CASE COMPETITION IN HEADLESS RELATIVES

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List of abbreviations

ACC	accusative
AN	animate
DAT	dative
DEM	demonstrative
ELH	extra light head
F	feminine
NOM	nominative
PL	plural
PRES	present tense
REL	relative
SG	singular

Part I

The case

Part II

The base

0.1 Deriving the internal-only type

Internal-only languages can be summarizes as in Table 0.2.

Table 0.2: 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. This means that the relative pronoun with its internal case can be the surface pronoun. A language of this type does not allow the external case to surface when it wins the case competition. This means that the light head with its external case cannot be the surface pronoun. The goal of this section is to derive these properties from the way light heads and relative pronouns are spelled out in Modern German.

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

0.1.1 The relative pronoun

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

The sentences in (1) show that it is possible to extrapose a CP. In (1a), the clausal object *wie es dir geht* 'how you are doing', marked here in bold, appears in its base position. It can be extraposed to the right edge of the clause, shown in (1b).

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

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

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

The same asymmetry between CPs and DPs can be observed with relative clauses. A relative clause is a CP, and the head of a relative clause is a DP. The sentences in (3) contain the relative clause *was er gekocht hat* 'what he has stolen'. This is marked in bold in the examples. The (light) head of the relative clause is *das*.[1] In

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

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

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

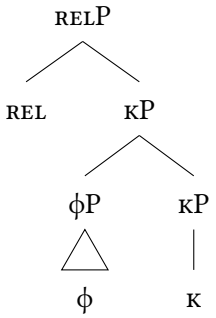
The same can be observed in relative clauses without a head. (4) is the same sentence as in (3) only without the overt head. The relative clause is marked in bold again. In (4a), the relative clause appears in base position. In (4b), the relative clause is extraposed. This is grammatical, because it is possible to extrapose CPs in Modern German. In (4c), the relative clause is extraposed without the relative pronouns. This is ungrammatical, because the relative pronoun is part of the CP. This shows that the relative pronoun in headless relatives in Modern German are necessarily part of a CP, which is here a relative clause.

(4) a. Jan hat **was er gekocht hat** aufgegessen.
Jan has what he cooked has eaten
'Jan has eaten what he cooked.'
b. Jan hat aufgegessen **was er gekocht hat**.
Jan has eaten what he cooked has
'Jan has eaten what he cooked.'
c. *Jan hat **was** aufgegessen **er gekocht hat**.
Jan has what eaten he cooked has
'Jan has eaten what he cooked.' (Modern German)

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

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

(5)



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

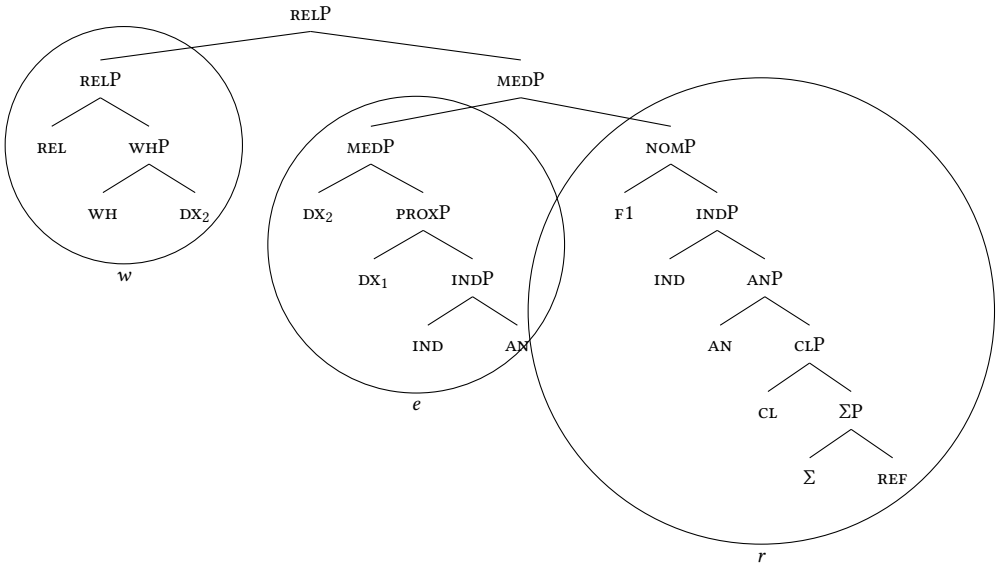
I discuss two relative pronouns: the animate nominative singular and in the animate accusative singular. These are the two forms that I compare the constituents of in Section 0.1.3. I show them in (6).

(6) a. w-e-r
'rel.an.sg.nom'

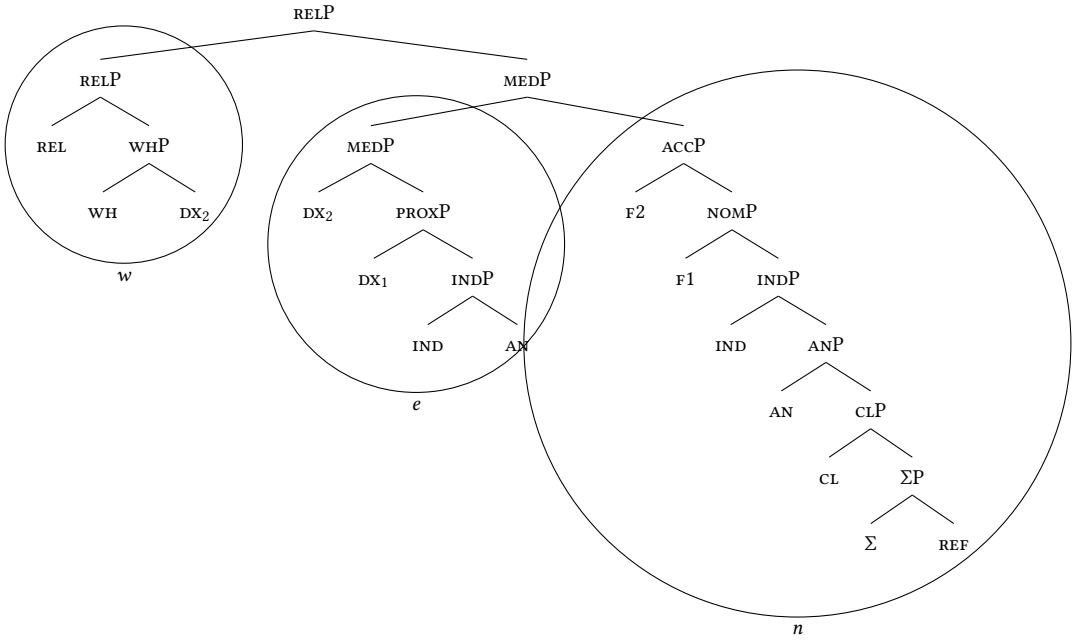
b. w-e-n
'rel.an.sg.acc'

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

(7)



(8)



I continue with the final consonants: *r* and *n*. They can be observed in several contexts besides relative pronouns. Table 0.3 gives an overview of the demonstrative *dieser* 'this' in Modern German in two numbers, three genders and three cases.[2]

[2]The vowel preceding the final consonant is written as *e*. I write it as *ə*, because this is how it is

Compare the final consonants in Table 0.5 and Table 0.3.

Table 0.3: Modern German demonstrative *dieser* 'this' (Durrell 2011: Table 5.2)

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

Table 0.4: 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 0.3 and 0.5 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.

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

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

(9) a. Jan und er/ *r essen gerne Dampfnudeln.
Jan und he.STR/ he.WK eat with pleasure *Dampfnudeln*
'Jan and he like to eat *Dampfnudeln*.'

pronounced. I make this distinction to emphasize that this differs from the vowel used in the relative pronouns.

b. Ich habe Jan und ihn/ n gesehen.
I have Jan and him.STR/ him.WK seen
'I saw Jan and him.'

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

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

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

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

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

(12) a. Ich habe schon ein Geschenk für n gekauft.
I have already a gift for him.WK bought
'I already bought a gift for him.'
b. Ich habe gestern gegen n gespielt.
I have yesterday against him.WK played
'Yesterday I played against him.'

c. Ich habe ein schönen Brief an n geschrieben.
I have a nice letter to him.WK written
'I wrote a nice letter to him.'

d. Ich bin schnell auf n zu gelaufen.
I am fast on him.WK to walked
'I walked toward him fast.'

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

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

For number and gender, I adopt the features that are distinguished by Harley and Ritter (2002) for pronouns. The feature CL corresponds to a gender feature, which is inanimate or neuter if it is not combined with any other features. Combining CL with the feature AN gives the animate or masculine gender.[3] The feature IND corresponds to number, which is singular if it is not combined with any other features.

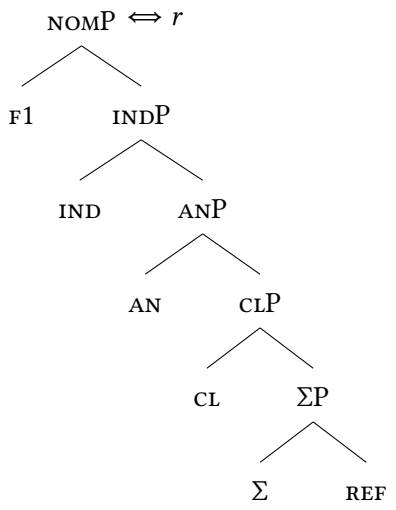
Regarding pronominal features, I assume the feature REF to be present. Harley and Ritter (2002) claim that all pronouns contain this feature, because they are referential expressions. In addition, the feature Σ is present because it is a weak pronoun (Cardinaletti and Starke, 1994).[4]

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

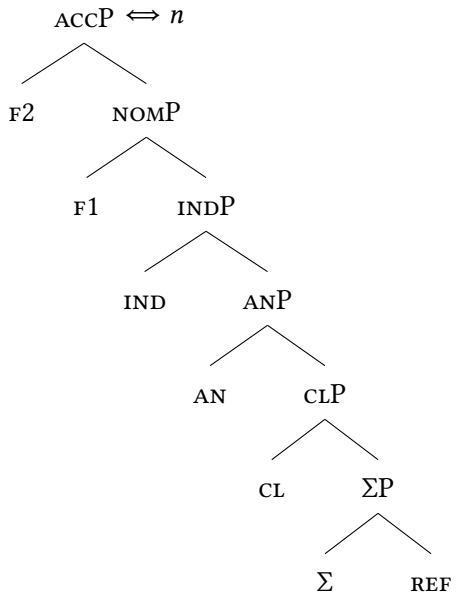
[3] If the features CL and AN are combined with the feature FEM, it becomes the feminine gender.

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

(13) a.



b.



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

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

lation with an antecedent.

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

The use of the medial in WH-pronouns can be understood conceptually if one connects spatial deixis to discourse deixis (cf. Colasanti and Wiltschko, 2019). The proximal is spatially near the speaker, and it refers to knowledge that the speaker possesses. The medial is spatially near the hearer, and it refers to knowledge that the hearer possesses. The distal is spatially away from the speaker and the hearer, and refers to knowledge that neither of them possess. In WH-pronouns, the speaker is not aware of the knowledge, so the use of the proximal is excluded. Since I do not have explicit evidence for the presence of the distal, I assume that it is the medial that combines with the WH-pronoun.

I adopt the features for deixis distinguished by Lander and Haegeman (2018). The feature DX_1 corresponds to the proximal, the features DX_1 and DX_2 correspond to the medial, and the features DX_1, DX_2 and DX_3 correspond to the distal. The difference between the proximal, the medial and the distal cannot be observed in Modern German, because it is syncretic all of them (Lander and Haegeman 2018: 387), see Table 0.7.

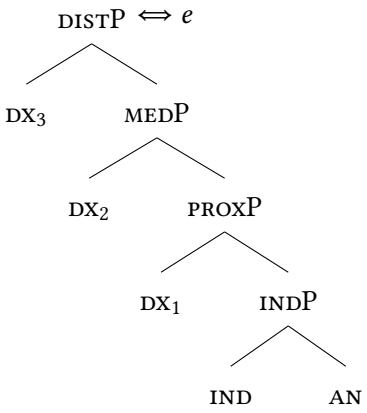
What can be distinguished in Modern German is the differences of the vowel depending on number and gender.

Table 0.5: Modern German demonstratives (Durrell 2011: 5.4.1)

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

So, in sum:

(14)



This leaves the morpheme *w* of the relative pronoun. Compare Table 0.6 (repeated from Table 0.5) and Table 0.7. The *w* combines with the same endings as the *d* does in demonstratives (or relative pronouns in headed relatives).[5]

Table 0.6: 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)

[5]Note here that the WH-relative pronouns, unlike the demonstratives, do not have a feminine form for the relative pronouns in Table 0.6. Demonstratives also have plural forms (which are not given here), and WH-relative pronouns do not. As far as I know, this holds for all relative pronouns in languages of the internal-only type (cf. also for Finnish, even though it makes a lot of morphological distinctions) and of the matching type. Relative pronouns in languages of the unrestricted type do inflect for feminine, as well as always-external languages. In Chapter **??** I return to this observation in relation with the always-external languages.

Table 0.7: Modern German demonstrative pronouns (Durrell 2011: 5.4.1)

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

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

The first feature I refer to as WH. This is a feature that WH-pronouns, such as WH-relative pronouns and interrogatives, share. The WH-element triggers the construction of a set of alternatives in the sense of Rooth (1985, 1992) (Hachem, 2015). This contrasts with the D in Table 0.7, which is responsible for establishing a definite reference.

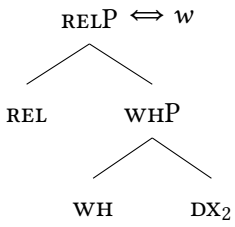
The second relevant feature is REL, which establishes a relation. A language that overtly shows that WH-relative pronouns consist of two features is Hungarian. (15) gives three examples of WH-pronouns that combine with the marker *a* to become a WH-relative pronoun.

(15) a-mi, a-ki, a-melyik
REL-what REL-who REL-which
(Kenesei et al. 1998: 40)

The third feature is DX_2.. WH-element + 'away from the speaker'

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

(16)

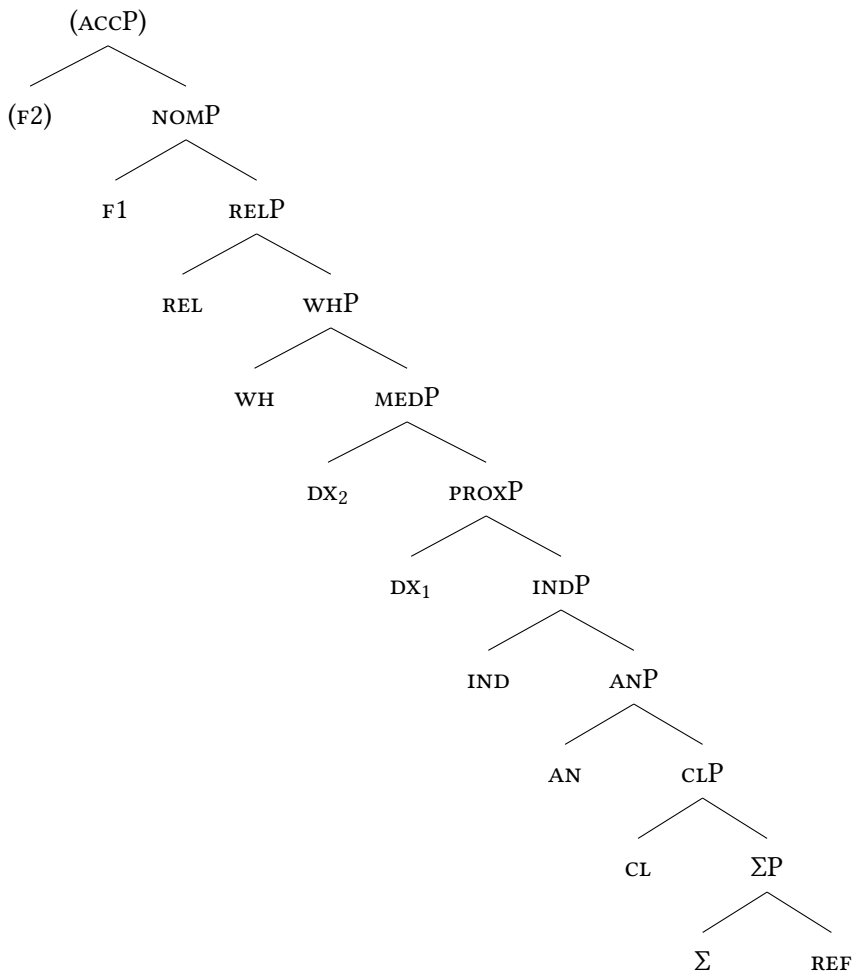


At this point, I gave lexical entries for each of the morphemes (in (13a), (13b), (14) and (16)) and I showed what the relative pronouns as a whole look like (in **??** and **??**). What is still needed, is a theory for combining these morphemes into a relative pronoun. This theory should determine which morphemes should be combined with each other in which order. Ideally, the theory is not language-specific, but the same for all languages. In what follows I show how this is accomplished in Nanosyntax. Readers who are not interested in the precise mechanics can proceed directly to Section 0.1.2.

The way Nanosyntax combines different morphemes is not by glueing them together directly from the lexicon. Instead, features are merged one by one using two components that drive the derivation. These two components are (1) a functional sequence, in which the features that need to be merged and their order in which they are merged are specified, and (2) the spellout algorithm, which describes the spellout procedure. The lexical entries that are available within a language interact with the derivation in such a way that the morphemes get combined in the right way. Note that the functional sequence and the spellout algorithm are stable across languages. The only difference between languages lies in their lexical entries.

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

(17)



Starting from the bottom, these are pronominal features (REF and Σ) and features having to do with deixis (DX_1 and DX_2), gender features (CL and AN), number features (IND), operator features (WH and REL) and case features (F1 and F2). This order is independently supported by work in the literature. Both Picallo and Kramer argue that number is hierarchically higher than gender. Case is agreed to be higher than number (cf. Bittner and Hale).

REF, Σ, DEIX, WH/REL?

Features are merged one by one according to the functional sequence, starting from the bottom. Spellout is cyclic, as stated in (18).

(18) 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.

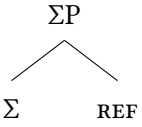
After each instance of merge, the constructed phrase must be spelled out. Spellout happens according to the spellout algorithm, given in (19).

(19) **Spellout Algorithm:**

a. Merge F and spell out.
b. If (19a) fails, move the Spec of the complement and spell out.
c. If (19b) fails, move the complement of F and spell out.

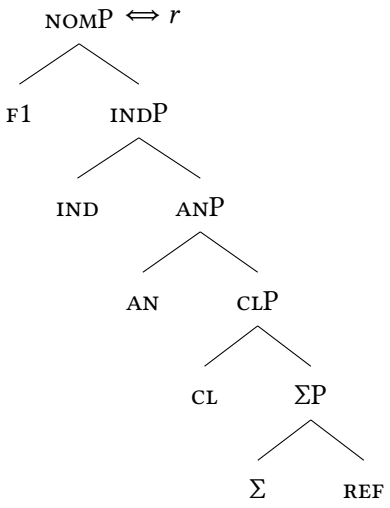
I informally reformulate what is in (19). I start with the first line in (19a). This says that a feature F is merged, and the newly created phrase FP is attempted to spell out. The next two lines, (19b) and (19c), describe two types of rescue movements that take place when the spellout in (19a) fails (i.e. when there is no match in the lexicon). In the discussion about Modern German, only the first line leads to matching lexical entries. The second and third line do not lead to a match in the Modern German derivations I run. I introduce these two steps here anyway, because they will lead to successful matched in Polish.

I illustrate this by merging REF and Σ, creating a ΣP.

(20)


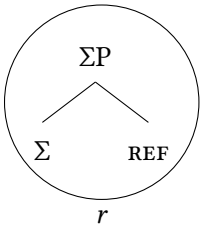
The syntactic structure is contained in the lexical tree in **??**, repeated from (13a), which corresponds to the *r*.

(21)



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

(22)



The next point of interest arises when the feature DX_1 is merged. This feature cannot spell out together with all features merged so far (as the option in (19a)). There is no spec, so the second option is impossible. Finally, it is impossible for WH to be spelled out as part of a suffix (as the option in (19b)). This last option is impossible, because the lexical entry that contains the feature WH has a binary bottom. I repeat the lexical entry from (16) in **??**.

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

(23) **Spec Formation** (Starke, 2018):
If Merge F has failed to spell out, try to spawn a new derivation providing

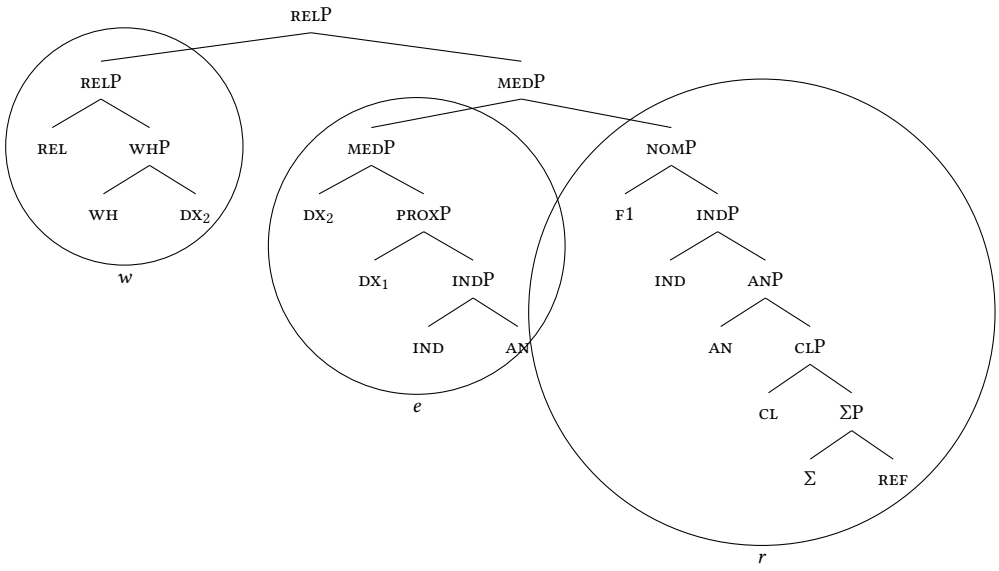
the feature F and merge that with the current derivation, projecting the feature F at the top node.

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

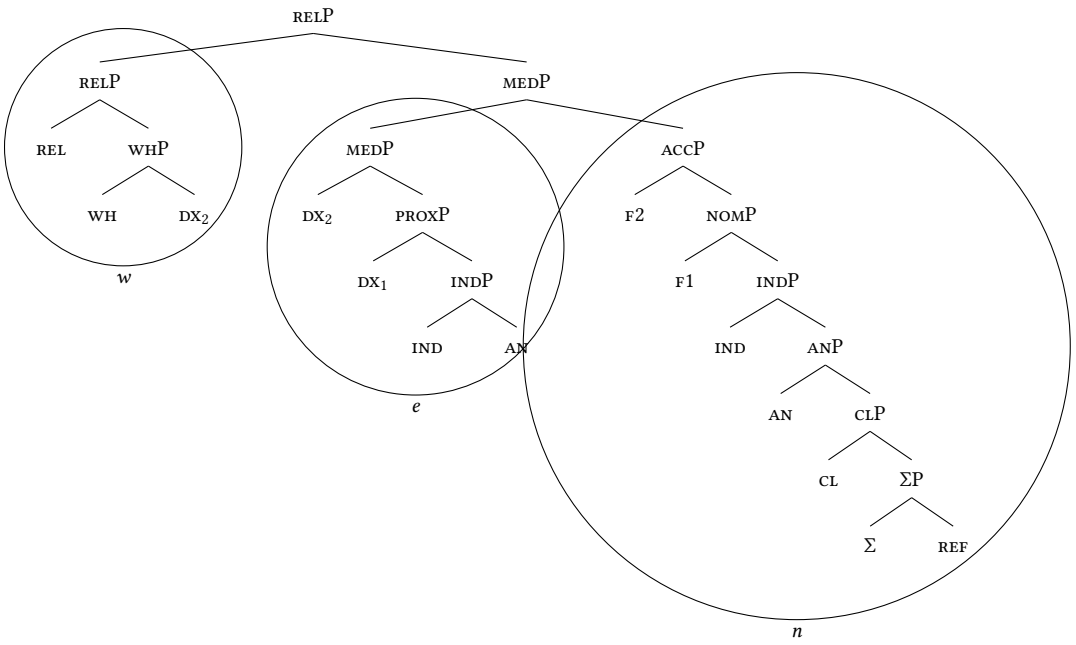
The last problem is the case feature. What happens then is backtracking + elements are split up, merged onto both of them, case can be spelled out with suffix.

The final result is given in (24).

(24)



(25)



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

0.1.2 The (extra) light head

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

In this section, I consider two kinds of light-headed relatives as the source of

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

I give an example of a Modern German light-headed relative in (26).[6]

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

In (26), the relative pronoun is the WH-pronoun *wen* 'REL.AN.ACC', and the light head is the D-pronoun *den* 'DEM.M.SG.ACC'. For easy reference, I call this light-headed relative the *den-wen* relative.

One hypothesis is that the demonstrative *den* 'DEM.M.SG.ACC' is deleted from the light-headed relative in (26) and that the headless relative in (27) remains.[7] For easy reference, I call this headless relative the *wen* relative.

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

[7]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.

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

I give two arguments against this hypothesis. First, in headless relatives the morpheme *auch immer* 'ever' can appear, as shown in (28).

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

Light-headed relatives do not allow this morpheme to be inserted, illustrated in (29).

(29) *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.[8]

The second argument against the *den-wen* relative being the source of the *wen* relative comes from the interpretation differences between the two. Broadly speaking, the *wen* relative has two interpretations (see Šimík 2020 for a recent elaborate overview on the semantics of free relatives). The *den-wen* has only one of them. I show this schematically in Table 0.8.

Table 0.8: Intepretations of *wen* and *den-wen* relatives

	wen	*den-wen*
definite-like	✓	✓
universal-like	✓	*

The first interpretation of the *wen* relative is a definite-like one. This interpretation corresponds to a definite description: Jan hugs the person that he likes. The interpretation is available for the *wen* relative and for the *den-wen* relative. The

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

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

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

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

The light head in the *den-wen* relative is a demonstrative. A demonstrative refers back to a linguistic or extra-linguistic antecedent. Consider the context which facilitates a definite-interpretation and the repeated *den-wen* relative in (30a).

(30) a. Context: Yesterday Jan met with two friends. He likes one of them. The other one he does not like so much.

b. Jan umarmt den **wen** **er mag**.
Jan hugs DEM.M.SG.ACC REL.AN.ACC he likes
'Jan hugs the man that he likes.'

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

Consider the context which facilitates a universal-interpretation and the repeated *den-wen* relative in (31a).

(31) a. Jan has a general habit of hugging everybody that he likes.

b. #Jan umarmt den **wen** **er mag**.
Jan hugs DEM.M.SG.ACC REL.AN.ACC he likes
'Jan hugs the man that he likes.'

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

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

I propose that the light head is the element that is left once the morphemes *d* and *e* are abandoned. This is the morpheme that is the final consonant of the relative pronoun.[9] I give the light-headed relative from which the *wen*-relative is derived in

[9]The two light heads I discuss resemble the strong and weak definite in Schwarz (2009), at least morphologically (although my light head is always obligatorily deleted). Schwarz's (2009) strong definite is anaphoric in nature, and the weak definite encodes uniqueness. I give an example of a strong definite in (i). The strong definite is *dem* that precedes *Freund* 'friend'. It refers back to the linguistic antecedent *einen Freund* 'a friend'.

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

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

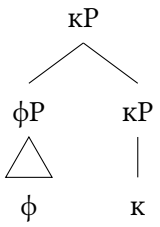
(ii) a. Der Einbrecher ist zum Glück vom Hund verjagt worden.
the burglar is luckily by the$_{\text{WEAK}}$ dog chased away been
'Luckily, the burglar was chased away by the dog.'

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

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

In Section **??**, I gave the simplified structure of the light head, repeated here in (33).

(33)



The idea was that the structures of the relative pronoun and the light heads match, but that the relative pronoun contains at least one feature more. I just argued that the light head has four feature less: WH, REL, DX_1 and DX_2.

I discuss two light heads: the animate nominative singular and in the animate accusative singular. These are the two forms that I compare the constituents of in Section 0.1.3. I show them in (34).

(34) a. r
'LH.AN.SG.NOM'

b. n
'LH.AN.SG.ACC'

---

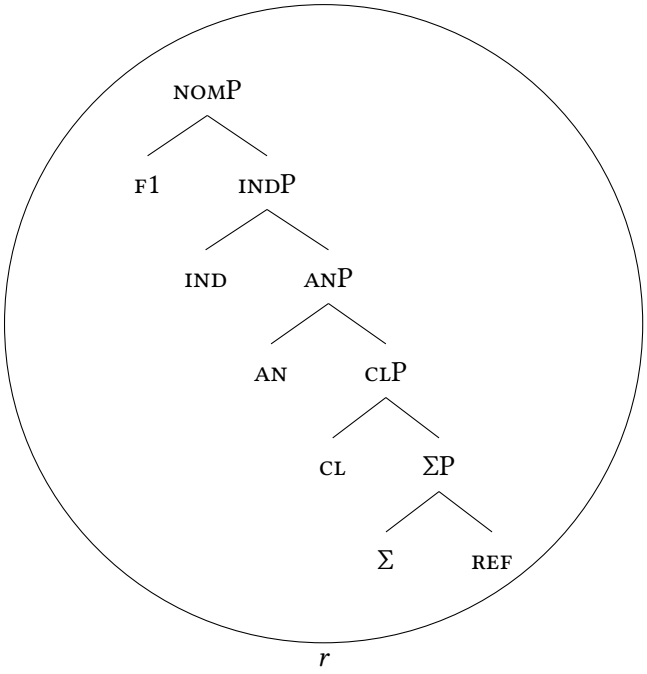
b. Armstrong flog als erster zum Mond.
Armstrong flew as first one to the$_{WEAK}$ moon
'Armstrong was the first one to fly to the moon.' (Modern German, Schwarz 2009: 40)

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

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

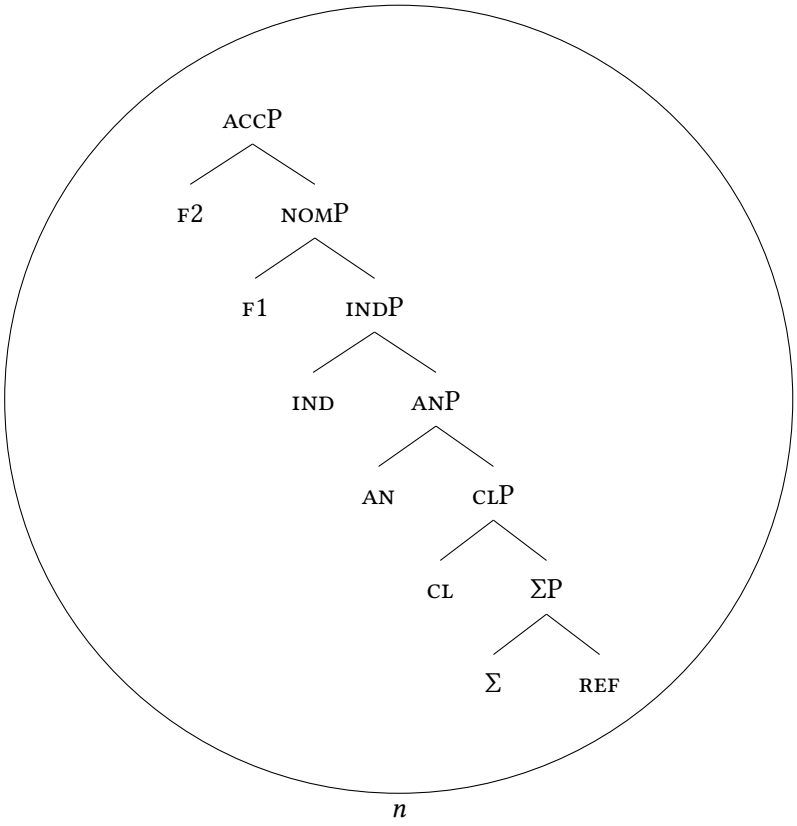
I give the structures of the animate nominative singular light head in (35).

(35)



I give the structures of the animate accusative singular light head in (36).

(36)



0.1.3 Comparing constituents

Consider the example in (37), in which the internal nominative case competes against the external nominative case. The relative clause is marked in bold, and the extra light head and the relative pronoun are underlined. The internal case is nominative, as the predicate *mögen* 'to like' takes nominative subjects. The relative pronoun *wer* 'REL.AN.NOM' appears in the nominative case. This is the element that surfaces. The external case is nominative as well, as the predicate *besuchen* 'to visit' also takes nominative subjects. The extra light head *ər* 'DEM.AN.NOM' appears in the nominative case. It is placed between square brackets because it does not surface.

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

In Figure 0.1, I give the syntactic structure of the extra light head at the top and the syntactic structure of the relative pronoun at the bottom.

The relative pronoun consists of three morphemes: *w*, *e* and *r*. The extra light head consists of two morphemes: *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 extra light head and the relative pronoun. As each constituent of the extra light head is also a constituent within the relative pronoun, the extra light head can be absent. I illustrate this by marking the content of the dashed circles for the extra light head gray.

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

Consider the example in (38), in which the internal accusative case competes against the external nominative case. The relative clause is marked in bold, and the extra light head and the relative pronoun are underlined. The internal case is accusative, as the predicate *mögen* 'to like' takes accusative objects. The relative pronoun *wen* 'REL.AN.ACC' appears in the accusative case. This is the element that surfaces. The external case is nominative, as the predicate *besuchen* 'to visit' takes nominative subjects. The extra light head *ər* 'DEM.AN.NOM' appears in the nominative case. It is placed between square brackets because it does not surface.

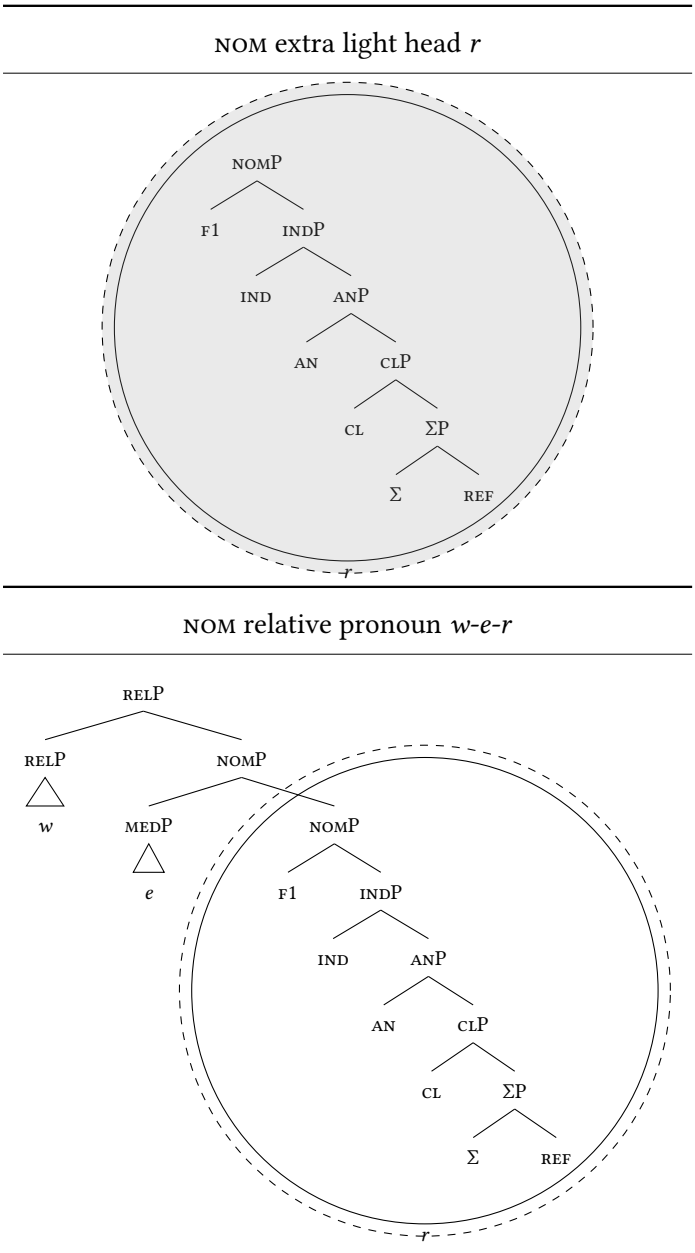


Figure 0.1: Modern German EXT_{NOM} vs. $\text{INT}_{\text{NOM}} \longrightarrow$ *wer*

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

In Figure 0.2, I give the syntactic structure of the extra light head at the top and the syntactic structure of the relative pronoun at the bottom.

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

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

Consider the examples in (39), in which the internal nominative case competes against the external accusative case. The relative clauses are marked in bold, and the extra light heads and the relative pronouns are underlined. It is not possible to make a grammatical headless relative in this situation. The internal case is nominative, as the predicate *sein* 'to be' takes nominative subjects. The relative pronoun *wer* 'REL.AN.NOM' appears in the nominative case. The external case is accusative, as the predicate *einladen* 'to invite' takes accusative objects. The extra light head *ən* 'DEM.AN.ACC' appears in the accusative case. (39a) is the variant of the sentence in which the extra light head is absent (indicated by the square brackets) and the relative pronoun surfaces, and it is ungrammatical. (39b) is the variant of the sentence in which the relative pronoun is absent (indicated by the square brackets) and the extra light head surfaces, and it is ungrammatical too.

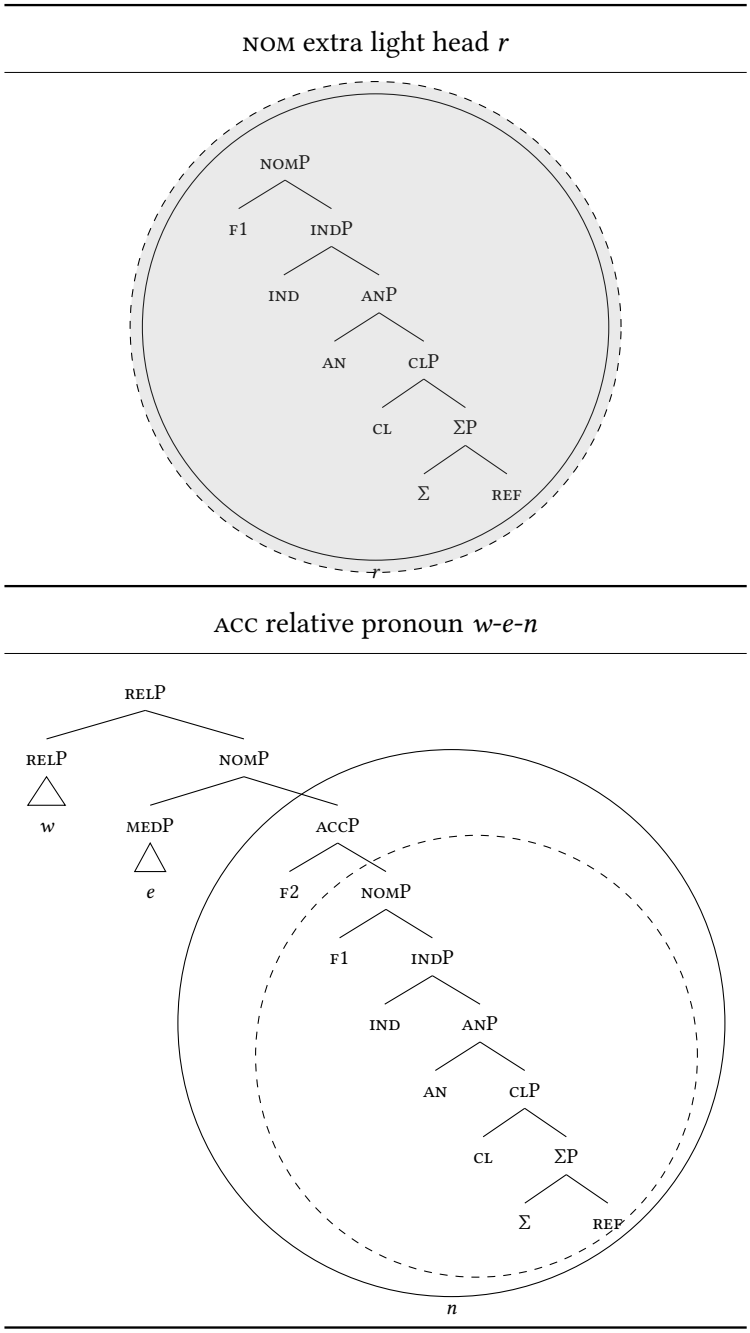


Figure 0.2: Modern German EXT_{NOM} vs. INT_{ACC} ⟶ *wen*

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

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

In Figure 0.3, I give the syntactic structure of the extra light head at the top and the syntactic structure of the relative pronoun at the bottom.

The relative pronoun consists of three morphemes: *w*, *e* and *r*. The extra light head consists of two morphemes: *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 extra light head and the relative pronoun. Neither of the elements contains all constituents that the other element contains. The relative pronoun does not contain all constituents that the extra light head contains, and the extra light head does not contain all constituents that the relative pronoun contains. As a result, none of the elements can be absent.[10]

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

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

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

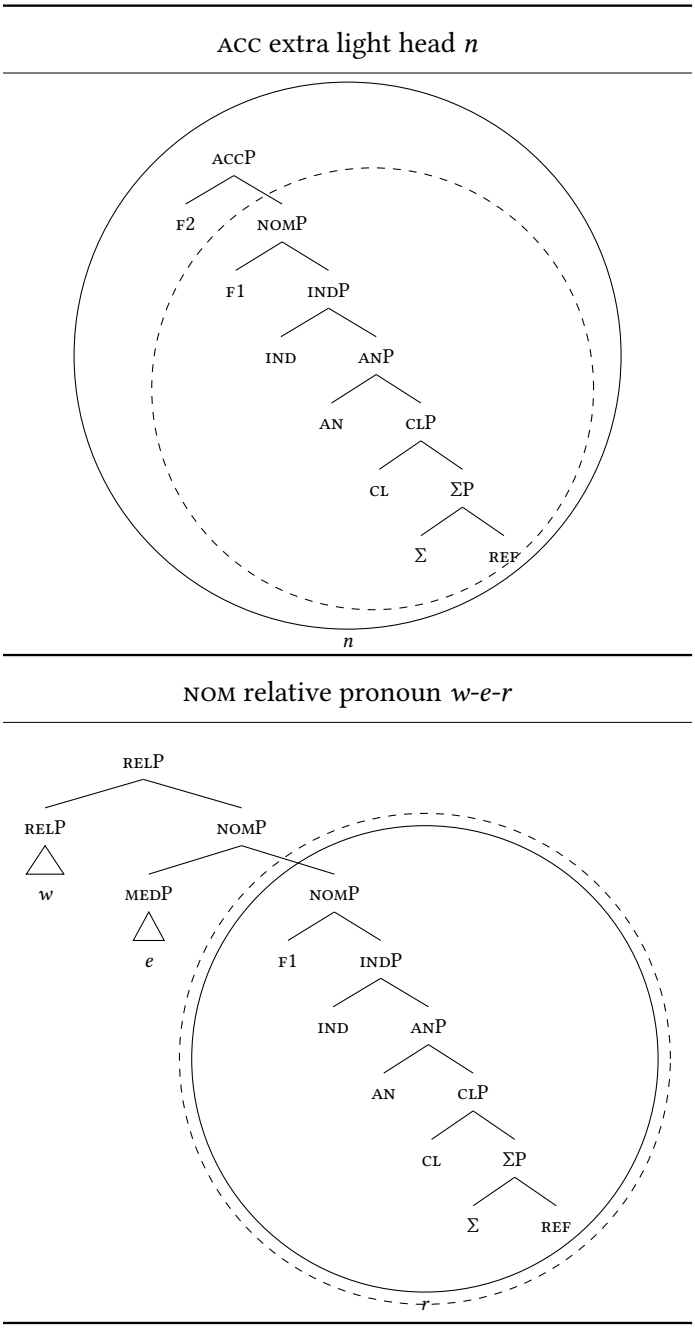


Figure 0.3: Modern German EXT_{ACC} vs. INT_{NOM} ↛ *wer*/*n*

not contain DX$_3$ to make it an MEDP. The same hold for the left-most constituent of the relative pronoun that spells out as *w* (RELP). The extra light head lacks the features WH and REL that form the RELP. The relative pronoun has constituents that are not constituents in the extra light head, so the relative pronoun cannot be absent. In sum, neither of the elements contains all constituents that the other element contains, and none of the elements can be absent, so none of them is marked gray.

0.2 Deriving the matching type

Matching languages can be summarizes as in Table 0.9.

Table 0.9: The surface pronoun with differing cases in Polish

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

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

The section is structured as follows. First, I discuss the relative pronoun. I decompose the relative pronouns into three morphemes, and I show which features each of the morphemes corresponds to. Then I discuss the light head. I argue that Polish headless relatives are derived from a light-headed relative clause that does not surface in the language. I show that the features of the light head are spread over two morphemes.

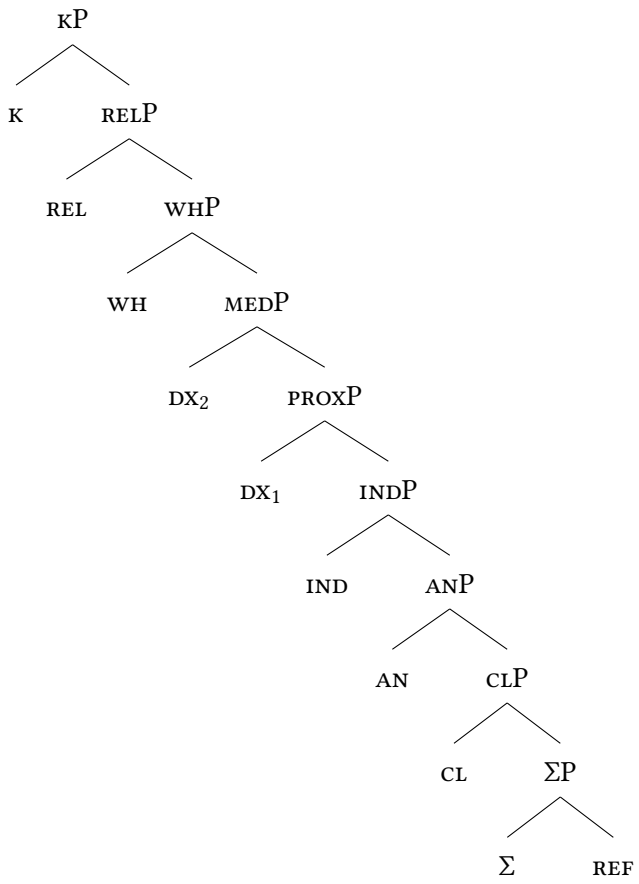
Finally, I compare the constituents of the light head and the relative pronoun. When the internal and the external case match, the relative pronoun can delete the light head, because the light head forms a single constituent within the relative pronoun. When the internal case is more complex than the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

is no grammatical form to surface when the internal case is more complex.

0.2.1 The relative pronoun

In this section I discuss the internal structure of relative pronoun in Polish headless relatives. In Section 0.1.1 I argued that Modern German relative pronouns consist of the features given in the functional sequence in (40).

(40)



As I pointed out in Section **??**, I propose that the difference between Modern German and Polish headless relatives comes from whether the relative pronoun can delete the light head. This depends on whether the light head forms a constituent within the relative pronoun. That, in turn, depends on which constituents are formed in the spellout of the relative pronoun and the light head. The difference in spellout

is the only difference between Modern German and Polish: the features that are spelled out are the same ones.

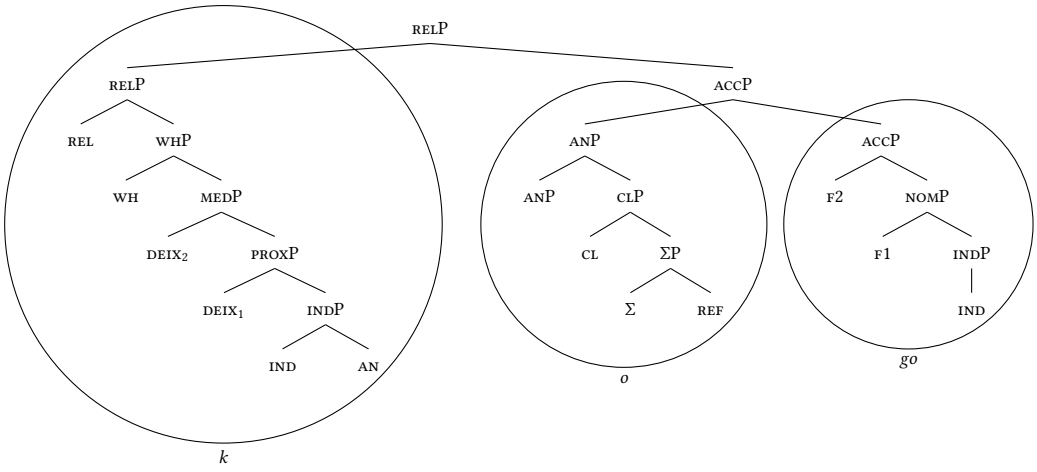
I discuss two relative pronouns: the animate accusative singular and the animate dative singular. These are the two forms that I compare the constituents of in Section 0.2.3. I show them in (41).

(41) a. k-o-go
'REL.AN.SG.ACC'

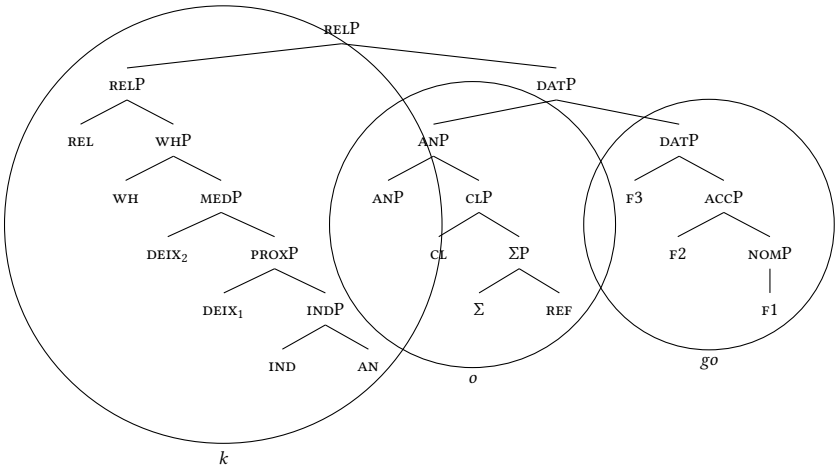
b. k-o-mu
'REL.AN.SG.DAT'

I decompose the relative pronouns in three morphemes: the *k*, the *o* and the final suffix (*go* and *mu*). For each morpheme, I discuss which features they spell out, and I give their lexical entries. In the end, I derive the relative pronouns, given here in (42) and (43).

(42)



(43)



I start with the morphemes *go* and *mu*. Consider the masculine and neuter personal pronouns in Table 0.10.

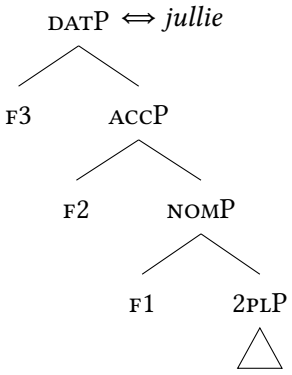
Table 0.10: 3SG personal pronouns Swan, p. 171

	3SG.M.SG	3SG.N.SG
ACC	je-go	je
GEN	je-go	je-go
DAT	je-mu	je-mu

Notice that the morpheme *mu* does not only appear as the dative suffix in the masculine, but also in the neuter. The morpheme *go* appears as the accusative and genitive suffix in the masculine and as the genitive suffix in the neuter. Moreover, the morpheme *je* that precedes the suffixes is identical too. I set up a system that can derive the syncretism between the two genders. Doing this allows me to establish which features the morphemes *go* and *mu* spell out.

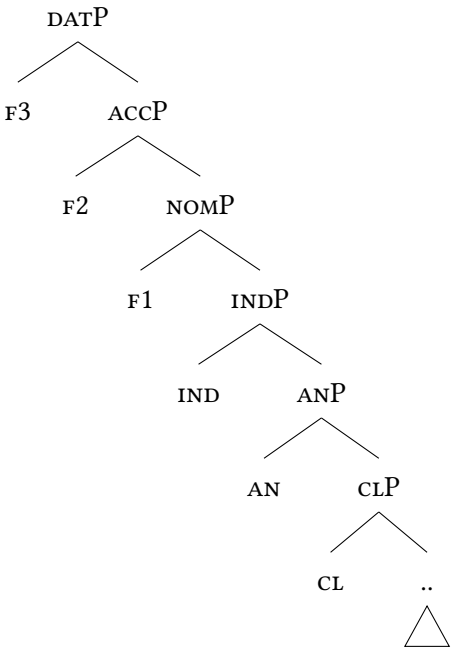
I discussed in Chapter **??** that syncretisms can be derived in Nanosyntax via the Superset Principle. The lexicon contains a lexical entry that is specified for the form that corresponds to the most features. To illustrate this, I repeat the lexical entry for the Dutch *jullie* 'you' in (44).

(44)



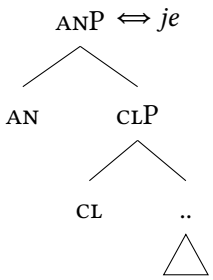
Jullie is syncretic between nominative, accusative and dative. It is specified for dative in the lexicon, because the dative contains the accusative and the nominative. The nominative and accusative second person plural in Dutch is spelled out as *jullie* as well, because the DATP contains the ACCP which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

I show how I get this syncetism for *jemu*. Different from *jullie*, I assume that *je* consists of two morphemes: *je* and *mu*. I give the functional sequence that I assume *jemu* spells out.

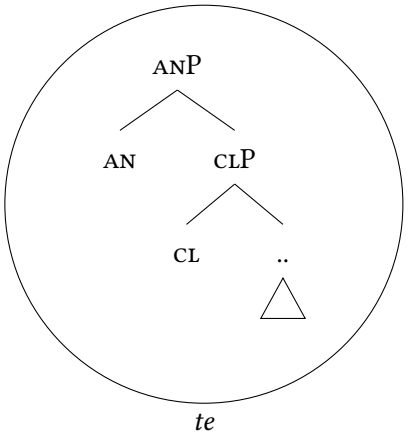


Here we have a lexical entry syncretic between the neuter and the masculine, so these features need to be ones at the top.

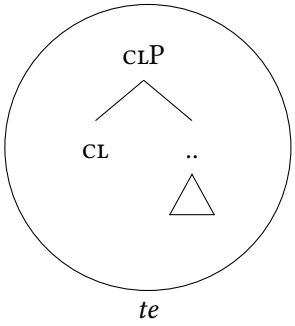
(45)



(46) a.



b.

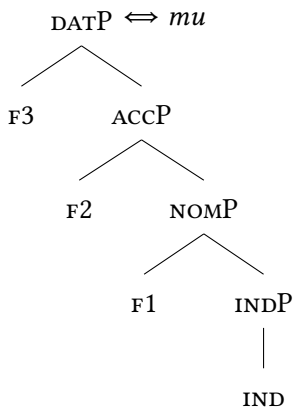


Here the lexical entry can shrink to become a CLP, be a neuter, and still spell out as a inanimate one.

What follows from this is that the lexical entries for *go* and *mu* should spell out IND and all case features above it. If

This means that the morpheme *mu* spells out case features up to the dative and IND.

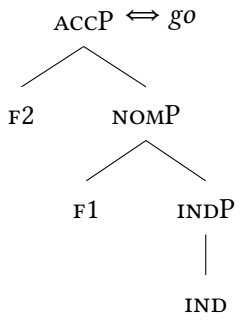
(47)



Notice here that *mu* has a unary bottom. This is how we get the right order between the vowel and *mu*.

The morpheme *go* is not used in the accusative neuter, but it is in the genitive. What I take away from that is that the morpheme *go* needs to have IND as its bottom feature too, so that it can combine with the feature AN if that is present and with the feature CL if AN is absent.

(48)



I argue that the vowel in *kogo* is underlyingly a *e*.

The *k* /k/ combines with the *o* /ɔ/, and the *t* /t/ combines with the *e* /ɛ/. I analyze this change as a phonological process, in which the vowel changes depending on the consonant (cluster). Specifically, I argue that there is an underlying /ɛ/ changes into a /ɔ/ when it follows the *k*. I describe the situation in (49).

(49) a. V ⟺ ɔ k_

b. V ⟺ ɛ t_

Table 0.11: Polish relative pronoun Swan, p. 171

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

The vowel is an /o/ when it follows the /k/, and it is an /ɛ/ when it follows the /t/. In phonological terms, back vowel /ɔ/ follows a the dorsal /k/, which is both back. The front vowel /ɛ/ follows the coronal /t/, which are both front.

(50) a. v ⟺ ɔ [DORS]_
b. v ⟺ ɛ [COR]_

The vowel /ɛ/ is attested in another paradigm, namely in the gentive and dative of the inanimate relative pronouns. I put them besides the animate relative pronouns in Table (41).

Table 0.12: Polish relative pronoun Swan, p. 171

	REL.AN	REL.N
NOM	kto	c-o
ACC	k-ogo	c-o
GEN	k-ogo	cz-ego
DAT	k-omu	cz-emu

Here the /ɛ/ follows the /t͡ʂ/, which is also a coronal consonant, confirming my hypothesis. However, in the nominative and the accusative, the vowel does not comply with the preceding consonant. The coronal /t͡s/ precedes the back vowel /ɔ/.[11] What sets this instance apart is that nothing follows this vowel, where there is

[11] I assume that the palatalization is a consequence of the combination of /t͡s/ and /ɛ/.

always a consonant following in the other instances. I summarize the phonological process I propose in (51). When there is a closed syllable, the vowel is /ɔ/ following a dorsal and it is /ɛ/ following a coronal.[12]

(51) a. V ⟺ ɔ [DORS]_C
b. V ⟺ ɛ [COR]_C

This leaves the morpheme *k* of the relative pronoun. Consider Table 0.13. The *k* and the *t* combine with the same endings, which identifies both of them as a morpheme.

I argue that *k* spells out six features: WH, REL, IND, MASC DX_1 and DX_2. I go through them one by one.

The relative pronouns listed in Table 0.13 are WH-pronouns, and they are also used as interrogatives in Polish. Therefore, just like the Modern German *w*, the Polish *k* spells out the features WH and REL.

Table 0.12 shows that the first consonant (cluster) alternates depending on gen-

[12]Another possibility is that the /ɔ/ in *co* is a 'different /ɔ/'. It namely spells out case features, which I argue later in this section the other vowel does not do.

Under that view, the phonological conditioning could also work the other way around: there is an underlying /k/ that changes into a /t͡ʂ/ when it precedes an /ɛ/. An indication into this direction comes from the fact that WH-pronouns in Polish often start with a /k/.

(i) g-dzie, k-iedy, k-tory
where at, when, which one

If this is the right way of looking at it, then it is the masculine demonstrative and the inanimate relative pronoun patterning together to the exclusion of the animate relative pronoun. At first sight, this might seem counterintuitive. This changes when zooming in on the difference between WH-pronouns and demonstratives regarding the concept of gender. Demonstratives get their gender from the (possibly phonologically empty) head noun, and the gender is syntactic (i.e. it depends on the grammatical gender of the head noun). WH-pronouns (at least the ones in Table 0.13) do not combine with a noun, so they get their gender from themselves, and their gender is semantic. Possibly, syntactic masculine gender contains one feature less than semantic animate gender: MASC vs. MASC + AN. If the inanimate lacks both of these features, it can pattern with the masculine demonstrative to the exclusion of the animate relative pronoun.

Since this type of analysis requires a thorough investigation into gender systems, I leave investigating this options further for future research.

Table 0.13: Polish relative pronoun Swan, p. 171

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

der: the animates start with a *k* and the inanimates start with a *c(z)*. I conclude from this that the *k* contains the feature AN (and the *c(z)* the feature CL). Additionally, since the relative pronouns do not have a morphological plural, I assume that *k* contains the feature IND.

This leaves the deixis features to be connected to *k*. Unlike Modern German, Polish demonstratives are not marked for definiteness (evidence?). The demonstratives I gave in Table 0.13 are used as proximal and medial. I give an example in (52a). There is a separate marker for the distal, as shown in (52b).

(52) a. to auto
DEM.PROX/MED car.N.NOM

b. tam-to auto
DEM.DIST car.N.NOM

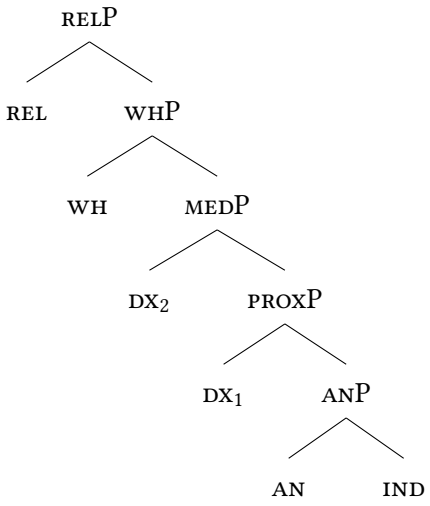
(Polish, Wiland 2019: 93)

The *t* in (52a) spells out deixis features: DX_1 and DX_2 features. As the *t* is not present in the relative pronoun (compare e.g. *temu* and *komu* in Table 0.13), I assume that *k* spells out the deixis features itself.[13]

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

[13]Wiland (2019) proposes that *t* spells out a nominal base. I do not discuss the demonstrative any further, but I assume that the morpheme *t* only corresponds to the feature IND (and possibly PL) in addition to DX_1 and DX_2.

(53)



0.2.2 The (extra) light head

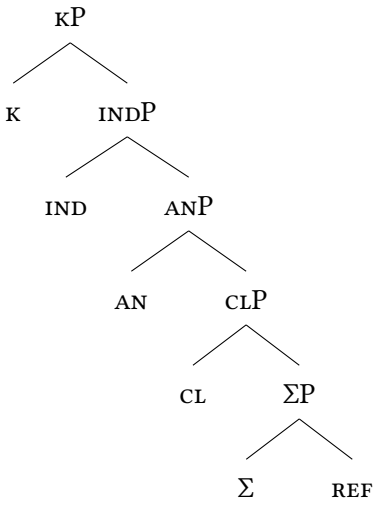
In my proposal, headless relatives are derived from light-headed relatives. The relative pronoun can delete the light head when the relative contains the light head as a single constituent. I suggest that this only holds for Polish when the internal and the external case match. In the previous section,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

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

In Section 0.1.2, I argued for a particular feature content of the extra light head in Modern German. In my proposal, the difference in spellout is the only difference between Modern German and Polish: the features that are spelled out are the same ones. Therefore, I assume that the extra light head in Polish spells out the same

features as the extra light head in Modern German. I give the functional sequence for the extra light head in (54).

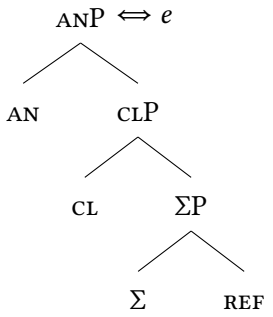
(54)



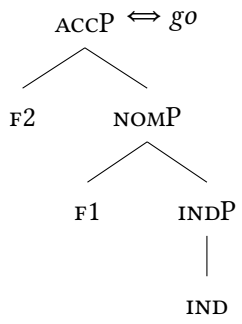
The KP is a placeholder for multiple case projections. When the extra light head is the accusative, the KP consists of the features F1 and F2, and they form the ACCP. When the extra light head is the dative, the KP consists of the features F1, F2 and F3, and they form the DATP.

Three lexical entries are needed to spell out the accusative and dative extra light heads. I motivated their feature content in Section 0.2.1. The morpheme *e* spells out the features REF, Σ, CL and AN, as shown in (55a). The morpheme GO spells out the features IND, F1 and F2, as shown in (55b). The morpheme *mu* spells out the features that *go* spells out plus the feature F3, as shown in (55c).

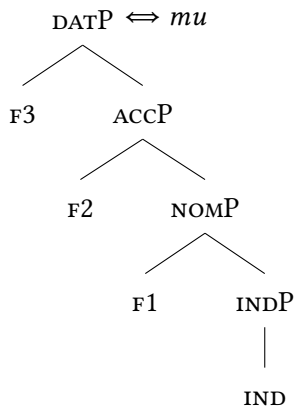
(55) a.



b.



c.



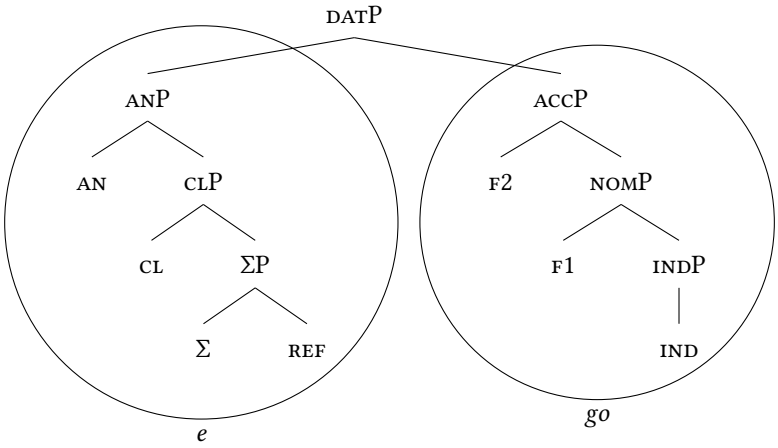
The accusative extra light head is derived as follows. The feature REF is merged with the feature Σ, forming the ΣP. This phrase is contained in the lexical tree in (55a), so it is spelled out as *e*. The feature CL is merged with the ΣP, forming the CLP. This phrase is contained in the lexical tree in (55a), so it is spelled out as *e*. The feature AN is merged with the CLP, forming the ANP. This phrase is contained in the lexical tree in (55a), so it is spelled out as *e*.

The feature IND is merged with the ANP, forming the INDP. This phrase (an INDP containing more features besides IND) is not contained in any of the lexical entries in (55). There is no specifier to move, so the first movement in the spellout algorithm is irrelevant. The second movement if tried: the complement of IND, the ANP, is moved to the specifier of INDP. This phrase is contained in the lexical tree in (55b), so it is spelled out as *go*. The feature F1 is merged with the INDP, forming an NOMP. This phrase is not contained in any of the lexical entries in (55). The first movement is tried: the specifier of the INDP, the ANP, is moved to the specifier of NOMP. This phrase is contained in the lexical tree in (55b), so it is spelled out as *go*. The feature

F2 is merged with the NOMP, forming an ACCP. This phrase is not contained in any of the lexical entries in (55). The first movement is tried: the specifier of the NOMP, the ANP, is moved to the specifier of ACCP. This phrase is contained in the lexical tree in (55b), so it is spelled out as *go*.

The accusative animate extra light head is shown in (56).

(56)

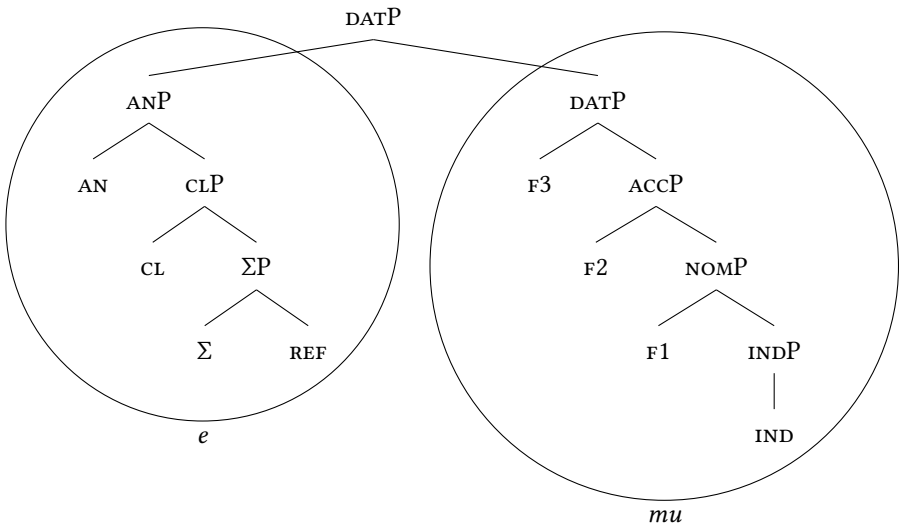


The dative animate extra light head is built as its accusative counterpart, except for that the feature F3 is added to create a dative.

The feature F3 is merged with the ACCP, forming an DATP. This phrase is not contained in any of the lexical entries in (55). The first movement is tried: the specifier of the ACCP, the ANP, is moved to the specifier of DATP. This phrase is contained in the lexical tree in (55c), so it is spelled out as *mu*.

The dative animate extra light head is shown in (57).

(57) .



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

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

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

In the rest of this section I consider the existing Polish light-headed relative that could potentially be the source for headless relatives. This is the light-headed relative that in which the demonstrative is the light head, as shown in (59).

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

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

First, in headless relatives the morpheme *kolwiek* 'ever' can appear, as shown in (60).

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

Light-headed relatives do not allow this morpheme to be inserted, illustrated in **??**.

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

Just like for Modern German, I assume that the headless relative is not derived from an ungrammatical structure.[14]

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

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

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

The second argument against the existing light-headed relatives being the source of headless relatives comes from their interpretation. Headless relatives have two possible interpretations, and light-headed relatives have only one of these. Just like in Modern German, Polish headless relatives can be analyzed as either universal or definite (Citko 2004: 103). Light-headed relatives, such as the one in (59), only have the definite interpretation.

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

0.2.3 Comparing constituents

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

I start with the matching cases. Consider the example in (62), in which the internal accusative case competes against the external accusative case. The relative clause is marked in bold. The internal case is accusative, as the predicate *lubić* 'to like' takes accusative objects. The relative pronoun *kogo* 'REL.AN.ACC' appears in the accusative case. This is the element that surfaces. The external case is accusative as well, as the predicate *lubić* 'to like' also takes accusative objects. The extra light

head *ego* 'ELH.AN.ACC' appears in the accusative case. It is placed between square brackets because it does not surface.

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

In Figure 0.4, I give the syntactic structure of the extra light head at the top and the syntactic structure of the relative pronoun at the bottom.

The relative pronoun consists of three morphemes: *k*, *o* and *go*. The extra light head consists of two morphemes: *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 extra light head and the relative pronoun.

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

I continue with the example in which the internal case is more complex than the external case. Consider the examples in (63), in which the internal dative case competes against the external accusative case. The relative clauses are marked in bold. It is not possible to make a grammatical headless relative in this situation. The internal case is dative, as the predicate *dokuczać* 'to tease' takes dative objects. The relative pronoun *komu* 'REL.AN.DAT' appears in the dative case. The external case is accusative, as the predicate *lubić* 'to like' takes accusative objects. The extra light head *ego* 'ELH.AN.ACC' appears in the accusative case. (63a) is the variant of the sentence in which the extra light head is absent (indicated by the square brackets) and the relative pronoun surfaces, and it is ungrammatical. (63b) is the variant of the sentence in which the relative pronoun is absent (indicated by the square brackets) and the extra light head surfaces, and it is ungrammatical too.

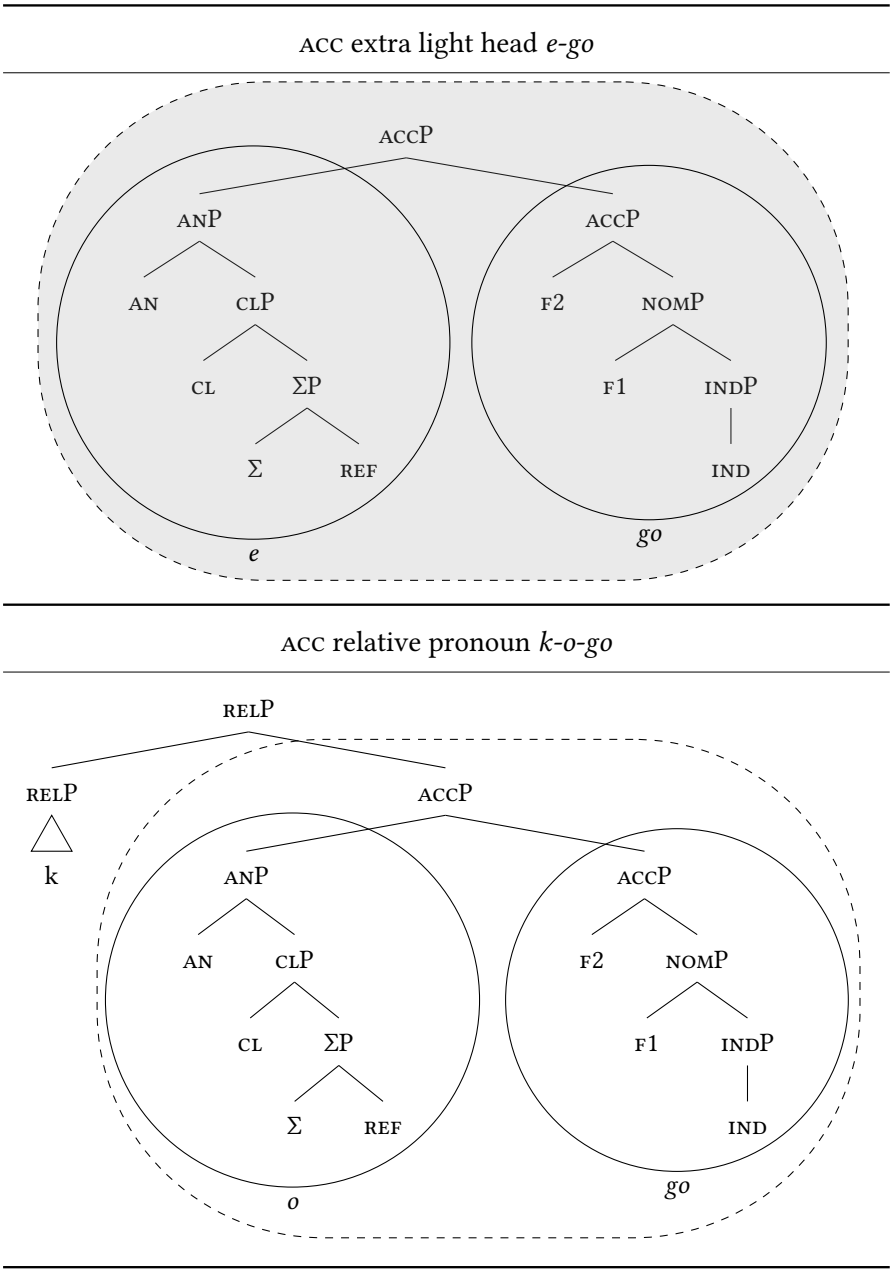


Figure 0.4: Polish EXT_{ACC} vs. INT_{ACC} ⟶ *kogo*

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

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

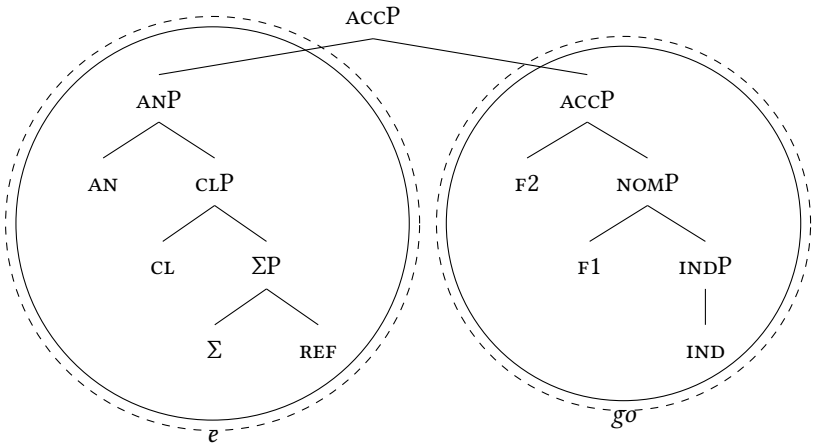
In Figure 0.5, I give the syntactic structure of the extra light head at the top and the syntactic structure of the relative pronoun at the bottom.

The relative pronoun consists of three morphemes: *k*, *o* and *mu*. The light head consists of two morphemes: *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 extra light head and the relative pronoun.

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

Recall from Section 0.1.3 that this is the crucial example in which Modern German and Polish differ. The contrast lies in that the extra light head in Modern German forms a single constituent and in Polish it forms two constituents. In Modern German, relative pronouns in a more complex case contain extra light heads in a less complex case as a single constituent. In Polish, they do not. Relative pronouns in a complex case still contain all features of an extra light head in a less complex case, but the extra light head is not a single constituent within the relative pronoun. This shows the necessity of formulating the proposal in terms of containment as a single constituent.

ACC extra light head *e-go*



ACC relative pronoun *k-o-mu*

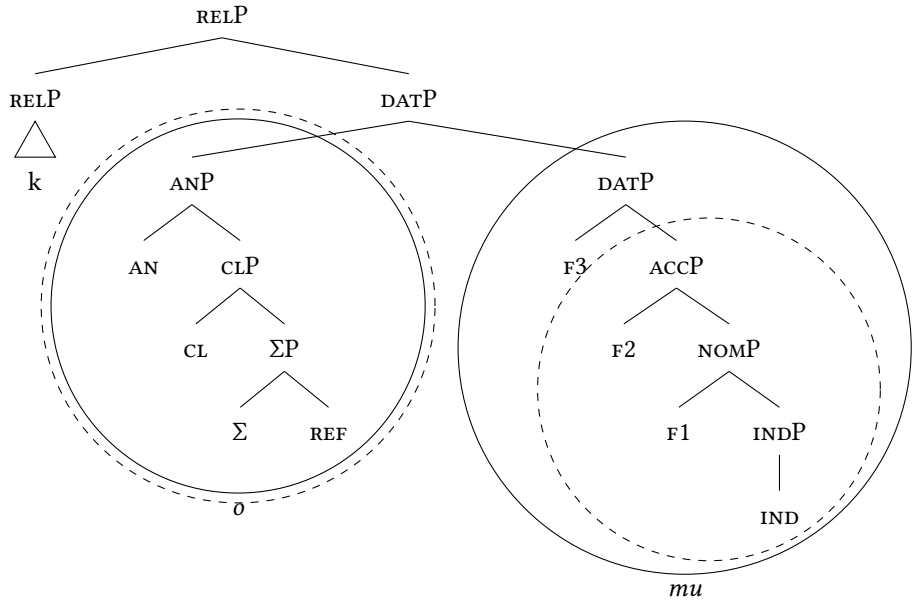


Figure 0.5: Polish EXT_{ACC} vs. $\text{INT}_{\text{DAT}} \nrightarrow$ *ego*/*komu*

I continue with the example in which the external case is more complex than the internal case. Consider the examples in (64), in which the internal dative case competes against the external accusative case. The relative clauses are marked in bold. It is not possible to make a grammatical headless relative in this situation. The internal case is accusative, as the predicate *wpuścić* 'to let' takes accusative objects. The relative pronoun *kogo* 'REL.AN.ACC' appears in the accusative case. The external case is dative, as the predicate *ufać* 'to trust' takes dative objects. The extra light head *emu* 'ELH.AN.DAT' appears in the dative case. (64a) is the variant of the sentence in which the extra light head is absent (indicated by the square brackets) and the relative pronoun surfaces, and it is ungrammatical. (64b) is the variant of the sentence in which the relative pronoun is absent (indicated by the square brackets) and the extra light head surfaces, and it is ungrammatical too.

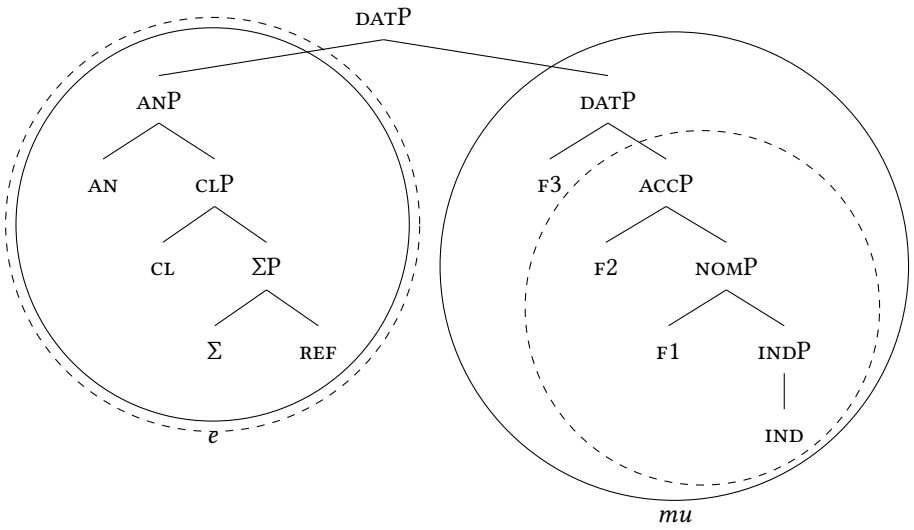
(64) a. *Jan ufa [emu] **kogo -kolkwiek wpuścil do**
Jan trust.3SG$_{[DAT]}$ ELH.DAT.AN REL.ACC.AN ever let.3SG$_{[ACC]}$ to
domu.
home
'Jan trusts whoever he let into the house.'
(Polish, adapted from Citko 2013 after Himmelreich 2017: 17)

b. Jan ufa emu [**kogo**] **-kolkwiek wpuścil do**
Jan trust.3SG$_{[DAT]}$ ELH.DAT.AN REL.ACC.AN ever let.3SG$_{[ACC]}$ to
domu.
home
'Jan trusts whoever he let into the house.'
(Polish, adapted from Citko 2013 after Himmelreich 2017: 17)

In Figure 0.6, I give the syntactic structure of the extra light head at the top and the syntactic structure of the relative pronoun at the bottom.

The relative pronoun consists of three morphemes: *k*, *o* and *go*. The light head consists of two morphemes: *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 extra light head and the relative pronoun.

DAT extra light head *e-mu*



ACC relative pronoun *k-o-go*

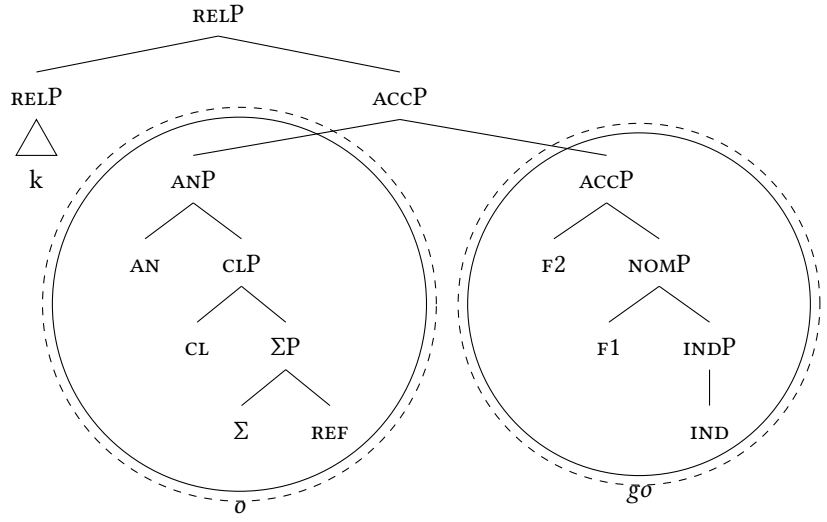


Figure 0.6: Polish EXT_{DAT} vs. INT_{ACC} ⇀↽ *emu*/*kogo*

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

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