

# CASE COMPETITION IN HEADLESS RELATIVES

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# List of abbreviations

<b>ACC</b>	accusative
<b>AN</b>	animate
<b>DAT</b>	dative
<b>ELH</b>	extra light head
<b>F</b>	feminine
<b>NOM</b>	nominative
<b>PL</b>	plural
<b>REL</b>	relative marker





## **Part I**

# **Case competition**





## **Part II**

# **The typology**



## **Part III**

# **Deriving the typology**





## Chapter 8

# Deriving the matching type

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

Table 8.1: Grammaticality in the internal-only type

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

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

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

derived from a difference in spellout between the two languages types. A different spellout namely leads to a different constituency within relative pronouns and light heads. In the internal-only type of language, the  $\phi$ P appears lower in the structure than the case projections, as I showed in Chapter 7. In the matching type of language, the  $\phi$ P appears higher than the case projections shown in Figure 8.4.

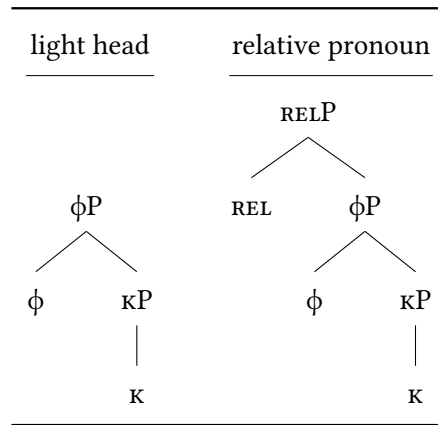


Figure 8.1: LH and RP in the matching type

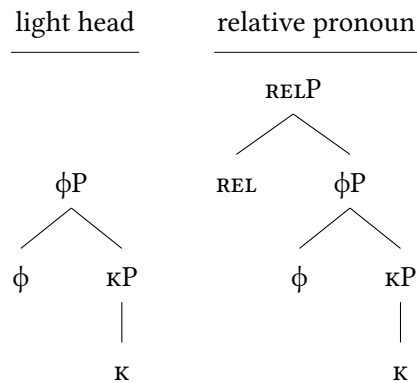


Figure 8.2: LH and RP in the matching type

When the internal and the external case match, the light head can be deleted, 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



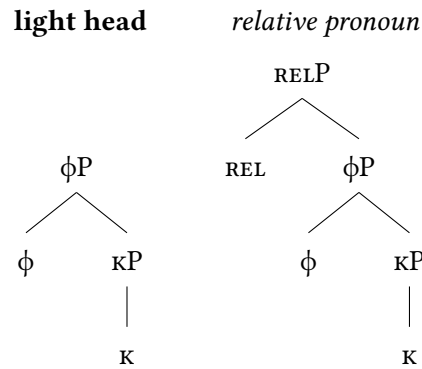


Figure 8.3: LH and RP in the matching type

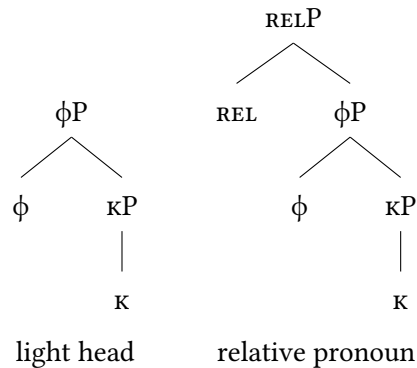


Figure 8.4: LH and RP in the matching type

features of the light head, but they are spread over separate constituents. As a result, there is no grammatical form to surface when the internal case is more complex. When the external case is more complex than the internal case, the relative pronoun is not a single constituent within the light head. The relative pronoun contains features that are not part of the light head. As a result, there is no grammatical form to surface when the internal case is more complex.

In Chapter ??, I suggested that the difference in structures between the internal-only type and the matching type is a consequence of spellout. The change in constituency is a result of the fact that case projections correspond to their own morpheme in matching languages and they are spelled out together with phi-features

in internal-only languages. In Chapter 8, I showed that Modern German indeed has a portmanteau for case and phi-features. In this Chapter, I show that Polish has two morphemes that corresponds to case and phi-features.

I give a compact version of the Polish light heads and relative pronouns in Figure 8.5.

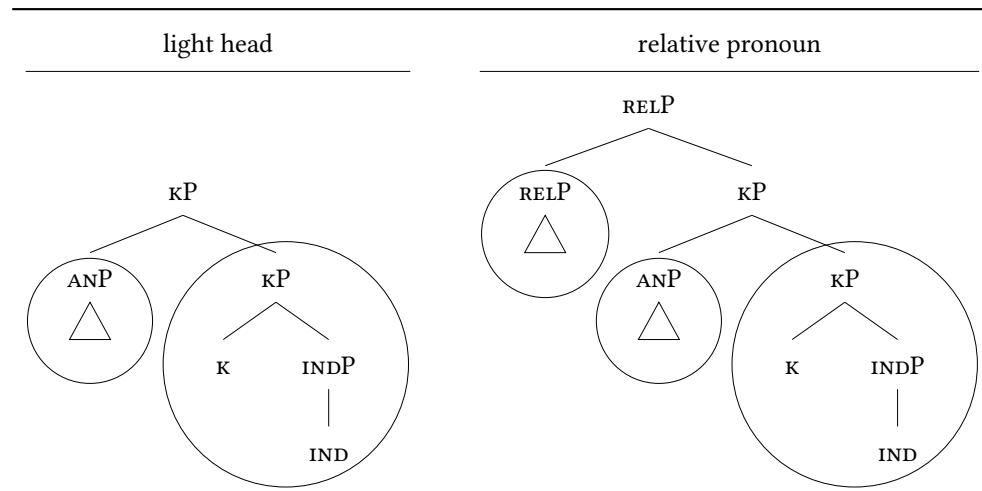


Figure 8.5: LH and RP in Polish

I compare the Polish light head and the relative pronoun in Figure 8.5 to the structures of the light head and the relative pronoun I gave in Figure 6.7.

Consider the light head in Figure 8.5. Light heads in Polish are spelled out by two morphemes, which are both circled. The morpheme on the right does not only correspond to case features, but also to number feature (IND). The remainder of what corresponds to the  $\phi$ P is the morpheme on the left (ANP). Therefore, just like the structure of the light head in Figure 6.7, the structure of the light head in Figure 8.5 consists of two morphemes.

Consider the relative pronoun in Figure 8.5. Relative pronouns in Polish contain one more morpheme than light heads: the RELP. As already became clear in Chapter 7, the relative pronoun contains more a single feature more than the light head, which is in Polish all contained in RELP. Besides that, the structure of the relative pronoun in Figure 8.5 is identical to the one in Figure 6.7.

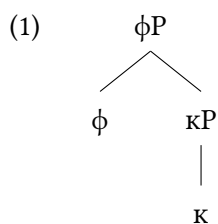
Crucially, the constituency in Figure 7.2 is the same as it is in Figure 6.2. There-

fore, the deletion possibilities I described for Figure 6.7 take place.

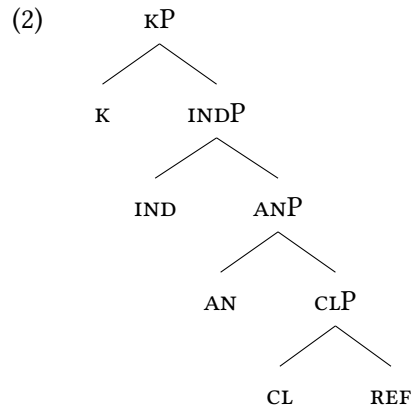
The chapter is structured as follows. First, I discuss the light head. I decompose the light head into the two morphemes I showed in Figure 8.5, and I show which features correspond to which morphemes. I show that Polish headless relatives are derived from a type of light-headed relative clause that does not surface in the language, just like their Modern German counterparts. Then, I discuss the relative pronoun. I show that the Polish relative pronoun consist of one more morpheme than Polish light head. Importantly, the features that form the Polish light head and relative pronoun are the same ones that form the Modern German ones. The only difference between the two languages is how the features are spelled out. Finally, I compare the constituents of the light head and the relative pronoun. I show that the relative pronoun can only delete the light head when the internal case matches the external case. When the internal and external case differ, I show that none of the elements can be deleted.

## 8.1 The Polish extra light head

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



In Chapter 7, I argued for Modern German that the functional sequence for the extra light head contains the features in (2).



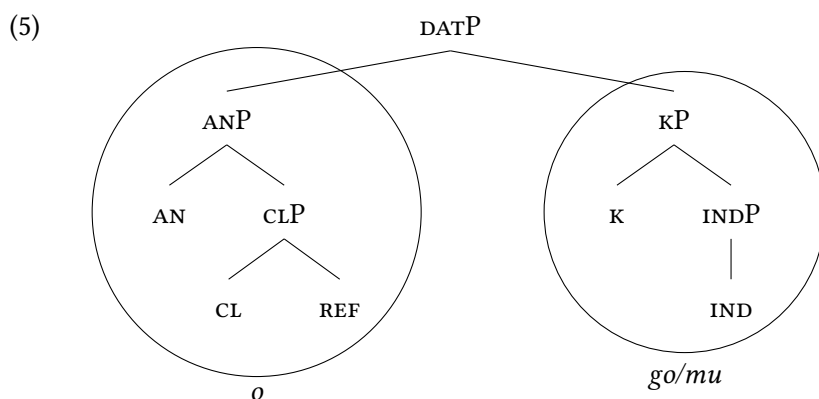
In this section, I propose that the features in (2) correspond to two morphemes of Polish relative pronouns. I give the animate accusative and the animate dative relative pronouns in (3).

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

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

- (4)
- a. o-go  
ELH.AN.ACC
  - b. o-mu  
ELH.AN.DAT

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



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

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

Consider the relative pronouns in Table 8.2.

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

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

I leave the nominative and accusative aside from now and come back to them

later. From the genitive on, the final suffixes in the animate and the inanimate paradigm are the same.<sup>1</sup> The forms differ in their initial consonant and the vowel. The animates have a *k* and an *o* or *i*, and the inanimates have a *cz* and a *e* or *y*.

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

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

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

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

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

I propose that the *k* is present in the inanimate relative pronouns. They appear as a consequence of being combined with an *j*. I show the proposed decomposition in Table 8.3.

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

---

<sup>1</sup>I include genitive and the instrumental in the paradigms to show that the patterns observed in the dative are not standing on themselves. Instead, they are more generally attested in Polish, and they deserve an explanation. In Polish, the genitive comes between the accusative and the dative, i.e. it is more complex than the accusative and less complex than the dative. However, I do not incorporate them in the syntactic structures. This does not change anything about the main point about case I want to make: the dative is more complex than the accusative.

<sup>2</sup>This is more or less what Wiland (2019) proposes.

<sup>3</sup>The *k* in (6c) gets voiced into *g* because it is followed by *d*.

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

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

the inanimate.

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

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

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

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

them in (7) to (9).<sup>4,5</sup>

(7)  $j + k \rightarrow c$

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

b.  $j + i \rightarrow y$

(9)  $c$  before  $e/y \rightarrow cz$

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

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

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

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

(10) moje-story

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

<sup>4</sup>In the nominative and accusative only the change in (7) is happening. I assume that the  $o$  in the nominative and accusative resists the process in (8). This is because the  $o$  in the nominative and accusative is a ‘different’  $o$  than all the other ones. This  $o$  namely spells out different features than the  $o$ .

<sup>5</sup>Under this analysis, *czyj* ‘whose’ is underlyingly  $k-j-i-j$ .

<sup>6</sup>Notice also the change from  $y$  to  $i$  in the genitive after the  $k$ -stem *córk*.



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

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

- (12) ojc-e: ojczy  
 father.voc  
 (Swan 2002: 26)

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

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

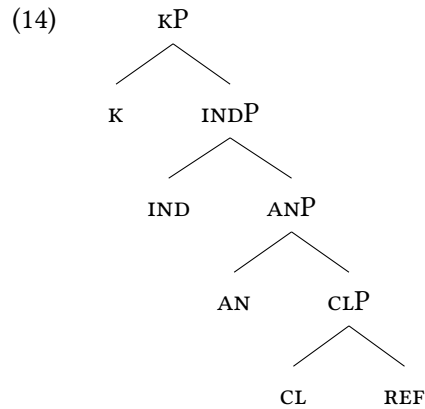
One context in which the *o* becomes an *e* is in the paradigm of the strong personal pronoun that starts with *je*. Consider the accusative and dative masculine forms in Table 8.6.<sup>7</sup> I gave the surface form and what I analyze as the underlying form. The *o* changes into an *e* because it follows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

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

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

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

<sup>7</sup>Polish has three types of third person pronouns (Swan 2002: 156-157). Not all types of pronouns exist for all numbers and genders, but they do for the masculine accusative and dative singular. *Je*-pronouns are used in clause-initial position or when emphasis or a contrast is expressed. *Ni*-pronouns are used after prepositions. Clitics are used in non-stressed contexts. The only third person clitics that exist are *go* and *mu*. According to Franks, Junghanns, and Law (2004: 22), these clitics are not ‘real’ clitics, since they syntactically behave like phrases. The deficiency is only just prosodic.



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

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

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

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

I discussed in Chapter 3 that syncretisms can be derived in Nanosyntax via the Superset Principle. The lexicon contains a lexical entry that is specified for the form

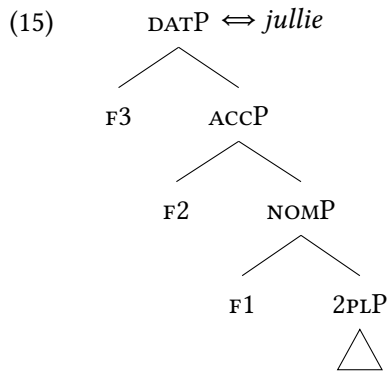
<sup>8</sup>Actually, I assume it spells out c and IND as it is a Complex Spec. As this is not crucial to the point I am making, I do not discuss it any further for now.

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

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

	M	N
<i>je</i> -pronoun	j-e-mu	j-e-mu
<i>ni</i> -pronoun	ni-e-mu	ni-e-mu
DEM	t-e-mu	t-e-mu

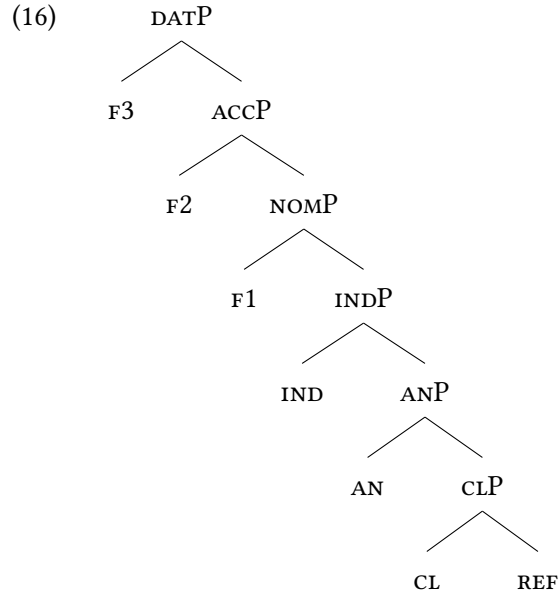
that corresponds to the most features. To illustrate this, I repeat the lexical entry for the Dutch *jullie* ‘you’ in (15).



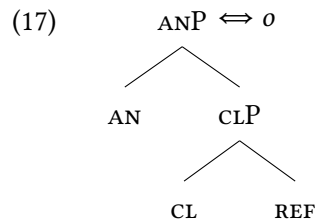
*Jullie* is syncretic between nominative, accusative and dative. It is specified for dative in the lexicon, because the dative contains the accusative and the nominative. The nominative and accusative second person plural in Dutch are spelled out as *jullie* as well, because the DATP contains the ACCP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

In what follows, I show how I can derive the syncretisms for the forms in Table 8.7. Different from *jullie*, these forms consists of three morphemes: *j/ni/t*, *o* and *mu*. I put the morphemes *j*, *ni* and *t* aside, assuming that they spell out structure that differs per morpheme. The structure that the combination of *o* and *mu* spell out is

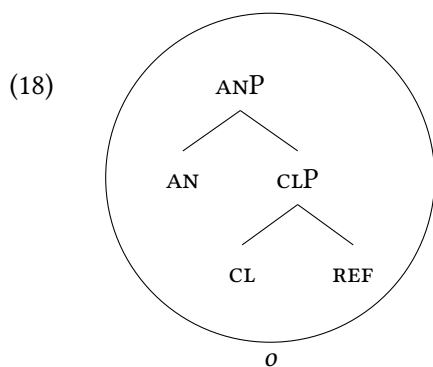
the syntactic structure of an extra light head, which I give in (16).



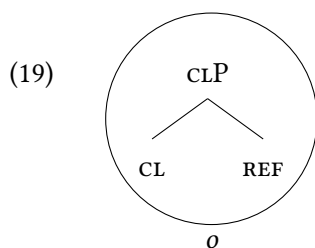
The morpheme *o* is syncretic between the masculine and the neuter. This can be captured if the highest feature in the lexical tree is the feature that distinguishes masculine and neuter gender. In such case, the morpheme can easily spell both the structure with or without the masculine feature. The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



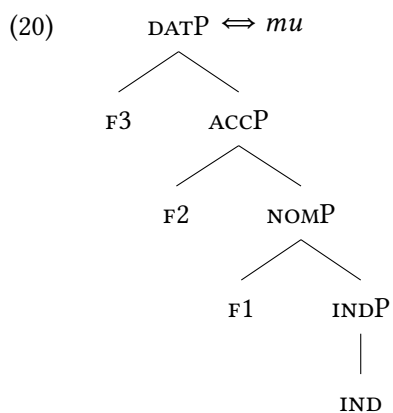
In (18), I give the syntactic structure of a masculine form. The syntactic structure forms a constituent within the lexical tree in (17), and the structure can be spelled out as *o*.



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



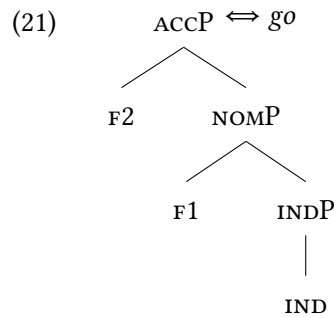
What follows from this is that the lexical trees for the suffix *mu* should contain all features in (27) that are not spelled out by *o* so far. These are the feature IND and all case features up to the dative. I give the lexical entry for *mu* in (20).



Notice here that *mu* has a unary bottom. Therefore, it can be inserted as the result

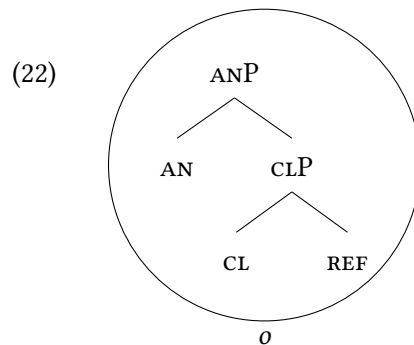
of movement. That means that the lexical entry follows the existing structure and is spelled out as a suffix. This is how the correct order of *o* and *mu* comes about. I show how this works when I construct the extra light head later on in this section.

The morpheme *go* differs from *mu* in that it lacks the feature *f3*. I give its lexical entry in (21).



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

Starting from the bottom, the first two features that are merged REF and CL, creating a CLP. The syntactic structure forms a constituent in the lexical tree in (17), which corresponds to the *o*. Therefore, the CLP is spelled out as *o*, which I do not show here. Then, the feature AN is merged, and a ANP is created. The syntactic structure forms a constituent in the lexical tree in (17). Therefore, the ANP is spelled out as *o*, shown in (22).

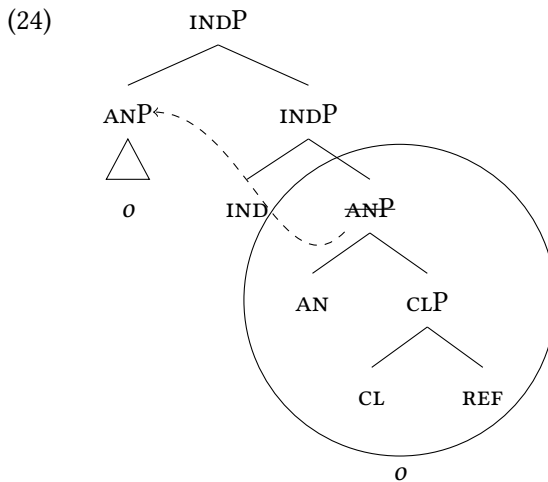


The next feature in the functional sequence is the feature `IND`. This feature cannot be spelled out as the other ones before. The feature `IND` is merged, and a `INDP` is created. This syntactic structure does not form a constituent in the lexical tree in (17). There is also no other lexical tree that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

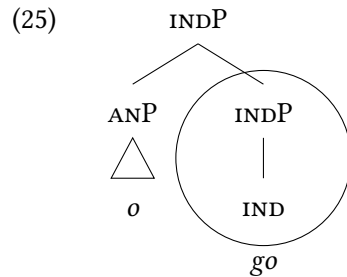
(23) **Spellout Algorithm** (as in Caha 2020, based on Starke 2018)

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

The first movement option in the Spellout Algorithm is moving the specifier, as described in (23b). As there is no specifier in this structure, so the first movement option is irrelevant. The second movement option in the Spellout Algorithm is moving the complement, as described in (10c). In this case, the complement of `IND`, the `ANP`, is moved to the specifier of `INDP`. I show this movement in (24).

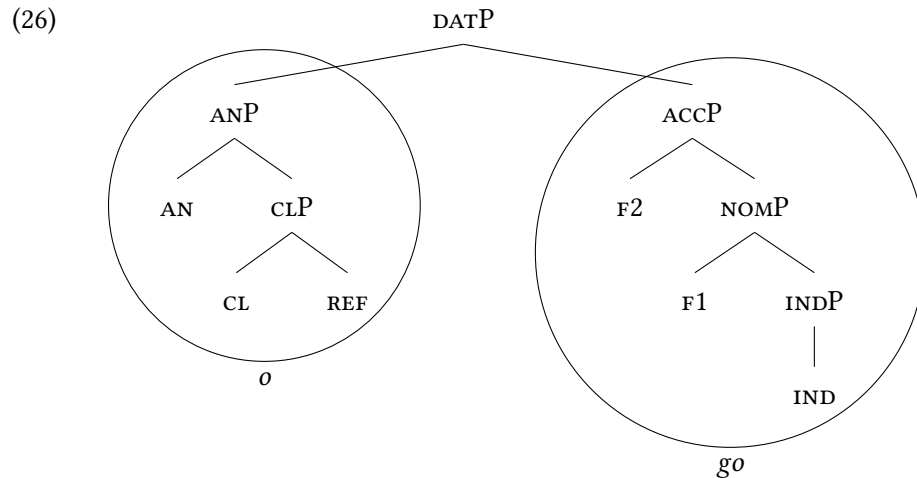


The `INDP` is a different constituent now. It still contains the feature `IND`, but it no longer contains the `ANP`. The syntactic structure forms a constituent in the lexical tree of (21). Therefore, the `INDP` is spelled out as *go*, as shown in (25).



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

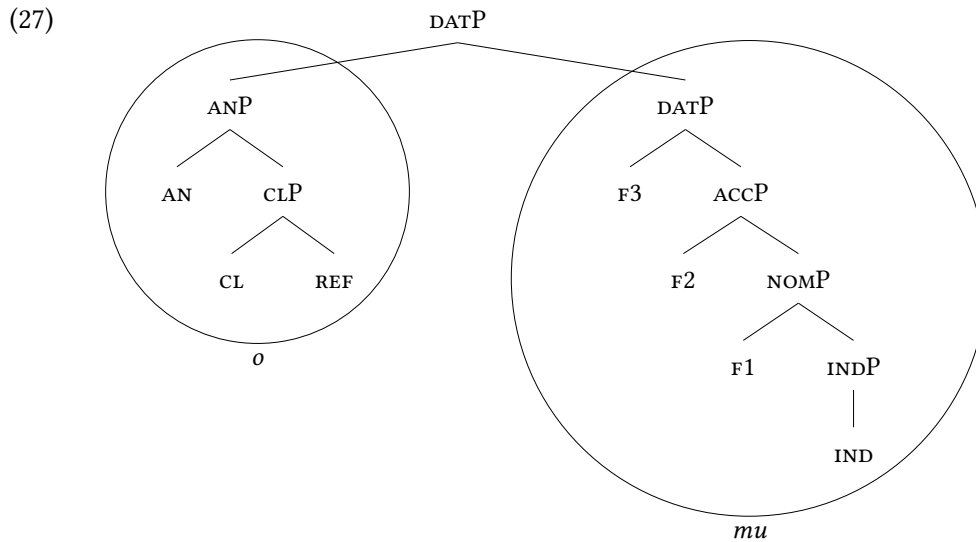
For the accusative extra light head, the last feature is merged: the  $F2$ . The feature is merged with the  $NOMP$ , forming an  $ACCP$ . This phrase is not contained in any of the lexical entries. The first movement is tried, and the specifier of the  $NOMP$ , the  $ANP$ , is moved to the specifier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



For the dative relative pronoun, one more feature is merged: the  $F3$ . The feature is merged with the  $ACCP$ , forming an  $DATP$ . This phrase is not contained in any of the lexical entries. The first movement is tried, and the specifier of the  $ACCP$ , the  $ANP$ , is moved to the specifier of  $DATP$ . This phrase is contained in the lexical tree in (20),



so it is spelled out as *mu*, as shown in (27).



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

- (28) Jan lubi [ogo] kogo -kolkwiek Maria lubi.  
 Jan like.3SG<sub>[ACC]</sub> ELH.ACC.AN RP.ACC.AN ever Maria like.3SG<sub>[ACC]</sub>  
 ‘Jan likes whoever Maria likes.’  
 (Polish, adapted from Citko 2013 after Himmelreich 2017: 17)

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

In the rest of this section I consider the existing Polish light-headed relative

that could potentially be the source for headless relatives. This is the light-headed relative that in which the demonstrative is the light head, as shown in (29).

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

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

First, in headless relatives the morpheme *kolwiek* ‘ever’ can appear, as shown in (30).

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

Light-headed relatives do not allow this morpheme to be inserted, illustrated in (31).

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

Just like for Modern German, I assume that the headless relative is not derived from an ungrammatical structure.<sup>10</sup>

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

<sup>10</sup>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.

like in Modern German, Polish headless relatives can be analyzed as either universal or definite (Citko 2004: 103). Light-headed relatives, such as the one in (29), only have the definite interpretation.

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

## 8.2 The Polish relative pronoun

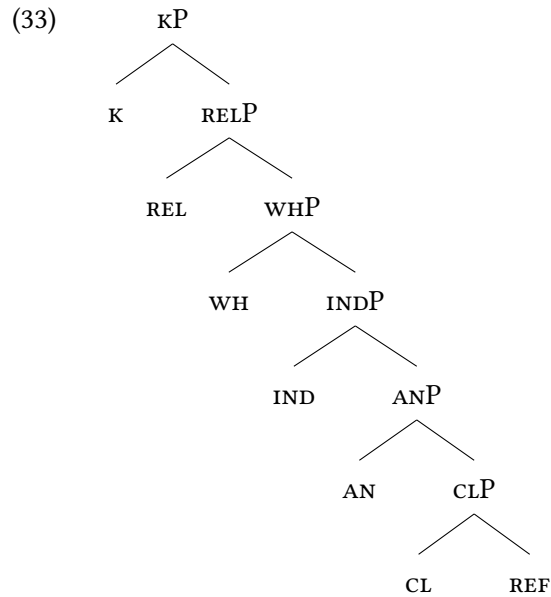
In this section, I discuss two relative pronouns in Polish: the accusative animate and the dative animate. I show them in (32).

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

In the previous section I showed that the extra light head in Polish corresponds to two of the morphemes of the relative pronoun, namely the *o* and the suffix *go* or *mu*. In this section, I show that the features that are not part of the extra light head are spelled out by the morpheme *k*.

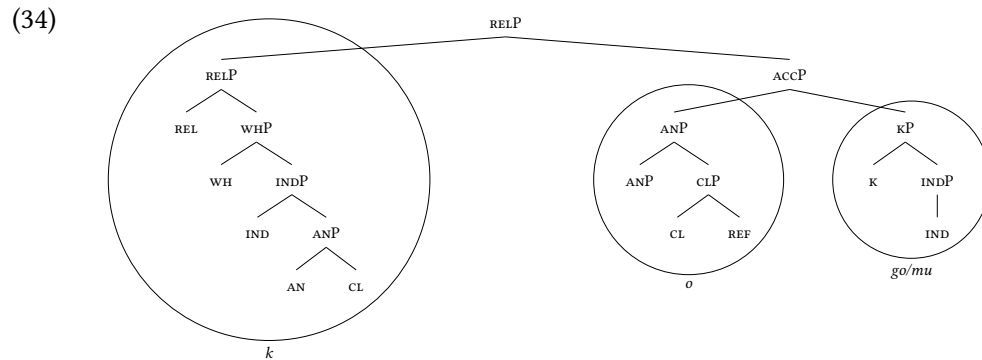
In (33) I repeat the functional sequence I proposed in Chapter 7 for the relative pronoun.

- 
- (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)

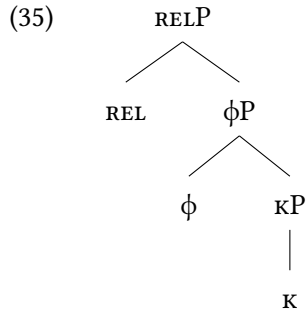


The features that are not contained in the extra light head are WH and REL. In addition, I propose that *k* also spells out the features IND, AN and CL.

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



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



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

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

I continue with the feature c. Relative pronouns can be coordinated and focused, so they are strong.

I continue with the deixis features. I follow Baunaz/Lander and specifically for Polish Wiland (2019) in that indefinite demonstratives are contained in WH-elements.

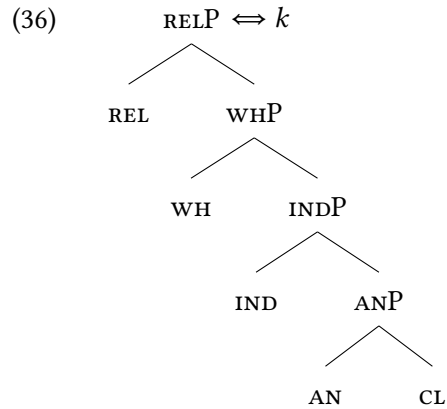
Finally, since the relative pronouns do not have a morphological plural, I assume that *k* contains the feature IND. Lastly, *κ* also contains AN and CL.

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

<sup>11</sup>

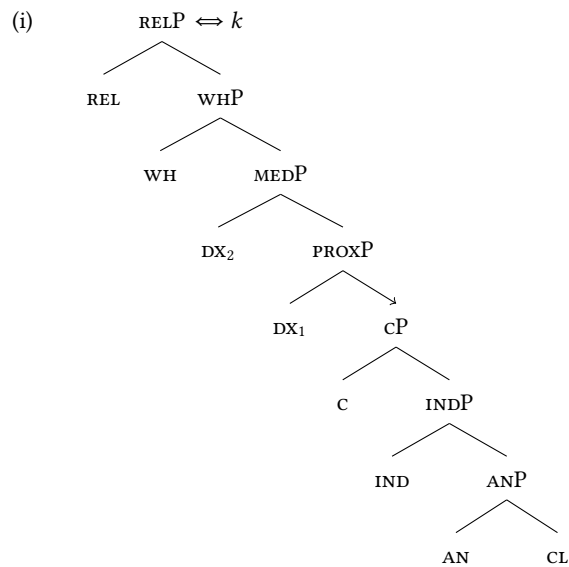
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<sup>11</sup>Actually, to be able to derive the inanimate relative pronoun, I assume that there is a pointer in the lexical entry for *k*, as shown in (i).



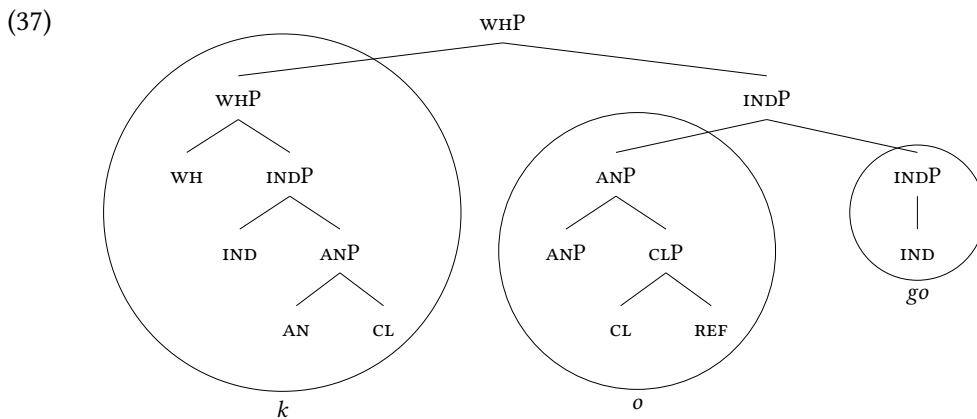
In what follows, I show how the Polish relative pronouns are constructed.

Until the feature *IND*, the derivation is identical to the one of the extra light. Therefore, I start at point at which the feature *WH* is merged. The derivation for this feature resembles the derivation of *WH* in Modern German. The feature is merged with the existing syntactic structure, creating a *WHP*. This structure does not form



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

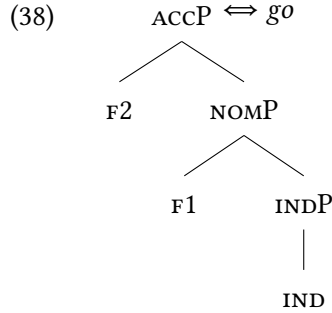
a constituent in any of the lexical trees in the language's lexicon, and neither of the spellout driven movements leads to a successful spellout. Therefore, in a second workspace, the feature WH is merged with the feature IND (the previous syntactic feature on the functional sequence) into a WHP. This syntactic structure does not form a constituent in any of the lexical trees in the language's lexicon. Therefore, the feature WH combines not only with the feature merged before it, but with a phrase that consists of the two features merged before it: IND and AN. Also this syntactic structure does not form a constituent in any of the lexical trees in the language's lexicon. Therefore, the feature WH combines with a phrase that consists of the three features merged before it: IND, AN and CL. This syntactic structure forms a constituent in the lexical tree in (36), which corresponds to the *k*. Therefore, the WHP is spelled out as *k*. The newly created phrase is merged as a whole with the already existing structure, and projects to the top node, as shown in (37).



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

the existing syntactic structure.

The next feature on the functional sequence is  $f1$ . This feature should somehow end up merging with  $INDP$ , because it forms a constituent in the lexical tree in (38), repeated from (21), which corresponds to the *go*.



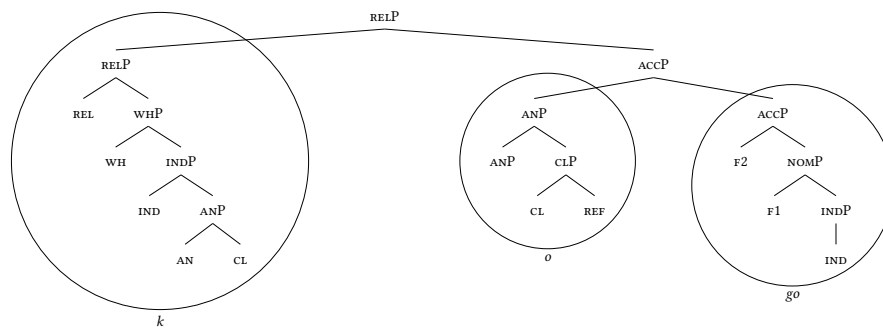
This is achieved via Backtracking in which phrases are split up and going through the Spellout Algorithm. I go through the derivation step by step. The feature  $f1$  is merged with the existing syntactic structure, creating a  $NOMP$ . This structure does not form a constituent in any of the lexical trees in the language's lexicon, and neither of the spellout driven movements leads to a successful spellout. Backtracking leads splitting up the  $REL P$  from the  $INDP$ . The feature  $f1$  is merged in both workspaces, so with the  $REL P$  and and with the  $INDP$ . None of these phrases form a constituent in any of the lexical trees in the language's lexicon. The first movement option in the Spellout Algorithm is moving the specifier. In the  $REL P$  there is no specifier, so this movement option is irrelevant. In the  $INDP$ , however, there is a specifier, which is moved to the specifier of  $NOMP$ . This syntactic structure forms a constituent in the lexical tree in (38), which corresponds to the *go*. The  $NOMP$  is spelled out as *go*, and the  $NOMP$  is merged back to the existing syntactic structure.

For the accusative relative pronoun, the last feature on the functional sequence is the feature  $f2$ . Its derivation proceeds the same as the one for the feature  $f1$ . The feature  $f2$  is merged with the existing syntactic structure, creating a  $ACCP$ . This structure does not form a constituent in any of the lexical trees in the language's lexicon, and neither of the spellout driven movements leads to a successful spellout. Backtracking leads splitting up the  $REL P$  from the  $NOMP$ . The feature  $f2$  is merged in both workspaces, so with the  $REL P$  and and with the  $NOMP$ . None of these phrases

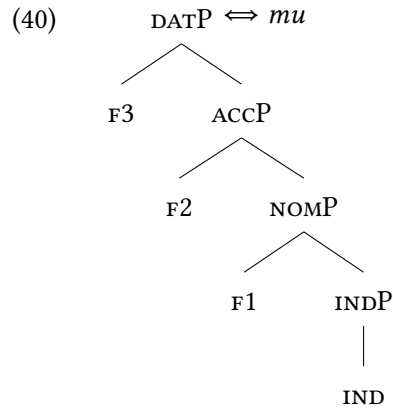


form a constituent in any of the lexical trees in the language's lexicon. The first movement option in the Spellout Algorithm is moving the specifier. In the RELP there is no specifier, so this movement option is irrelevant. In the NOMP, however, there is a specifier, which is moved to the specifier of ACCP. This syntactic structure forms a constituent in the lexical tree in (38), which corresponds to the *go*. The ACCP is spelled out as *go*, and the ACCP is merged back to the existing syntactic structure, as shown in (39).

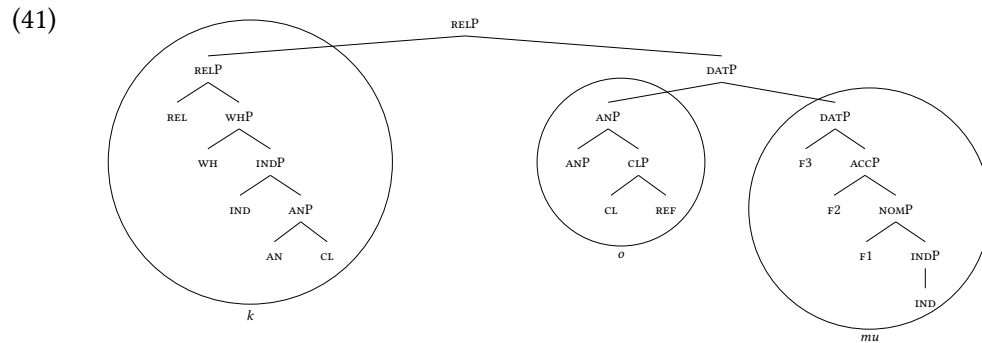
(39)



For the accusative relative pronoun, the last feature on the functional sequence is the feature F3. Its derivation proceeds the same as the one for the feature F2. The feature F3 is merged with the existing syntactic structure, creating a DATP. This structure does not form a constituent in any of the lexical trees in the language's lexicon, and neither of the spellout driven movements leads to a successful spellout. Backtracking leads splitting up the RELP from the ACCP. The feature F3 is merged in both workspaces, so with the RELP and and with the ACCP. None of these phrases form a constituent in any of the lexical trees in the language's lexicon. The first movement option in the Spellout Algorithm is moving the specifier. In the RELP there is no specifier, so this movement option is irrelevant. In the ACCP, however, there is a specifier, which is moved to the specifier of DATP. This syntactic structure forms a constituent in the lexical tree in (40), which corresponds to the *mu*.



The DATP is spelled out as *mu*, and the DATP is merged back to the existing syntactic structure, as shown in (41).



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

### 8.3 Comparing Polish constituents

In this section, I compare the constituents of extra light heads to those of relative pronouns in Polish. I give three examples, in which the internal and external case vary. I start with an example with matching cases: the internal and the external case are both accusative. Then I give an example in which the internal case is more

complex than the external case: the internal case is the dative and the external case is the accusative. I end with an example in which the external case is more complex than the internal case: the internal case is the accusative and the external case is the dative. In Polish, a matching language, only the first example is grammatical. I derive this by showing that only in this situation the light head can be deleted. When the cases match, the light head forms namely a constituent that is contained in the structure of the relative pronoun.

I start with the matching cases. Consider the example in (42), in which the internal accusative case competes against the external accusative case. The relative clause is marked in bold. The internal case is accusative, as the predicate *lubić* ‘to like’ takes accusative objects. The relative pronoun *kogo* ‘REL.AN.ACC’ appears in the accusative case. This is the element that surfaces. The external case is accusative as well, as the predicate *lubić* ‘to like’ also takes accusative objects. The extra light head *ogo* ‘ELH.AN.ACC’ appears in the accusative case. It is placed between square brackets because it does not surface.

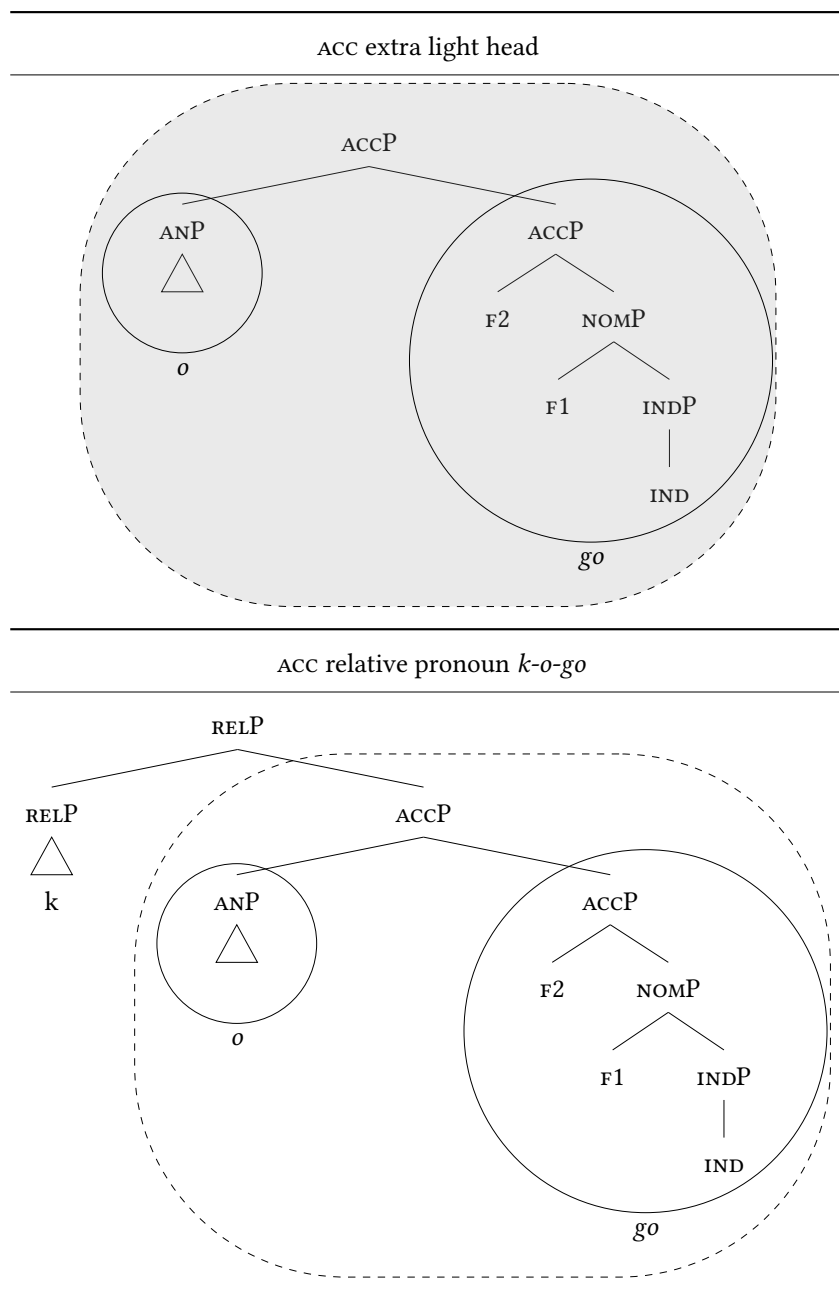
- (42) Jan lubi [ogo] kogo -kolkwiek Maria lubi.  
 Jan like.3SG<sub>[ACC]</sub> DEM.ACC.AN.SG RP.ACC.AN ever Maria like.3SG<sub>[ACC]</sub>  
 ‘Jan likes whoever Maria likes.’  
 (Polish, adapted from Citko 2013 after Himmelreich 2017: 17)

In Figure 8.6, 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 extra light head consists of two morphemes: *o* and *go*. As usual, I circle the part of the structure that corresponds to a particular lexical entry, and I place the corresponding phonology under it. I draw a dashed circle around each constituent that is a constituent in both the extra light head and the relative pronoun.

The extra light head consists of two constituents: the ANP and the (lower) ACCP. Together they form the (higher) ACCP. This ACCP is also a constituent within the relative pronoun. Therefore, the extra light head can be deleted. 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

Figure 8.6: Polish  $\text{EXT}_{\text{ACC}}$  vs.  $\text{INT}_{\text{ACC}} \rightarrow kogo$

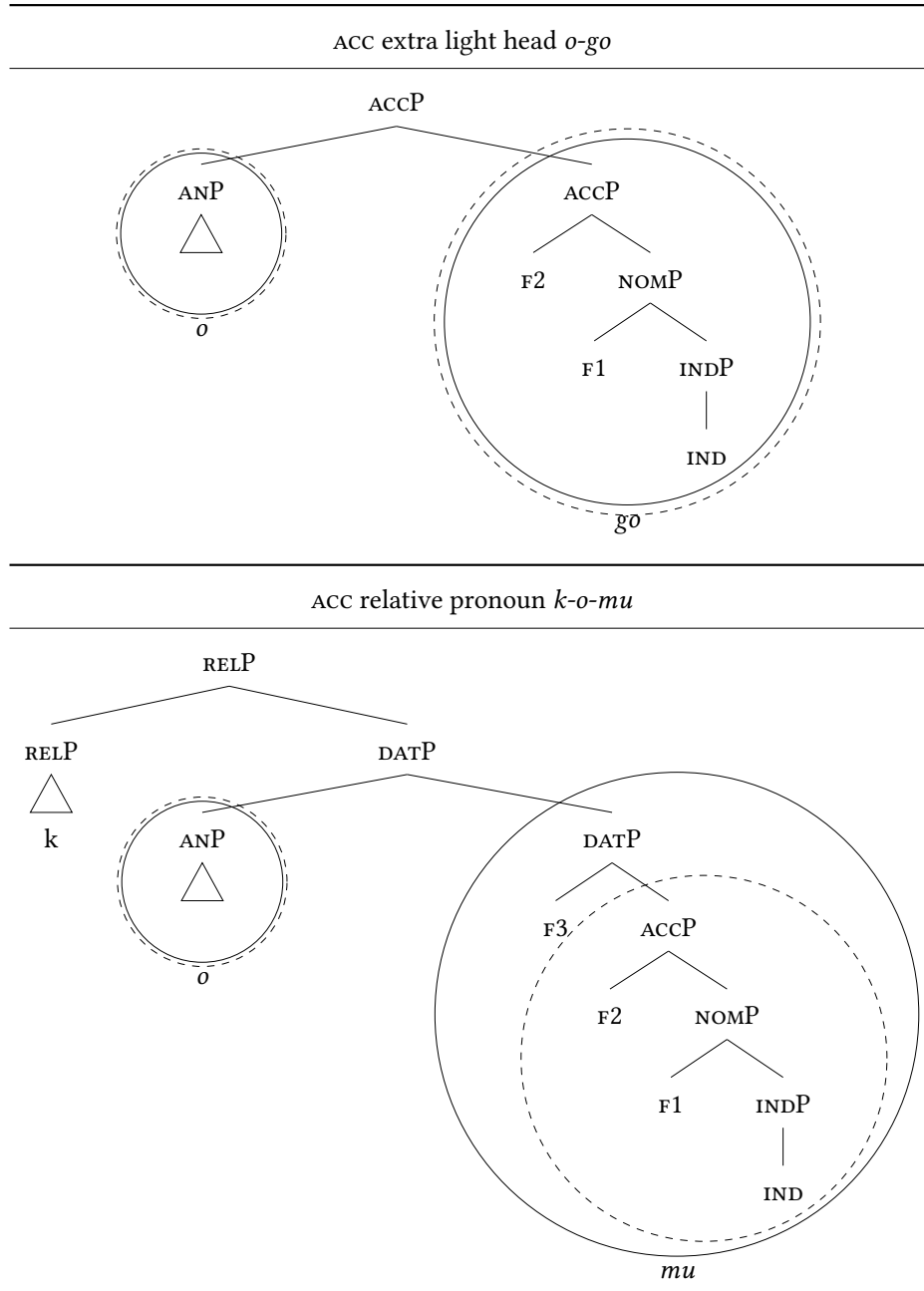
the external case. Consider the examples in (43), in which the internal dative case competes against the external accusative case. The relative clauses are marked in bold. It is not possible to make a grammatical headless relative in this situation. The internal case is dative, as the predicate *dokuczać* ‘to tease’ takes dative objects. The relative pronoun *komu* ‘REL.AN.DAT’ appears in the dative case. The external case is accusative, as the predicate *lubić* ‘to like’ takes accusative objects. The extra light head *ogo* ‘ELH.AN.ACC’ appears in the accusative case. (43a) is the variant of the sentence in which the extra light head is absent (indicated by the square brackets) and the relative pronoun surfaces, and it is ungrammatical. (43b) is the variant of the sentence in which the relative pronoun is absent (indicated by the square brackets) and the extra light head surfaces, and it is ungrammatical too.

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

In Figure 8.7, I give the syntactic structure of the extra light head at the top and the syntactic structure of the relative pronoun at the bottom.

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

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

Figure 8.7: Polish  $\text{EXT}_{\text{ACC}}$  vs.  $\text{INT}_{\text{DAT}} \rightarrow \text{ogo/komu}$

ture 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 extra light head cannot be deleted.

Recall from Section 7.4 that this is the crucial example in which Modern German and Polish differ. The contrast lies in that the extra light head in Modern German forms a single constituent and in Polish it forms two constituents. In Modern German, relative pronouns in a more complex case contain the extra light head in a less complex case as a single constituent. In Polish, they do not. Relative pronouns in a complex case still contain all features of an extra light head in a less complex case, but the extra light head is not a single constituent within the relative pronoun. That is, the weaker feature containment requirement is met, but the stronger constituent containment requirement is not. This shows the necessity of formulating the proposal in terms of containment as a single constituent.

I continue with the example in which the external case is more complex than the internal case. Consider the examples in (44), in which the internal dative case competes against the external accusative case. The relative clauses are marked in bold. It is not possible to make a grammatical headless relative in this situation. The internal case is accusative, as the predicate *wpuścić* ‘to let’ takes accusative objects. The relative pronoun *kogo* ‘REL.AN.ACC’ appears in the accusative case. The external case is dative, as the predicate *ufać* ‘to trust’ takes dative objects. The extra light head *omu* ‘ELH.AN.DAT’ appears in the dative case. (44a) is the variant of the sentence in which the extra light head is absent (indicated by the square brackets) and the relative pronoun surfaces, and it is ungrammatical. (44b) is the variant of the sentence in which the relative pronoun is absent (indicated by the square brackets) and the extra light head surfaces, and it is ungrammatical too.

- (44) a. \*Jan ufa                    [omu]                    **kogo**                    **-kolwiek wpuścił do**  
          Jan trust.3SG<sub>[DAT]</sub> ELH.DAT.AN RP.ACC.AN ever                    let.3SG<sub>[ACC]</sub> to  
          **domu.**  
          home  
          ‘Jan trusts whoever he let into the house.’

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

- b. Jan ufa                      omu                      [kogo]    -kolkwiek wpuścił    do  
 Jan trust.3SG<sub>[DAT]</sub> ELH.DAT.AN RP.ACC.AN ever                      let.3SG<sub>[ACC]</sub> to  
**domu.**  
 home  
 ‘Jan trusts whoever he let into the house.’  
 (Polish, adapted from Citko 2013 after Himmelreich 2017: 17)

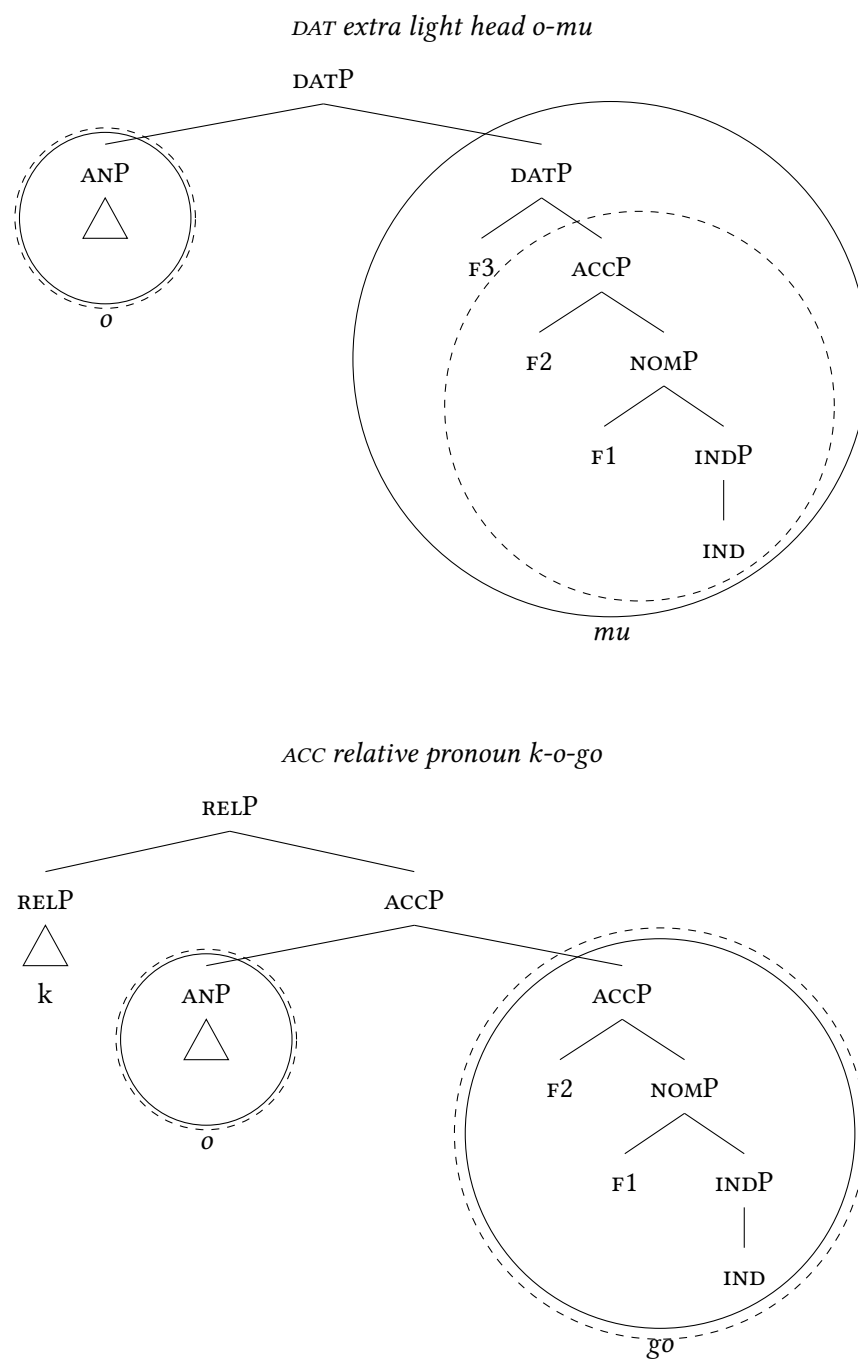
In Figure 8.8, I give the syntactic structure of the extra light head at the top and the syntactic structure of the relative pronoun at the bottom.

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

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

## 8.4 Summary



Figure 8.8: Polish  $\text{EXT}_{\text{DAT}}$  vs.  $\text{INT}_{\text{ACC}} \rightarrow \text{o-mu/k-o-go}$

## **Primary texts**



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