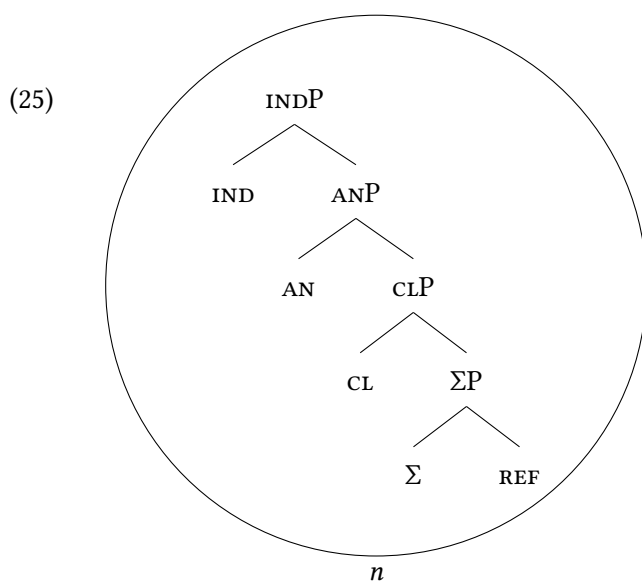
The next feature in the functional sequence is the feature c. This feature can not be spelled out as the other ones before. I show that in what follows. The feature c is merged, and a cP is created, as shown in (26)

(26)

```
         cP
        /  \
       C    INDP
           /    \
         IND     ANP
                /   \
              AN     CLP
                    /   \
                  CL     ΣP
                        /  \
                       Σ    REF
```
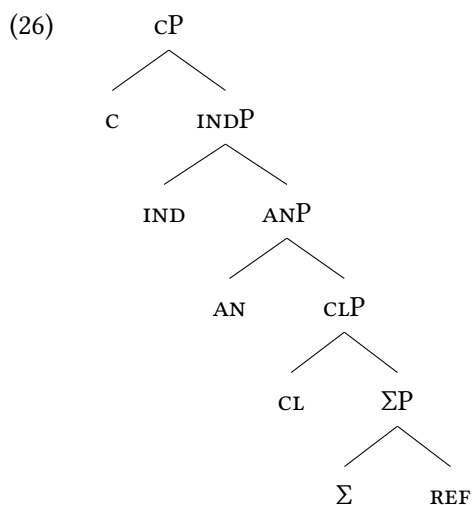
This syntactic structure does not form a constituent in the lexical tree in (22). There is also no other lexical tree that contains the structure in (26) as a constituent. Therefore, there is no successful spellout for the syntactic structure in the derivational

step in which the structure is spelled out as a single phrase ((20a) in the Spellout Algorithm).

The first movement option in the Spellout Algorithm is moving the specifier, as described in (20b). 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 (20c). In this case, the complement of c, the INDP, is moved to the specifier of INDP. As this movement option does not lead to a successful match, I do not discuss it here. I come back to it in Chapter 8, in which it does lead to a successful match.

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 (27).

(27)   **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 c this means that it is merged with IND. Then, the lexicon is checked for a

lexical tree that contains the phrase cP that contains c and IND, as shown in (28).
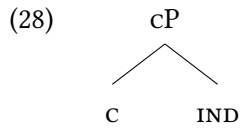
(28)

cP
├── C
└── IND

This syntactic structure does not form a constituent in any of the lexical trees in the language's lexicon. Therefore, the feature c 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 (29).

(29)

cP
├── C
└── INDP
    ├── IND
    └── AN
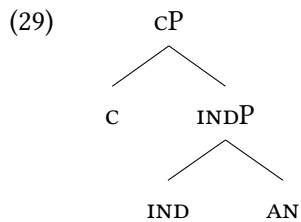
This syntactic structure forms a constituent in the lexical tree in (30), repeated from (15), which corresponds to the *e*.

(30)

DISTP ⟺ *e*
├── DX$_3$
└── MEDP
    ├── DX$_2$
    └── PROXP
        ├── DX$_1$
        └── cP
            ├── C
            └── INDP
                ├── IND
                └── AN
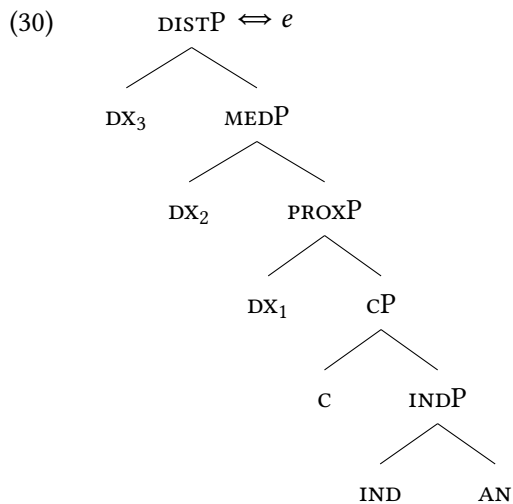
Therefore, the cP is spelled out as *e*, as shown in (31).

(31)

```
        cP
       /  \
      C   INDP
          /  \
        IND   AN
```

e
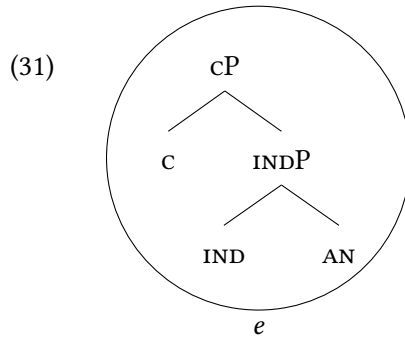
The newly created phrase is merged as a whole with the already existing structure. As specified in (27), the feature c projects to the top node. I show the results in (32).

(32)

```
                      cP
        cP                        INDP
       /  \                      /    \
      C   INDP               IND       ANP
          /  \                        /   \
        IND   AN                    AN     CLP
                                          /   \
                                        CL     ΣP
                                              /  \
                                             Σ    REF
```

e   *n*
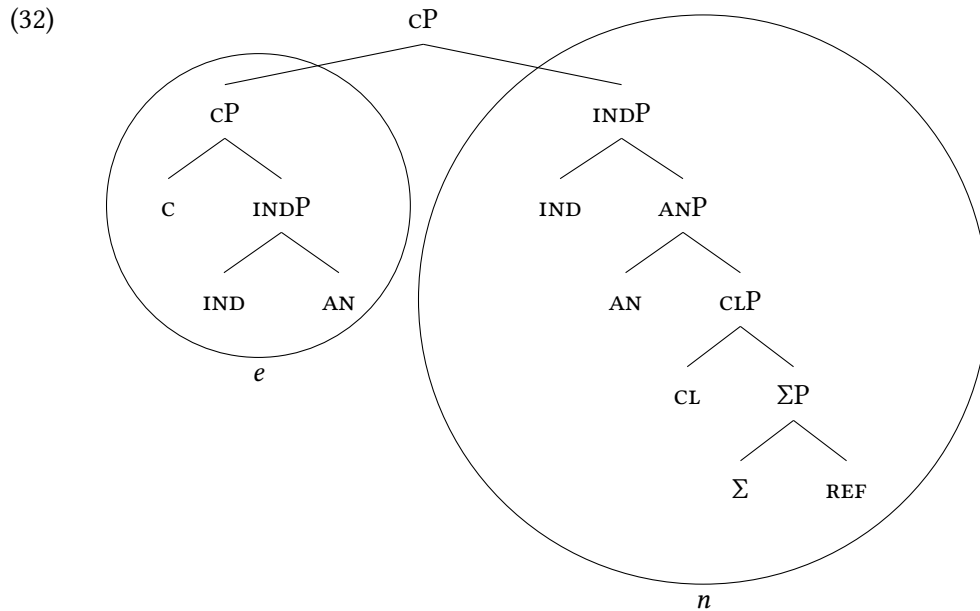
Notice here that there is an overlap of multiple features between the phrase on the right and the phrase on the left.[10]

---

[10]There are three different proposals on Spec Formation. 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. The features that used in the second workspace are removed from the structure in the main workspace. In this dissertation, I work with the proposal in Starke (2018), in which the the overlap between the phrase on the left and the phrase on the right can also be more than a single feature. This is the only proposal of the three that allows me to derive all the forms I

The next feature in the functional sequence is the feature DX$_1$. As always, it merged to the existing syntactic structure, which is now the cP. The result is the PROXP shown in (33).

(33)
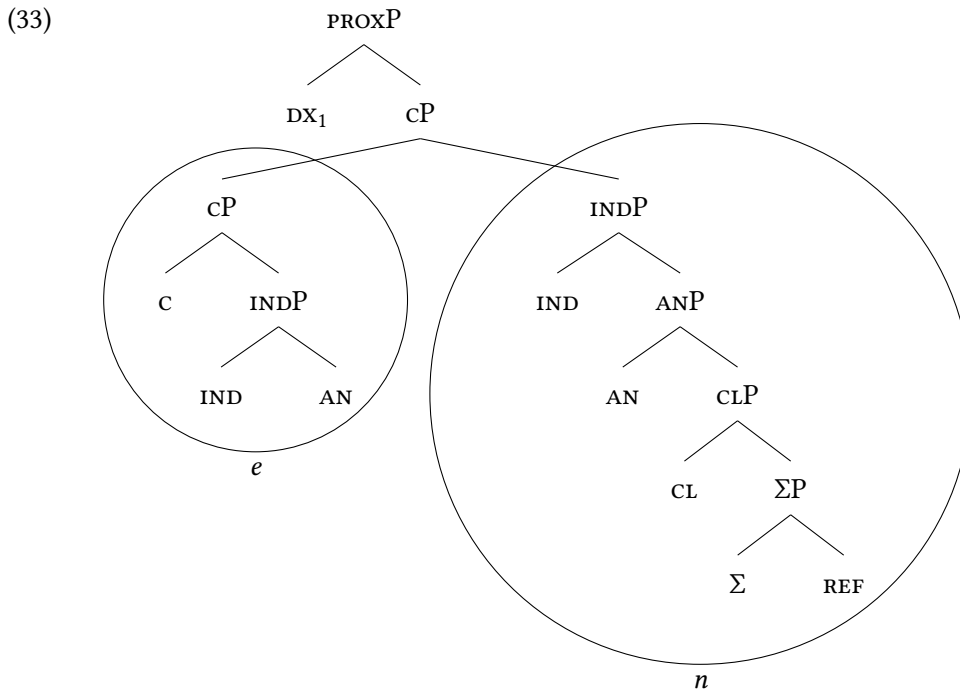
This whole structure does not form a constituent in any of the lexical trees in the language's lexicon. Neither of the spellout driven movement operations leads to a successful spellout. This means that, once again, the derivation reaches a point at which one of the two more possible derivational options 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 (33) again. The feature DX$_1$ is merged with the highest cP. In this position it cannot be spelled out. Consider now the lexical entry in (30). This is a lexical tree that contains DX$_1$. This means that the feature DX$_1$ 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

encounter.

idea of Backtracking is that a feature is merged with a different tree than the one it was merged with before, as stated in (34).[11]

(34)   **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$_1$ 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 (35).

(35)   **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 (36).

(36)   a.   PROXP
                  /   \
             DX$_1$ cP
                       /   \
                      C   INDP
                          /   \
                        IND   AN

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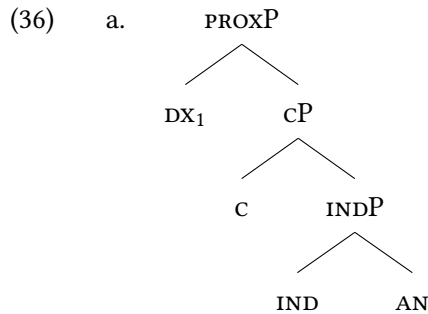
[11]In this dissertation I do not discuss the effect that Backtracking 'normally' has, namely to try a different spellout option at the previous cycle. That does not mean that I assume it is not part of the derivation: I actually assume it a step that attempted is. I refrain from mentioning it, because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

b.

```
            PROXP
            /    \
         DX₁     INDP
                 /    \
              IND     ANP
                      /    \
                   AN     CLP
                          /   \
                        CL     ΣP
                               /  \
                              Σ    REF
```
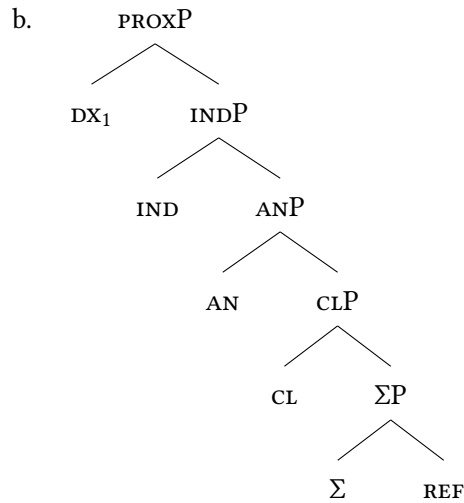
The feature DX₁ is merged in both workspaces, so it combines with the cP in (36a) and with the INDP (36b). Spellout has to be successful in at least one of the two workspaces. From here on, the derivation proceeds, as usual, according to the Spellout Algorithm, with the only difference that it happens in two workspaces simultaneously.

In the case of (36), the spellout of DX₁ is successful in the syntactic structure in (36a). This syntactic structure namely forms a constituent in the lexical tree in (30), which corresponds to the *e*. As spellout has succeeded, the workspaces can be merged back together. The result is shown in (37).

(37)   PROXP

PROXP   INDP

DX$_1$ cP   IND   ANP

        C   INDP   AN   CLP

            IND   AN   CL   ΣP

                                                        Σ   REF

        e

                                                    n
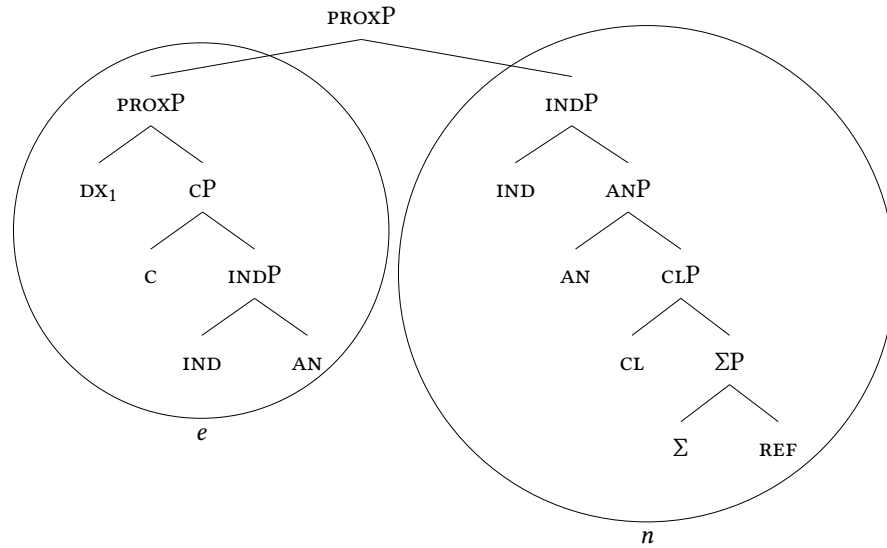
The next feature on the functional sequence is DX$_2$. The derivation for DX$_2$ resembles the derivation of DX$_1$. The feature is merged with the existing syntactic structure, creating a MEDP. This structure does not form a constituent in any of the lexical trees in the language's lexicon, and neither of the spellout driven movements leads to a successful spellout. Backtracking leads splitting up the PROXP from the 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 (30), which corresponds to the *e*. The MEDP is spelled out as *e*, and the MEDP is merged back to the existing syntactic structure, as shown in (38).

(38)
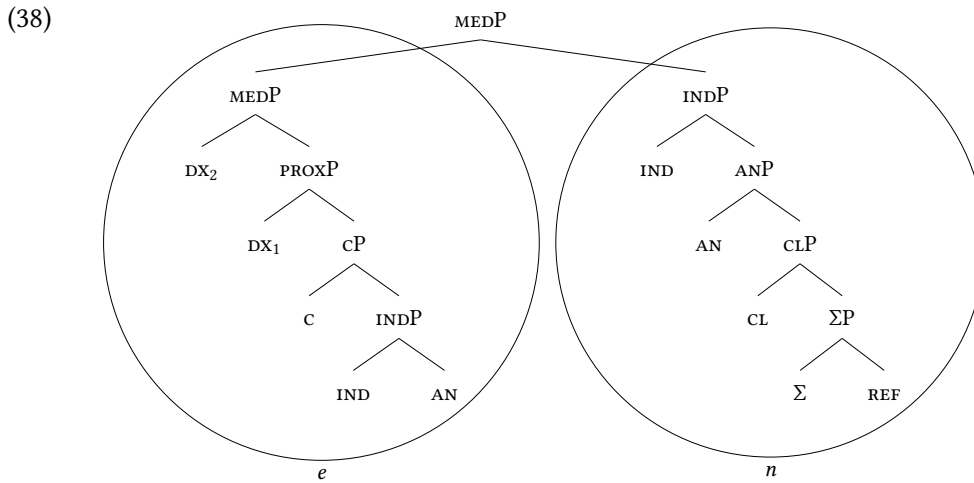
The next feature on the functional sequence is WH. The derivation for WH resembles the derivation of DX₁. The feature is merged with the existing syntactic structure, creating a WHP. This structure does not form a constituent in any of the lexical trees in the language's lexicon, and neither of the spellout 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 DX₂ (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)

```
                                    WHP
            WHP                                    MEDP
       WH        DX₂           MEDP                              INDP
             w              DX₂      PROXP                   IND        ANP
                                DX₁      cP                         AN       CLP
                                      C       INDP                      CL       ΣP
                                           IND     AN                        Σ       REF
                              e                                  n
```
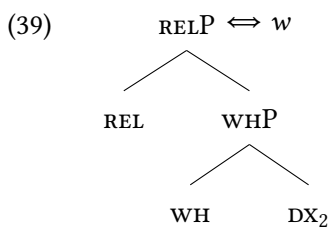
The next feature on the functional sequence is REL. The derivation for REL resembles the derivation of DX₁ and DX₂. The feature is merged with the existing syntactic structure, creating a RELP. This structure does not form a constituent in any of the lexical trees in the language's lexicon, and neither 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 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).
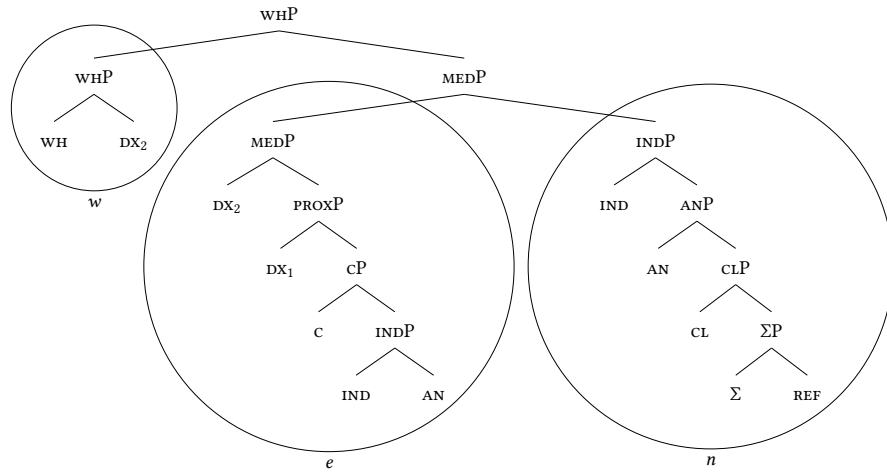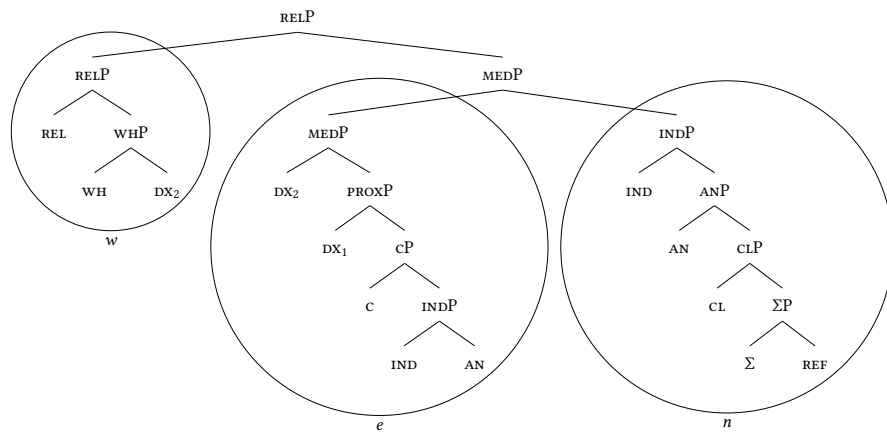
(41)

```
                                    RELP
            RELP                                   MEDP
      REL        WHP            MEDP                              INDP
            WH        DX₂    DX₂      PROXP                   IND        ANP
                 w                DX₁      cP                       AN       CLP
                                       C       INDP                     CL       ΣP
                                            IND     AN                       Σ       REF
                              e                                  n
```

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 (22), which corresponds to the *n*. 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 c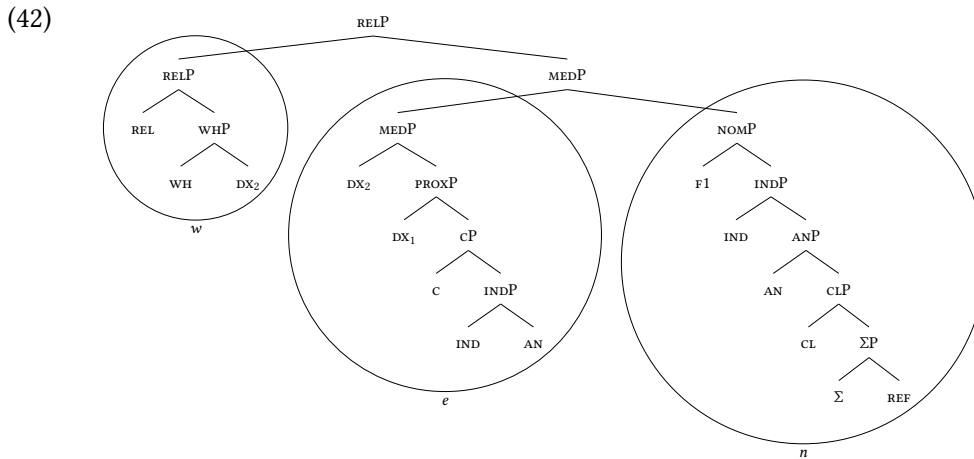onstituent in the lexical tree in (22), which corresponds to the *n*. The NOMP is spelled out as *r*, and all constituents are merged back into the existing syntactic structure, as shown in (42).

(42)

For the accusative relative pronoun, the last 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 (22), 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 (43).

(43)

For the dative relative pronoun, one more feature is merged: the F3. The derivation for F3 resembles the derivation of F1 and F2. The feature 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 drive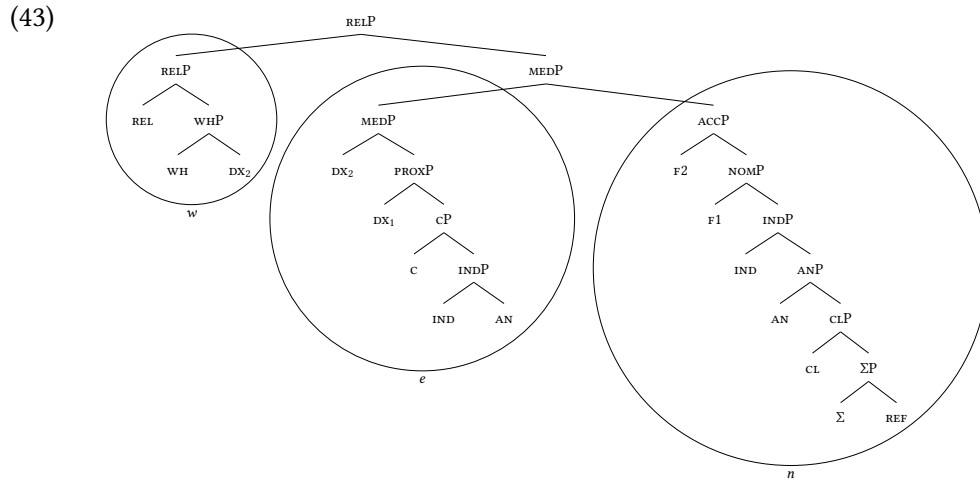n movements leads to a successful spellout. Backtracking leads splitting up the RELP from the (higher) MEDP (which contains the lower MEDP and the ACCP). The feature F3 is merged in both workspaces, so with the WHP and and with the MEDP. None of these phrases form a constituent in any of the lexical trees in the language's lexicon, and neither of the spellout driven movements leads to a successful spellout. Backtracking leads splitting up the RELP from the (higher) MEDP (which contains the lower MEDP and the ACCP). The feature F3 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 ACCP. The feature F3 is merged in both workspaces, so with the MEDP and and with the ACCP. The spellout of F3 is successful when it is combined with the ACCP. It namely forms a constituent in the lexical tree in (44), repeated from (11b), which corresponds to the *m*.

(44)

DATP $\Longleftrightarrow$ *m*

F3   ACCP

F2   NOMP

F1   INDP

IND   ANP

AN   CLP

CL   ΣP

Σ   REF
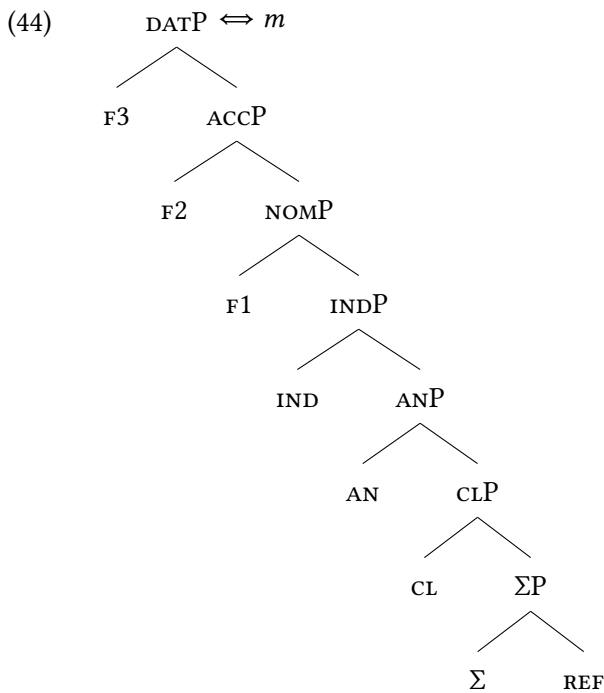
The ACCP is spelled out as *m*, and all constituents are merged back into the existing syntactic structure, as shown in (45).

(45)
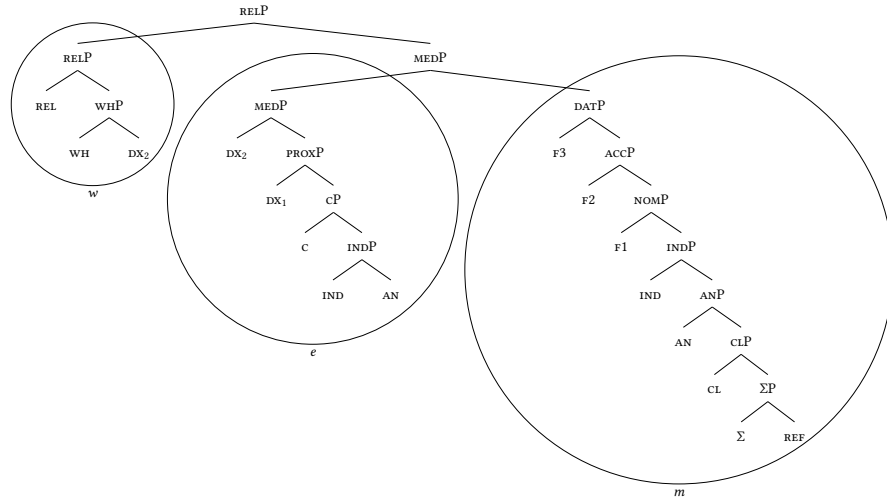
To summarize, I decomposed the relative pronoun into the three morphemes *w*, *e* and the final consonant (*n* and *m*). I showed which features each of the morphemes spells out, and in which constituents the features are combined. It is these constituency that determine whether the relative pronoun can delete the light head or not.

7.3   The Modern German (extra) light head

In Chapter 6, I argued that headless relatives are derived from light-headed relatives. The relative pronoun can delete the light head when the light head forms a constituent within the relative pronoun. In internal-only languages, the relative pronoun can delete the light head as long as the external case is not more complex than the internal case. In internal-only languages, features of the relative pronoun and light head are spelled out in such a way that they form the constituency shown in Figure 7.3.

In the previous section, I showed that relative pronouns in Modern German are constituently structured as in Figure 7.3. I give a compact version of it in (46).

light head	relative pronoun
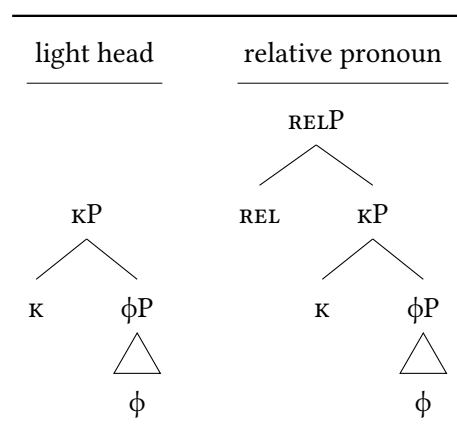
Figure 7.3: LH and RP in the internal-only type

(46)
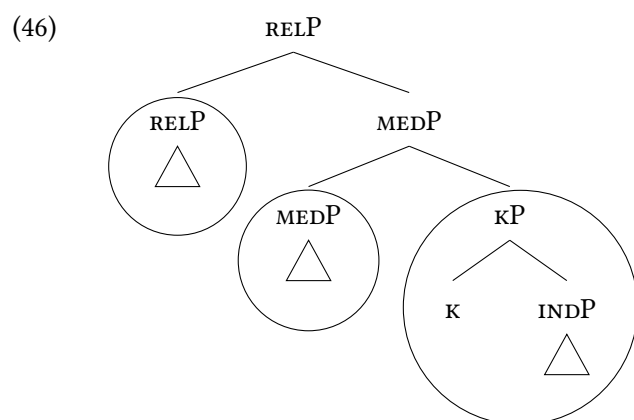
In this section, I show that light heads in Modern German are constituently struc-
tured as in Figure 7.3. The light head in Modern German forms a constituent within
the relative pronoun. I give the structure of the Modern German light head in (47).

(47)

```
                        κP
                       /  \
                      κ   INDP
                         /   \
                       IND   ANP
                            /   \
                          AN    CLP
                               /   \
                             CL    ΣP
                                  /  \
                                 Σ   REF
```

r/n
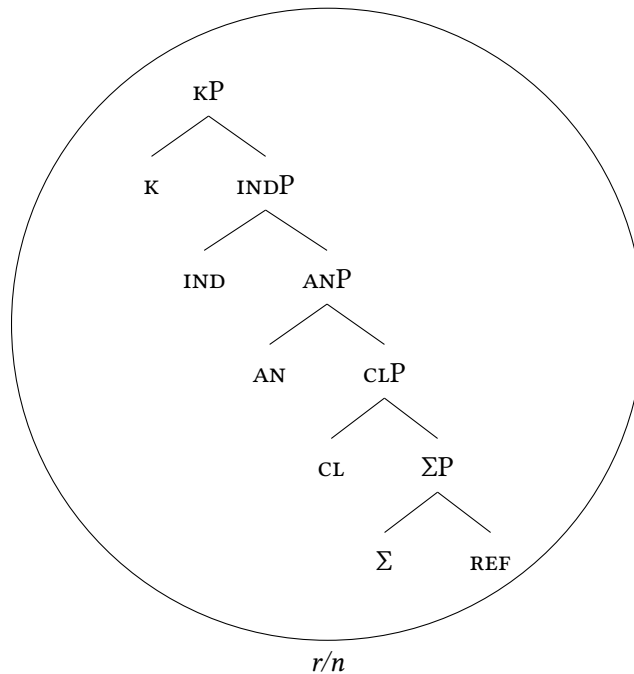
Before I dive into the feature content of the light head, I first need to identify it, as it does not surface in headless relatives. I consider two kinds of light-headed relatives as the source of the headless relative. First, the deletion of the light head is optional, and the light-headed relative is derived from an existing light-headed relative. Second, the deletion of the light head is obligatory, and the light-headed relative is derived from a light-headed relative that does not surfaces in Modern German. I consider the first option first, and I give two reasons against it. However, to identify the exact input structure, 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 (48).[12]

---

[12]Modern 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 RP.M.SG.ACC he likes
       'Jan hugs the man that he likes.'

(48)   Jan umarmt den   **wen**   **er mag**.
         Jan hugs   DEM.M.SG.ACC RP.AN.ACC he likes
         'Jan hugs the man that he likes.'

In (48), the relative pronoun is the WH-pronoun *wen* 'RP.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 (48) and that the headless relative in (49) remains.[13] For easy reference, I call this headless relative the *wen* relative.

(49)   Jan umarmt **wen**   **er mag**.
         Jan hugs   RP.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 (50).

(50)   Jan unarmt **wen**   **auch immer er mag**.
         Jan hugs   RP.AN.ACC ever   he likes
         'Jan hugs whoever he likes.'

Light-headed relatives do not allow this morpheme to be inserted, illustrated in (51).

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

(ii)   Jan umarmt den   Mann **den**   **er mag**.
         Jan hugs   D.M.SG.ACC man   RP.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.

   [13]This 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.

(51)   *Jan unarmt den   **wen**   **auch immer er mag**.
        Jan hugs   DEM.M.SG.ACC RP.AN.ACC ever   he likes
        'Jan hugs him whoever he likes.'

I assume that the headless relative is not derived from an ungrammatical structure.[14]

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 7.5.

Table 7.5: Intepretations of *wen* and *den-wen* relatives

	wen	*den-wen*
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. Consider the context which facilitates a definite-interpretation and the repeated *den-wen* and *wen* relative in (52a).

(52)   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 RP.AN.ACC he likes
              'Jan hugs who he likes.'
        c.   Jan umarmt **wen**   **er mag**.
              Jan hugs   RP.AN.ACC he likes
              'Jan hugs who he likes.'

The interpretation is available for the *wen* relative and for the *den-wen* relative.

---

[14]I am aware that such an analysis is common for sluicing.

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. Consider the context which facilitates a universal-interpretation and the repeated *den-wen* and *wen* relative in (53a).

(53) 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 RP.AN.ACC he likes
      'Jan hugs who he likes.'

  c. Jan umarmt **wen**   **er mag**.
      Jan hugs   RP.AN.ACC he likes
      'Jan hugs who 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 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 in (52a) again. The demonstrative *den* in the *den-wen* relative refers back to the friend of Jan that he likes, and the construction is grammatical. Now consider the context in (53a) again. In this case, there is no antecedent for the demonstrative *den* to refer back to, and the structure is infelicitous.

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.

So far, I established that the *den-wen* relative cannot be the source from which the headless relative is derived. However, there must be some structure that is the source. I propose that this is a light-headed relative in which the head is even lighter than the head in the *den-wen* relative: it is an extra light head.

I propose that the extra light head is the element that is left once the morphemes *d* and *e* are absent. This is the morpheme that is the final consonant of the relative pronoun. I give the extra light-headed relative from which the *wen*-relative is derived in (54). The brackets around the light head indicate that it is obligatorily deleted.[15]

---

[15]The light head and the extra light head I discuss resemble the strong and weak definite in Schwarz (2009), at least 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$_{\text{STRONG}}$ 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.

(54)   Jan umarmt [n]   **wen**   **er mag**.
        Jan hugs   LH.AN.ACC RP.AN.ACC he likes
        'Jan hugs who he likes.'

In the remainder of this section, I discuss the two extra light heads that I compare the constituents of in Section 7.4. The are the accusative animate and the dative animate, shown in (55).

(55)   a.   n
              LH.AN.ACC

        b.   m
              LH.AN.DAT

In Chapter 6, I suggested that the relative pronoun contains at least one features more than the extra light head. In my proposal, it is actually five features, namely WH, REL, DX_1, DX_2 and C. This leaves the functional for the extra light head as shown in (56).

(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 extra 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.

(56)   κP

          K   INDP

                IND   ANP

                        AN   CLP

                                CL   ΣP

                                        Σ   REF
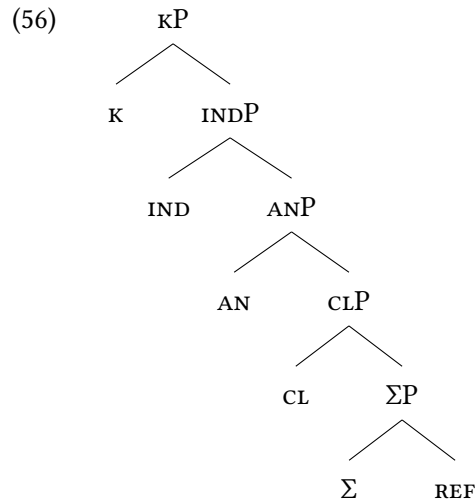
It contains the pronominal features REF and Σ, the gender features CL and AN, the number feature IND and case features K.

The two lexical entries that are required to spell these extra light heads out are the final consonants I introduced the lexical entries for in Section 7.1. I repeat them from (11) in (57).

(57)   a.   ACCP ⟺ *n*

                F2   NOMP

                        F1   INDP

                                IND   ANP

                                        AN   CLP

                                                CL   ΣP

                                                        Σ   REF

b. DATP $\Longleftrightarrow$ *m*

```
              DATP ⟺ m
             /    \
           F3     ACCP
                 /    \
               F2     NOMP
                     /    \
                   F1     INDP
                         /    \
                       IND    ANP
                             /    \
                           AN     CLP
                                 /    \
                               CL     ΣP
                                     /    \
                                    Σ     REF
```
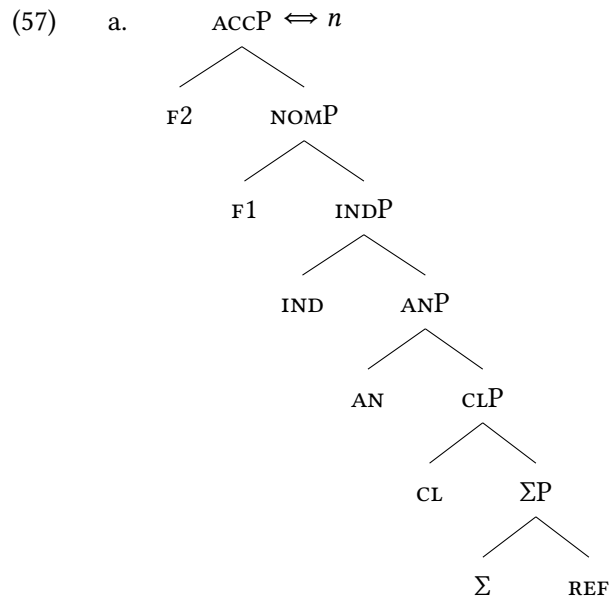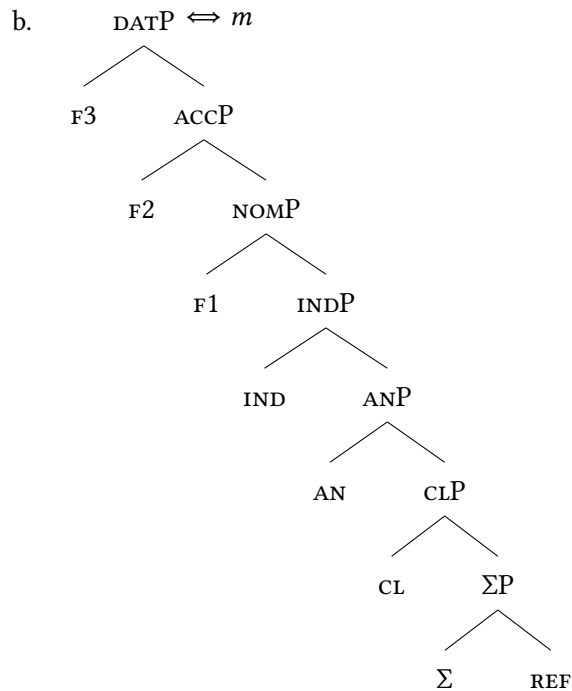
The derivations of the extra light heads are straight-forward ones. The features are merged one by one, and after each new phrase is created, it is spelled out as a whole. I still go through them step by step.

First, the features REF and Σ are merged, and the ΣP is created. The syntactic structure forms a constituent in the lexical tree in (57a). Therefore, the ΣP is spelled out as *n*. Then, the feature CL is merged, and the CLP is created. The syntactic structure forms a constituent in the lexical tree in (57a). Therefore, the CLP is spelled out as *n*. Exactly the same happens for the features AN, IND and F1 and They are merged, they form a constituent in the lexical tree in (57a), and they are spelled out as *n*.

The last feature that is merged for the accusative extra light head is the F2. It is merged, and the ACCP is created. The syntactic structure forms a constituent in the lexical tree in (57a). Therefore, the ACCP is spelled out as *n*, as shown in (58).

(58)

ACCP

F2   NOMP

F1   INDP

IND   ANP

AN   CLP

CL   ΣP

Σ   REF

n
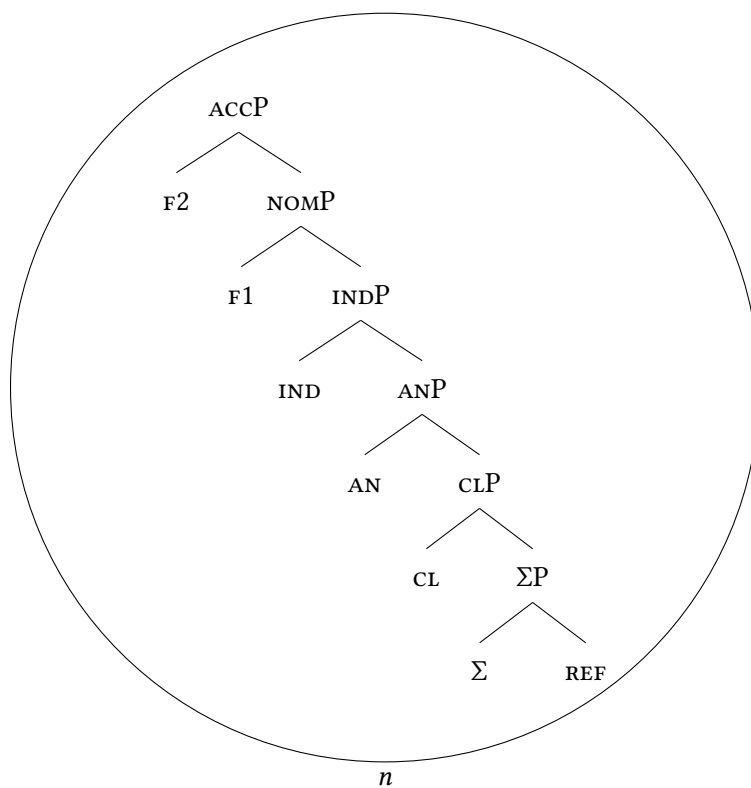
For the dative extra light head another feature is merged: the F3. The feature F3 is merged, and the DATP is created. The syntactic structure forms a constituent in the lexical tree in (57b). Therefore, the DATP is spelled out as *m*, as shown in (59).

(59)

```
                    DATP
                   /    \
                 F3     ACCP
                       /    \
                     F2     NOMP
                           /    \
                         F1     INDP
                               /    \
                             IND    ANP
                                   /    \
                                  AN    CLP
                                       /    \
                                     CL     ΣP
                                           /    \
                                          Σ     REF
```

m
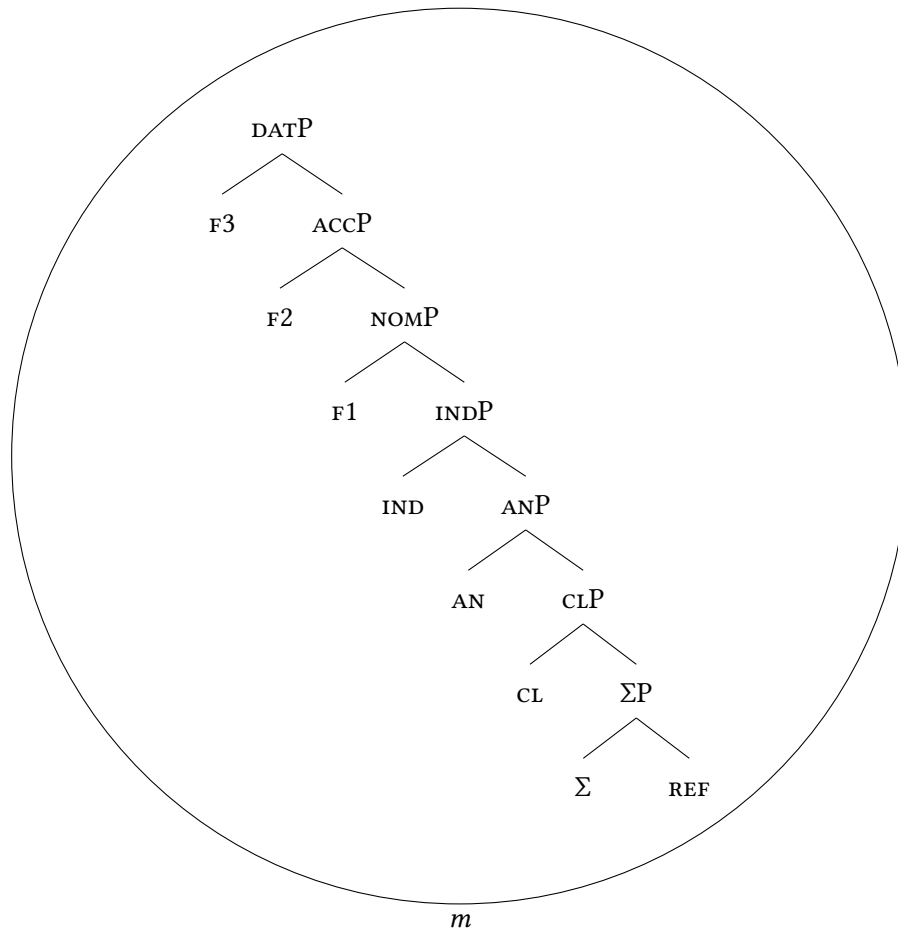
In sum, I argued that extra light heads consists of a single constituent. This constituent is also a constituent within the light head.

7.4 Comparing Modern German constituents

In this section, I compare the constituents of extra light heads to those of relative pronouns in Modern German. 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 Modern German, a internal-only language, the first two example is grammatical. I derive this by showing that the relative pronoun can delete the light head as long as its case is not less complex. In these situations, the light head forms namely a constituent within the relative pronoun.

I start with the matching cases. Consider the example in (60), 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 *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 accusative as well, as the predicate *einladen* 'to invite' also takes accusative objects. The extra light head *n* 'ELH.AN.ACC' appears in the accusative case. It is placed between square brackets because it does not surface.

(60) Ich   lade ein   [n],   **wen   auch**
      1SG.NOM invite.PRES.1SG$_{[ACC]}$ ELH.AN.ACC RP.AN.ACC Maria.NOM

      Maria   mag.
      like.PRES.3SG$_{[ACC]}$
      'I invite who Maria also likes.'

                                                    (Modern German, adapted from Vogel 2001: 344)

In Figure 7.4, 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 a single morpheme: *n*. 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 a single constituent: the 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.

Consider the example in (61), in which the internal dative case competes against
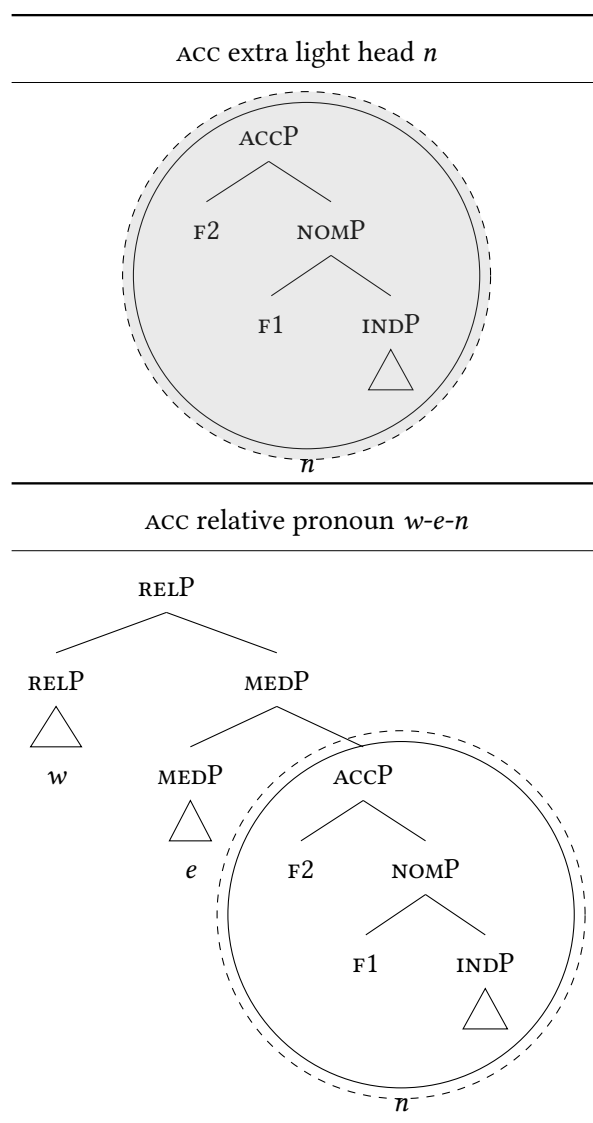
Figure 7.4: Modern German EXT_{ACC} vs. $\text{INT}_{\text{ACC}} \longrightarrow$ *wen*

the external accusative case. The relative clause is marked in bold. The internal case is dative, as the predicate *vertrauen* 'to trust' takes dative objects. The relative pronoun *wem* 'REL.AN.DAT' appears in the dative case. This is the element that surfaces. The external case is accusative, as the predicate *einladen* 'to invite' takes accusative objects. The extra light head *n* 'ELH.AN.ACC' appears in the accusative case. It is placed between square brackets because it does not surface.

(61)   Ich   lade ein   [n],   **wem   auch Maria**
       1SG.NOM invite.PRES.1SG$_{[ACC]}$ ELH.AN.DAT RP.AN.DAT also   Maria.NOM
       vertraut.
       trust.PRES.3SG$_{[DAT]}$
       'I invite whoever Maria also trusts.'
                                              (Modern German, adapted from Vogel 2001: 344)

In Figure 7.5, 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 *m*. The extra light head consists of a single morpheme: *n*. 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 a single constituent: the 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.

Consider the examples in (62), in which the internal accusative case competes against the external dative 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 accusative, as the predicate *mögen* 'to like' takes accusative objects. The relative pronoun *wen* 'REL.AN.ACC' appears in the accusative case. The external case is dative, as the predicate *vertrauen* 'to trust' takes dative objects. The extra light head *m* 'ELH.AN.DAT' appears in the dative case. (62a) is the variant of the sentence in which the extra light head is absent (indicated by the square brackets)
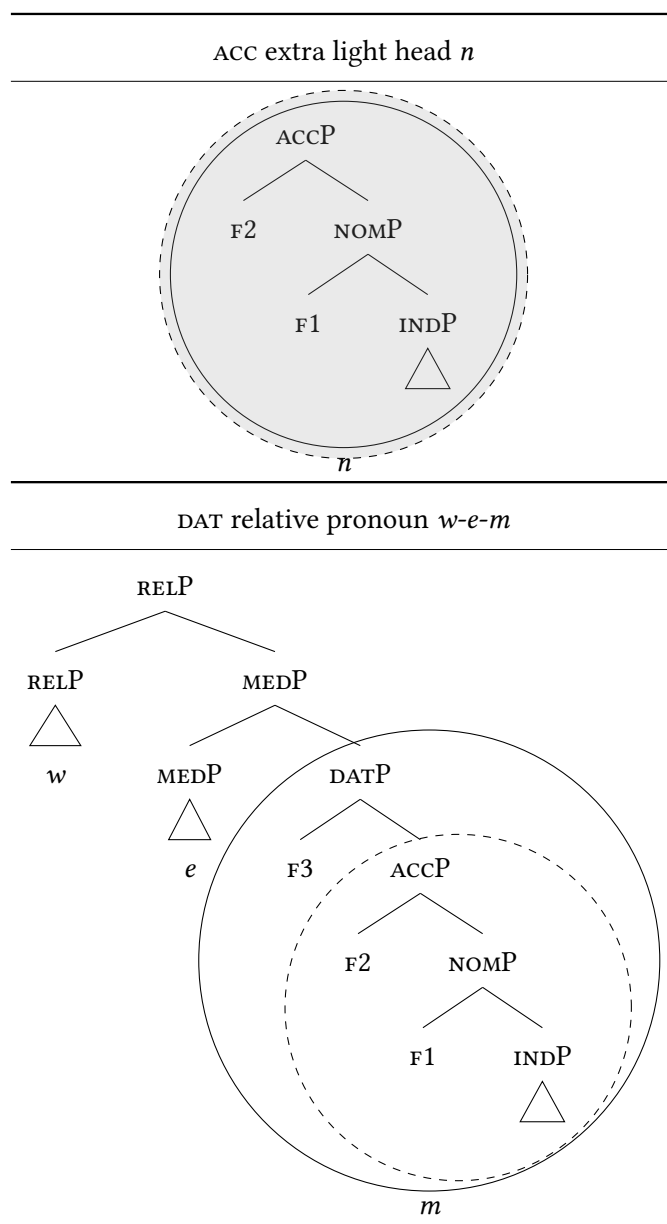
Figure 7.5: Modern German EXT$_{\text{ACC}}$ vs. INT$_{\text{DAT}}$ $\rightarrow$ *wem*
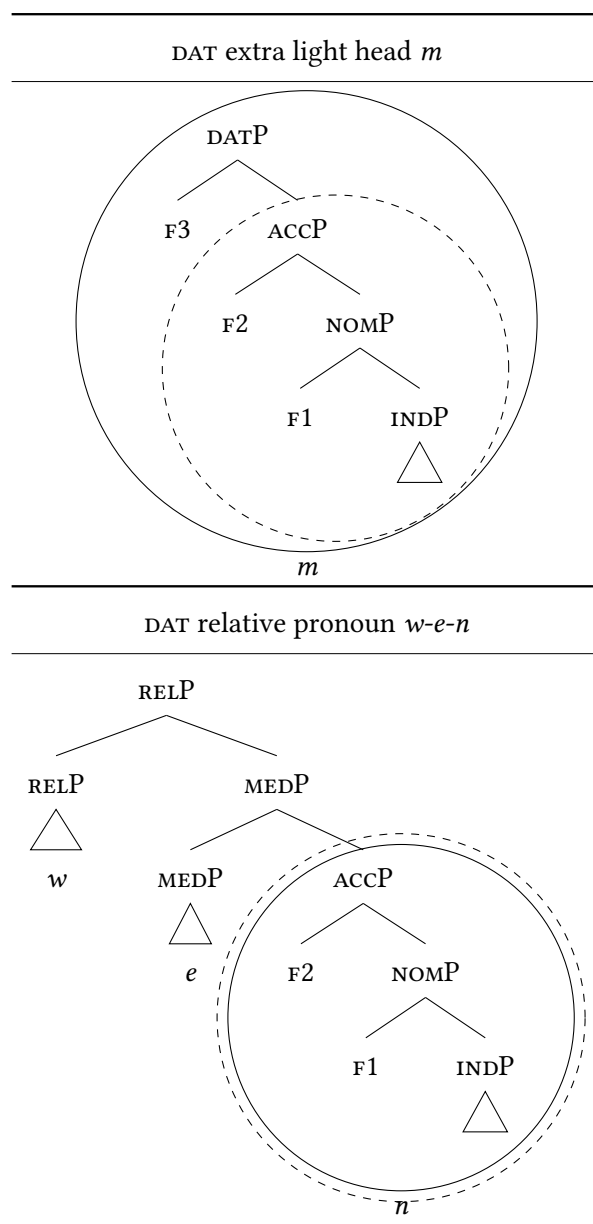
and the relative pronoun surfaces, and it is ungrammatical. (62b) is the variant of the sentence in which the relative pronoun is absent (indicated by the square brackets) and the extra light head surfaces, and it is ungrammatical too.

(62)   a.   *Ich   vertraue   [m],   **wen**   **auch Maria**
             1SG.NOM trust.PRES.1SG[DAT] ELH.AN.DAT RP.AN.ACC also   Maria.NOM

             mag.
             like.PRES.3SG[ACC]
             'I trust whoever Maria also likes.'
                                              (Modern German, adapted from Vogel 2001: 345)

        b.   *Ich   vertraue   m,   **[wen]**   **auch Maria**
             1SG.NOM trust.PRES.1SG[DAT] ELH.AN.DAT RP.AN.ACC also   Maria.NOM

             mag.
             like.PRES.3SG[ACC]
             'I trust whoever Maria also likes.'
                                              (Modern German, adapted from Vogel 2001: 345)

In Figure 7.6, 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 a single morpheme: *m*. 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 a single constituent: the DATP. In this case, the relative pronoun does not contain this constituent. 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 constituents MEDP and RELP. Therefore, the relative pronoun cannot delete the extra light head, and the extra light head can also not delete the relative pronoun.

DAT extra light head *m*

DATP

F3   ACCP

F2   NOMP

F1   INDP

m

DAT relative pronoun *w-e-n*

RELP

RELP   MEDP

w

MEDP   ACCP

e   F2   NOMP

F1   INDP

n

Figure 7.6: Modern German EXT$_{\text{DAT}}$ vs. INT$_{\text{ACC}}$ $\nrightarrow$ *m/wen*

7.5   Summary

Chapter 8

Deriving the matching type

Languages of the matching type can be summarizes as in Table 8.1

Table 8.1: Grammaticality in the internal-only type

	surface pronoun
$K_{INT} = K_{EXT}$	$RP_{INT/EXT}$
$K_{INT} > K_{EXT}$	*
$K_{INT} < K_{EXT}$	*

When the internal and the external case match, and there is a tie, the relative pronoun surfaces in the this particular case (just like in all other language types). When the internal case wins the case competition, this type of language does not allow the internal case to surface. This means that the relative pronoun with a more complex internal case cannot be the surface pronoun. When the external case wins the case competition, this type of language does not allow the external case to surface. This means that the light head with a more complex external case cannot be the surface pronoun.

The situation in which the matching type of language differs from the internal-only type is the one in which the internal case wins the case competition. This is grammatical in the internal-only type of language but it is ungrammatical in the matching type of language. In Chapter 6, I suggested that this difference can be

derived from a difference in spellout between the two languages types. A different spellout namely leads to a different constituency within relative pronouns and light heads. In the internal-only type of language, the φP appears lower in the structure than the case projections, as I showed is Chapter 7. In the matching type of language, the φP appears higher than the case projections shown in Figure 8.1.

light head	relative pronoun

RELP

REL   φP
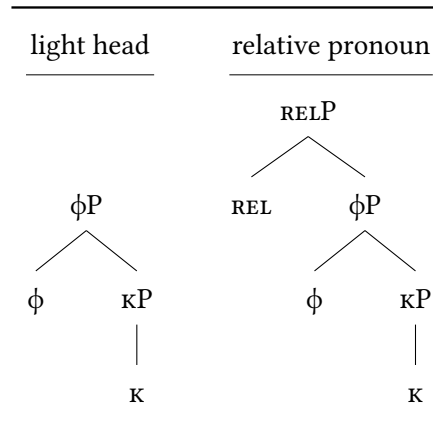
φP

φ   κP   φ   κP

κ   κ

Figure 8.1: LH and RP in the matching type

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.

In Chapter 6, I suggested that the difference in structures between the internal-only type and the matching type is a consequence of spellout. The change in constituency is a result of the fact that case projections correspond to their own morpheme in matching languages and they are spelled out together with phi-features in internal-only languages. In Chapter 8, I showed that Modern German indeed has a portmanteau for case and phi-features. In this Chapter, I show that Polish has two

morphemes that corresponds to case and phi-features.

I give a compact version of the Polish light heads and relative pronouns in Figure 8.2.
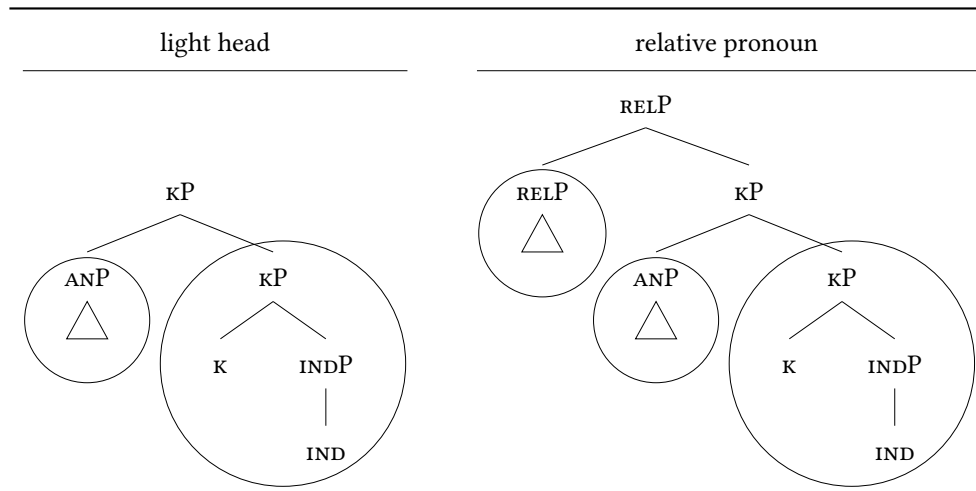
light head	relative pronoun

Figure 8.2: LH and RP in Polish

I compare the Polish light head and the relative pronoun in Figure 8.2 to the structures of the light head and the relative pronoun I gave in Figure 6.7.

Consider the light head in Figure 8.2. Light heads in Polish are spelled out by two morphemes, which are both circled. The morpheme on the right does not only correspond to case features, but also to number feature (IND). The remainder of what corresponds to the φP is the morpheme on the left (ANP). Therefore, just like the structure of the light head in Figure 6.7, the structure of the light head in Figure 8.2 consists of two morphemes.

Consider the relative pronoun in Figure 8.2. Relative pronouns in Polish contain one more morpheme than light heads: the RELP. As already became clear in Chapter 7, the relative pronoun contains more a single feature more than the light head, which is in Polish all contained in RELP. Besides that, the structure of the relative pronoun in Figure 8.2 is identical to the one in Figure 6.7.

Crucially, the constituency in Figure 7.2 is the same as it is in Figure 6.2. Therefore, the deletion possibilities I described for Figure 6.7 take place.

The chapter is structured as follows. First, I discuss the light head. I decompose
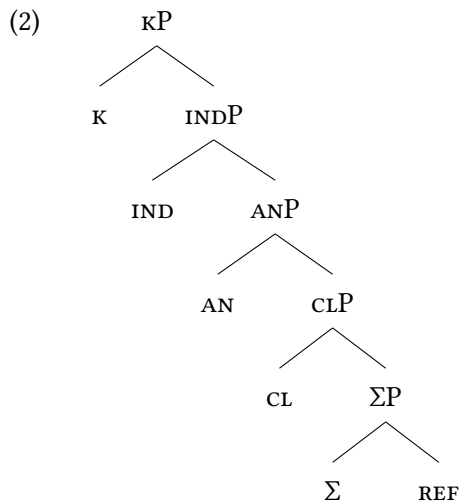
the light head into the two morphemes I showed in Figure 8.2, and I show which features correspond to which morphemes. I show that Polish headless relatives are derived from a type of light-headed relative clause that does not surface in the language, just like their Modern German counterparts. Then, I discuss the relative pronoun. I show that the Polish relative pronoun consist of one more morpheme than Polish light head. Importantly, the features that form the Polish light head and relative pronoun are the same ones that form the Modern German ones. The only difference between the two languages is how the features are spelled out. Finally, I compare the constituents of the light head and the relative pronoun. I show that the relative pronoun can only delete the light head when the internal case matches the external case. When the internal and external case differ, I show that none of the elements can delete the other one.

8.1   The Polish extra light head

In Chapter 6, I argued that in the matching type, the features of the light head are spelled out in such a way that they form the constituency shown in Figure (1).

(1)   φP
              ╱ ╲
           φ   κP
                  │
                  κ
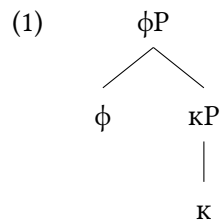
In Chapter 7, I argued for Modern German that the functional sequence for the extra light head contains the features in (2).

(2)

```
                    ĸP
                   /  \
                  ĸ   INDP
                      /  \
                    IND   ANP
                         /  \
                        AN   CLP
                            /  \
                          CL    ΣP
                               /  \
                              Σ    REF
```

In this section, I propose that the features in (2) correspond to two morphemes of Polish relative pronouns. I give the animate accusative and the animate dative relative pronouns in (3).

(3)   a.   k-o-go
           RP.AN.ACC

      b.   k-o-mu
           RP.AN.DAT

The two morphemes that spell out the features in (2) are the vowel and the suffix, as shown in (4).

(4)   a.   o-go
           ELH.AN.ACC

      b.   o-mu
           ELH.AN.DAT

Specifically, I argue that Polish light heads have the structure shown in (5).

(5)
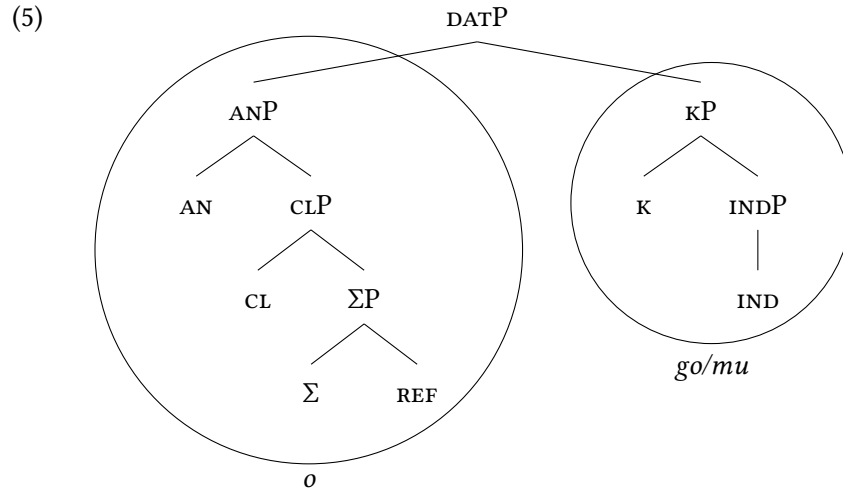
Crucially, the constituent structure in (5) is the same as in (1). Recall from Chapter 7 that in Modern German the extra light head spells out as a single constituent. The Polish extra light head consists of two constituents, as shown in (5). This is the crucial difference between the two languages that leads them to be of different types in headless relatives.

Before I discuss the feature content of the morphemes of the extra light head, I show that the two morphemes spell out the features in (2). Therefore, I need to discuss the *o* of the relative pronoun. The *o* can namely become an *e* under particular phonological circumstances. This allows me to show that *ogo* and *omu* are the extra light heads in Polish.

Consider the relative pronouns in Table 8.2.

I leave the nominative and accusative aside from now and come back to them later. From the genitive on, the final suffixes in the animate and the inanimate paradigm are the same.[1] The forms differ in their initial consonant and the vowel. The animates have a *k* and an *o* or *i*, and the inanimates have a *cz* and a *e* or *y*.

---

[1]I include genitive and the instrumental 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. In Polish, the genitive comes between the accusative and the dative, i.e. it is more complex than the accusative and less complex than the dative. However, I do not incorporate them in the syntactic structures. This does not change anything about the main point about case I want to make: the dative is more complex than the accusative.

Table 8.2: Polish (in)animate relative pronouns (Swan 2002: 160)

	AN	INAN
NOM	kto	c-o
ACC	k-o-go	c-o
GEN	k-o-go	cz-e-go
DAT	k-o-mu	cz-e-mu
INS	k-i-m	cz-y-m

There are several ways to analyze this. The first possibility is to not decompose the portion before the suffix. Under this analysis, Polish has the morphemes *ko*, *ki*, *cze* and *czy*. The point that is missed then is that the animates always have a *k* and inanimates always have a *cz*.

A second possibility that captures this observation is an analysis in which Polish has the morphemes *k*, *o*, *i* and *cz*, *e* and *y*.[2] What is not captured now is that numerous WH-elements in Polish start with a *k*. I give some examples in (6).[3]

(6) a. k-tóry
         which
     b. k-iedy
         when
     c. g-dzie
         where

(Polish, Swan 2002: 180,183-184)

Moreover, *cz* is not a primary consonant but a derived one (Swan 2002: 23). The consonants *cz* and *c* are derived from *k*.

I propose that the *k* is present in the inanimate relative pronouns. They appear as a consequence of being combined with an *j*. I show the proposed decomposition

---

[2]This is more or less what Wiland (2019) proposes.

[3]The *k* in (6c) gets voiced into *g* because it is followed by *d*.

in Table 8.3.

Table 8.3: Polish (in)animate relative pronouns (underlying forms) (Swan 2002: 160)

	AN	INAM
NOM	kto	k-j-o
ACC	k-o-go	k-j-o
GEN	k-o-go	k-j-o-go
DAT	k-o-mu	k-j-o-mu
INS	k-i-m	k-j-i-m

Under this analysis, Polish only has the morphemes *k*, *o* and *i* that can be observed in the animate plus an *j* that is present throughout the whole paradigm in the inanimate.

The next question is how the sequence *k-j-i* becomes *czy* in the instrumental, and the sequence *k-j-o* becomes *cze* in the genitive and dative, as shown in Table 8.4.

Table 8.4: Polish inanimate relative pronouns (underlying + surface forms) (Swan 2002: 160)

	underlying	surface
NOM	k-j-o	c-o
ACC	k-j-o	c-o
GEN	k-j-o-go	cz-e-go
DAT	k-j-o-mu	cz-e-mu
INS	k-j-i-m	cz-y-m

To get from the underlying form to the surface form, three phonological processes are taking place, which are all independently observed within Polish. I give

them in (7) to (9).[4,5]

(7)　　$j + k \rightarrow c$

(8)　　a.　$j + o \rightarrow e$
　　　b.　$j + i \rightarrow y$

(9)　　c before $e/y \rightarrow cz$

I start with the change of *j* + *k* to *c*. Consider the paradigm for the singular of *lampa* 'light' and the singular of *córka* 'daugther' in Table 8.5. The stem and the suffixes are identical in both paradigms, except for in the dative.[6] There, the stem of *córka* does no longer end with a *k*, but with a *c*. Also, part of the suffix, namely the *i* has disappeared. Analyzing *córc-e* as *córk-i-e* brings back regularity in the paradigm.

Table 8.5: Polish nouns (Swan 2002: 47,57)

	light.SG	daughter.SG
NOM	lamp-a	córk-a
ACC	lamp-ę	córk-ę
GEN	lamp-y	córk-i
DAT	lamp-i-e	córc-e
INS	lamp-ą	córk-ą

I continue with the change of *j* + *o* to *e*.

(10)　　moje-story

I continue with the change of *j* + *i* to *y*.

---

[4]In the nominative and accusative only the change in (7) is happening. I assume that the *o* in the nominative and accusative resists the process in (8). This is because the *o* in the nominative and accusative is a 'different' *o* than all the other ones. This *o* namely spells out different features than the *o*.

[5]Under this analysis, *czyj* 'whose' is underlyingly *k-j-i-j*.

[6]Notice also the change from *y* to *i* in the genitive after the *k*-stem *córk*.

(11)   walc-ik: walczyk
        waltz-DIM
        (this is two in one)   (Swan 2002: 26)

Finally, there is the change of *c* before *e/y* to *cz*.

(12)   ojc-e: ojcze
        father.VOC
                                                                (Swan 2002: 26)

(13)   walc-ik: walczyk
        waltz-DIM
        (this is two in one)   (Swan 2002: 26)

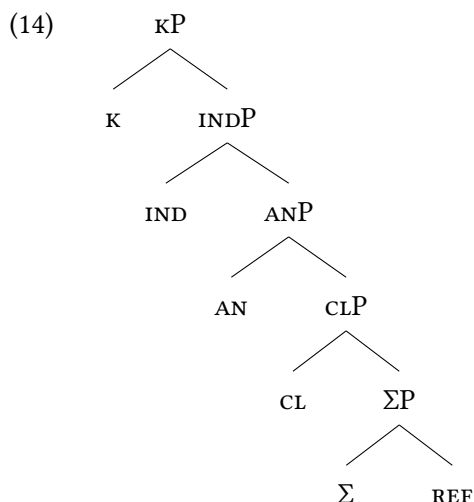In sum, the *o* in relative pronoun can appear as an *e* when it is palatalized.

   One context in which the *o* becomes an *e* is in the paradigm of the strong personal pronoun that starts with *je*. Consider the accusative and dative masculine forms in Table 8.6.[7] I gave the surface form and what I analyze as the underlying form. The *o* changes into an *e* because it follows the *j*.

Table 8.6: 3SG.M personal pronouns (Swan 2002: 156)

	surface	underlying
ACC	j-e-go	j-o-go
DAT	j-e-mu	j-o-mu

   I repeat the functional sequence of the extra light head in (14).

[7]Polish 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.

(14)

```
                кP
              /    \
            к      INDP
                 /     \
              IND      ANP
                     /     \
                   AN      CLP
                         /     \
                       CL      ΣP
                             /    \
                            Σ     REF
```

The strong pronoun in Table 8.6 differs from the extra light head in one feature: c. As each morpheme needs to spell out at least one feature, I assume that *j* spells out this c.[8,9] This leaves the functional sequence in (14) to be spelled out by the morphemes *o* and *go/mu*.

In what follows, I discuss which features they *o* and the suffixes (*go* and *mu*) spell out, and I give their lexical entries. At the end of the section, I show how the extra light heads are constructed.

In Table 8.7, I show three forms in which there is a syncretism between the neuter and the masculine in the dative case. This shows that the syncretism is not specific for the relative pronoun (see Table 8.2).

In Table 8.7, the complete pronouns are syncretic. I set up a system that can derive the syncretism between the two genders. Doing this allows me to establish which features the morpheme *mu* spells out.

---

[8]Actually, I assume it spells out c and IND as it is a Complex Spec. As this is not crucial to the point I am making, I do not discuss it any further for now.

[9]It is also possible that the strong pronoun is syncretic with the extra light head and that the extra light head is actually also spelled out as *jego/jemu*. This would mean that the strong extra light head consists of even more than two morphemes. For my proposal, it is important to show that the extra light head consists of at least two morphemes, one of which spells out case features. It works equally well when the non-case part of the structure actually consists of more one morpheme. I continue working out a proposal in which the extra light head is bimorphemic.

Table 8.7: Syncretic N/M dative forms (Swan, 2002)

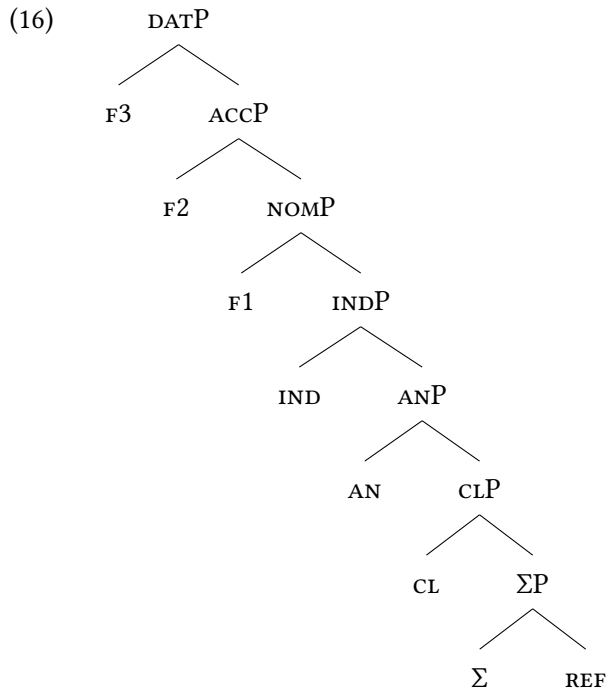|	M	N
je-pronoun	j-e-mu	j-e-mu
ni-pronoun	ni-e-mu	ni-e-mu
DEM	t-e-mu	t-e-mu

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 (15).

(15)   DATP ⟺ *jullie*

        F3   ACCP

   F2   NOMP

                    F1   2PLP
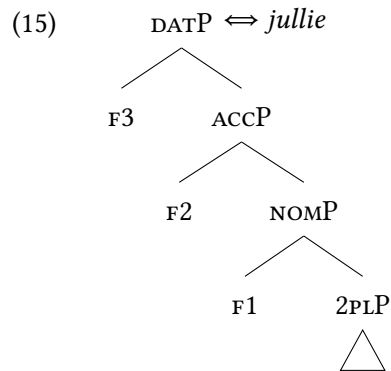
Jullie is syncretic between nominative, accusative and dative. It is specified for dative in the lexicon, because the dative contains the accusative and the nominative. The nominative and accusative second person plural in Dutch are spelled out as *jullie* as well, because the DATP contains the ACCP 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.

In what follows, I show how I can derive the syncretisms for the forms in Table 8.7. Different from *jullie*, these forms consists of three morphemes: *j/ni/t*, *o* and *mu*.

I put the morphemes *j*, *ni* and *t* aside, assuming that they spell out structure that differs per morpheme. The structure that the combination of *o* and *mu* spell out is the syntactic structure of an extra light head, which I give in (16).

(16)

```
        DATP
       /    \
     F3     ACCP
           /    \
          F2    NOMP
               /    \
              F1    INDP
                   /    \
                 IND     ANP
                        /    \
                      AN     CLP
                            /    \
                          CL     ΣP
                                /    \
                               Σ     REF
```

The morpheme *o* is syncretic between the masculine and the neuter. This can be captured if the highest feature in the lexical tree is the feature that distinguishes masculine and neuter gender. In such case, the morpheme can easily spell both the structure with or without the masculine feature. The feature that distinguishes masculine and neuter gender is the feature AN (Harley and Ritter, 2002). Therefore, the lexical entry is as given in (17).
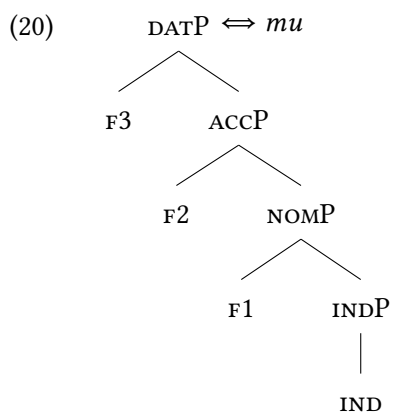
(17)　　　ᴀɴP ⟺ *o*

```
            AN      CLP

                 CL        ΣP

                        Σ      REF
```
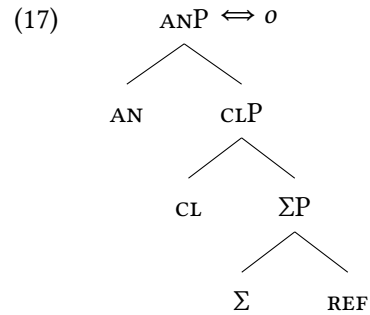
In (18), I give the syntactic structure of a masculine form. The syntactic structure forms a constituent within the lexical tree in (17), and the structure can be spelled out as *o*.

(18)

```
              ANP

           AN      CLP

                CL       ΣP

                       Σ     REF

                   o
```
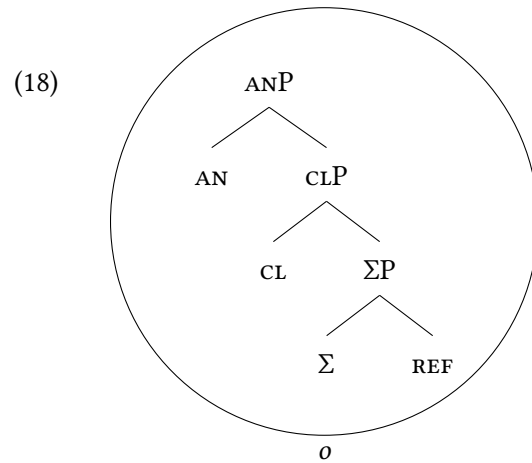
In (19), I give the syntactic structure of a masculine form. The syntactic structure forms a constituent within the lexical tree in (17), and the structure can be spelled out as *o*.

(19)

```
              CKP
             /    \
          CL        ΣP
                   /  \
                  Σ    REF
                  |
                  o
```
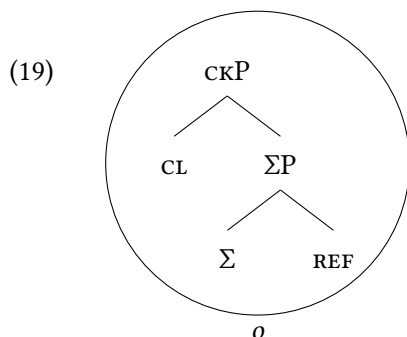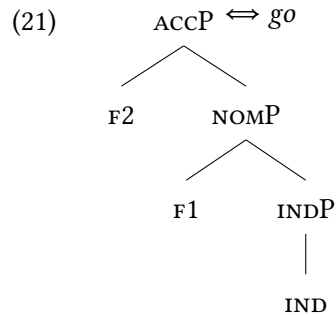
What follows from this is that the lexical trees for the suffix *mu* should contain all features in (27) that are not spelled out by *o* so far. These are the feature IND and all case features up to the dative. I give the lexical entry for *mu* in (20).

(20)   DATP ⟺ *mu*

```
         DATP
        /    \
      F3      ACCP
             /    \
           F2      NOMP
                  /    \
                F1      INDP
                         |
                        IND
```

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 *o* and *mu* comes about. I show how this works when I construct the extra light head later on in this section.

The morpheme *go* differs from *mu* in that it lacks the feature *f*3. I give its lexical entry in (21).

(21) $\text{ACCP} \Longleftrightarrow go$

```
         ACCP
         /  \
        F2  NOMP
            /  \
           F1  INDP
                |
               IND
```

In what follows, I construct the Polish extra light heads. 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 REF and Σ, creating a ΣP. The syntactic structure forms a constituent in the lexical tree in (17), which corresponds to the *o*. Therefore, the ΣP is spelled out as *o*, which I do not show here.

The features CL and AN are merged and spelled out in the same way. First, the feature CL is merged, and a CLP is created. The syntactic structure forms a constituent in the lexical tree in (17). Therefore, the CLP is spelled out as *o*. Then, the feature AN is merged, and a ANP is created. The syntactic structure forms a constituent in the lexical tree in (17). Therefore, the ANP is spelled out as *o*, shown in (22).

(22)

```
          ANP
         /   \
        AN   CLP
            /   \
           CL   ΣP
               /  \
              Σ   REF

              o
```
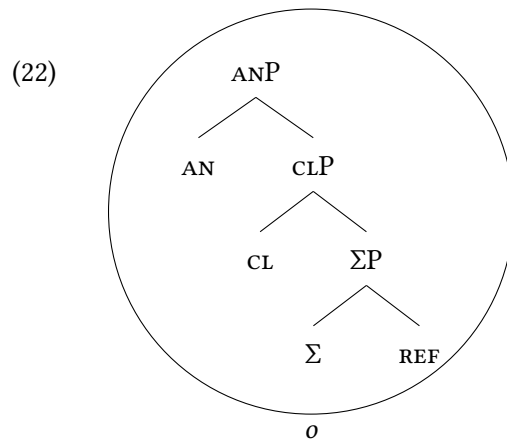
The next feature in the functional sequence is the feature IND. This feature cannot be spelled out as the other ones before. The feature IND is merged, and a INDP is created. This syntactic structure does not form a constituent in the lexical tree in (17). There is also no other lexical tree that contains the syntactic structure as a constituent. Therefore, there is no succesfull spellout for the syntactic structure in the derivational step in which the structure is spelled out as a single phrase ((23a) in the Spellout Algorithm, repeated from Chapter 7).

(23) **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 (23b). As there is no specifier in this structure, so the first movement option irrelevant. The second movement option in the Spellout Algorithm is moving the complement, as described in (20c). In this case, the complement of IND, the ANP, is moved to the specifier of INDP. I show this movement in (24).

(24)
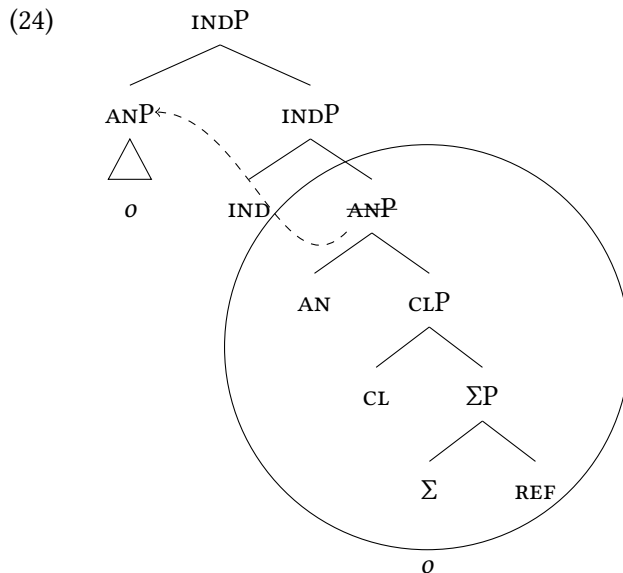
The INDP is a different constituent now. It still contains the feature IND, but it no

longer contains the ANP. The syntactic structure forms a constituent in the lexical tree of (21). Therefore, the INDP is spelled out as *go*, as shown in (25).

(25)
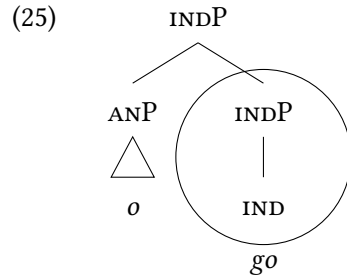
Next, the feature F1 is merged with the INDP, forming an NOMP. This phrase is not contained in any of the lexical entries Polish. The first movement is tried, and the specifier of the INDP, the ANP, is moved to the specifier of NOMP. This phrase is contained in the lexical tree in (21), so it is spelled out as *go*.

For the accusative extra light head, the last feature is merged: the F2. The feature is merged with the NOMP, forming an ACCP. This phrase is not contained in any of the lexical entries. The first movement is tried, and the specifier of the NOMP, the ANP, is moved to the specifier of ACCP. This phrase is contained in the lexical tree in (21), so it is spelled out as *go*, as shown in (26).

(26)
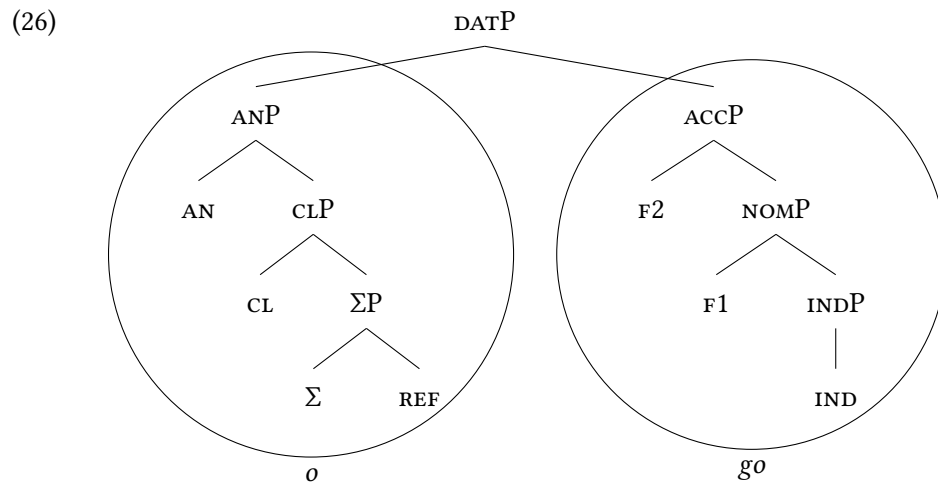
For the dative relative pronoun, one more feature is merged: the F3. The feature is merged with the ACCP, forming an DATP. This phrase is not contained in any of the

lexical entries. The first movement is tried, and the specifier of the ACCP, the ANP, is moved to the specifier of DATP. This phrase is contained in the lexical tree in (20), so it is spelled out as *mu*, as shown in (27).

(27)
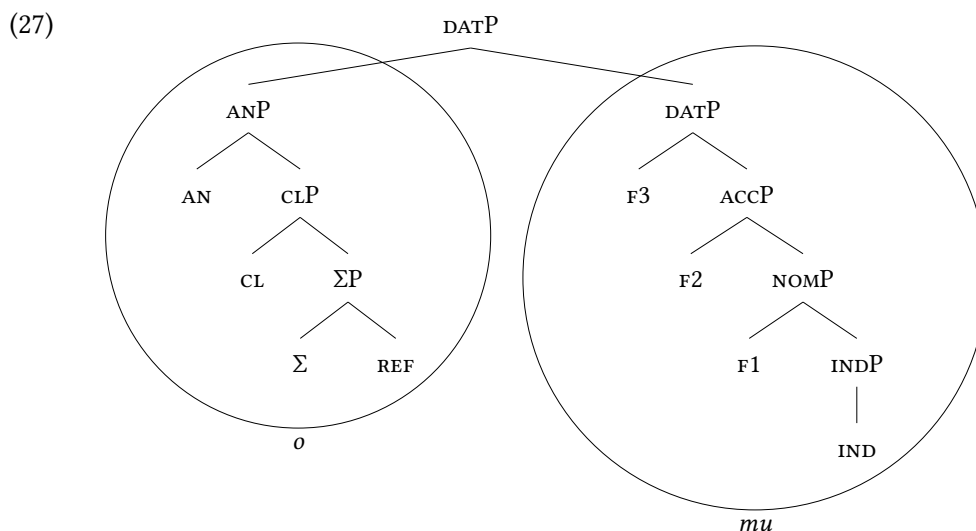
In this section I have argued that the extra light head in Polish is consists of the *o* and a suffix. This means that I propose the light-headed relative that headless are derived from is of the type I show in (28)

(28)   Jan lubi   [ogo]   **kogo**   **-kolkwiek Maria lubi**.
       Jan like.3SG[Acc] ELH.ACC.AN RP.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 surfaces 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 (29).

(29) Jan śpiewa to,   co   Maria śpiewa.
      Jan sings   DEM.M.SG.ACC RP.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 (30).

(30) Jan śpiewa co   -kolwiek Maria śpiewa.
      Jan sings   RP.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 (31).

(31) *Jan śpiewa to,   co   -kolwiek Maria śpiewa.
      Jan sings   DEM.M.SG.ACC RP.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.[10]

---

[10]Citko (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 (29), 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.

8.2 The Polish relative pronoun

In this section, I discuss two relative pronouns in Polish: the accusative animate and the dative animate. I show them in (32).

(32) a. k-o-go
          RP.AN.ACC

      b. k-o-mu
          RP.AN.DAT

In the previous section I showed that the extra light head in Polish corresponds to two of the morphemes of the relative pronoun, namely the *o* and the suffix *go* or

---

(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)

mu. In this section, I show that the features that are not part of the extra light head are spelled out by the morpheme *k*.

In (33) I repeat the functional sequence I proposed in Chapter 7 for the relative pronoun.

(33)

KP
├── K
└── RELP
    ├── REL
    └── WHP
        ├── WH
        └── MEDP
            ├── DX$_2$
            └── PROXP
                ├── DX$_1$
                └── cP
                    ├── C
                    └── INDP
                        ├── IND
                        └── ANP
                            ├── AN
                            └── CLP
                                ├── CL
                                └── ΣP
                                    ├── Σ
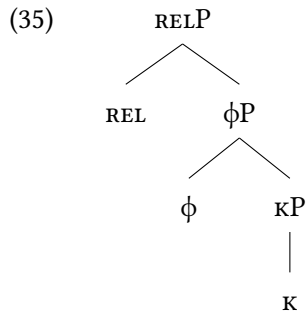   └── REF
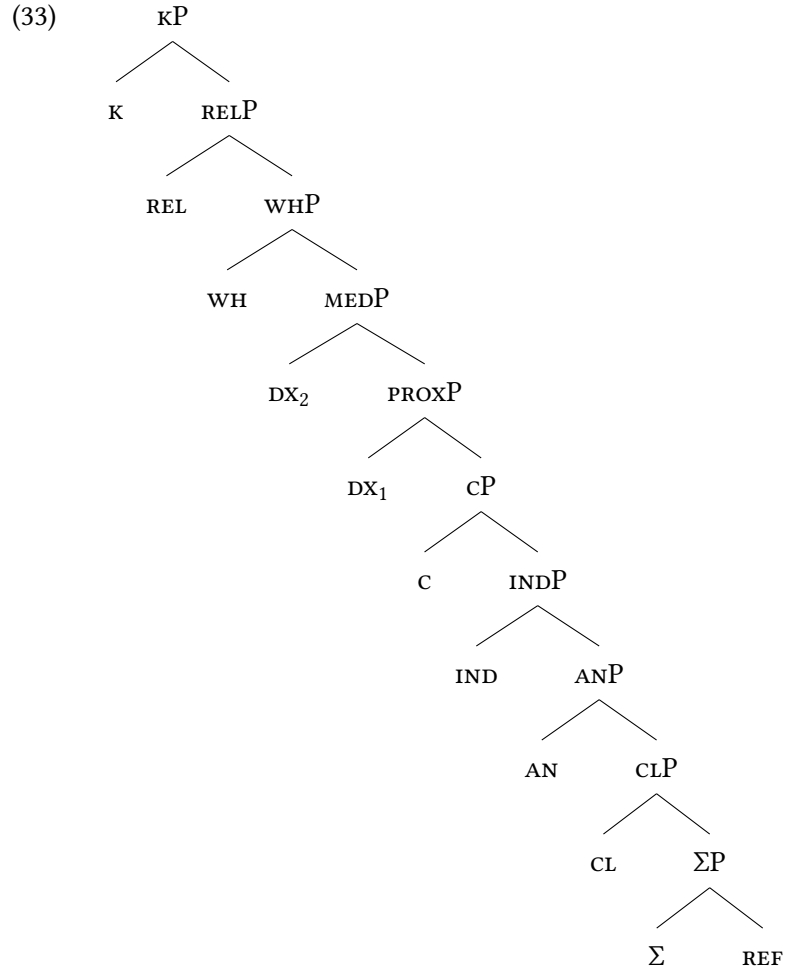
The features that are not contained in the extra light head are C, DX$_1$, DX$_2$, WH and REL. In addition, I propose that *k* also spells out the features IND, AN and CL.

In sum, I argue that Polish relative pronouns have the structure shown in (34).

(34)
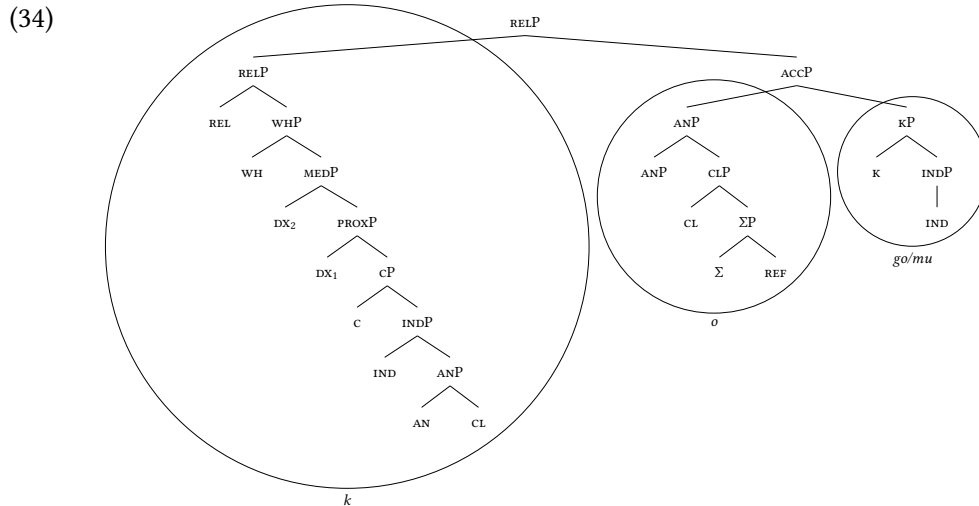
This matches the constituency that I proposed in Chapter 6 a matching language needs to have. I repeat this structure in (35).

(35)

I discuss the features that I assume the *k* spells out one by one.

I start with the operator features wh and rel. 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 feature c. Relative pronouns can be coordinated and focused, so they are strong.

I continue with the deixis features. I follow Baunaz/Lander and specifically for Polish Wiland (2019) in that indefinite demonstratives are contained in wh-elements.
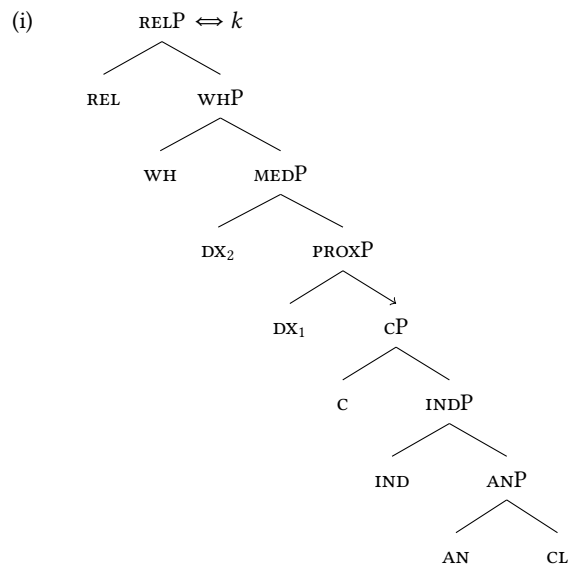
Finally, since the relative pronouns do not have a morphological plural, I assume

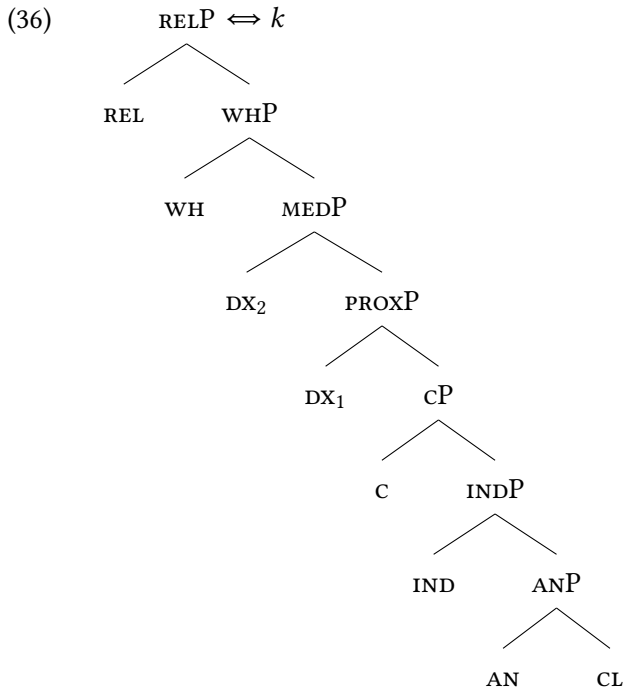that k contains the feature IND. Lastly, K also contains AN and CL.

In sum, the morpheme k realizes the features WH, REL, DX_1, DX_2, C, IND, AN and CL.

11

---

[11] Actually, to be able to derive the inanimate relative pronoun, I assume that there is a pointer in the lexical entry for k, as shown in (i).

(i)

```
              RELP ⟺ k
            /      \
         REL       WHP
                 /      \
               WH      MEDP
                      /      \
                   DX₂      PROXP
                          /        ↘
                       DX₁          cP
                                  /    \
                                 C    INDP
                                    /      \
                                 IND       ANP
                                         /      \
                                       AN       CL
```

The pointer is situated above the cP. That means that if there is no animate feature in the structure, the c can also not be spelled out with k. What follows is that there is another morpheme necessary that contributes the feature c. I propose that this is j which forms strong pronouns. This is what causes the phonological processes described in Section 8.1.

(36)   RELP ⟺ *k*

```
        RELP ⟺ k
         /\
       REL  WHP
             /\
           WH  MEDP
                /\
             DX₂  PROXP
                    /\
                 DX₁  cP
                       /\
                      C  INDP
                          /\
                        IND  ANP
                              /\
                            AN  CL
```

In what follows, I show how the Polish relative pronouns are constructed.

Until the feature IND, the derivation is identical to the one of the extra light. Therefore, I start at point at which the feature C is merged. The derivation for this feature resembles the derivation of C in Modern German. The feature is merged with the existing syntactic structure, creating a cP. 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 C is merged with the feature IND (the previous syntactic feature on the functional sequence) into a cP. This syntactic structure does not form a constituent in any of the lexical trees in the language's lexicon. Therefore, the feature C 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. Also this syntactic structure does not form a constituent in any of the lexical trees in the language's lexicon. Therefore, the feature C combines with a phrase that consists of the three features merged before it: IND AN and CL. This syntactic structure forms a constituent in the lexical tree in (36), which corresponds to the *k*. Therefore, the cP 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 (37).

(37)
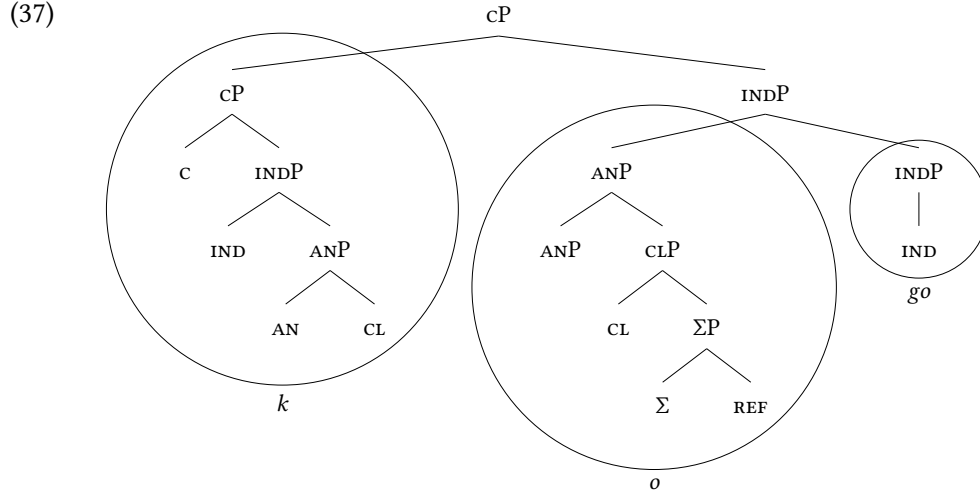
The next feature in the functional sequence is the feature DX_1. The derivation for this feature resembles the derivation of DX_1 and DX_2 in Modern German. The feature is merged with the existing syntactic structure, creating a PROXP. This structure does not form a constituent in any of the lexical trees in the language's lexicon, and neither of the spellout driven movements leads to a successful spellout. Backtracking leads splitting up the cP from the INDP. The feature DX_1 is merged in both workspaces, so with cP and and with INDP. The spellout of DX_1 is successful when it is combined with the cP. It namely forms a constituent in the lexical tree in (36), which corresponds to the *k*. The PROXP is spelled out as *k*, and the PROXP is merged back to the existing syntactic structure.

The derivations for the features DX_2, WH and REL happen the same way. The features are merged with the existing syntactic structure. These structure do 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 left branch from the INDP. The features are merged in both workspaces. The spellout of the features is successful when it is combined with the phrase in the left branch. They namely form a constituent in the lexical tree in (36), which corresponds to the *k*. The newly created is spelled out as *k*, and they are merged
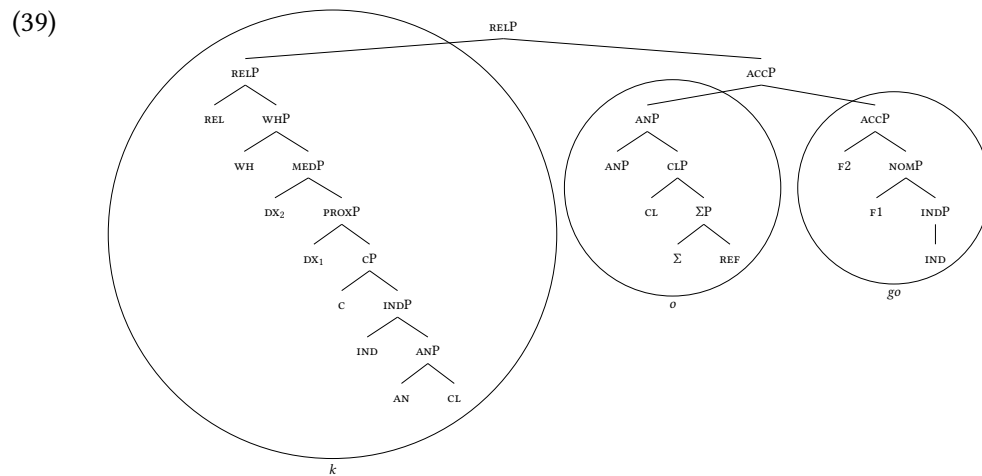
back to the existing syntactic structure.

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 (38), repeated from (21), which corresponds to the *go*.

(38)   ACCP $\iff$ *go*

         F2   NOMP

   F1   INDP

                  IND
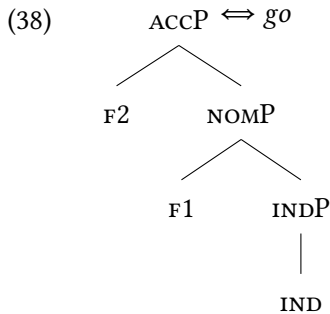
This is achieved via Backtracking in which phrases are split up and going through the Spellout Algorithm. I go through the derivation step by step. The feature F1 is merged with the existing syntactic structure, creating a NOMP. This structure does not form a constituent in any of the lexical trees in 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 (38), 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 proceeds 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 (38), which corresponds to the *go*. The ACCP is spelled out as *go*, and the ACCP is merged back to the existing syntactic structure, as shown in (39).

(39)

For the accusative relative pronoun, the last feature on the functional sequence is the feature F3. Its derivation proceeds 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 t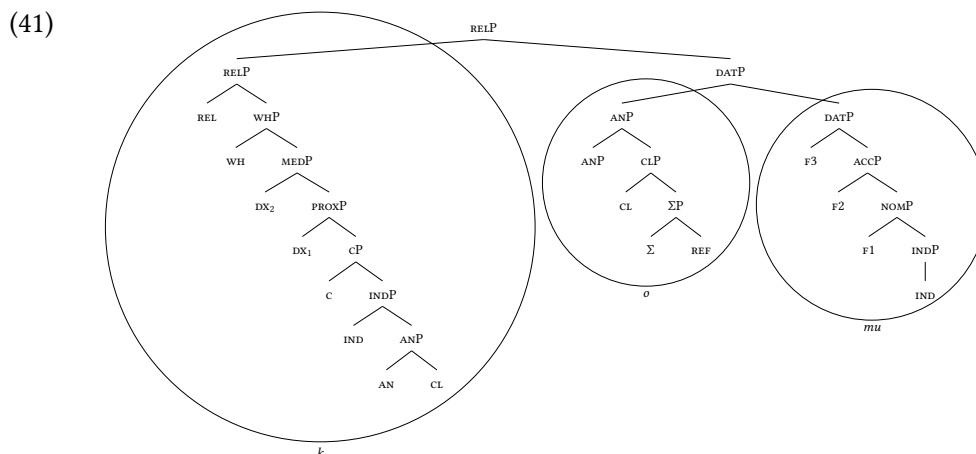he RELP and and with the ACCP. None of these phrases form a constituent in any of the lexical trees in the language's lexicon. The first movement option in the Spellout Algorithm is moving the specifier. In the RELP there is no specifier, so this movement option is irrelevant. In the ACCP, however, there is a specifier, which is moved to the specifier of DATP. This syntactic structure forms a constituent in the lexical tree in (40), which corresponds to the *mu*.

(40)

DATP ⟺ *mu*

- F3
- ACCP
  - F2
  - NOMP
    - F1
    - INDP
      - IND
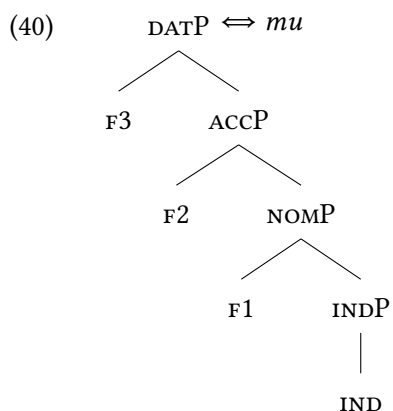
The DATP is spelled out as *mu*, and the DATP is merged back to the existing syntactic structure, as shown in (41).

(41)

RELP

RELP

REL   WHP

WH   MEDP

DX₂   PROXP

DX₁   cP

C   INDP

IND   ANP

AN   CL

k

DATP

ANP

ANP   CLP

CL   ΣP

Σ   REF

o

DATP

DATP

F3   ACCP

F2   NOMP

F1   INDP

IND

mu

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.

8.3   Comparing Polish 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 start with the matching cases. Consider the example in (42), 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.

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

In Figure 8.3, 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: *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
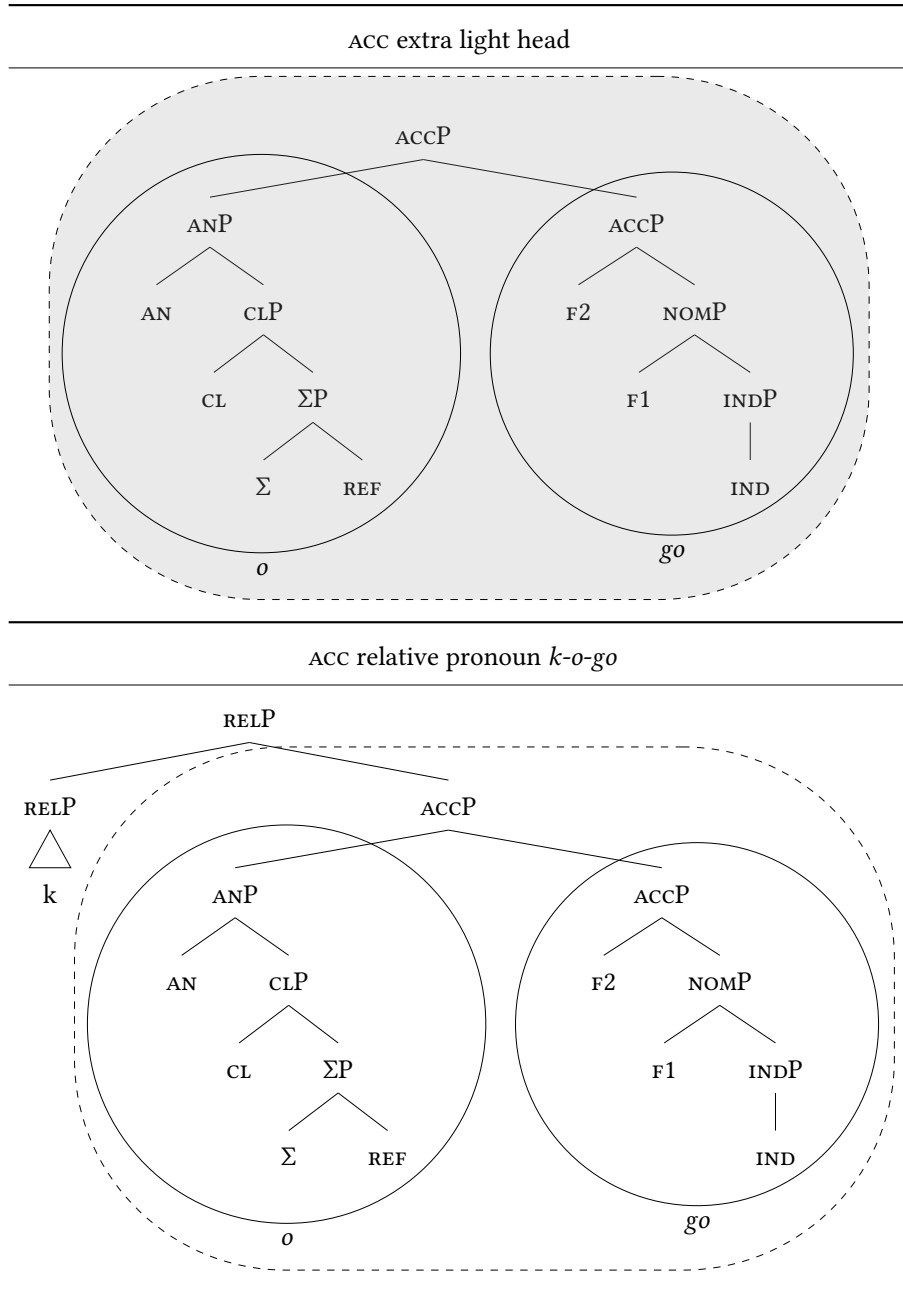
Figure 8.3: Polish EXT$_{ACC}$ vs. INT$_{ACC}$ → *kogo*

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 (43), 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. (43a) 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. (43b) 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.

(43)   a.   *Jan lubi   [ogo]   **komu   -kolkwiek dokucza**.
            Jan like.3SG$_{[Acc]}$ ELH.ACC.AN RP.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 RP.DAT.AN.SG ever   tease.3SG$_{[DAT]}$
            'Jan likes whoever he teases.'
                            (Polish, adapted from Citko 2013 after Himmelreich 2017: 17)

In Figure 8.4, 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 con-
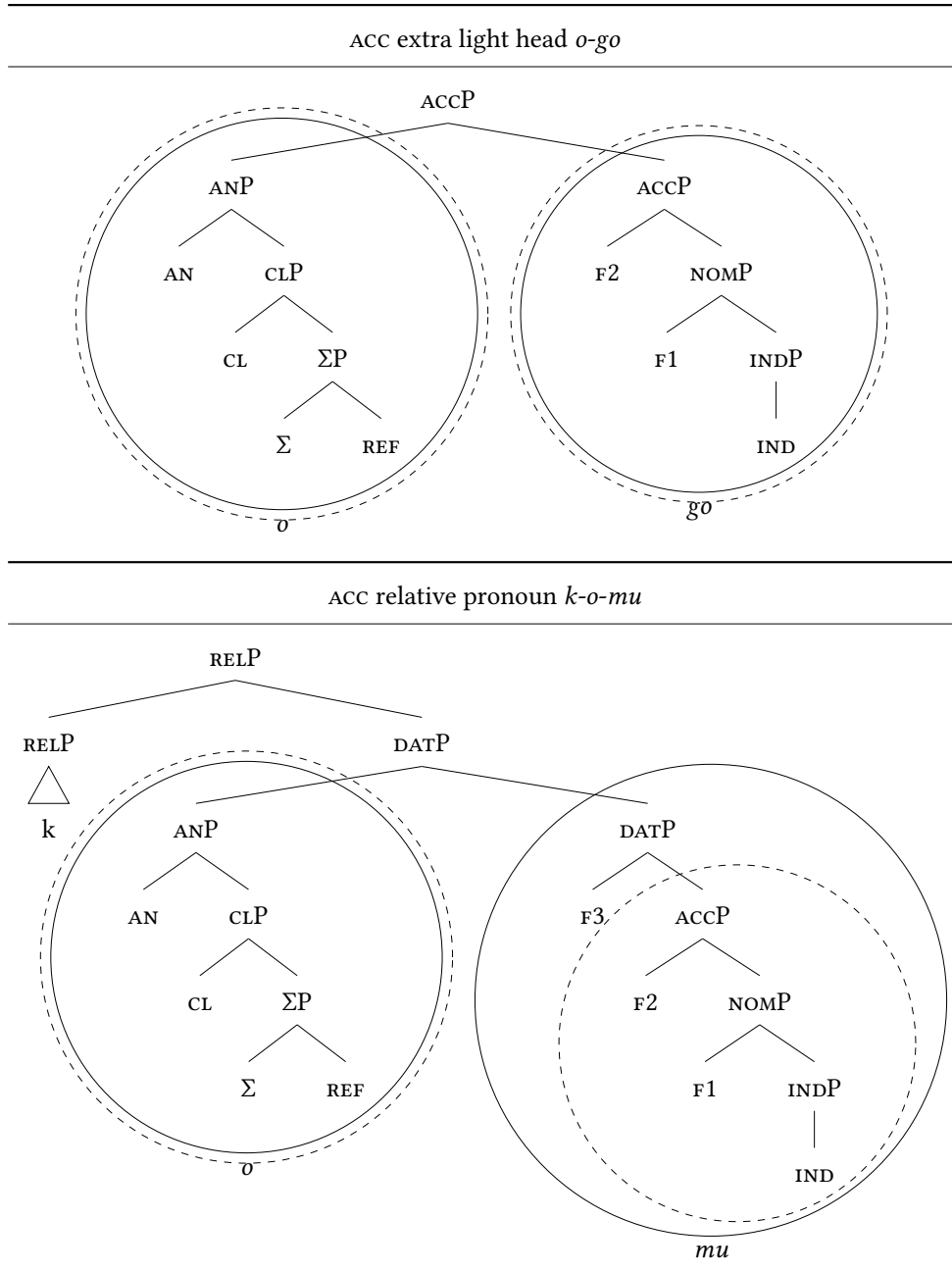
Figure 8.4: Polish EXT$_{ACC}$ vs. INT$_{DAT}$ $\nrightarrow$ *ogo/komu*

stituent 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 less complex case as a single constituent. In Polish, they do not. Relative pronouns in a complex case still contain all features of an extra light head in a less complex case, but the extra light head is not a single constituent within the relative pronoun. That is, the weaker feature containment requirement is met, but the stronger constituent containment requirement is not. This shows the necessity of formulating the proposal in terms of containment as a single constituent.

I continue with the example in which the external case is more complex than the internal case. Consider the examples in (44), 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 accusative, as the predicate *wpuścić* 'to let' takes accusative objects. The relative pronoun *kogo* 'REL.AN.ACC' appears in the accusative case. The external case is dative, as the predicate *ufać* 'to trust' takes dative objects. The extra light head *omu* 'ELH.AN.DAT' appears in the dative case. (44a) 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. (44b) 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.

(44)   a.   *Jan ufa   [omu]   **kogo   -kolkwiek wpuścil   do**
            Jan trust.3SG$_{[DAT]}$ ELH.DAT.AN RP.ACC.AN ever   let.3SG$_{[ACC]}$ to

            domu.
            home
            'Jan trusts whoever he let into the house.'

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

b.   Jan ufa   omu   **[kogo]**   **-kolkwiek wpuścil**   **do**
    Jan trust.3SG$_{\text{[DAT]}}$ ELH.DAT.AN RP.ACC.AN ever   let.3SG$_{\text{[ACC]}}$ to

    domu.
    home

   'Jan trusts whoever he let into the house.'

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

In Figure 8.5, 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 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

DAT extra light head *o-mu*

ACC relative pronoun *k-o-go*
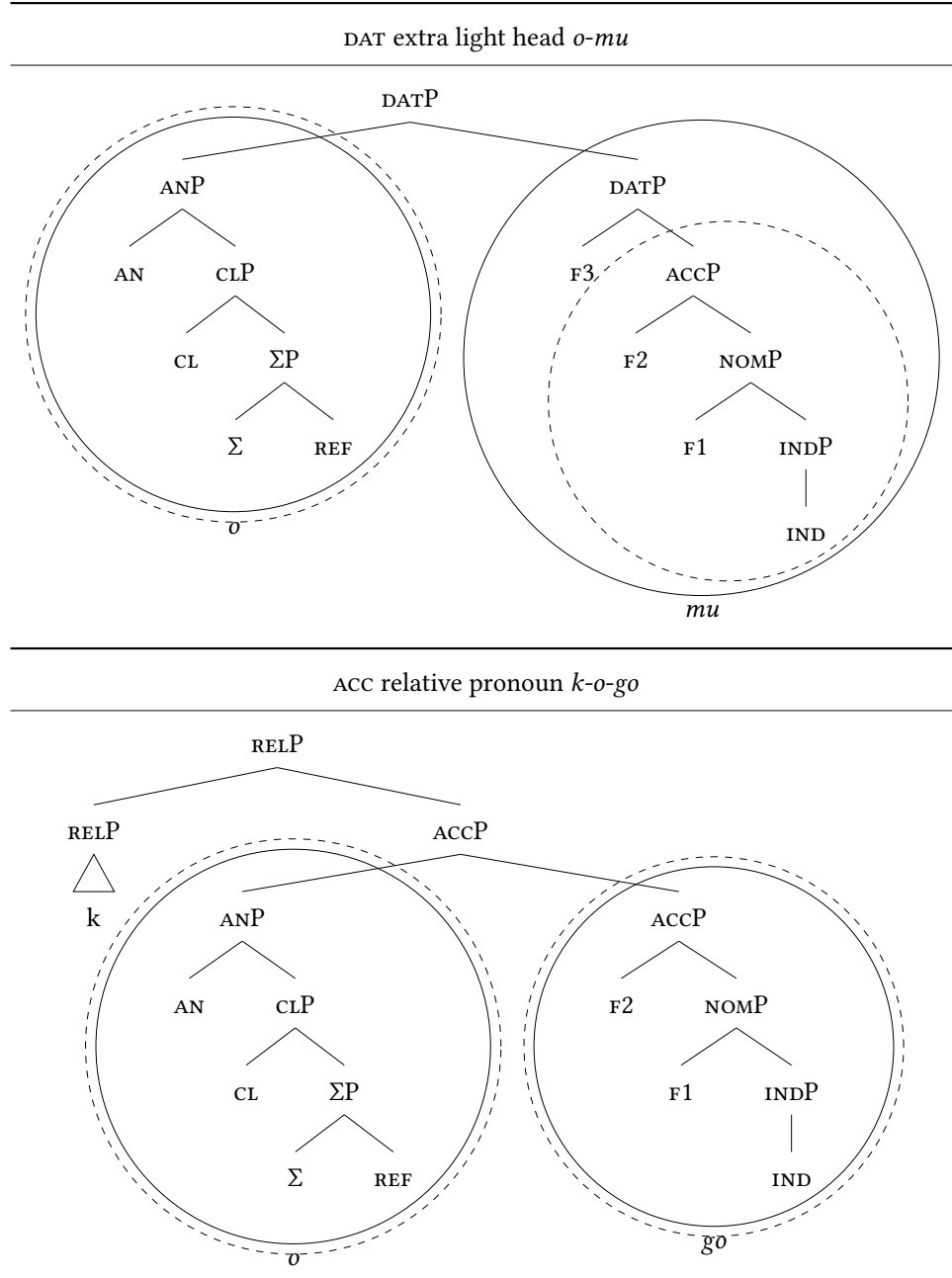
Figure 8.5: Polish EXT$_{DAT}$ vs. INT$_{ACC}$ $\not\rightarrow$ *omu/kogo*

x

Chapter 9

Discussing the unrestricted type

Languages of the unrestricted type can be summarizes as in Table 9.1.

Table 9.1: Grammaticality in the internal-only type

	surface pronoun
$K_{INT} = K_{EXT}$	$RP_{INT/EXT}$
$K_{INT} > K_{EXT}$	RP_{INT}
$K_{INT} < K_{EXT}$	LH_{EXT}

When the internal and the external case match, and there is a tie, the relative pronoun surfaces in the this particular case (just like in all other language types). When the internal case wins the case competition, this type of language allows the internal case to surface. This means that the relative pronoun with a more complex internal case can be the surface pronoun. When the external case wins the case competition, this type of language allows also the external case to surface. This means that the light head with a more complex external case can also be the surface pronoun.

The situation in which the unrestricted type of language differs from the internal-only type is the one in which the external case wins the case competition. This is ungrammatical in the internal-only type of language but it is grammatical in the unrestricted type of language. In Chapter 6, I suggested that this difference

can be derived from a difference in spellout between the two languages types. The difference lies in whether non-case part of the light head and the relative pronoun correspond to the same lexical entry or not.

In the internal-only type of language, the feature REL is spelled out separately from the ϕP, by its own lexical entry, as I showed is Chapter 7. In the unrestricted type of language, the feature REL is spelled out by a lexical entry that contains the ϕP. Moreover, the RELP and the ϕP are syncretic: there is not a more specific lexical entry for the ϕP (without the feature REL). I show this in Figure 9.1.
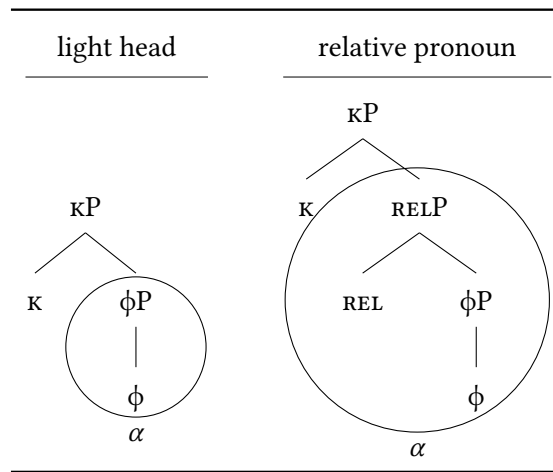
Figure 9.1: LH and RP in the unrestricted type (repeated)

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 relative pronoun can still delete the light head, because it still forms a constituent within the relative pronoun. When the external case is more complex than the internal case, the light head can delete the relative pronoun. The relative pronoun does not form a constituent within the light head, but the features that the light head lacks are contained in the lexical entry that the light head corresponds to. I suggest that this syncretism is also enough to license the deletion of the relative pronoun.

This is not the structure we see of Old High German.

I give a compact version of the Old High German light heads and relative pronouns in Figure 8.2.
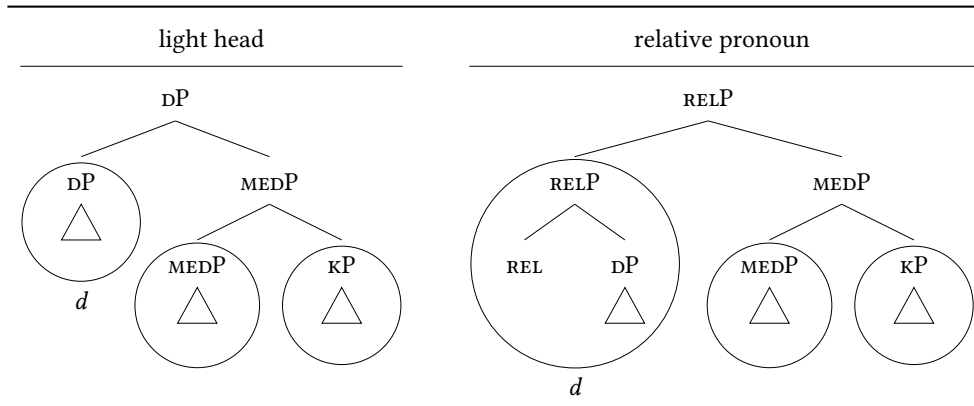

Figure 9.2: LH and RP in Old High German

The structures in Figure 9.2 in no way resemble Figure 9.1.

The section is structured as follows. First, I discuss how Old High German differs from Modern German and Polish. The light-headed relative that is the source for the headless relative is an existing light-headed relative. The deletion is optional. Old High German can only be derived with multiple constituent containment. I wonder whether this might be a strategy that used more broadly for optional deletions of the light head. I show how Gothic is a variant of the Old High German pattern, which can also be derived with multiple constituent containment.

In the end, I discuss the unrestricted type that I am really talking about.

9.1 How Old High German differs

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]

---

[1] *d* can also be written as *dh* and *th*, *ë* 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

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

	N.SG	M.SG	F.SG
NOM	d-aʐ	d-ër	d-iu
ACC	d-aʐ	d-ën	d-ea/d-ia
DAT	d-ëmu/d-ëmo	d-ëmu/d-ëmo	d-ëru/d-ëro
	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

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

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

	N.SG	M.SG	F.SG
NOM	jung, jung-aʐ	jung, jung-ēr	jung, jung-iu
ACC	jung, jung-aʐ	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

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

discussion here, I refrain from doing that.

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 *dër* and the 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.

(1)   DP ⟺ *d*

        D   ANA
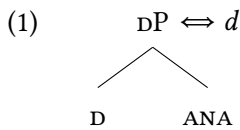
So, the two relative pronouns look like this.[3]

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 (2), 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.

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

---

[3]A 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 11.

person who spoke to someone.

(3)   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'
       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 (4). *Thér* 'DEM.SG.M.NOM' is the head of the
relative clause, which is the external element. *Then* 'RP.SG.M.ACC' is the relative
pronoun in the relative clause, which is the internal element.

(4)   eno nist   thiz   thér   then   ir   suochet
       now not be.3SG DEM.SG.N.NOM DEM.SG.M.NOM RP.SG.M.ACC 2PL.NOM seek.2PL

       zi arslahanne?
       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 informa-
tion structure. In (4), 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.

---

[4]This sharply contrasts with headless relatives in Modern German, which are always ungram-
matical when both the internal and external elements surface. I come back to this in Chapter 7.

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

9.2 Comparing multiple constituents

Is this an alternative for optional deletion? I show first how it works for Old High German. Then I show a variant of it, Gothic.

Consider the examples in (5), 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. (5a) is the variant of the sentence in which the light head is absent (indicated by the square brackets) and the relative pronoun surfaces. (5b) is the variant of the sentence in which the relative pronoun is absent (indicated by the square brackets) and the light head surfaces.

(5) a. quham   [dher]   **dher**   <u>**chisendit**</u>
         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   <u>dher</u>   [**dher**]   <u>**chisendit**</u>
         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 9.3, I give the syntactic structure of the light head at the top and the syn-

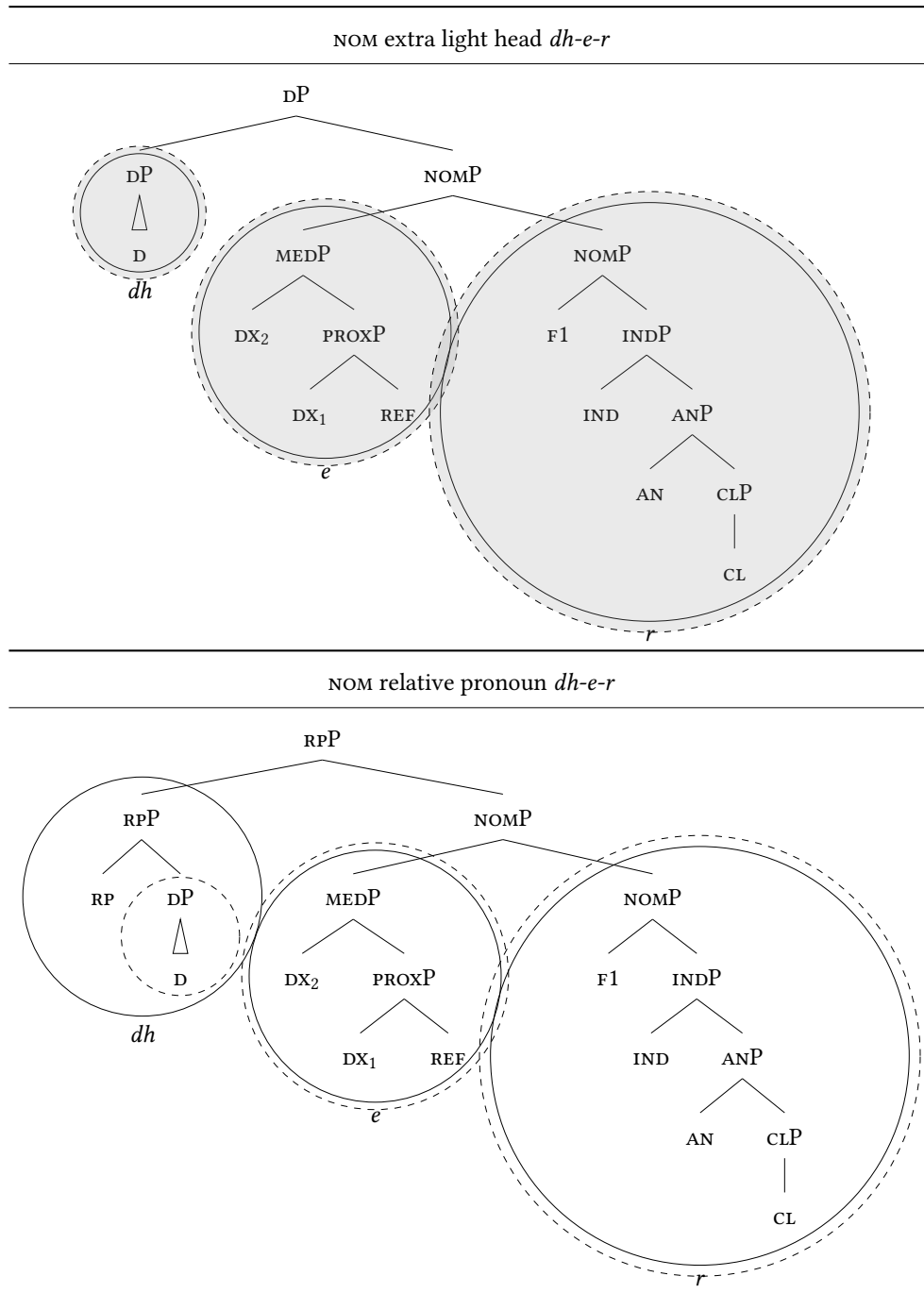tactic structure of the relative pronoun at the bottom.

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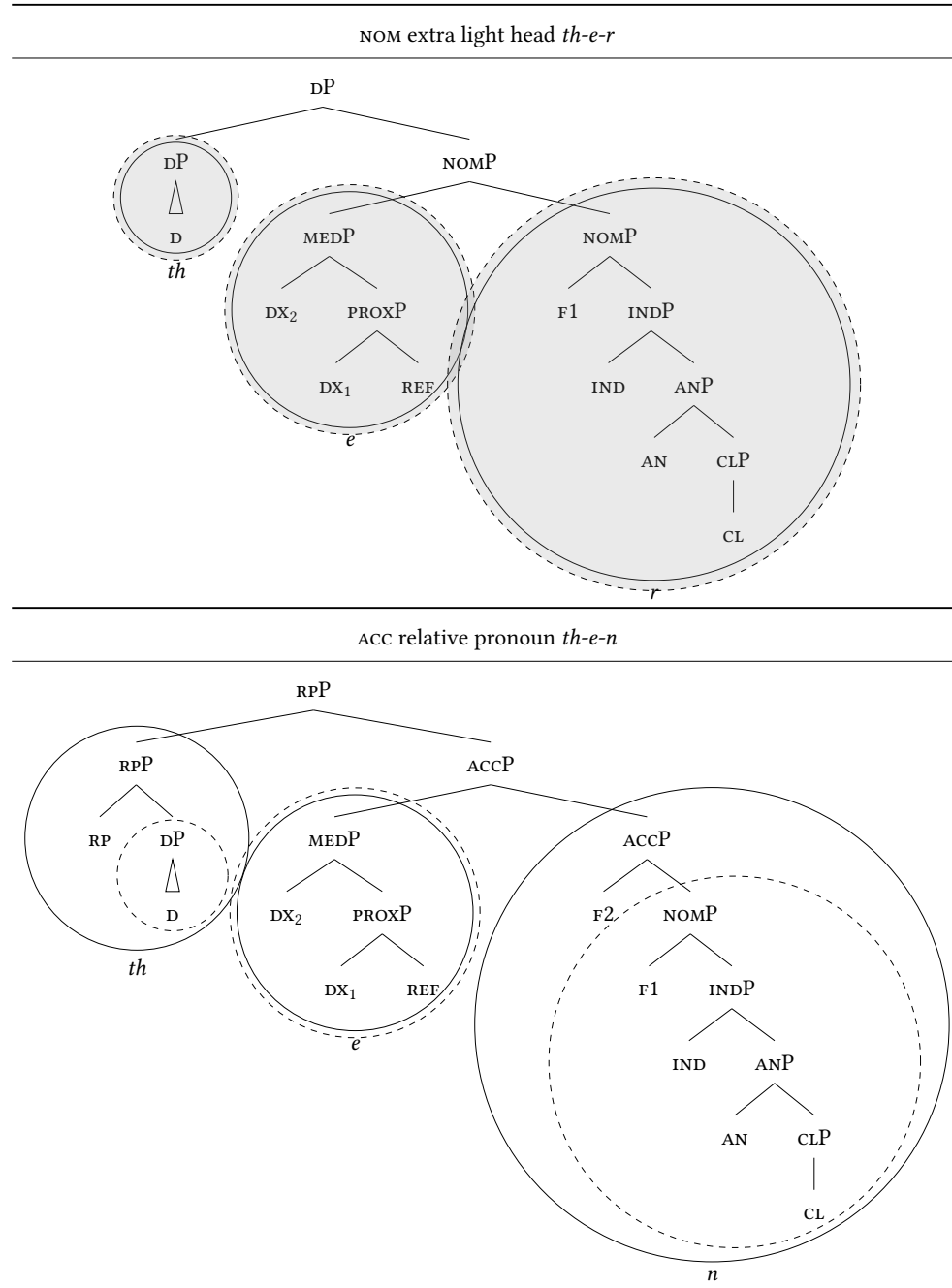
I explain this constituent by constituent. I start with the right-most constituent of the light head that spells out as *r* (NOMP). This constituent is also a constituent in the relative pronoun. I continue with the middle constituent of the light head that spells out as *e* (MEDP). This constituent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

Consider the example in (6), 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.

(6)   Thíz   ist   [ther]   [**then**]   **sie**
       DEM.SG.N.NOM be.PRES.3SG$_{[NOM]}$ DEM.SG.M.NOM REL.SG.M.ACC 3PL.M.NOM

       zéllent
       tell.PRES.3PL$_{[ACC]}$
       'this is the one whom they talk about'   (Old High German, Otfrid III 16:50)

In Figure 9.4, I give the syntactic structure of the light head at the top and the syntactic structure of the relative pronoun at the bottom.

Figure 9.3: Old High German EXT_NOM vs. INT_NOM → *dher*

NOM extra light head *th-e-r*

DP
DP
D
th
NOMP
MEDP
DX₂   PROXP
DX₁   REF
e
NOMP
F1   INDP
IND   ANP
AN   CLP
CL
r

ACC relative pronoun *th-e-n*

RPP
RPP
RP   DP
D
th
ACCP
MEDP
DX₂   PROXP
DX₁   REF
e
ACCP
F2   NOMP
F1   INDP
IND   ANP
AN   CLP
CL
n

Figure 9.4: Old High German EXT_NOM vs. INT_ACC → *then*

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

Consider the examples in (7), 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.

(7) 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 9.5, 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 constituent 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* RPP. This consituent 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.

Gothic seems to be a variant of Old High German, in which there is also no single constituent containment. This time, the relative pronoun is not deleted by syncretism. Gothic has a separate suffix that spells out the feature REL. The light head deletes the relative pronoun, except for the suffix that spells out REL. The light head and the relative pronoun phonologically merge together, and the surface pronoun appears in the external case.

9.3   The hypothetical unrestricted language

It's languages that have syncretic form between the relative pronoun and the light head and syncretism. Because if you want single constituent containment, you only have a single constituent with case on top. In nano terms, you need this lexical entry:
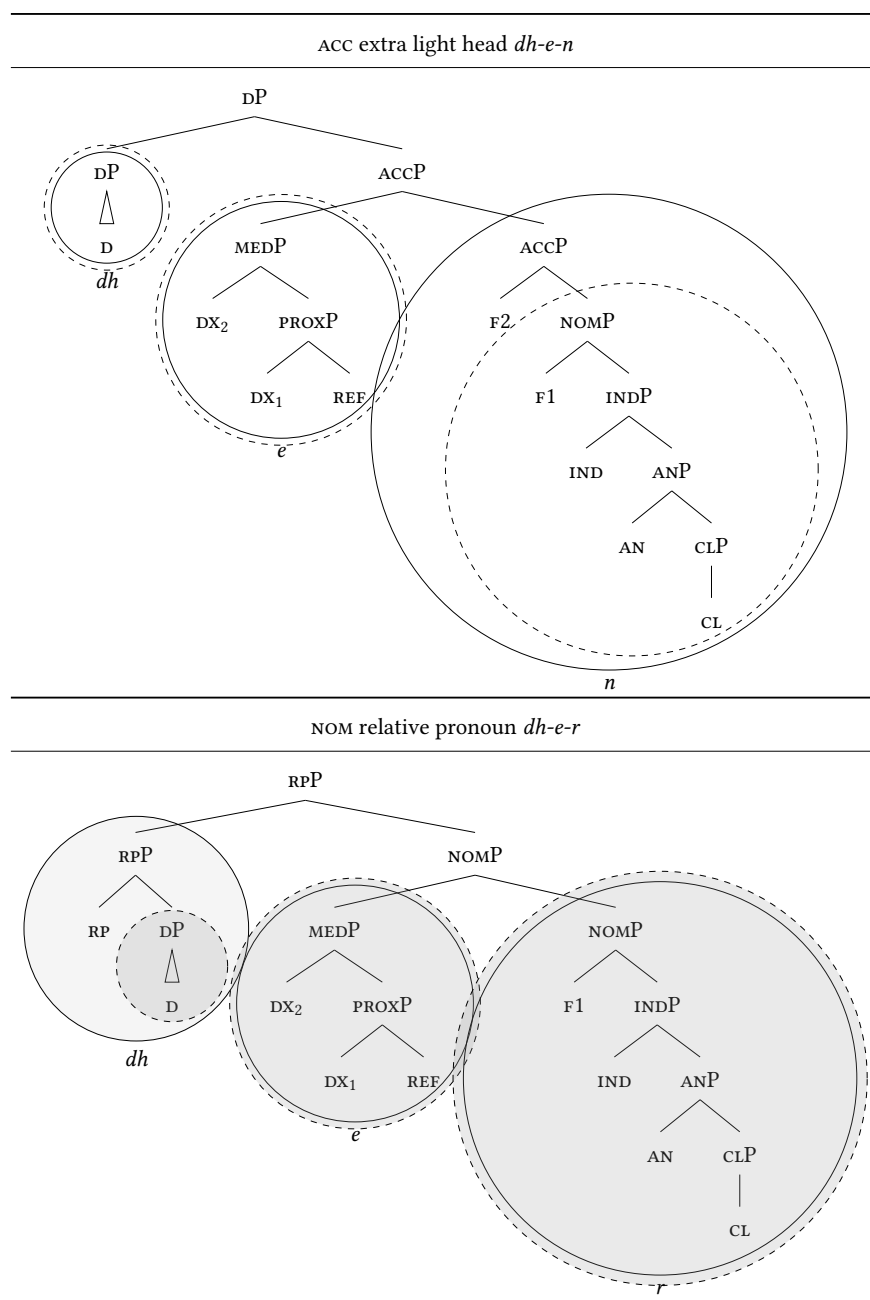
Figure 9.5: Old High German EXT$_{ACC}$ vs. INT$_{NOM}$ → *dhen*

(8)   κP

        κ   RELP

                REL   ϕP

                            |
                            ϕ
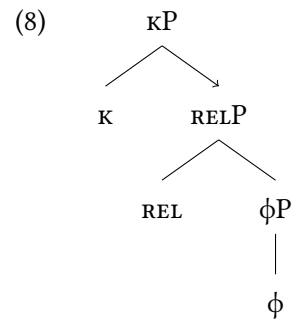
9.4 Summary

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 asterix (*) 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

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[5]This 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 9.6.
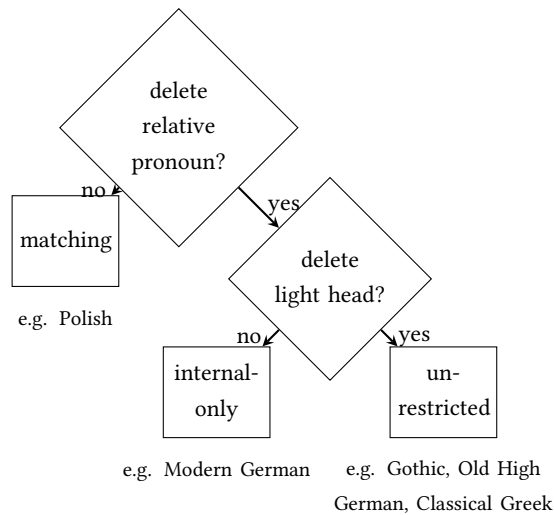

Figure 9.6: Delete relative pronoun/light head as parameters

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.

Chapter 10

Aside: a larger syntactic context

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. 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.

---

[1]Not 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*).

(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.

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.
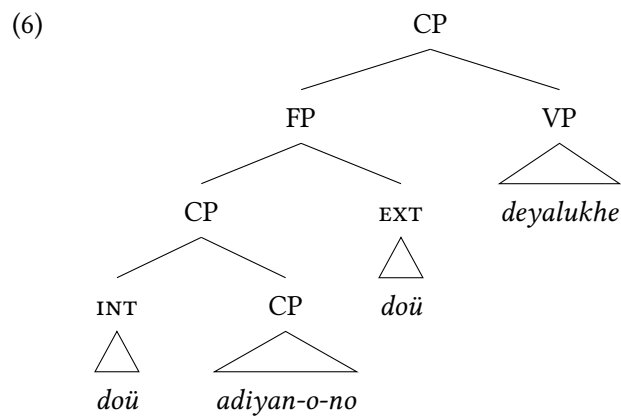
In this dissertation I focus on when languages allow the internal and external case to win the case competition. In my proposal, this depends on the comparison between the internal and external base. The larger syntactic context in which this takes place should be kept stable. For concreteness, I show 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 (5). The head of the relative clause is *doü* 'sago', and it appears inside the relative clause and outside.

(5)   [**doü** adiyan-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.

(6) shows the syntactic structure of the sentence in (5).

(6)

```
                          CP
                _____/     _____
               FP                      VP
          ___/    \___            __/  |  \__
         CP          EXT         deyalukhe
      __/  \__        /\
    INT      CP      doü
    /\      __/\__
   doü   adiyan-o-no
```

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.

(7)

```
              _____/_____
             CP                 EXT
          __/   \__              /\
        INT      CP
        /\       /\
```
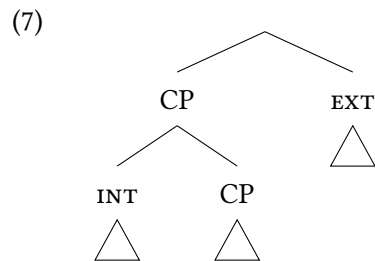
In order for the internal element to be able to delete the external element, a move-

ment needs to take place. The external element moves over the relative clause.[2] From this position, the external element can delete the internal one, because the external element c-commands the internal one.

(8)
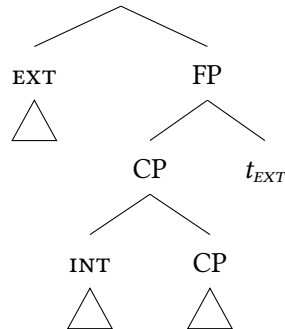
Also talk about D here, and that maybe Old High German deletes a thing without a D when the internal thing wins. does that also have a not so definite interpretation?

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 (9). Here the internal case is accusative and the external one nominative.

(9) 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.

---

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

(10)

VP

besucht

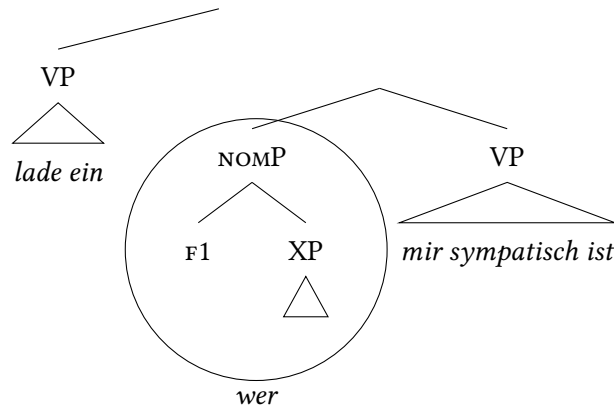ACCP

F2   NOMP

VP

Maria mag

F1   XP

wen
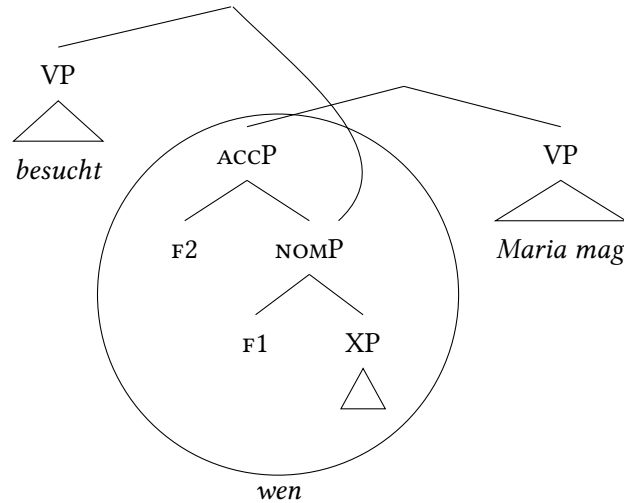
The other way around does not work. Consider (11). This is an example with nominative as internal case and accusative as external case.

(11)   *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.

(12)

```
        VP
       ╱
  VP         NOMP        VP
 △         ╱    ╲       △
lade ein  F1   XP    mir sympatisch ist
               △
              wer
```

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 11

Discussion

11.1 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.

11.2 Towards deriving the always-external pattern

grosu: morphological distinctions correlate with 'freedom'

Why FEM does not have WH-pronouns?

11.3 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.'

11.4 The missing dative/accusative

The accusative/dative example is missing from Gothic, Old High German and An-
cient Greek. What if I take that seriously?

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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