CASE COMPETITION IN HEADLESS RELATIVES

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ACC	accusative
AN	animate
DAT	dative
DEM	demonstrative
GEN	genitive
INF	infinitive
M	masculine
NOM	nominative
N	neuter
PL	plural
PRES	present tense
PST	past tense
PTCP	participle
REL	relative
SG	singular

Part I

The case

Part II

The base

Chapter 1

Constituent containment

In Chapter **??** I introduced two descriptive parameters that generate the attested languages, as shown in Figure 1.1. 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 (2003)147

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

This chapter is structured as follows.

1.1 The basic idea

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

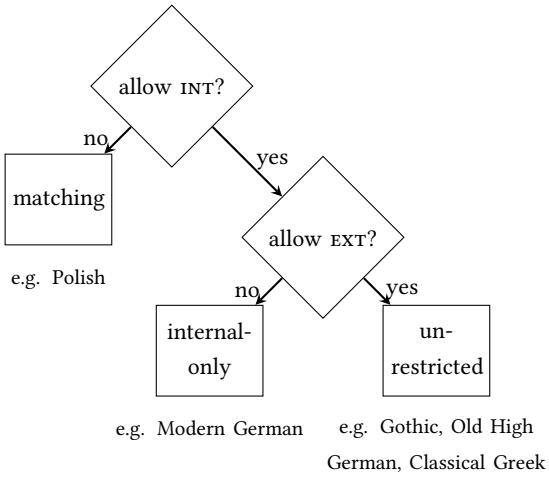


Figure 1.1: Two descriptive parameters generate three language types

1.1.1 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$_{\text{EXT}}$ [relative pronoun$_{\text{INT}}$ …]

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

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

[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 Section **??** I return to the point why Modern German does not have unrestricted headless relatives that look like Old High German, although it still has syncretic light heads and relative pronouns.

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

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

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

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

Table 1.1 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 1.1: Options for the surface pronoun

surface pronoun
light head_{EXT}
$\text{relative pronoun}_{\text{INT}}$
*

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

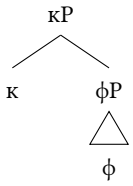
head or the relative pronoun) can delete the other. The light head appears as the surface pronoun when the light head can delete the relative pronoun. The relative pronoun appears as the surface pronoun when the relative pronoun can delete the light head. There is no grammatical surface pronoun possible 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, I compare the constituents within light heads and relative pronouns to each other. Light heads and relative pronouns do not only correspond to case features, but also to other features (having to do with number, gender, etc.). It differs per language how language organize these features into constituents. In this chapter, I illustrate how these different constituents within light heads and relative pronouns lead to the differences in whether or not the light head and the relative pronoun can be deleted, and therefore to different language types.

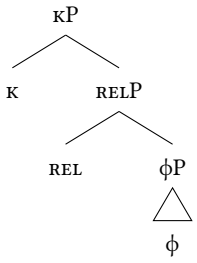
In order to be able to compare the light head and the relative pronoun, I zoom in on their syntactic structures. In Section 1.2 to 1.4 I give arguments to support the structures I am assuming here. Figure 1.2 gives a simplified representation of them.[2] The light head and the relative pronoun partly contain the same syntactic

[2]The structures in Figure 1.2 are not base structures but derived ones. I assume the base structure of the light head to be as in (ia) and the base structure of the relative pronoun to be as in (ib).

(i) a.



b.



The structure for the relative pronoun in Figure 1.2 cannot be derived from the base structures in (ib). It is a simplification of a more complex situation for which I only give the intuition here.

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

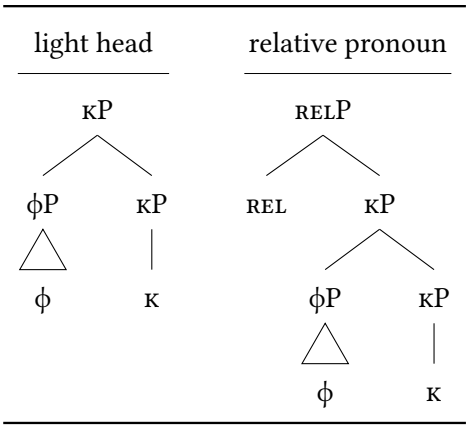


Figure 1.2: Light head and relative pronoun

I compare the light head and the relative pronoun in terms of containment. The relative pronoun can delete the light head because the relative pronoun contains all constituents the light head contains. I illustrate this in Figure 1.3. I draw a dashed circle around the constituent that is a constituent in both the light head and the relative pronoun. The KP is contained in the RELP, so the relative pronoun can delete the light head. I illustrate this by marking the content of the dashed circle for the KP gray.

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

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

In Section 1.2 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.

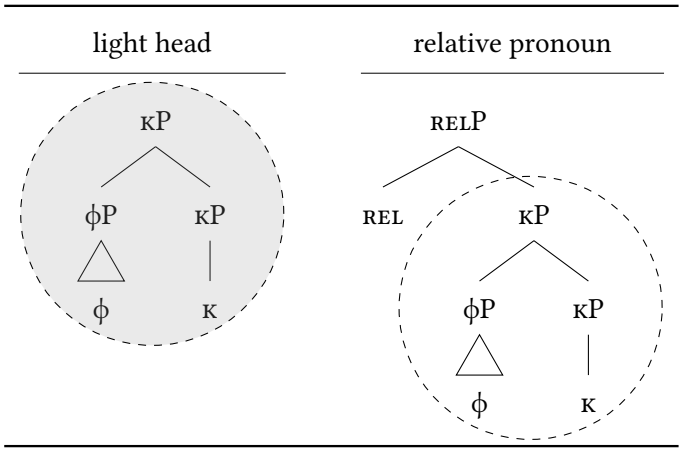


Figure 1.3: Light head and relative pronoun

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

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

1.1.2 The internal-only type

I start with the example in Figure 1.4, in which the relative pronoun bears a more complex case than the light head.

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

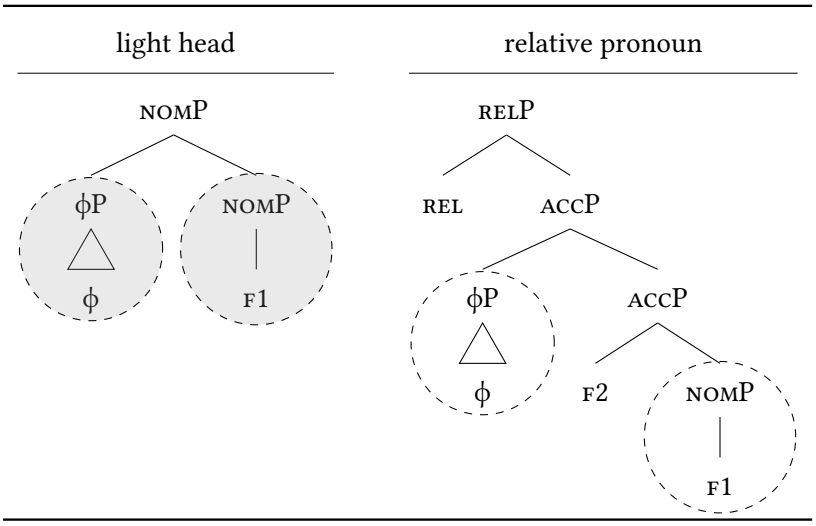


Figure 1.4: NOM light head and ACC relative pronoun

absent. I illustrate this by marking the content of the dashed circles for the light head gray.

I continue with the example in Figure 1.5, in which the light head bears a more complex case than the relative pronoun.

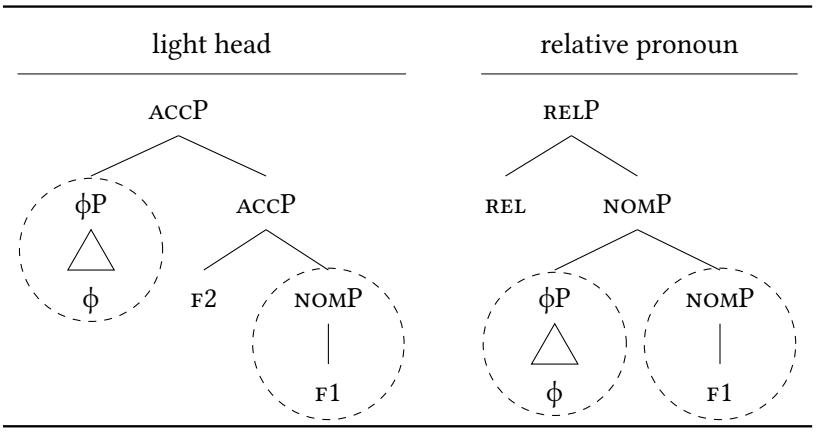


Figure 1.5: NOM relative pronoun and ACC light head

I draw a dashed circle around each constituent that is a constituent in both the light head and the relative pronoun. Different from the example in Figure 1.4,

neither of the elements contains all of the other's constituents. The relative pronoun has a constituent NOMP, but it lacks the F2 to make it an ACCP. The light head has a constituent that is not a constituent in the relative pronoun, so the light head cannot be absent. The light head has a constituent NOMP, but it does not contain REL to make it a RELP. The relative pronoun has a constituent that is not a constituent in the light head, so the relative pronoun cannot be absent. As a result, none of the elements can be absent.

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

1.1.3 The matching type

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

I illustrate the difference between feature and constituent containment with two structures. In Figure 1.6, I repeated the light head and relative pronoun from Figure 1.4.

In Figure 1.6, two different types of containment hold: feature containment and constituent containment. I start with feature containment. Each feature of the KP (i.e. ϕ and K) is also a feature within the RELP, so the RELP contains the KP. Constituent containment works as follows. Each constituent of the KP (i.e. ϕP and KP

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

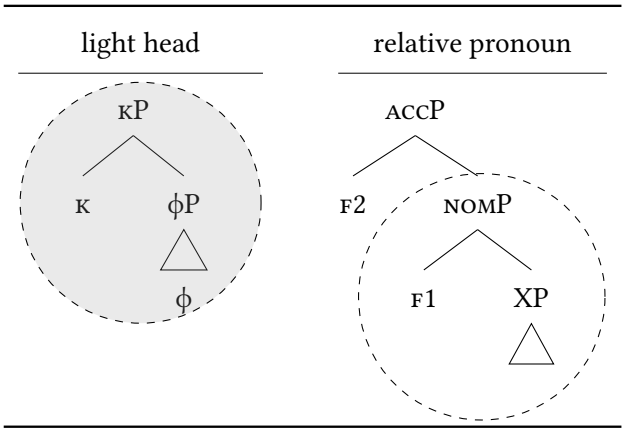


Figure 1.6: LH vs. REL ⟶ REL (repeated)

that contains K and ϕP) is also a constituent of the KP. Therefore, RELP contains contains the KP.

Constituent containment is a stronger requirement than feature containment. In Figure 1.7 I show a situation in which the feature containment requirement holds but the constituent containment requirement does not. It is the same picture as in Figure 1.6 except for that the ϕP has moved out of the RELP.

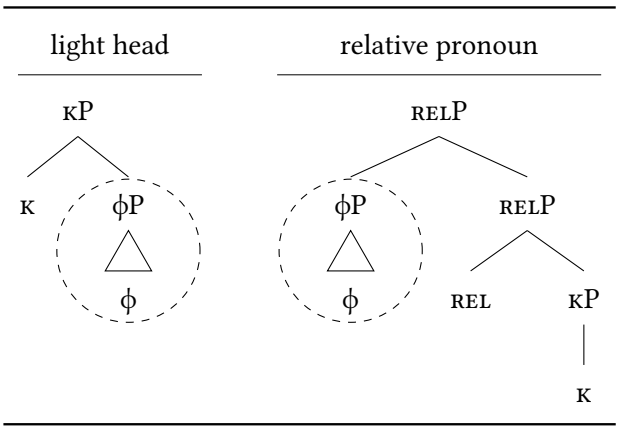


Figure 1.7: LH vs. REL after extraction ⇢ REL

There is still feature containment: the KP contains ϕ and K and so does the RELP. However, there is no longer constituent containment: the KP constituent containing

ϕP and κP that contains κ and ϕP is no longer a constituent within the RELP.

In Section 1.3 I show that only the stronger requirement of constituent containment is able to distinguish the internal-only from the matching type of language, and that the weaker requirement of feature containment is not.

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

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

(3) deze witte huizen en die
these white houses and those
'these white houses and those white houses' (Dutch)

The adjective *witte* 'white' forms a constituent with *huizen* 'houses'. I showed this in Figure 1.8 under first conjunct. In the second conjunct, the constituent with the adjective and the noun in it is deleted. The adjective can still be interpreted in (3), because it forms a constituent with the noun.

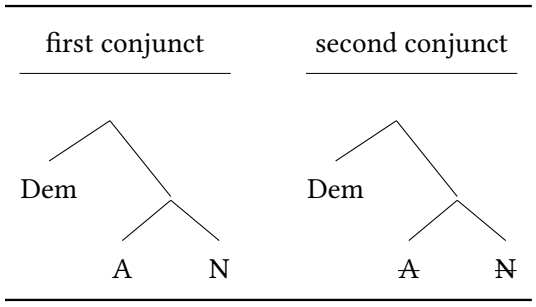


Figure 1.8: Nominal ellipsis in Dutch

The situation is different in Kipsigis, a Nilotic Kalenjin language spoken in Kenya. In (4), I give an example of a conjunction of two noun phrases in Kipsigis. The first conjunct consists of a noun, a demonstrative and an adjective, and the second one only of a demonstrative (Cinque, 2020).

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

The adjective *leel* 'white' does not forms a constituent with *kaarii* 'houses'. I showed this in Figure 1.9 under first conjunct. In the second conjunct, the adjective and the noun are deleted. Different from the Dutch example in 1.8, this is not a single constituent. The adjective cannot be interpreted in (4), because it does not form a constituent with the noun.

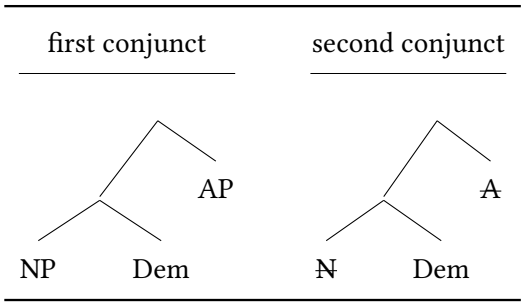


Figure 1.9: Nominal ellipsis in Kipsigis

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

1.1.4 The unrestricted type

In unrestricted languages like Old High German, the light head can delete the relative pronoun and the relative pronoun can delete the light head. The property of unrestricted languages that I connect to this behavior is that their light heads and relative pronoun are syncretic. I suggest that if there is no constituent containment, but the two forms are spelled out by the same morpheme, one element can still delete the other. Consider Figure 1.10, in which the relative pronoun deletes the light head.

The ϕP in the light head is spelled out as α, illustrated by the circle around the ϕP and the α under it. The RELP in the relative pronoun is spelled out as α too,

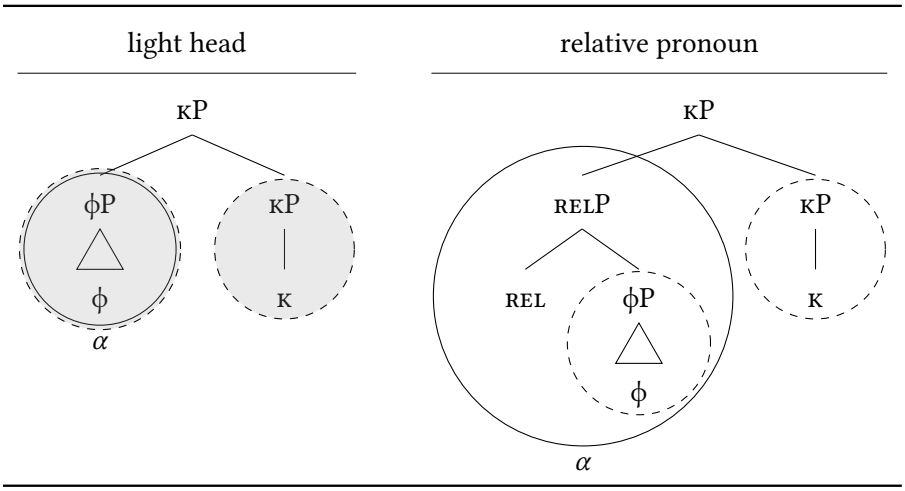


Figure 1.10: Syncretism: relative pronoun deletes light head

illustrated in the same way. I draw a dashed circle around each constituent that is a constituent in both the light head and the relative pronoun.

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

Consider Figure 1.11, in which the light head deletes the relative pronoun.

Just as in Figure 1.10, the ϕP in the light head is spelled out as α and the RELP in the relative pronoun is spelled out as α too. I draw a dashed circle around each constituent that is a constituent in both the light head and the relative pronoun.

I start with the right-most constituent of the relative pronoun: KP. This constituent is also a constituent in the relative pronoun. I continue with the left-most constituent of the relative pronoun: the RELP. This constituent is not contained in the light head. The ϕP lacks the REL to make it a RELP. However, the two constituents are syncretic: the ϕP is also spelled out as α. I suggest that this syncretism is also enough to license the deletion. I illustrate this by marking the content of the dashed circles for the relative pronoun gray and the portion that is deleted by syncretism

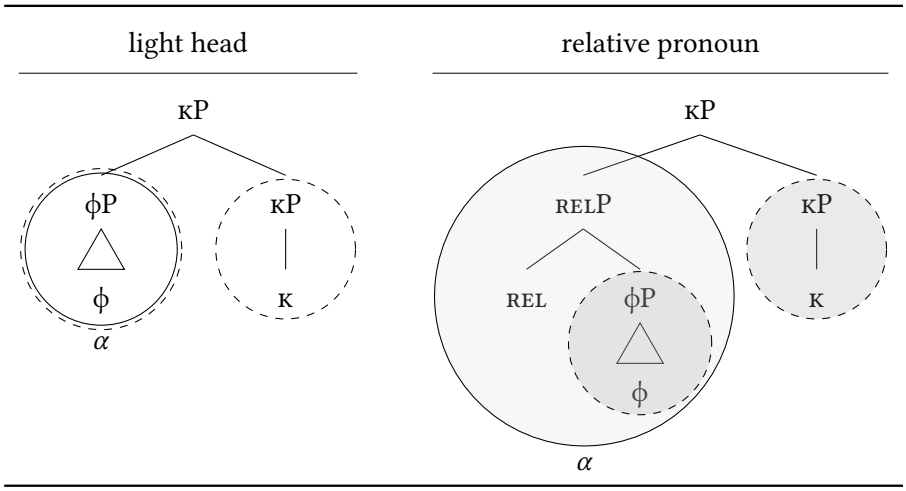


Figure 1.11: Syncretism: light head deletes relative pronoun

in a lighter shade of gray.

To sum up, each constituent of the relative pronoun is either also a constituent within the light head or it is syncretic with a constituent within the light head. Therefore, the relative pronoun can be absent. The fact that syncretism licenses deletion is not specific to the portion of the structure that corresponds to ϕ and REL. Syncretic cases can have the same effect, the inanimate nominative and accusative in Modern German being an instance of it. I give examples of this in Section 1.4.

1.1.5 Everything is constituent containment

In summing up this section, I return to the metaphor with the committee that I introduced in Chapter **??**. 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 **??** I wrote that the approval happens based on where the winning case comes from: from inside of the relative clause (internal) or from outside of the relative clause (external). I argued in this section that

headless relatives are derived from light-headed relatives. The light head bears that external case and the relative pronoun bears the internal case. The 'approval' of an internal or external case relies on the same mechanism as case competition, namely constituent comparison. If each constituent of the light head is contained in a constituent of the relative pronoun, the relative pronoun can delete the light head. The light head with its external case is absent, and the relative pronoun with its internal case surfaces. This is what corresponds to the the internal case 'being allowed to surface'. If each constituent of the relative pronoun is contained in a constituent of the light head, the light head can delete the relative pronoun. The relative pronoun with its internal case is absent, and the light head with its external case surfaces. This is what corresponds to the the external case 'being allowed to surface'.

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

In this dissertation I describe different language types in case competition in headless relatives. In my account, the different language types are a result of a comparison of the light head and the relative pronoun in the language. The larger syntactic context in which this takes place should be kept stable. The operation that deletes the light head or the relative pronoun is the same for all language types. In this work, I do not specify on which larger syntactic structure and which deletion operation should be used. In Section 1.7 I discuss existing proposals on these topics and to what extend they are compatible with my account.

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

1.2 Deriving the internal-only type

Internal-only languages can be summarizes as in Table 1.2.

Table 1.2: The surface pronoun with differing cases in Modern German

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

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. The goal of this section is to derive this from the way light heads and relative pronouns are spelled out in Modern German.

The section is structured as follows. First, I discuss the relative pronoun. According to my assumptions in Section 1.1, relative pronouns are part of the relative clause. I confirm this independently for Modern German with data from extraposition. I decompose the relative pronouns into morphemes, and I show which features each of the morphemes corresponds to. Then I discuss the light head. I argue that Modern German headless relatives are derived from a light-headed relative clause that does not surface in the language. I decompose the light heads into morphemes, and I show which features each of the morphemes corresponds to. Finally, I compare the constituents of the light head and the relative pronoun. When the internal and the external case match, the relative pronoun can delete the light head, because it contains all its constituents. When the internal case is more complex than the external case, the relative pronoun can still delete the light head, for the same reason: the relative pronoun contains all constituents of the light head. This is no longer the case when the external case is more complex than the internal case. The light head does not contain all constituents of the relative pronoun, and the relative pronoun does not contain all constituents of the light head. As a result, there is no grammatical form to surface when the external case is more complex.

1.2.1 The relative pronoun

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

The sentences in (5) show that it is possible to extrapose a CP. In (5a), 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 (5b).

(5) 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)

(6) illustrates that it is impossible to extrapose a DP. The clausal object of (5) is replaced by the simplex noun phrase *die Sache* 'that matter'. In (6a) the object, marked in bold, appears in its base position. In (6b) it is extraposed, and the sentence is no longer grammatical.

(6) 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 (7) 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*.[4] In

[4]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*).

(7a), the relative clause and its head appear in base position. In (7b), the relative clause is extraposed. This is grammatical, because it is possible to extrapose CPs in Modern German. In (7c), the relative clause and the head are extraposed. This is ungrammatical, because it is possible to extrapose DPs.

(7) 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)

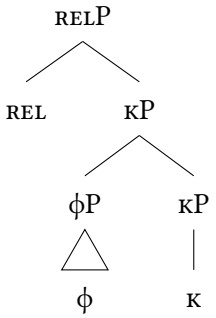
The same can be observed in relative clauses without a head. (8) is the same sentence as in (7) only without the overt head. The relative clause is marked in bold again. In (8a), the relative clause appears in base position. In (8b), the relative clause is extraposed. This is grammatical, because it is possible to extrapose CPs in Modern German. In (8c), 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.

(8) 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 corresponds to the relative pronoun.

In Section 1.1 I gave the structure in (50) as a simplified representation of the relative pronoun.

(9)



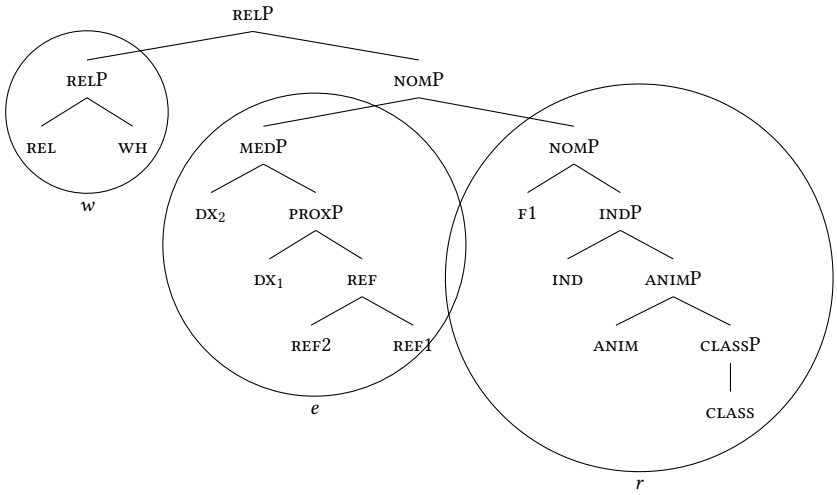
In this section I give the non-simplified structure of the relative pronoun. I discuss the relative pronoun in the nominative animate singular and in the accusative animate singular. These are the two forms that I compare the constituents of at the end of this section. I show them in (10).

(10) a. w-e-r
'REL.AN.SG.NOM'

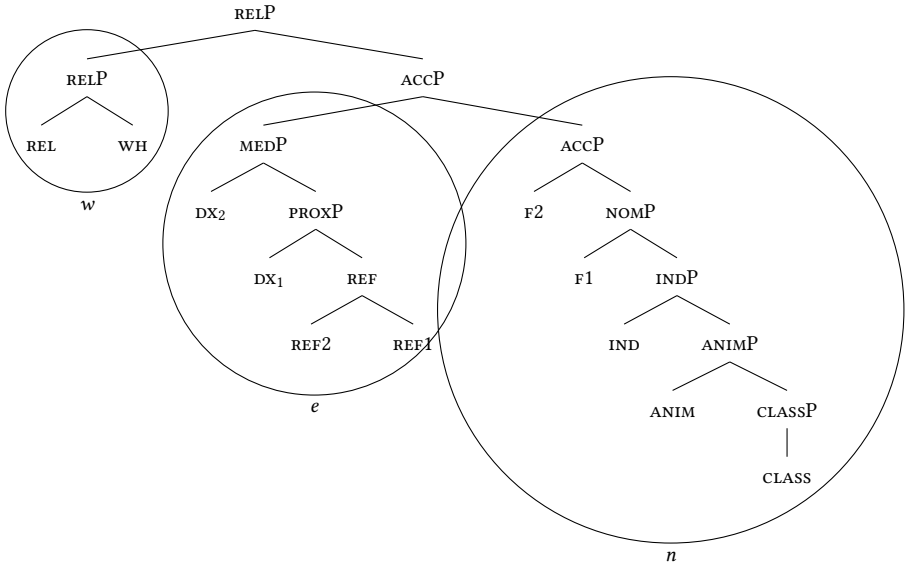
b. w-e-n
'REL.AN.SG.ACC'

In what follows, I decompose the relative pronouns in three morphemes: the *w*, the *e* and the final consonant. For each morpheme, I discuss which features they spell out, and I give their lexical entries. Finally, I show how relative pronouns are derived into the structures in **??** and **??**. I pay particular attention to what drives the observed consituency.

(11)



(12)



I start with the morpheme *w* of the relative pronoun. Compare Table 1.3 and Table 1.4. The *w* combines with the same endings as the *d* does in demonstratives (or relative pronouns in headed relatives).[5]

[5]Note here that the relative pronouns, unlike the demonstratives, do not have a feminine form for the relative pronouns in Table 1.3. Demonstratives also have plural forms (which are not given here), and 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

Table 1.3: Modern German relative pronouns (Durrell 2011: 5.3.3)

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

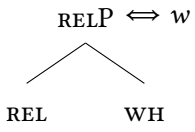
Table 1.4: Modern German demonstrative pronouns (Durrell 2011: 5.4.1)

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

This identifies the *d* and, more importantly for the discussion here, the *w* as a separate morpheme. Two features that *w* spells out are important for the discussion here. The first feature I refer to as WH. This is a feature that WH-pronouns, such as WH-relative pronouns and interrogatives, share. This is the meaning part that relative pronouns and interrogatives share: the WH-element triggers the construction of a set of alternatives in the sense of Mats Rooth (1985) and Maths Rooth (1992) (Hachem, 2015). This contrasts with the D in Table 1.4, which is responsible for establishing a definite reference. The second relevant feature is REL, which establishes a relation.

In sum, the *w* spells out the features WH and REL, shown in (13).

(13)



of the matching type. Relative pronouns in languages of the unrestricted type do inflect for feminine, as well as always-external languages. In Chapter **??** I return to this observation in relation with the always-external languages.

I continue with the final consonants (*r* and *n*). They can be observed in several contexts besides relative pronouns. Table 1.5 gives an overview of the strong adjective *neu* 'new' in Modern German in two numbers, three genders and three cases.[6] Compare the final consonants in Table 1.6 and Table 1.5 (repeated from Table 1.3).

Table 1.5: Modern German strong adjective *neu* 'new' (Durrell 2011: 6.1.2)

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

Table 1.6: Modern German relative pronouns (Durrell 2011: 5.3.3) (repeated)

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

Table 1.5 and **??** show that the final consonants take different shapes depending on gender, number and case. I conclude from that that the consonant realizes features having to do with these three aspects.

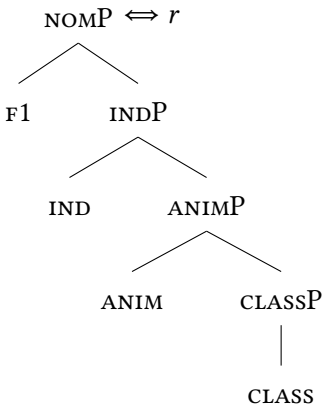
Since I discuss singular masculine forms in nominative and accusative case, I only introduce features that are realized by these morphemes. For case, I adopt the features of Caha (2009), already introduced in Chapter **??**. F1 refers to a nominative, and F1 and F2 refers to an accusative. For number and gender, I adopt the features that are distinguished by Harley and Ritter (2002) for pronouns. The feature CLASS refers to gender features, which is inanimate or neuter if it is not combined with

[6]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. It might be the same as the *ə* in the light head.

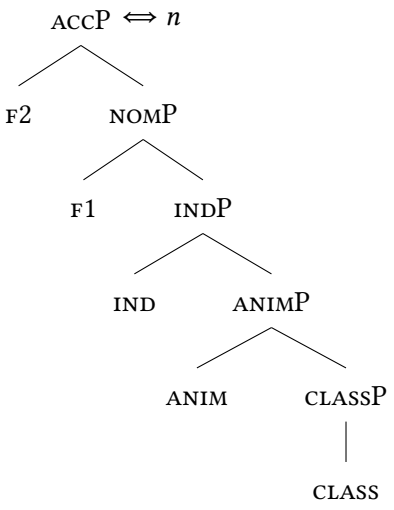
any other features. Combining CLASS with the feature INAM gives an animate or masculine gender.[7] The feature IND refers to number, which is singular if it is not combined with any other features.

I give the lexical entries in (14a) and (14b). The *r* is the nominative masculine singular, so it spells out the features CLASS, ANIM, IND and F1. The *n* is the accusative masculine singular, so it spells out the features that the *r* spells out plus F2.

(14) a.



b.



Two things should be noted here. First, the ordering of the features is not random. I motivate it later on in this section.

[7] If CLASS and ANIM is combined with FEM, it becomes feminine gender.

Second, the lexical entries in (14) differ from the one in (13) regarding their bottom. (13) has two features at the bottom, and (14) have only one. This is how Nanosyntax whether a lexical entry is a suffix or a prefix. Lexical entries with unary bottoms are suffixes, so they can only appear as the result of movement. Lexical entries with binary bottoms are prefixes, so they cannot appear as the result of movement (Starke, 2018).[8]

This leaves the *e* in the relative pronoun. I assume that this morphemes spells out two features. The first one is REF. Harley and Ritter (2002) claim that all pronouns contain this feature, because they are referential expressions. Mark C Baker and Mark Cleland Baker (2003) claims that it also present in nouns, and that this feature distinguishes nouns from other categories. The second feature I call DX. This refers to discourse deixis here. It expresses deixis in that it establishes a relation with an antecedent. This feature is present in WH-pronouns and demonstratives as in 1.4. [9]

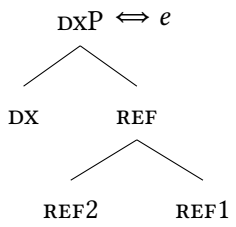
[8]This movement is the same one that I mentioned in the discussion on Khanty pronouns in Chapter **??**. Later in this section I illustrate how lexical entries and movement interact.

[9]I do not decompose the deixis any further in the main text. For completeness, I assume that the WH-relative pronoun combines with a the medial (when distinguishing between proximal, medial and distal). Morphological evidence from English shows that it has to be medial or the distal. Demonstratives in English can combine with either the proximal (*this*) or this medial/distal (*that*). WH-pronouns combine with the medial/distal (*what*) and are ungrammatical when combined with the proximal (**whis*).

Conceptually it can be made sense of if one connects spatial deixis to discourse deixis (Colasanti and Wiltschko, 2019). The proximal is spatially near speaker, and it refers to knowledge that the speaker possesses. The medial is spatially near the hearer, and it refers to knowledge that the hearer possesses. The distal is spatially away from the speaker and the hearer, and refers to knowledge that neither of the possess. In interrogatives, the speaker asks the hearer a question, probably assuming that the hearer has the information.

The difference between these distinctions cannot be observed in Modern German, because a syncretic form for the proximal, the medial and the distal (Lander and Haegeman 2018: 387), see Table 1.4.

(15)

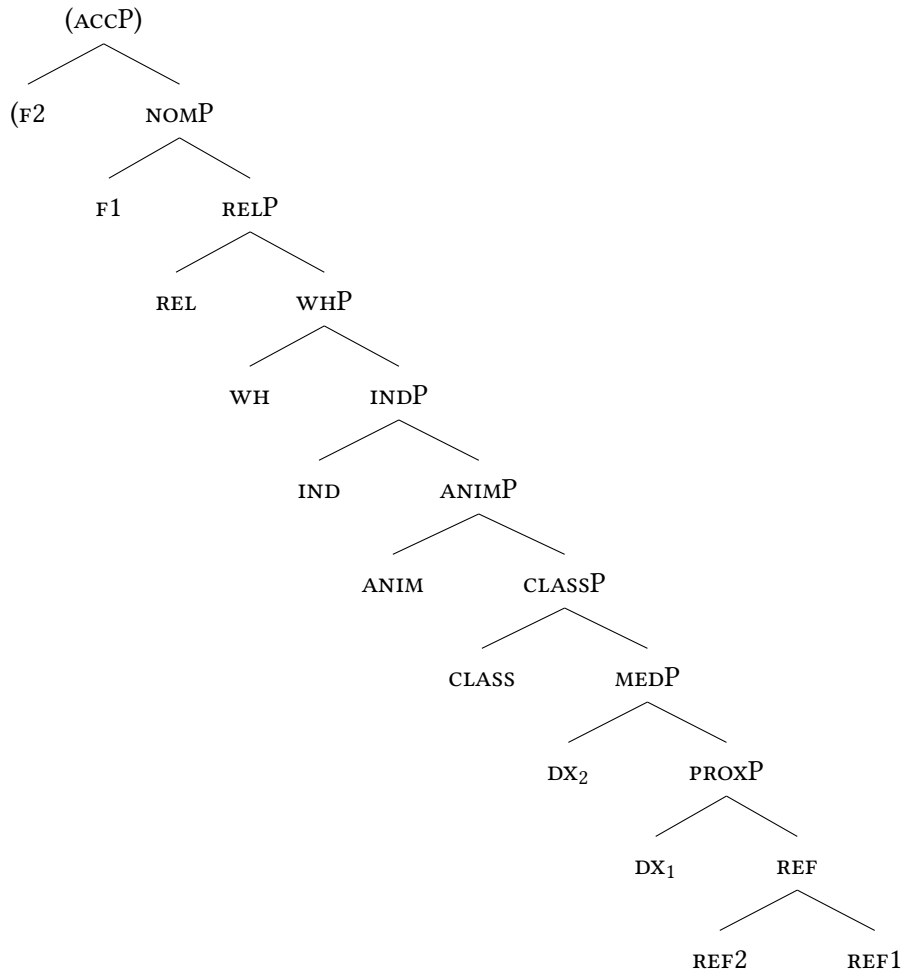


At this point, I gave the lexical entries and what the relative pronouns as a whole look like. In principle, I could combine the lexical entries and move on to the light head. One would only need a theory for combining morphemes. This theory should determine which morphemes should be combined with each other and in which order this happens. Ideally, this theory for combining morphemes is not language-specific, but the same for all languages.

The way Nanosyntax accomplishes this is via a functional sequence and the spellout algorithm. In Nanosyntax, lexical entries are not combined directly from the lexicon. Instead, spellout happens in a cyclic derivation, in which features are merged one by one. Two components are needed for this: (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 spelled procedure. These two components are stable across languages. The differences between languages only comes from their lexical entries.

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

(16)



Starting from the bottom, these are referential features (REF) and features having to do with deixis, gender features (CLASS and ANIM), number features (IND), ?? features (WH and REL) and case features (F1 and F2). This order is independently supported by work in the literature. This order is independently supported by work in the literature. Both Picallo and Kramer argue that number is hierarchically higher than gender. Case is agreed to be higher than number (cf. Bittner and Hale).

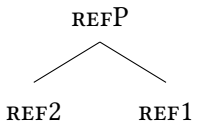
REF, DEIX, WH/REL?

The features from the functional sequence are merged one by one, starting from the bottom. Spellout is cyclic, as stated in (17).

(17) Cyclic phrasal spellout. Caha:declension
Spellout must successfully apply to the output of every Merge F operation. After successfull spellout, the derivation may terminate, or proceed to another round of Merge F.

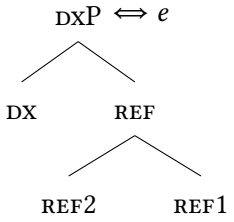
After each instance of merge, the constructed phrase must be spelled out. I illustrate this by merging REF1 and REF2, creating a REFP.

(18)



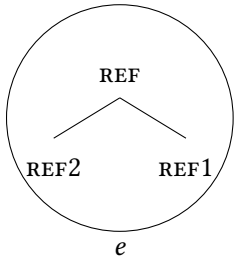
This syntactic structure is contained in the lexical tree in **??**, repeated from (15), which spells out as *e*.

(19)



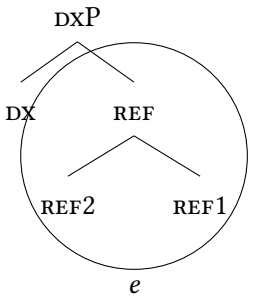
Therefore, the REFP is spelled out as *e*. As usual, I mark this by circling the part of the structure that corresponds to the lexical entry, and placing the corresponding phonology under it.

(20)



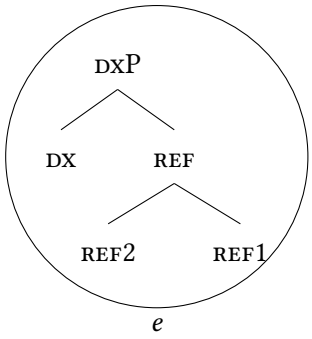
The next step in the derivation is to merge the following feature in the functional sequnce in (16). This is the featrure DX, which creates the DXP.

(21)



The DXP is also contained in the lexical tree in **??**. Therefore, the DXP spells out as *e*, illustrated in (22).

(22)



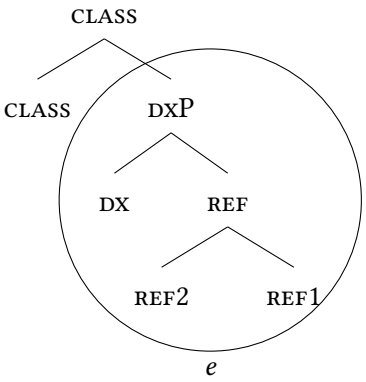
Note here that the result of our derivation so far is not *e-e*. This is stated in (23).

(23) **Cyclic Override** (Starke, 2018):
Lexicalisation at a node XP overrides any previous match at a phrase contained in XP.

I reformulate this informally. If a lexical tree matches a syntactic structure, the lower matching items are replaced. This holds when the structure matches twice with the same lexical entry, and also when it matches with different lexical entries.

The next feature in the functional sequence is CLASS, and a CLASSP is created.

(24)



Here a problem arises. The lexical entry for *e* does not contain the feature CLASS to make it a CLASSP.

This brings me to the spellout algorithm used in Nanosyntax, given in (25).

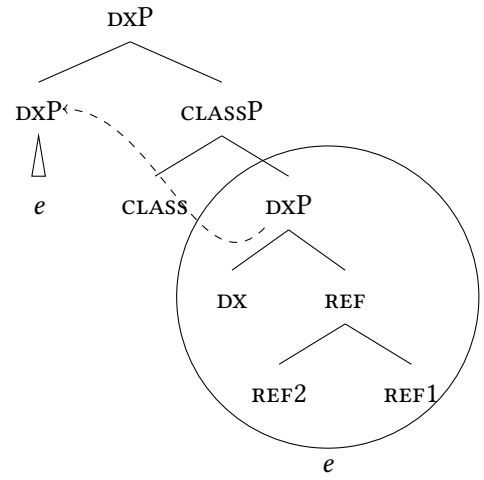
(25) **Spellout Algorithm:**

a. Merge F and spell out.
b. If (25a) fails, move the Spec of the complement and spell out.
c. If (25b) fails, move the complement of F and spell out.

I informally reformulate what is in (25). I start with the first line in (25a). This says that a feature F is merged, and the newly created phrase FP is attempted to spell out. The next two lines, (25b) and (25c), describe two types of rescue movements that take place when the spellout in (25a) fails (i.e. when there is no match in the lexicon).

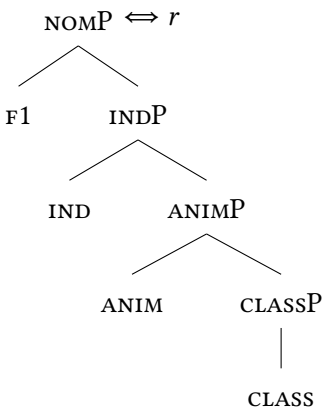
The first step of the spellout algorithm ((25a)) succeeded after creating the REFP and the DXP, as shown in (21) and (22). (25a) fails after creating the CLASSP. Following the spellout algorithm, the option in (25b) is considered. In this structure the complement does not have a specifier, so this step is irrelevant and leads to no movement. Following the spellout algorithm further, the option in (25c) is considered. In this step, the DXP moves away, leaving the CLASSP containing CLASS. I show this situation in (28).

(26)



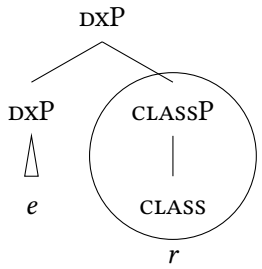
There are two other lexical entry that contains the feature CLASS, namely the one in (14a) which spells out as *r* and the one in (14a) which spells out as *n*. I repeat the one in (14a) here as (27), because it has the least amount of unused features. Following the Elsewhere Principle, which says that a lexical tree with the least amount of unused features wins, this is the lexical entry that wins.

(27)



As a result, the CLASSP spells out as *r*.

(28)

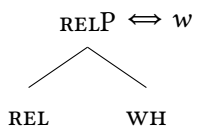


Note here that it is crucial that the lexical entry for *r* in (27) has a unary bottom. Therefore, it can be inserted as the result of movement. What follows is that the lexical entry follows the existing structure and is spelled out as a suffix.

The spellout proceeds by merging one by one the features ANIM and IND (see the functional sequence in (16)), and spelling them out using the spellout algorithm.

The next point of interest arises when the feature WH is merged. This feature cannot spell out together with all features merged so far (as the option in (25a)). It can also not be spelled out by the lexical entry corresponding to the *r* (as the option in (25b)). Finally, it is impossible for WH to be spelled out as part of a suffix (as the option in (25b)). This last option is impossible, because the lexical entry that contains the feature WH has a binary bottom. I repeat the lexical entry from (13) in (29).

(29)



The derivation turns to the last resort option, which is to build a complex left branch.

(30) **Spec Formation** (Starke, 2018):
If Merge F has failed to spell out, try to spawn a new derivation providing the feature F and merge that with the current derivation, projecting the feature F at the top node.

.. but the WH is on its own.. is REL merged right away?

The last problem is the case feature. What happens then is backtracking + elements are split up, merged onto both of them, case can be spelled out with suffix.

The nominative masculine singular relative pronoun is built as follows. The REFP is spelled out as *e*. The REFP is merged with DX_1, and the whole phrase (PROXP) is spelled out as *e*. The PROXP is merged with DX_2, and the whole phrase (MEDP) is spelled out as *e*.

The MEDP is merged with CLASS. There is no lexical entry that matches the whole phrase. There is no specifier to move, so this movement is irrelevant. The complement of CLASS, the MEDP, is moved to the specifier of CLASSP, and the CLASSP is spelled out as *r*. The CLASSP is merged with ANIM. There is no lexical entry that matches the whole phrase. The specifier of CLASSP, the MEDP, is moved to the specifier of ANIMP, and the ANIMP is spelled out as *r*. The ANIMP is merged with IND. There is no lexical entry that matched the whole phrase. The specifier of ANIMP, the MEDP, is moved to the specifier of INDP, and the INDP is spelled out as *r*.

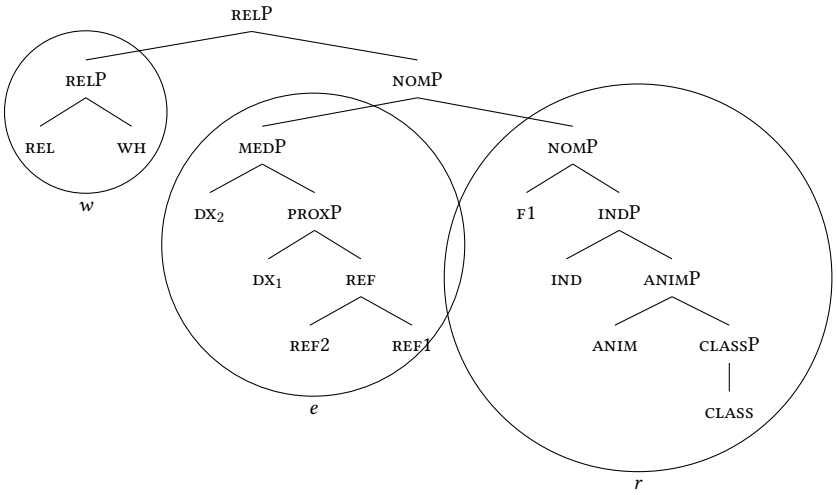
The INDP is merged with *wh*. There is no lexical entry that matches the whole phrase, there is no match after spec-to-spec movement, and there is no match after complement movement. Backtracking also does not lead to a matching lexical entry. A complex specifier is created.

The WHP is merged with REL. There is no lexical entry that matches the whole phrase, there is no match after spec-to-spec movement, and there is no match after complement movement. The first step of backtracking is that the two branches, the WHP and the INDP are separated. The REL is merged with the WHP (that only contains the WH) in the left branch and with the INDP in the right branch. In the left branch, the whole phrase (RELP) is spelled out as *w*. In the right branch, there is no spellout.

The RELP is merged with F1. There is no lexical entry that matches the whole phrase, there is no match after spec-to-spec movement, and there is no match after complement movement. The first step of backtracking is that the two branches, the RELP and the INDP are separated. The F1 is merged with the RELP in the left branch and with the INDP in the right branch. In both branches, there is no lexical entry that matches the whole phrase. In the left branch, there is no specifier to move, so this movement is irrelevant. In the right branch, the specifier of INDP, the MEDP, is moved to the specifier of NOMP, and the NOMP is spelled out as *r*.

The final result is given in (31).

(31)

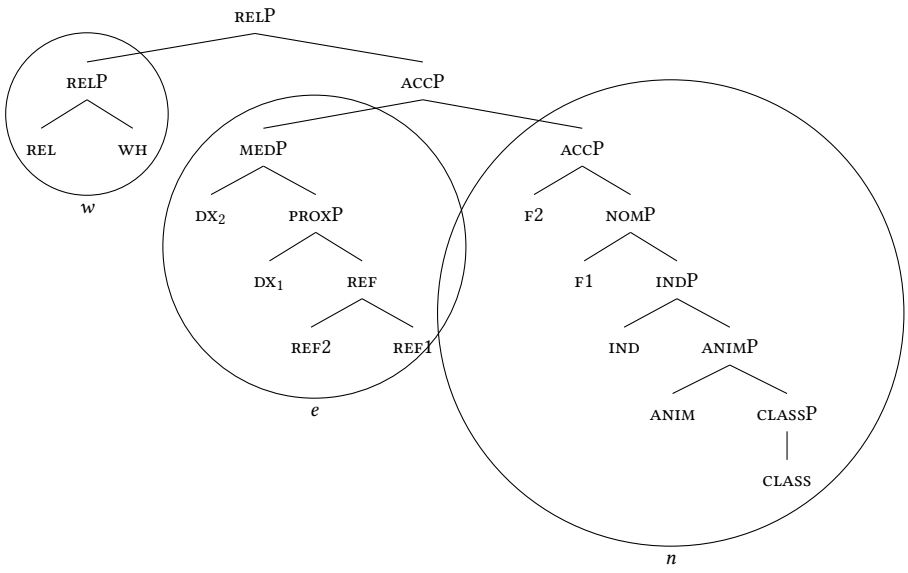


The accusative masculine singular relative pronoun is built as the nominative singular relative pronoun, except for that the feature F2 is added to make it an accusative.

The NOMP is merged with F2. There is no lexical entry that matches the whole phrase, there is no match after spec-to-spec movement, and there is no match after complement movement. The first step of backtracking is that the two branches, the RELP and the NOMP are separated. The F2 is merged with the RELP in the left branch and with the NOMP in the right branch. In both branches, there is no lexical entry that matches the whole phrase. In the left branch, there is no specifier to move, so this movement is irrelevant. In the right branch, the specifier of NOMP, the MEDP, is moved to the specifier of ACCP, and the ACCP is spelled out as *n*.

The final result is given in (32).

(32)



second, this is how two morphemes are combined. you follow the fseq, the spellout algorithm, and the lexical entries.

Note here that the functional sequence is identical for all languages. The same holds for the spellout algorithm. It is only the lexical entries that differ per language. It is these lexical entries that cause the different constituency within the light head and the relative pronoun. If a feature is merged, it follows the procedure in the spellout algorithm to be realized. In some cases that means that it is spelled out on top of the other features, and in other cases it means that it is spelled out after one of the movements has taken place.

1.2.2 The light head

In this section, I discuss from which light-headed relatives Modern German headless relatives are derived. There are two options. First, the light-headed relative is derived from an existing light-headed relative, and the deletion is optional. Second, the light-headed relative is derived from a light-headed relative that never surfaces in Modern German and the deletion is obligatory. I consider the first option first, and I give two reasons against it. I take the light head from this construction as a point of departure, and I end arguing for a head that resembles the weak demon-

strative in sense of Schwarz (2009).

I give an example of a Modern German light-headed relative in (33).[10]

(33) Jan umarmt den **wen** **er mag**.
Jan hugs DEM.M.SG.ACC REL.ANIM.ACC he likes
'Jan hugs the man that he likes.'

In (33), the relative pronoun is the WH-pronoun *wen* 'REL.AN.ACC', and the light head is the D-pronoun *den* 'DEM.M.SG.ACC'.

One hypothesis is that the demonstrative *den* 'DEM.M.SG.ACC' is deleted from the light-headed relative in (33) and a headless relative in (34) remains.[11]

(34) Jan umarmt **wen** **er mag**.
Jan hugs REL.AN.ACC he likes
'Jan hugs who he likes.'

I give two arguments that go against this hypothesis.

First, headless relatives are able to combine with *auch immer* 'ever'.

[10]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 REL.M.SG.ACC he likes
'Jan hugs the man that he likes.'

This relative pronoun generally appears in headed relatives. I give an example of that in (ii).

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

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

[11]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.

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

Light-headed relatives are not.

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

I assume that the headless relative is not derived from an ungrammatical structure.[12]

Secondly, the headless relative in (34) has two interpretations (see Šimík 2020 for a recent elaborate overview on the semantics of free relatives). The light-headed relative in (33) has only one of them. The definite-like interpretation corresponds to a definite description: Jan hugs the person that he likes. This interpretation is available for the headless relative and for the light-headed relative. The universal-like interpretation corresponds to a universal quantifier: Jan hugs everybody that he likes. This interpretation is available for the headless relative, but not for the light-headed relative.

There are some facts that indicate that this universal-like interpretation of headless relatives is the main interpretation that should be accounted for. 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. In the same spirit, 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, I argued against the light-headed relative in (33) being the source of the headless relative in (34). I argue that the problem is the feature content of *den*.

In footnote 4, I already briefly noted that not all speakers of Modern German allow light-headed relative in (33). Some of my informants reported that the meaning of these two elements are incompatible for them. They prefer the D-pronoun as

[12] I am aware that such an analysis is common for sluicing. I see that as an exception that corroborates the rule

relative pronoun instead (as in (i)). I assume that the demonstrative *den* spells out features having to do with definiteness and deixis (Radek). The relative pronoun *wen* in **??** spells out features having to do with sets of alternatives. The combination of this two does not match. That is why the relative pronoun *den*, which also contains definiteness features, is a good match with a D-pronoun as a light head.

I propose to remove definiteness and deixis features. What I get then: Schwarz' weak demonstrative.[13]

I suggest that the light head is a form that shows resemblance to the weak definite of Schwarz (2009). Schwarz (2009) distinguishes strong and weak definites in Modern German. The strong definite is anaphoric in nature, and the weak definite encodes uniqueness (but is mine unique?). First I give an example of a strong definite in (37). The strong definite is *dem* that precedes *Freund* 'friend'. It refers back to the linguistic antecedent *einen Freund* 'a friend'.

(37) Hans hat heute einen Freund zum Essen mit nach Hause gebracht. Er
Hans has today a friend to the dinner with to home brought he
hat uns vorher ein Foto von dem Freund gezeigt.
has us 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 (38). In (38a), the dog is unique in this specific situation of the break-in. In (38b), the moon is unique for us people on the planet.

(38) a. Der Einbrecher ist zum Glück vom Hund verjagt
the burglar is luckily by the$_{\text{WEAK}}$ dog chased away
worden.
been
'Luckily, the burglar was chased away by the dog.'

[13] That is, morphologically. In meaning, I see that

b. Armstrong flog als erster zum Mond.
Armstrong flew as first one to the$_{\text{WEAK}}$ moon
'Armstrong was the first one to fly to the moon.'
(Modern German, Schwarz 2009: 40)

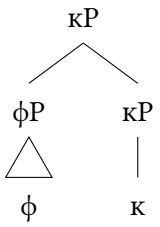
In line with this, I propose that headless relatives in Modern German are derived from the light-headed relatives as in (39). The brackets around the light head indicate that it is obligatorily deleted.

(39) Jan umarmt [ən] **wen** **er mag**.
Jan hugs LH.AN.ACC REL.AN.ACC he likes
'Jan hugs who he likes.'

(40) a. Hat ər einen Motorrad?
has DEM.NOM$_{\text{WEAK}}$ a motor bike
'Does he have a motorbike?'
b. Ich habe ən gesehen.
I have DEM.ACC$_{\text{WEAK}}$ seen
'I have been him.'
c. Ich folge əm nach Hause.
I follow DEM.DAT$_{\text{WEAK}}$ to house
'I follow him home.'

The light head is a subset of the relative pronoun, lacking the feature REL.

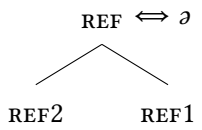
(41)



I discuss two light heads. These are the two elements that I compare the constituents of at the end of this section. The forms are the animate singulars in nominative and accusative case, given in (42).

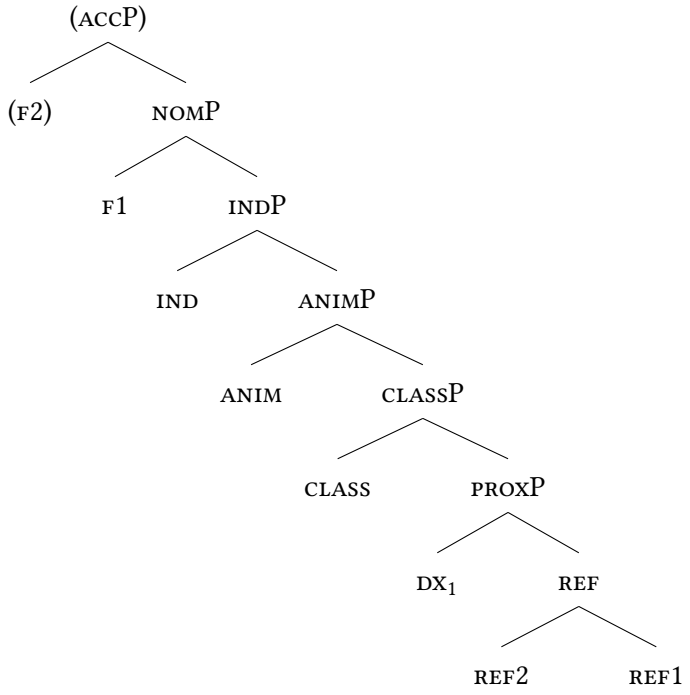
(42) a. ə-r
'LH.AN.SG.NOM'

b. ə-n
'LH.AN.SG.ACC'

(43)


The feature is absent in definite determines and adjectival inflection. In these determiners and adjectives, phonologically reduced forms are the norm (Durrell 2011: 4.1.1 (a)).

The functional sequence for the light heads:

(44)


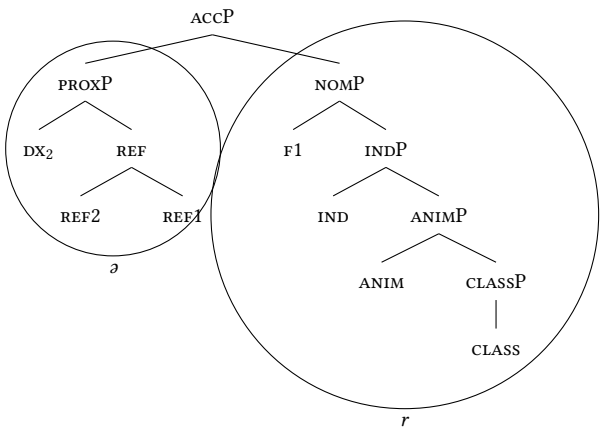
Now I give the lexical entries.

The nominative masculine singular light head is built as follows. The REFP is spelled out as *ə*.

The REFP is merged with CLASS. There is no lexical entry that matches the whole phrase. There is no specifier to move, so this movement is irrelevant. The complement of CLASS, the REFP, is moved to the specifier of CLASSP, and the CLASSP is spelled out as *r*. The CLASSP is merged with ANIM. There is no lexical entry that matches the whole phrase. The specifier of CLASSP, the REFP, is moved to the specifier of ANIMP, and the ANIMP is spelled out as *r*. The ANIMP is merged with IND. There is no lexical entry that matched the whole phrase. The specifier of ANIMP, the REFP, is moved to the specifier of INDP, and the INDP is spelled out as *r*. The INDP is merged with F1. There is no lexical entry that matched the whole phrase. The specifier of INDP, the REFP, is moved to the specifier of NOMP, and the NOMP is spelled out as *r*.

The final result is given in (45).

(45)

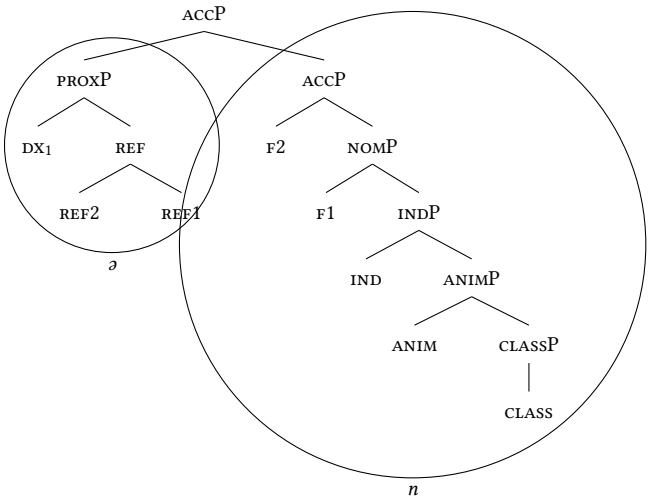


The accusative masculine singular light head is built as the nominative singular light head, except for that the feature F2 is added to make it an accusative.

The NOMP is merged with F2. There is no lexical entry that matched the whole phrase. The specifier of NOMP, the REFP, is moved to the specifier of ACCP, and the ACCP is spelled out as *n*.

The final result is given in (46).

(46)



1.2.3 Comparing constituents

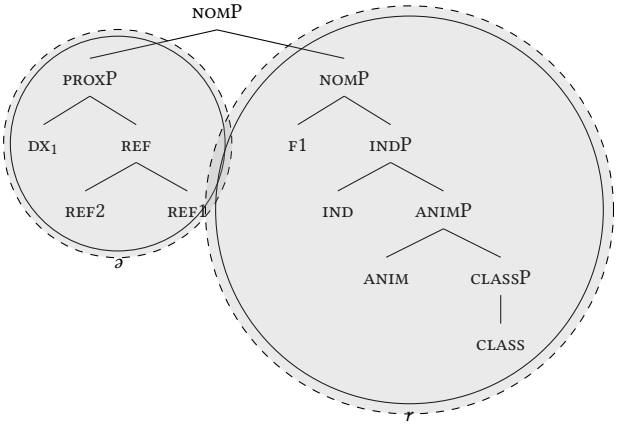
Consider the example in (47), in which the internal nominative case competes against the external nominative case. The relative clause is marked in bold, and the light head and the relative pronoun are underlined. The internal case is nominative, as the predicate *mögen* 'to like' takes nominative subjects. The relative pronoun *wer* 'REL.AN.NOM' appears in the nominative case. This is the element that surfaces. The external case is nominative as well, as the predicate *besuchen* 'to visit' also takes nominative subjects. The light head *ər* 'DEM.AN.NOM' appears in the nominative case. It is placed between square brackets because it does not surface.

(47) Uns besucht [ər], **wer** **Maria**
2PL.ACC visit.PRES.3SG$_{[NOM]}$ DEM.AN.NOM REL.AN.NOM Maria.ACC
mag.
like.PRES.3SG$_{[NOM]}$
'Who visits us likes Maria.'
(Modern German, adapted from Vogel 2001: 343)

In Figure 1.12, 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: *w*, *e* and *r*. The light head

NOM light head *ə-r*



NOM relative pronoun *w-e-r*

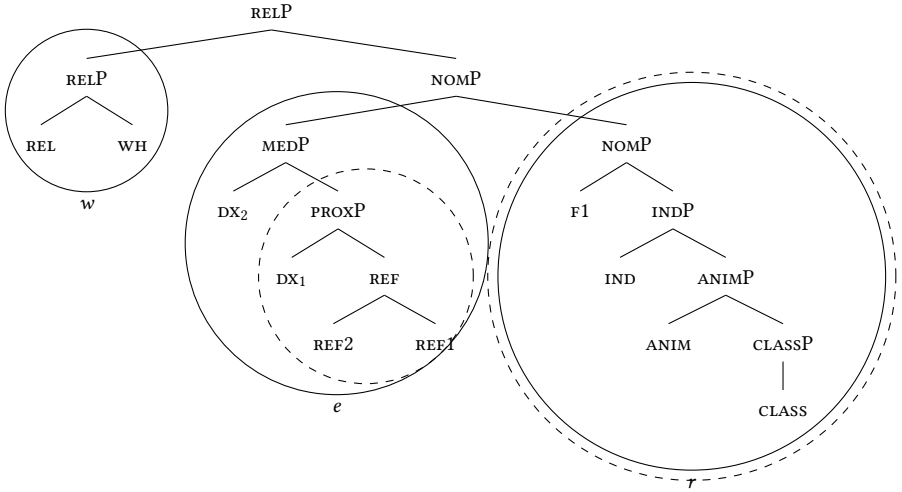


Figure 1.12: Modern German EXT_{NOM} vs. INT_{NOM} ⟶ *wer*

consists of two morphemes: *ə* 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 left-most constituent of the light head that spells out as *ə* (PROXP). This constituent is also a constituent in the relative pronoun, contained in MEDP. Both constituent of the light head are also a constituent within the relative pronoun, and the light head can be absent.

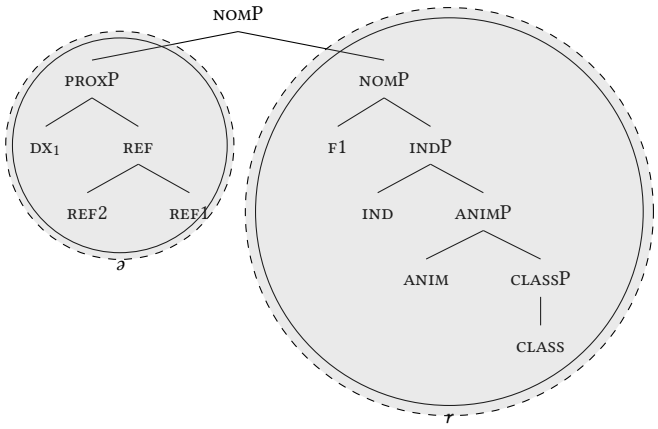
Consider the example in (48), in which the internal accusative case competes against the external nominative case. The relative clause is marked in bold, and the light head and the relative pronoun are underlined. The internal case is accusative, as the predicate *mögen* 'to like' takes accusative objects. The relative pronoun *wen* 'REL.AN.ACC' appears in the accusative case. This is the element that surfaces. The external case is nominative, as the predicate *besuchen* 'to visit' takes nominative subjects. The light head *ər* 'DEM.AN.NOM' appears in the nominative case. It is placed between square brackets because it does not surface.

(48) Uns besucht [ə̲r̲] **wen** **Maria** **mag**.
we.ACC visit.3SG$_{[NOM]}$ DEM.NOM.AN REL.ACC.AN Maria.NOM like.3SG$_{[ACC]}$
'Who visits us, Maria likes.' (adapted from Vogel 2001: 343)

In Figure 1.13, 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: *w*, *e* and *n*. The light head consists of two morphemes: *ə* 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

NOM light head *ə-r*



ACC relative pronoun *w-e-n*

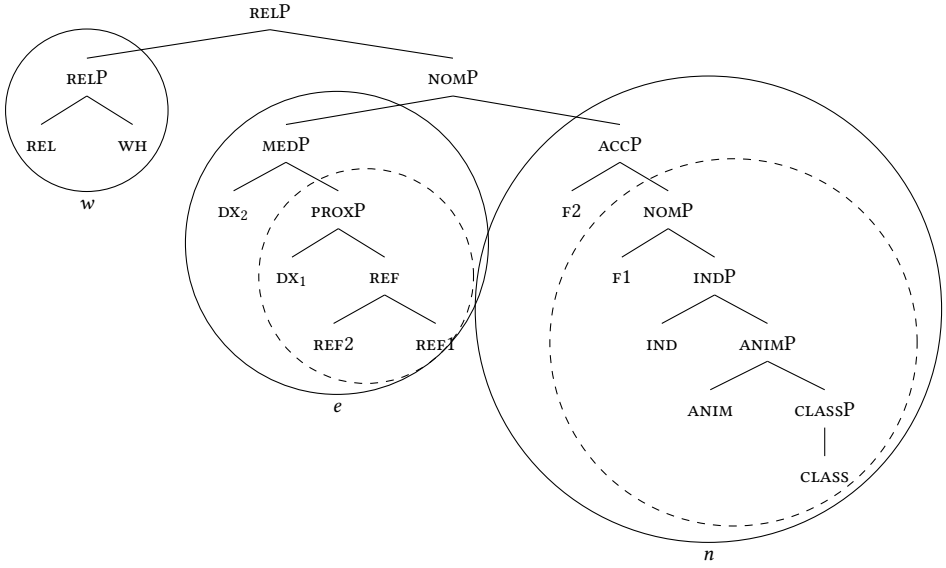


Figure 1.13: Modern German EXT_{NOM} vs. INT_{ACC} ⟶ *wen*

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 left-most constituent of the light head that spells out as *ə* (PROXP). This constituent is also a constituent in the relative pronoun, contained in MEDP. Both constituent of the light head are also a constituent within the relative pronoun, and the light head can be absent.

Consider the examples in (49), 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. It is not possible to make a grammatical headless relative in this situation. The internal case is nominative, as the predicate *sein* 'to be' takes nominative subjects. The relative pronoun *wer* 'REL.AN.NOM' appears in the nominative case. The external case is accusative, as the predicate *einladen* 'to invite' takes accusative objects. The light head *ən* 'DEM.AN.ACC' appears in the accusative case. (49a) is the variant of the sentence in which the light head is absent (indicated by the square brackets) and the relative pronoun surfaces, and it is ungrammatical. (49b) is the variant of the sentence in which the relative pronoun is absent (indicated by the square brackets) and the light head surfaces, and it is ungrammatical too.

(49) a. *Ich lade ein, [ən] **wer** **mir**
1SG.NOM invite.PRES.1SG$_{[ACC]}$ REL.AN.NOM 1SG.DAT nice
sympathisch **ist**.
be.PRES.3SG$_{[NOM]}$
'I invite who I like.' (Modern German, adapted from Vogel 2001: 344)

b. *Ich lade ein, ən [**wer**] **mir**
1SG.NOM invite.PRES.1SG$_{[ACC]}$ REL.AN.NOM 1SG.DAT nice
sympathisch **ist**.
be.PRES.3SG$_{[NOM]}$
'I invite who I like.' (Modern German, adapted from Vogel 2001: 344)

In Figure 1.14, I give the syntactic structure of the light head at the top and the syntactic structure of the relative pronoun at the bottom.

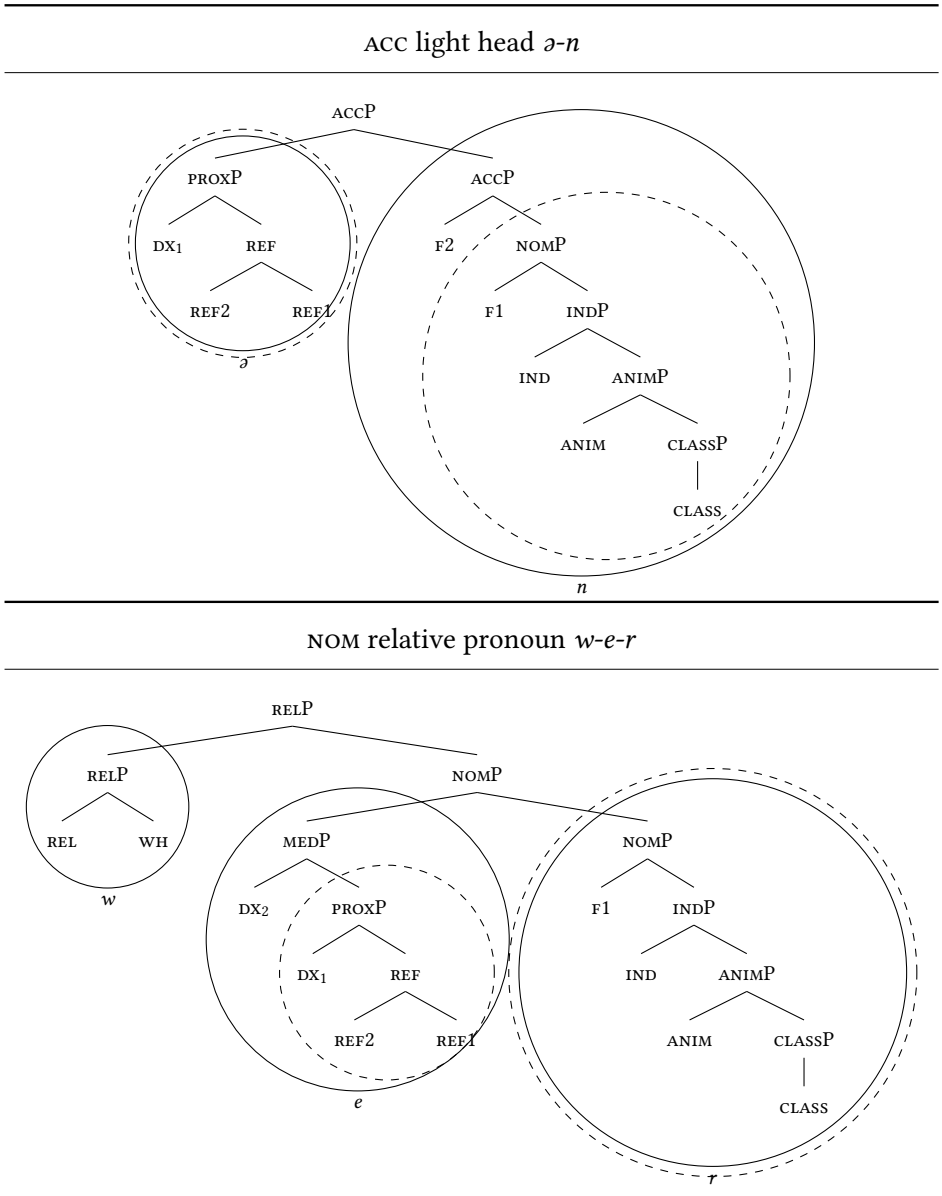


Figure 1.14: Modern German EXT_{ACC} vs. INT_{NOM} ⇀ *wer/ən*

The relative pronoun consists of three morphemes: *w*, *e* and *r*. The light head consists of two morphemes: *ə* 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. Neither of the elements contains all constituents that the other element contains. The relative pronoun does not contain all constituents that the light head contains, and the light head does not contain all constituents that the relative pronoun contains. As a result, none of the elements can be absent.[14]

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

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

1.3 Deriving the matching type

Matching languages can be summarizes as in Table 1.7.

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

[14] Why do we not see this result surface? Very good question.

Table 1.7: The surface pronoun with differing cases in Polish

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

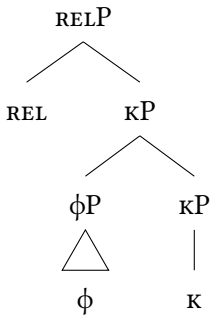
be the surface pronoun. The goal of this section is to derive this from the way light heads and relative pronouns are spelled out in Polish.

I argue that Polish headless relatives are derived from regular light-headed relatives. I decompose the light heads and relative pronouns intro smaller morphemes, and I show which features each of the morphemes corresponds to. Finally, I compare the constituents of the light head and the relative pronoun. When the internal and the external case match, the relative pronoun can delete the light head, because it contains all its constituents. This does not work when the internal case is more complex than the external case. The relative pronoun does not contain all constituents of the light head, and the light head does not contain all constituents of the relative pronoun. As a result, there is no grammatical form to surface when the external case is more complex. The same holds when when the external case is more complex than the internal case. The light head does not contain all constituents of the relative pronoun, and the relative pronoun does not contain all constituents of the light head. As a result, there is no grammatical form to surface when the external case is more complex.

1.3.1 The relative pronoun

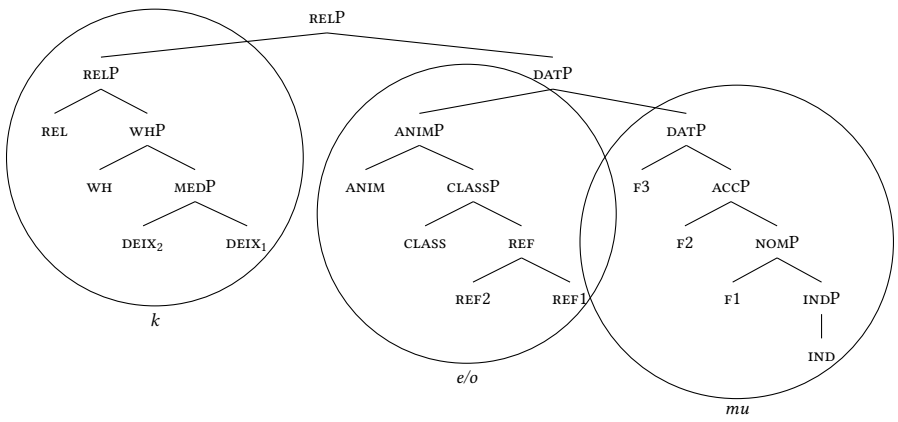
In Section 1.1 I gave the structure in (50) as a simplified representation of the relative pronoun.

(50)

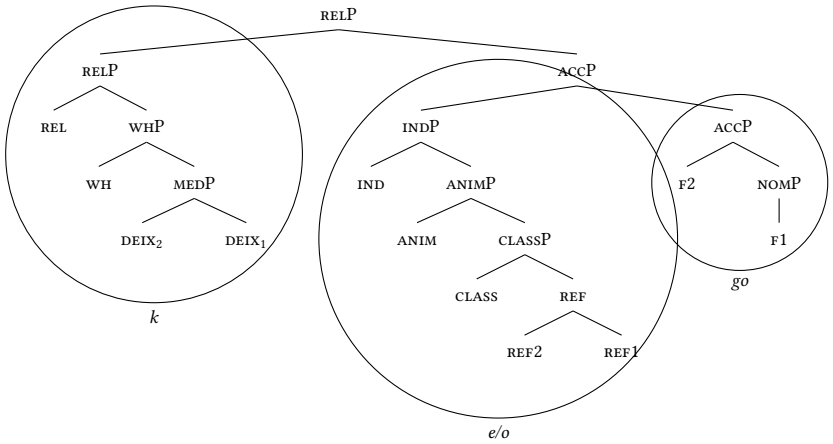


I explained that matching languages like Polish package their languages together differently than internal-only languages like Modern German. That is why I cannot give a single structure for different cases. *mu* starts at IND and *go* starts at *f*1. This is going to be crucial in deriving the difference between Polish and Modern German. I this section I decompose the morphemes of the relative pronoun, and connect lexical entries to them.

(51)



(52)

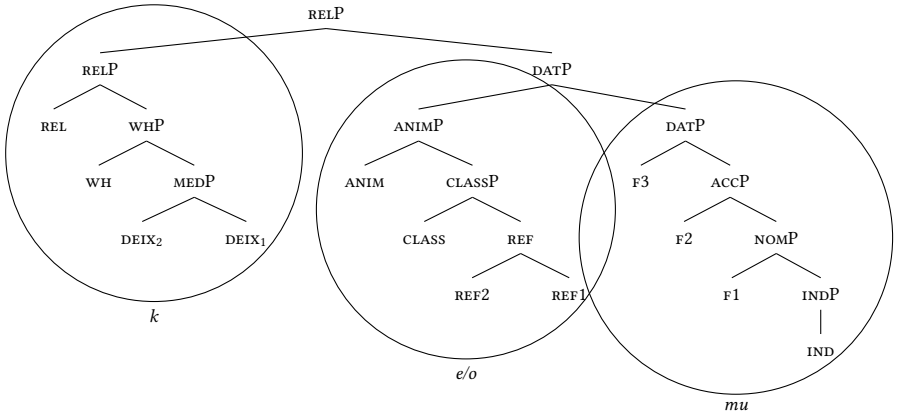


Important is here, the fseq is identical to Modern German!

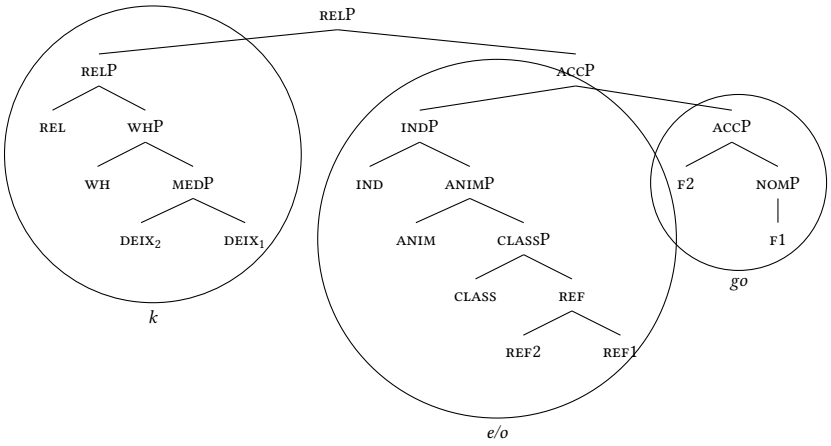
mu, *go*, *e/o*, *k*

(53) **Backtracking** (Starke, 2018):
When spellout fails, go back to the previous cycle, and try the next option for that cycle.

(54)



(55)



1.3.2 The light head

(56) a. Jan lubi tego **kogo** **Maria lubi**.
Jan like.3SG$_{[ACC]}$ DEM.ACC.AN.SG REL.ACC.AN.SG Maria like.3SG$_{[ACC]}$
'Jan likes whoever Maria likes.'
(Polish, adapted from Citko 2013 after Himmelreich 2017: 17)

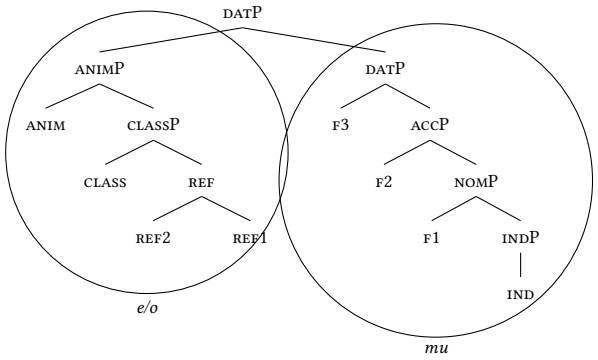
b. *Jan lubi tego **kogo** **-kolkwiek Maria**
Jan like.3SG$_{[ACC]}$ DEM.ACC.AN.SG REL.ACC.AN.SG ever Maria
lubi.
like.3SG$_{[ACC]}$
'Jan likes whoever Maria likes.'
(Polish, adapted from Citko 2013 after Himmelreich 2017: 17)

c. Jan lubi [ego] **kogo** **-kolkwiek Maria**
Jan like.3SG$_{[ACC]}$ LH.ACC.AN.SG REL.ACC.AN.SG ever Maria
lubi.
like.3SG$_{[ACC]}$
'Jan likes whoever Maria likes.'
(Polish, adapted from Citko 2013 after Himmelreich 2017: 17)

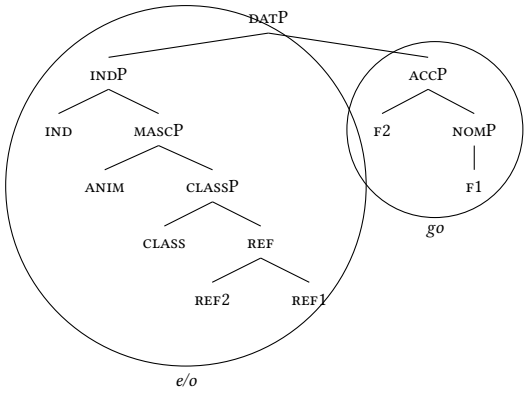
Same fseq as Modern German

Difference between *ego* and *tego* is only the feature DX, so that's why people say it has the same meaning.

(57)



(58)



1.3.3 Comparing consituents

Consider the example in (59), in which the internal accusative case competes against the external accusative 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 *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 light head *tego* 'DEM.AN.ACC' appears in the accusative case. It is placed between square brackets because it does not surface.

(59) Jan lubi [tego] **kogo** **-kolkwiek Maria**
Jan like.3SG$_{[ACC]}$ DEM.ACC.AN.SG REL.ACC.AN.SG ever Maria
lubi.
like.3SG$_{[ACC]}$
'Jan likes whoever Maria likes.'
(Polish, adapted from Citko 2013 after Himmelreich 2017: 17)

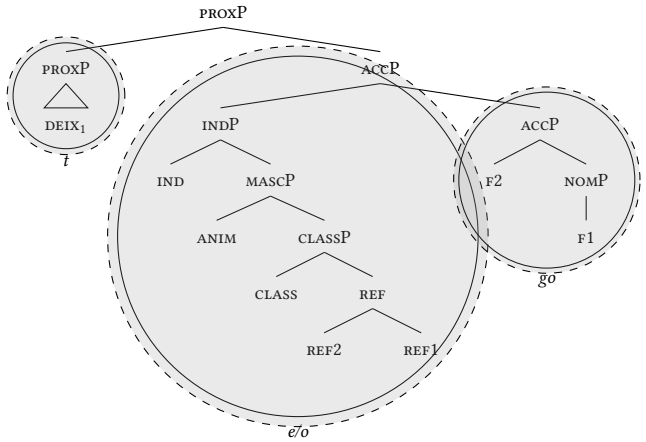
In Figure 1.15, I give the syntactic structure of the light head at the top and the syntactic structure of the relative pronoun at the bottom.

The relative pronoun consists of three morphemes: *k*, *o* and *go*. The light head consists of three morphemes: *t*, *e* 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 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 *go* (ACCP). 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* (INDP). This constituent is also a constituent in the relative pronoun. I continue with the left-most constituent of the light head that spells out as *t* (MEDP). This constituent is also a constituent in the relative pronoun, contained in RELP. All three constituent of the light head are also a constituent within the relative pronoun, and the light head can be absent.

Consider the examples in **??**, in which the internal dative case competes against the external accusative case. The relative clauses are marked in bold, and the light heads and the relative pronouns are underlined. It is not possible to make a grammatical headless relative in this situation. The internal case is dative, as the predicate *dokuczać* 'to tease' takes dative objects. The relative pronoun *komu* 'REL.AN.DAT' appears in the nominative case. The external case is accusative, as the predicate *lubić* 'to like' takes accusative objects. The light head *tego* 'DEM.AN.ACC' appears in the accusative case. **??** is the variant of the sentence in which the light head is absent (indicated by the square brackets) and the relative pronoun surfaces, and it

ACC light head *t-e-go*



ACC relative pronoun *k-o-go*

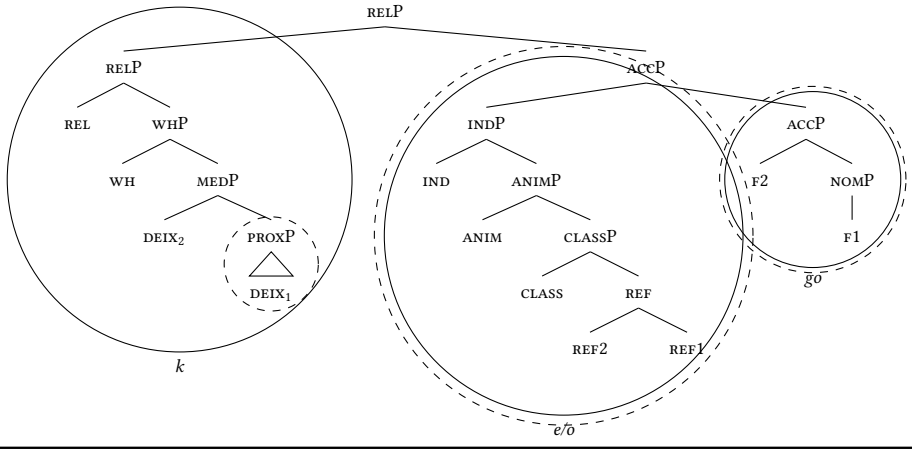


Figure 1.15: Polish EXT_{ACC} vs. INT_{ACC} → *kogo*

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

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

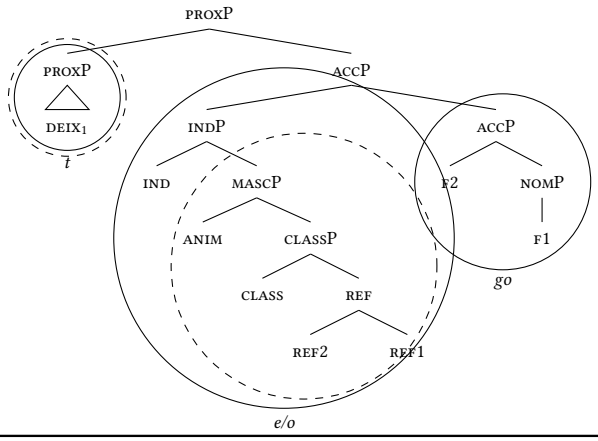
b. *Jan lubi tego [**komu**] **-kolkwiek**
Jan like.3SG$_{[ACC]}$ DEM.ACC.AN.SG REL.DAT.AN.SG ever
dokucza.
tease.3SG$_{[DAT]}$
'Jan likes whoever he teases.'
(Polish, adapted from Citko 2013 after Himmelreich 2017: 17)

In Figure 1.16, 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: *k*, *o* and *mu*. The light head consists of three morphemes: *t*, *e* 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 light head and the relative pronoun. Neither of the elements contains all constituents that the other element contains. The relative pronoun does not contain all constituents that the light head contains, and the light head does not contain all constituents that the relative pronoun contains. As a result, none of the elements can be absent.

I explain this constituent by constituent. I start by showing that the light head cannot be absent. Consider the right-most constituent of the light head that spells out as *go* (ACCP). This constituent is not a constituent in the relative pronoun: the relative pronoun has a constituent ACCP, contained in DATP, but that constituent also contains *ind*P. Consider the middle constituent of the light head that spells

ACC light head *t-e-go*



ACC relative pronoun *k-o-mu*

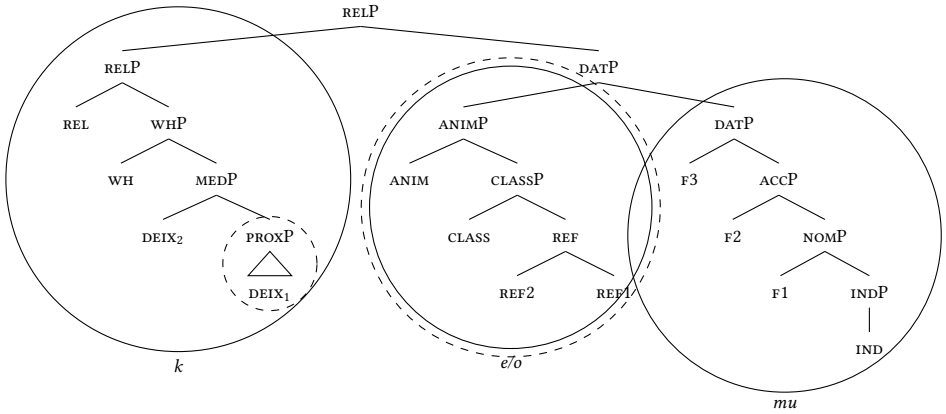


Figure 1.16: Polish EXT_{ACC} vs. INT_{DAT} $\nrightarrow$ *tego*/*komu*

out as *e* (INDP). This constituent is not a constituent in the relative pronoun: the relative pronoun has a constituent INDP, contained in DATP, but that constituent does not contain REF, CLASS and ANIM. Note here that there is feature containment: the relative pronoun contains all features that the light head contains. It is here crucial to use the stronger constituent containment requirement. The light head has a constituent that is not a constituent in the relative pronoun, so the light head cannot be absent.

The relative pronoun can also not be absent. Consider the right-most constituent of the relative pronoun that spells out as *mu* (DATP). This constituent is not a constituent in the light head: the light head has a constituent ACCP, but it does not contain INDP and also not F3 to make it a DATP. The same hold for the left-most constituent of the relative pronoun that spells out as *k* (RELP). The light head lacks the features MED, WH and REL that form the RELP. The relative pronoun has constituents that are not constituents in the light head, so the relative pronoun cannot be absent. In sum, neither of the elements contains all constituents that the other element contains, and none of the elements can be absent, so none of them is marked gray.

Consider the examples in **??**, in which the internal dative case competes against the external accusative case. The relative clauses are marked in bold, and the light heads and the relative pronouns are underlined. It is not possible to make a grammatical headless relative in this situation. The internal case is accusative, as the predicate *wpuścić* 'to let' takes accusative objects. The relative pronoun *kogo* 'REL.AN.ACC' appears in the nominative case. The external case is dative, as the predicate *ufać* 'to trust' takes dative objects. The light head *temu* 'DEM.AN.DAT' appears in the accusative case. **??** is the variant of the sentence in which the light head is absent (indicated by the square brackets) and the relative pronoun surfaces, and it is ungrammatical. **??** is the variant of the sentence in which the relative pronoun is absent (indicated by the square brackets) and the light head surfaces, and it is ungrammatical too.

(61) a. *Jan ufa [temu] **kogo -kolkwiek wpuścil do**
Jan trust.3SG$_{[DAT]}$ REL.DAT.AN.SG ever let.3SG$_{[ACC]}$ to home

domu.

'Jan trusts whoever he let into the house.'
(Polish, adapted from Citko 2013 after Himmelreich 2017: 17)

b. Jan ufa temu [**kogo**] **-kolkwiek wpuścil do**
Jan trust.3SG$_{[DAT]}$ REL.DAT.AN.SG ever let.3SG$_{[ACC]}$ to home
domu.

'Jan trusts whoever he let into the house.'
(Polish, adapted from Citko 2013 after Himmelreich 2017: 17)

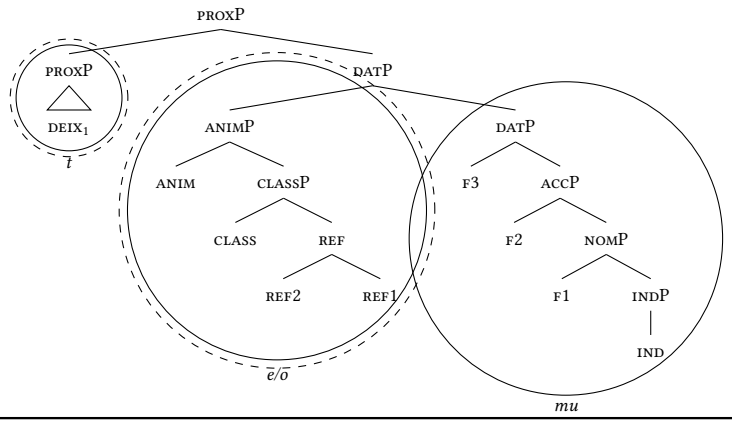
In Figure 1.17, I give the syntactic structure of the light head at the top and the syntactic structure of the relative pronoun at the bottom.

The relative pronoun consists of three morphemes: *k*, *o* and *go*. The light head consists of three morphemes: *t*, *e* 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 light head and the relative pronoun. Neither of the elements contains all constituents that the other element contains. The relative pronoun does not contain all constituents that the light head contains, and the light head does not contain all constituents that the relative pronoun contains. As a result, none of the elements can be absent.

I explain this constituent by constituent. I start by showing that the light head cannot be absent. Consider the right-most constituent of the light head that spells out as *mu* (DATP). This constituent is not a constituent in the relative pronoun: the relative pronoun has a constituent ACCP, but it does not contain INDP and also not F3 to make it a DATP. Consider the middle constituent of the light head that spells out as *e* (INDP). This constituent is not a constituent in the relative pronoun: the relative pronoun has a constituent INDP, contained in DATP, but that constituent does not contain REF, CLASS and ANIM. The light head has a constituent that is not a constituent in the relative pronoun, so the light head cannot be absent.

The relative pronoun can also not be absent. Consider the right-most constituent of the relative pronoun that spells out as *go* (ACCP). This constituent is not

DAT light head *t-e-mu*



ACC relative pronoun *k-o-go*

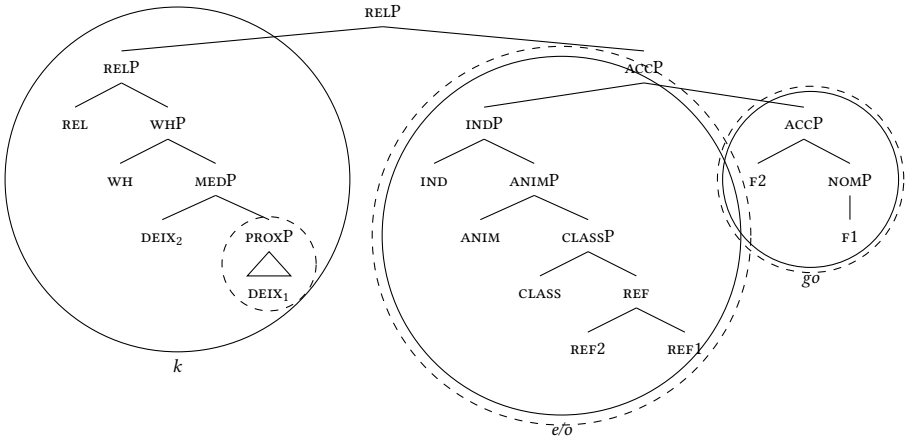


Figure 1.17: Polish EXT_{DAT} vs. INT_{ACC} $\not\rightarrow$ *temu*/*kogo*

a constituent in the light head: the light head has a constituent ACCP, contained in DATP, but that constituent also contains *ind*P. Consider left-most constituent of the relative pronoun that spells out as *k* (RELP). The light head lacks the features MED, WH and REL that form the RELP. The relative pronoun has constituents that are not constituents in the light head, so the relative pronoun cannot be absent. In sum, neither of the elements contains all constituents that the other element contains, and none of the elements can be absent, so none of them is marked gray.

1.4 Deriving the unrestricted type

Internal-only languages can be summarizes as in Table 1.8.

Table 1.8: The surface pronoun with differing cases in Polish

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

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

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

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

1.4.1 The relative pronoun

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

Relative and demonstrative pronouns are syncretic in Old High German (Braune 2018: 338). Table 1.9 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.[15,16]

The suffixes that combine with the *d* in demonstrative and relative pronouns also appear on adjectives. This is illustrated in Table 1.10.

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

split the suffix up in two morphemes

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

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

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

Table 1.9: Relative/demonstrative pronouns in Old High German (Braune 2018: 339)

	N.SG	M.SG	feminine.SG
NOM	d-aȥ	d-ër	d-iu
ACC	d-aȥ	d-ën	d-ea/d-ia
DAT	d-ëmu/d-ëmo	d-ëmu/d-ëmo	d-ëru/d-ëro
	N.PL	M.PL	feminine.PL
NOM	d-iu	d-ē/d-ea/d-ia/d-ie	d-eo/-io
ACC	d-iu	d-ē/d-ea/d-ia/d-ie	d-eo/-io
DAT	d-ēm/d-ēn	d-ēm/d-ēn	d-ēm/d-ēn

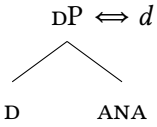
Table 1.10: Adjectives on *-a-/-ō-* in Old High German Braune 2018: 300

	N.SG	M.SG	feminine.SG
NOM	jung, jung-aȥ	jung, jung-ēr	jung, jung-iu
ACC	jung, jung-aȥ	jung-an	jung-a
DAT	jung-emu/jung-emo	jung-emu/jung-emo	jung-eru/jung-ero
	N.PL	M.PL	feminine.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

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

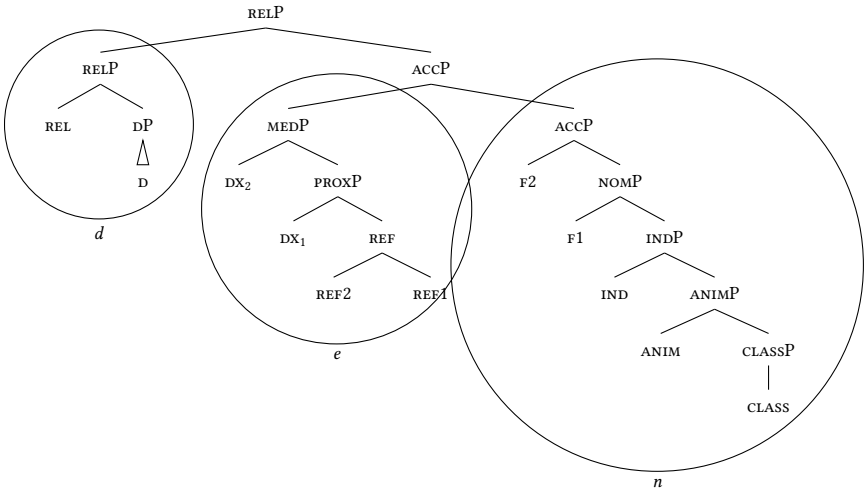
The *d* morpheme corresponds to definiteness and anaphoricity. Anaphoricity establishes a relation with another element in the (linguistic) discourse. Definiteness encodes that the referent is specific.

(62)



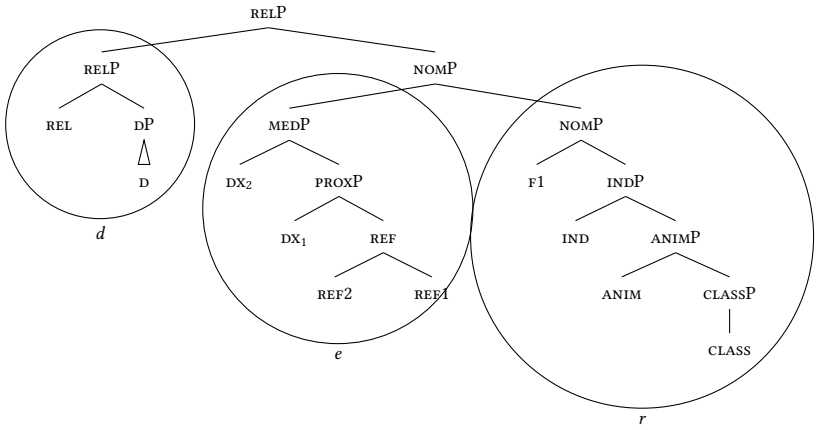
So, the two relative pronouns look like this.[17]

(63)



(64) Old High German: INT NOM

[17] 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 **??**.



1.4.2 The light head

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

Consider the example in (65), repeated from Chapter **??**. 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.

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

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

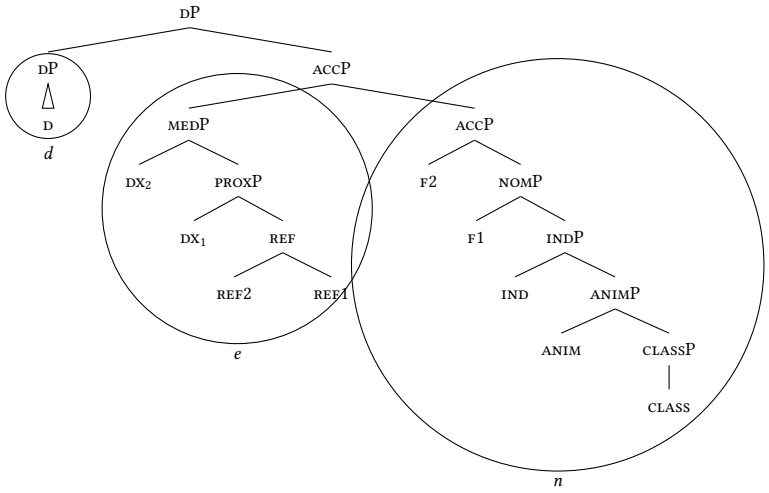
(67) eno nist thiz thér then ir
now not be.3SG DEM.SG.N.NOM DEM.SG.M.NOM REL.SG.M.ACC 2PL.NOM
suochet zi arslahanne?
seek.2PL to kill.INF.SG.DAT
'Isn't this now the one, who you seek to kill?'

The difference between a light-headed relative and a headless relative is that in headless relatives, either the internal or the external is absent. The absent element is the one that has the least complex case. This shows the presence of two elements in Old High German is optional.[18] 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 **??**. I assume that whether both or only one of the elements surfaces is determined by information structure. In (67), the external element *thér* 'DEM.SG.M.NOM' is the candidate to be absent. However, it seems plausible that this is emphasized in this sentence and that it, therefore, cannot be absent.

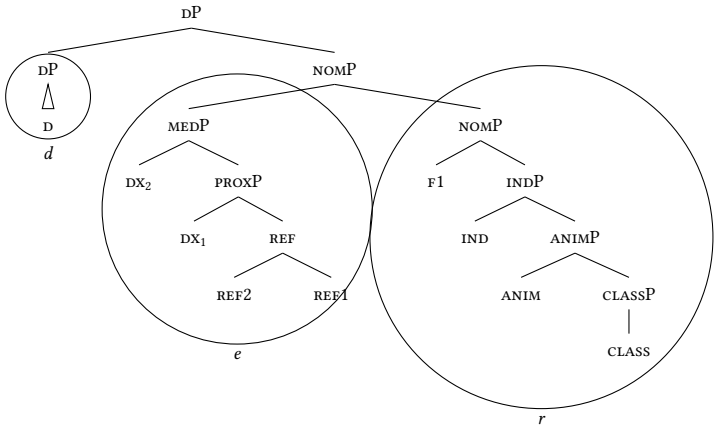
The light head in a light-headed relative is a demonstrative pronoun.

[18] This sharply contrasts with headless relatives in Modern German, which are always ungrammatical when both the internal and external elements surface. I come back to this in Section 1.2.

(68)



(69) Old High German: EXT NOM



1.4.3 Comparing constituents

Consider the examples in (70), 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. (70a) is the variant of the sentence in which the light head is absent (indicated by the square brackets) and the relative pronoun surfaces. (70b) is the variant of the sentence in which the relative pronoun is absent (indicated by the square brackets) and the light head surfaces.

(70) a. quham [dher] **dher** **chisendit**
come.PST.3SG$_{[NOM]}$ DEM.SG.M.NOM REL.SG.M.NOM send.PST.PTCP$_{[NOM]}$
scolda **uuerdhan**
should.PST.3SG become.INF
'the one, who should have been sent, came'
(Old High German, Isid. 35:5)

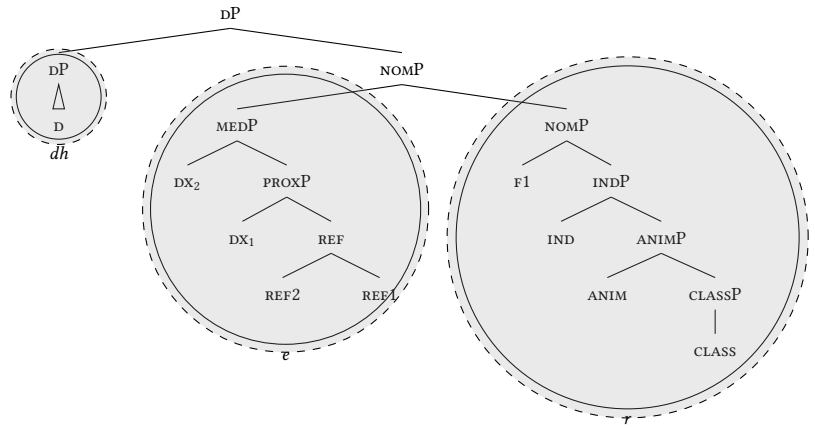
b. quham dher [**dher**] **chisendit**
come.PST.3SG$_{[NOM]}$ DEM.SG.M.NOM REL.SG.M.NOM send.PST.PTCP$_{[NOM]}$
scolda **uuerdhan**
should.PST.3SG become.INF
'the one, who should have been sent, came'
(Old High German, Isid. 35:5)

In Figure 1.18, I give the syntactic structure of the light head at the top and the syntactic structure of the relative pronoun at the bottom.

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

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

NOM light head *dh-e-r*



NOM relative pronoun *dh-e-r*

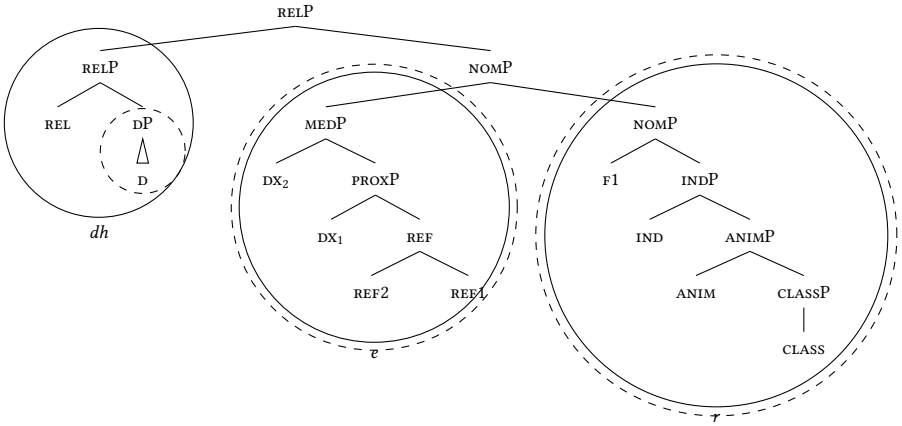


Figure 1.18: Old High German EXT_{NOM} vs. INT_{NOM} ⟶ *dher*

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

Consider the example in (71), 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.

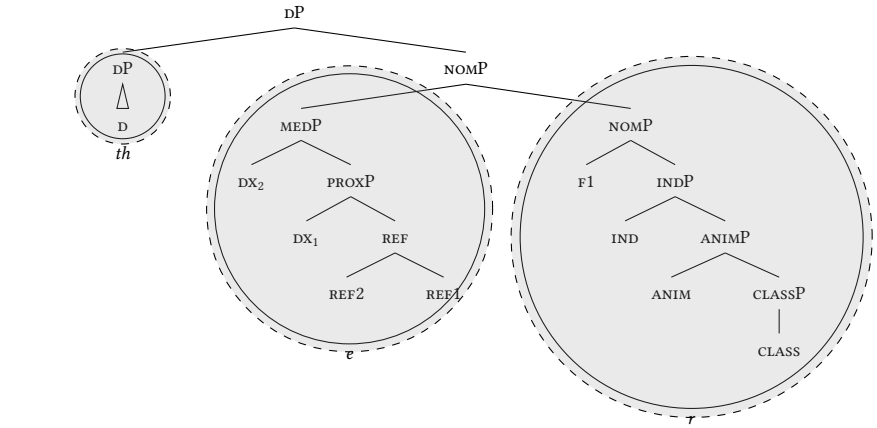
(71) Thíz ist [ther] [**then**] **sie**
DEM.SG.N.NOM be.PRES.3SG$_{[NOM]}$ DEM.SG.M.NOM REL.SG.M.ACC 3PL.M.NOM
zéllent
tell.PRES.3PL$_{[ACC]}$
'this is the one whom they talk about' (Old High German, Otfrid III 16:50)

In Figure 1.19, I give the syntactic structure of the light head at the top and the syntactic structure of the relative pronoun at the bottom.

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

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

NOM light head *th-e-r*



ACC relative pronoun *th-e-n*

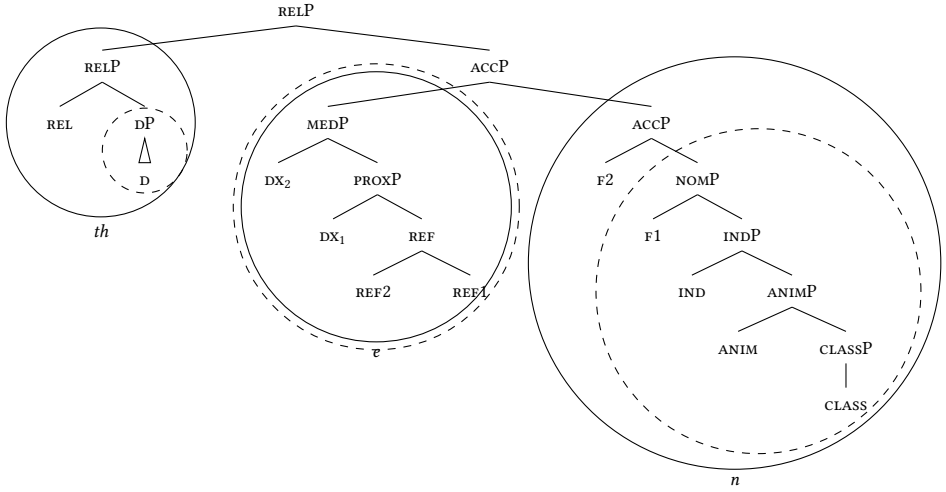


Figure 1.19: Old High German EXT_{NOM} vs. INT_{ACC} ⟶ *then*

relative pronoun, and the light head can be absent.

Consider the examples in (72), 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.

(72) ih bibringu fona iacobes samin endi fona
1SG.NOM create.PRES.1SG$_{[ACC]}$ of Jakob.GEN seed.SG.DAT and of
iuda <u>dhen</u> [**<u>dher</u>**] **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 1.20, I give the syntactic structure of the light head at the top and the syntactic structure of the relative pronoun at the bottom.

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

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

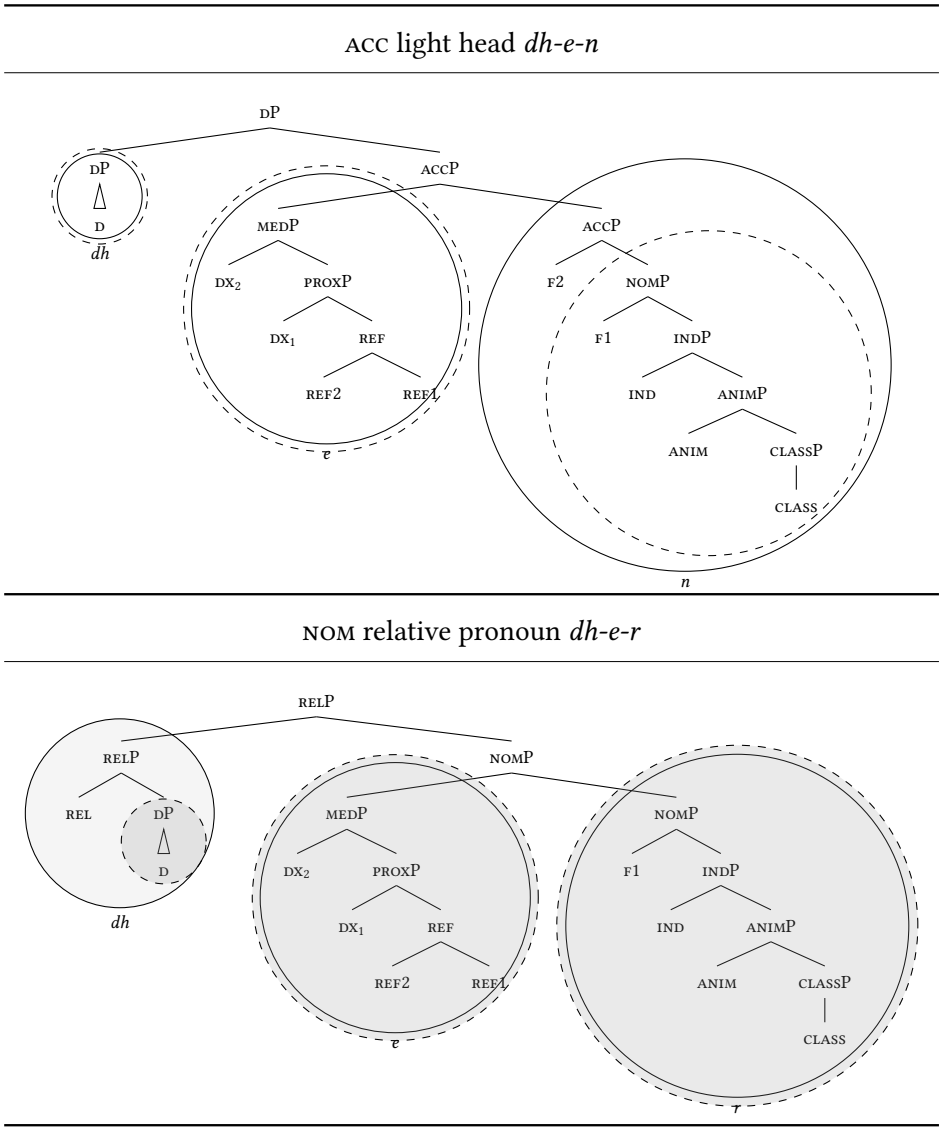


Figure 1.20: Old High German EXT_{ACC} vs. INT_{NOM} → *dhen*

stituent of the relative pronoun that spells out as *e* (MEDP). This constituent is also a constituent in the light head. I end with the left-most constituent of the relative pronoun that spells out as *d* RELP. This 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.

1.5 Technical details

Modern German:

I start at the beginning, with the REF, merging it with DX_1, giving a *e*.

So if then DX_2 is merged, it is overwritten by *e*.

I move forward a bit to when WH is merged. First the spellout driven movement happen, but this does not bring anything. Also backtracking does not help, so we build a spec.

Feature REL is merged. First try to merge it on the whole tree, then the spellout driven movements, nothing works. So, backtracking. The first step of backtracking is that the two trees are split, and the feature is merged on both parts. If the feature is spelled out on one of them, we are done. It can be phrasally spelled out with WH, so we move on.

Then feature F1 is merged. Whole tree, spellout driven movement: yes! it is spelled out as a suffix on the whole thing.

1.6 Summary

Table 1.11 shows per language type which of the three options in Table 1.1 is chosen when the internal and external case differ.

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

Table 1.11: 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

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.[19] 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 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 1.1 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

[19]This holds for the situation in which the internal and external case differ. In Section 1.3, I show that the relative pronoun surfaces in matching contexts.

light head surfaces. That implicates that the relative pronoun has been deleted and is therefore absent. I show this in Figure 1.21.

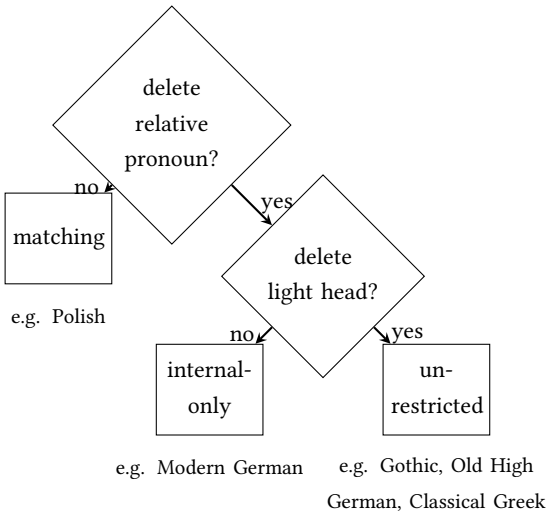


Figure 1.21: Delete relative pronoun/light head as parameters

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).

1.7 Aside: a larger syntactic context

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

So what I do is keep the parameters that she was differing stable. I change the things that she kept constant, the internal and external element. Does her structure

then work with what I want? Not entirely, because I have to do a c-command that is going in the wrong direction. Then I show a syntactic structure that could be compatible with mine, and I show why a grafting one is not.

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

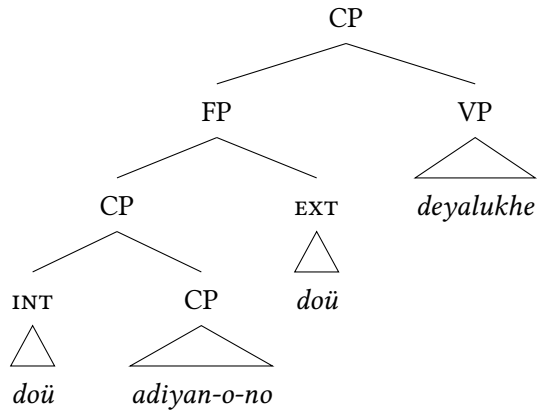
According to Cinque, every type of relative clause in every language is underlyingly double-headed. Evidence for this claim comes from languages that show this morphologically. An example from Kombai is given in (73). The head of the relative clause is *doü* 'sago', and it appears inside the relative clause and outside.

(73) [**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.

(74) shows the syntactic structure of the sentence in (73).

(74)

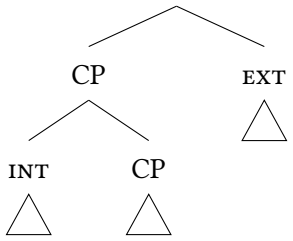


In most languages one of the two heads is deleted throughout the derivation.

According to Cinque 2020, the internal element can delete the external element,

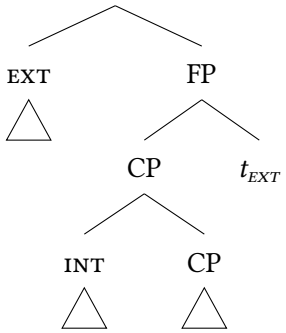
because the internal element c-commands the external element. This is c-command according to Kayne's definition of it: the internal element is in the specifier of the specifier of the FP.

(75)



In order for the internal element to be able to delete the external element, a movement needs to take place. The external element moves over the relative clause.[20] From this position, the external element can delete the internal one, because the external element c-commands the internal one.

(76)



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

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

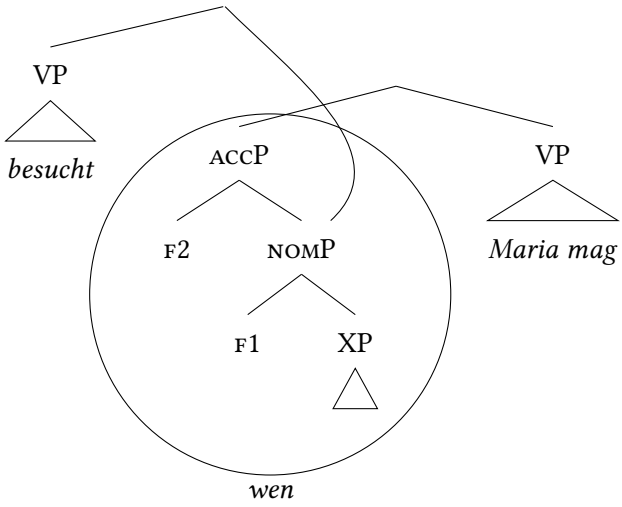
the big case in there. Then you build the main clause and you let the more complex case in the embedded clause license the main clause predicate.

Consider the example in (77). Here the internal case is accusative and the external one nominative.

(77) 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.

(78)



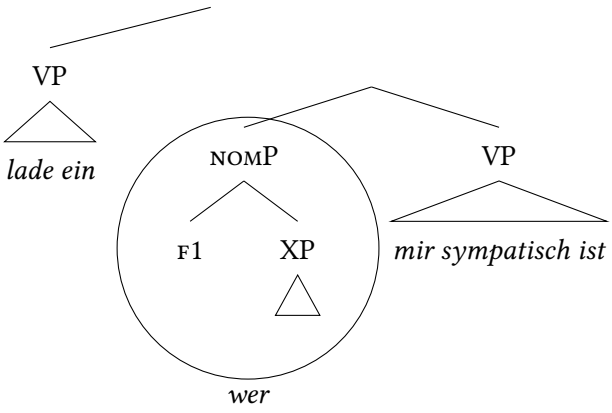
The other way around does not work. Consider (79). This is an example with nominative as internal case and accusative as external case.

(79) *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.

(80)



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 **??**. 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

Primary texts

Isid. Der althochdeutsche Isidor

Mons. The Monsee fragments

Otfrid Otfrid's Evangelienbuch

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