CASE COMPETITION IN HEADLESS RELATIVES

Inauguraldissertation

zur Erlangung des Grades eines Doktors der Philosophie

im Fachbereich Neuere Philologien

der Johann Wolfgang Goethe-Universität

zu Frankfurt am Main

vorgelegt von

Fenna Bergsma

aus

Boarnsterhim, Niederlande

202..

Acknowledgements

thanks

Contents

List of tables

List of figures

List of abbreviations

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

Part I

Case competition

Part II

The typology

Part III

Deriving the typology

Chapter 8

Deriving the matching type

In Chapter 6, I suggested that languages of the matching type have a morpheme that spells out phi-features and another one that spells out case-features. This is the crucial difference with internal-only languages such as Modern German, that have a portmanteau for phi- and case-features. This means that the features of the relative pronoun and the light head are spelled out in such a way that they form the constituents shown in Figure 8.1.
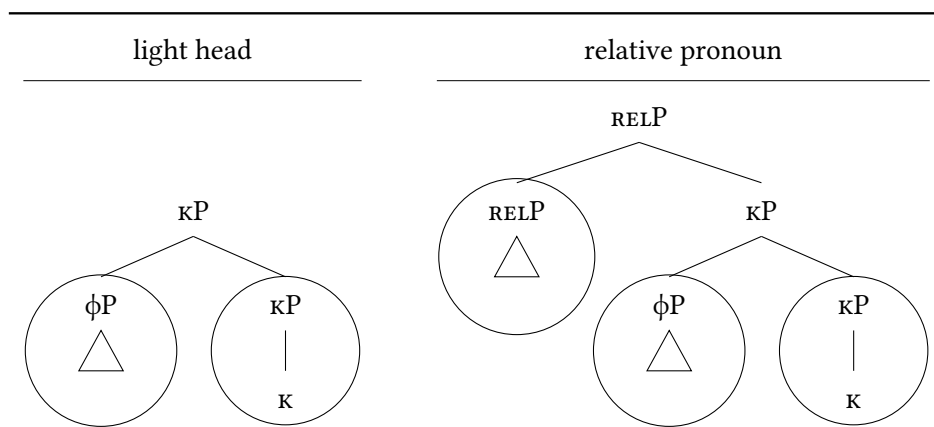
Figure 8.1: LH and RP in the matching type

These lexical entries lead to a grammaticality pattern as shown in Table 8.1.

First consider the situation in which the internal and the external case match. The light head consists of a phi-feature morpheme and a case-feature morpheme.

Table 8.1: Grammaticality in the matching type

situation	lexical entries		containment	deleted	surfacing
	LH	RP			
$K_{INT} = K_{EXT}$	$[K_1], [\phi]$	$[REL], [K_1], [\phi]$	structure	LH	RP_{INT}
$K_{INT} > K_{EXT}$	$[K_1], [\phi]$	$[REL], [K_2[K_1]], [\phi]$	no	none	*
$K_{INT} < K_{EXT}$	$[K_2[K_1]], [\phi]$	$[REL], [K_1], [\phi]$	no	none	*

The relative pronoun consists of the same two morphemes plus an additional morpheme that spells out the feature REL. These lexical entries create such a structure that the light head structurally forms a constituent within the relative pronoun. Therefore, the light head can be deleted, and the relative pronoun that bears the internal case surfaces. In this situation, the fact that there is a phi- and case-feature portmanteau (as in internal-only languages) or there are two separate morphemes for the features (as in matching languages) does not make a difference for the containment and for the grammaticality.

Consider now the situation in the internal case wins the case competition. The light head consists of a phi-feature morpheme and a case-feature morpheme. The relative pronoun consists of the same phi-feature morpheme, a case-morpheme that that contains at least one more case feature than the light head (K_2 in Figure 8.1) plus an additional morpheme that spells out the feature REL. These lexical entries create such syntactic structures that neither the light head nor the relative pronoun structurally forms a constituent within the other element. Therefore, none of the elements can be deleted, and there is no headless relative construction possible. In this situation, the fact that there is a phi- and case-feature portmanteau (as in internal-only languages) or there are two separate morphemes for the features (as in matching languages) does make a difference for the containment and for the grammaticality: this situation is grammatical in internal-only languages and it is not in matching languages.

Finally, consider the situation in which the external case wins the case competition. The relative pronoun consists of a phi-feature morpheme, a case-feature

morpheme and an additional morpheme that spells out the feature REL. Compared to the relative pronoun, the light head lacks the morpheme that spells out REL, and it contains at least one more case feature (κ_2 in Figure 7.1). These lexical entries create such syntactic structures that neither the light head nor the relative pronoun structurally forms a constituent within the other element. Therefore, none of the elements can be deleted, and there is no headless relative construction possible. In this situation, the fact that there is a phi- and case-feature portmanteau (as in internal-only languages) or there are two separate morphemes for the features (as in matching languages) does not make a difference for the containment and for the grammaticality.

In Chapter 4, I showed that Polish is a language of the matching type. In this chapter, I show that Polish light heads and relative pronouns have this type of structure described in Figure 8.1. I give a compact version of the structures in Figure 8.2.
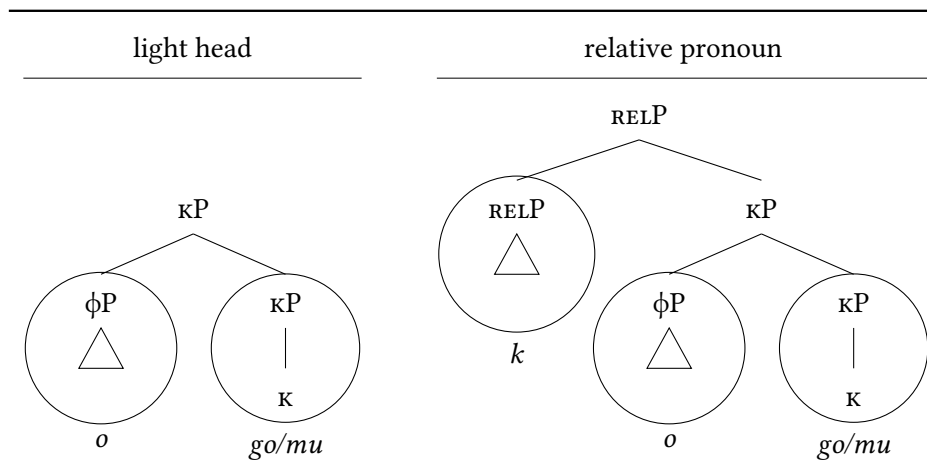
Figure 8.2: LH and RP in Polish

Consider the light head in Figure 8.2. Light heads (i.e. the phi- and case-features) in Polish are spelled out by two morphemes, which are both circled. The phi-features are spelled out as *o* and the case features are spelled out as *go* or *mu*, depending on which case they realize. Consider the relative pronoun in Figure 8.2. Relative pronouns in Polish contain one more morpheme than light heads: the constituent that forms the light head (i.e. phi- and case-features) and the RELP, again

circled. The RELP is spelled out as *k*. Throughout this chapter, I discuss the exact feature content of relative pronouns and light heads, I give lexical entries for them, and I show how these lexical entries form the constituents shown in Figure 8.2.

The chapter is structured as follows. First, I discuss the relative pronoun. I decompose the relative pronoun into the three morphemes I showed in Figure 8.2, and I show which features correspond to which morphemes. Then, I discuss the light head. I show that the Polish light head consist of a subset of the features of the relative pronoun. I also 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. 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 light head can only be deleted 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 relative pronoun

In the introduction of this chapter, I suggested that in Polish features of the relative pronoun are spelled out in such a way that they form the constituents shown in (1).

(1)
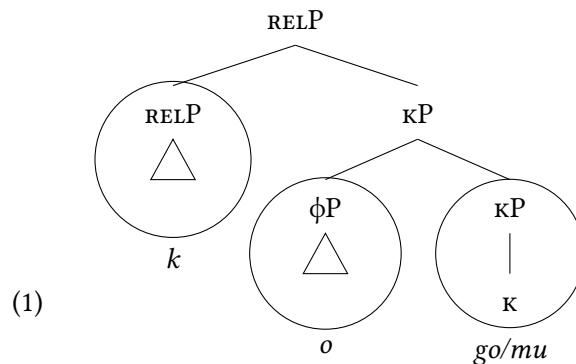
In Figure (1) I only show three features: REL, φ and κ. In Chapter 7 I showed that Modern German relative pronouns contain more features than that. In this section, I

show that Polish relative pronouns consist of the same features. Crucially, the main claim I made in Chapter 6 remains unchanged: Polish has a separate morpheme for phi-features, one for case-features and one for the features the light head does not contain. Actually, the morpheme for case-features contains a number feature and the phi-feature morpheme does not contain one, but this does not influence the point here. I show the complete structure that I work towards in this section in (2).

(2)
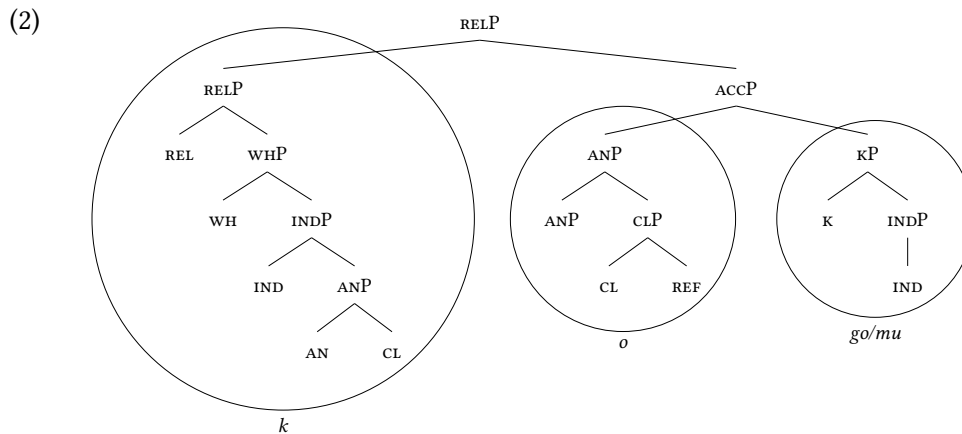
I discuss two relative pronouns: the animate accusative and the animate dative. These are the two forms that I compare the constituents of in Section ??. I show them in (3).

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

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

I decompose the relative pronouns in three morphemes: *k*, *o* and the suffix (*go* or *mu*). For each morpheme, I discuss which features they spell out, I give their lexical entries, and I show how I construct the relative pronouns by combining the separate morphemes.

I start with the suffixes *go* and *mu*. These two morphemes correspond to what I called the case-feature morpheme in Chapter 6 and the introduction to this chapter. In addition, the morphemes spell out a number feature.

First I focus on *mu* and I extend the analysis to *go*. Consider Table 8.2.

Table 8.2: Syncretic N/M dative forms (Swan, 2002)

	M	N
je-pronoun	je-mu	je-mu
ni-pronoun	nie-mu	nie-mu
DEM	te-mu	te-mu

The table shows three forms in which there is a syncretism between the neuter and the masculine in the dative case. 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 that corresponds to the most features. To illustrate this, I repeat the lexical entry for the Dutch *jullie* 'you' in (4).

(4)   DATP ⟺ *jullie*

                F3   ACCP

                    F2   NOMP

                        F1   2PLP
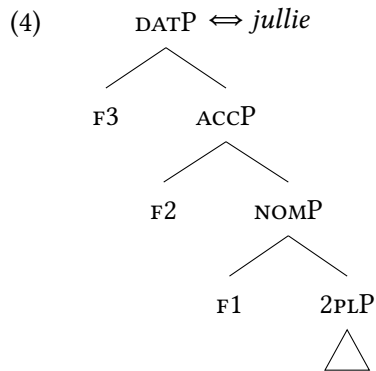
Jullie is syncretic between nominative, accusative and dative. It is specified for dative in the lexicon, because the dative contains the accusative and the nominative. The nominative and accusative second person plural in Dutch are spelled out as *jullie* as well, because the DATP contains the ACCP which contains NOMP (Superset Principle), and there is no more specific lexical entry available in Dutch (Elsewhere

Condition). It is important that the potentially unused features (so the F3 or F3 and the F2) are at the top, so that the constituent that needs to be spelled out is still contained in the lexical tree.

In what follows, I show how I can derive the syncretisms for the forms in Table 8.2. I propose that *jego*, *niego* and *tego* spell out the syntactic structure in (5).

(5)

```
            DATP
           /    \
         F3     ACCP
               /    \
             F2     NOMP
                   /    \
                 F1     INDP
                       /    \
                     IND    ANP
                           /    \
                         AN     CLP
                               /    \
                             CL     XP
                                    /\
                                   /__\
```
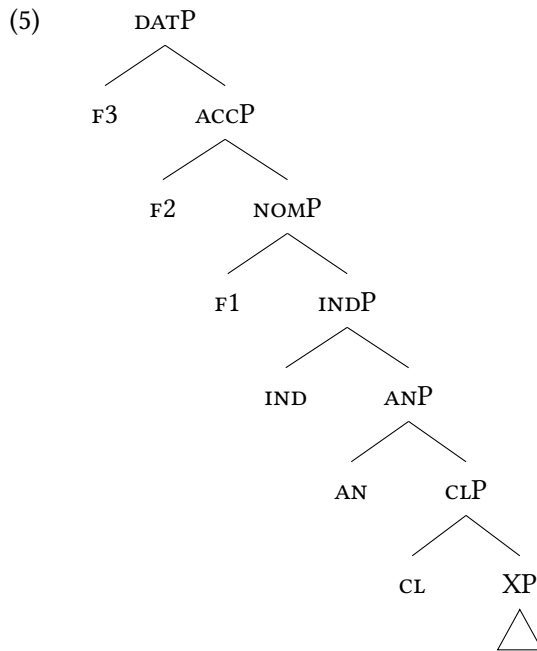
I do not discuss the feature content that distinguishes *jego*, *niego* and *tego*, but I call them XP. Following the functional sequence I suggested in Chapter 7, all forms contain the feature CL for inanimate/neuter gender, AN for animate/masculine gender and IND for singular number and case features up to the dative.

The forms *jego*, *niego* and *tego* are 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. This distinguishing feature is the feature AN (Harley and Ritter, 2002), which is not the the highest feature in (5). Fortunately, different from *jullie*, the forms are bimorphemic: they contain morphemes *je*, *nie* or *te* and the morpheme *mu*. The highest feature of one of the two

morphemes needs to be the feature AN. I show that the highest feature of the lexical entry for *je*, *nie* and *te* is AN, as shown in (6).

(6)   ANP ⟺ *je/nie/te*

AN   CLP

CL   XP
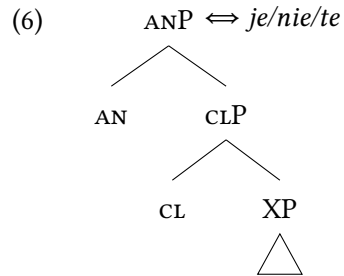
Since the feature AN can be either present or absent, the forms can easily spell both the structure with or without the feature AN.

   In (7), I give the syntactic structure of a masculine form.
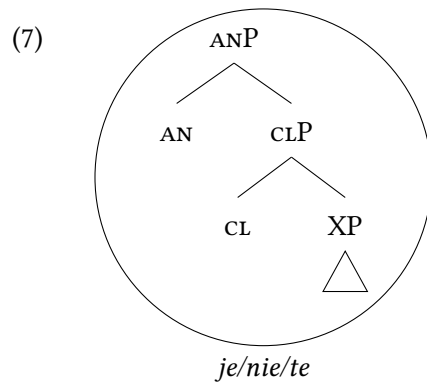
(7)   ANP

AN   CLP

CL   XP

je/nie/te

The syntactic structure forms a constituent within the lexical tree in (6), and the structure can be spelled out as *je/nie/te*.

   In (8), I give the syntactic structure of a neuter form.
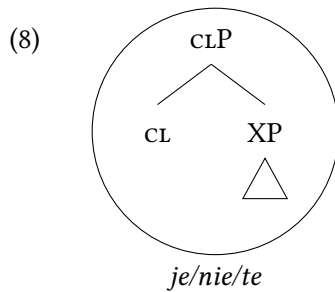
(8)

CLP

CL   XP

je/nie/te

The syntactic structure forms a constituent within the lexical tree in (6), and the structure can be spelled out as *je/nie/te*.

This means that the lexical tree for the suffix *mu* should contain all features in (39) that are not spelled out by *je/nie/te* so far. These are the feature IND and all case features up to the dative. I give the lexical entry for *mu* in (9).

(9)   DATP ⟺ *mu*

F3   ACCP

F2   NOMP

F1   INDP

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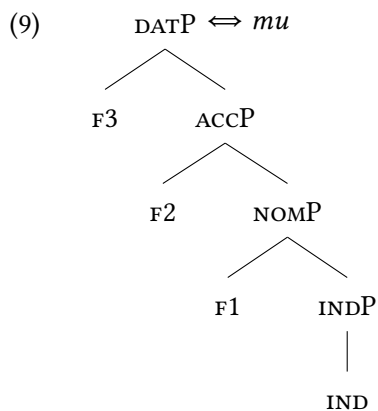
Notice here that *mu* has a unary bottom. Therefore, it can be inserted as the result of movement. That means that the lexical entry follows the existing structure and is spelled out as a suffix. This is how the correct order of *je/nie/te* and *mu* comes about. I show how this works when I construct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

The morpheme *go* differs from *mu* in that it lacks the feature F3. I give its lexical entry in (10).

(10)   ACCP $\iff$ *go*
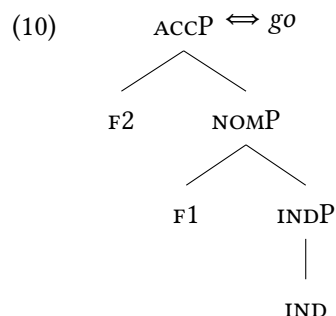
In sum, the morphemes *go* and *mu* spell out case features and a number feature.

This leaves the two morphemes *k* and *o*. First I discuss the *o*. This morpheme corresponds to what I called the phi-feature morpheme in Chapter 6 and the introduction to this chapter. I show that this morpheme corresponds to pronominal features and gender features.

First I will show that the *o* does not only appear in relative pronouns, but that it also appears in other pronouns. Consider the relative pronouns in Table 8.3.

Table 8.3: 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 in this section. From the genitive on, the final suffixes in the animate and the inanimate paradigm are the same.[1] The forms differ in their initial consonant and

---

[1] I include genitive and the instrumental in the paradigms to show that the patterns observed in the dative are not standing on themselves. Instead, they are more generally attested in Polish, and they deserve an explanation. In Polish, the genitive comes between the accusative and the dative, i.e. it is more complex than the accusative and less complex than the dative. However, I do not incorporate

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*.[2] What is not captured now is that numerous wh-elements in Polish start with a *k*. I give some examples in (11).[3]

(11)   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 in Polish but a derived one (Swan 2002: 23). The consonants *cz* and *c* are derived from *k*.

I propose that the *k* is underlyingly present in the inanimate relative pronouns. They appear as a consequence of being combined with an *i*. I show the proposed decomposition in Table 8.4.

Under this analysis, Polish only has the morphemes *k*, *o* and *i* that can be observed in the animate plus an *i* that is present throughout the whole paradigm in the inanimate.[4] This hypothesizes that Polish relative pronouns have the underlying

---

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.

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

[3]The *k* in (11c) gets voiced into *g* because it is followed by *d*.

[4]As first sight, there seems to be a contradiction here: the inanimate is featurally speaking less complex than the animate (Harley and Ritter, 2002, cf.), but morphologically the inanimate is more complex than the animate: it contains the additional morpheme *i*. I return to this point later in this section to show how this apparent contradiction can be resolved.

Table 8.4: 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

forms shown in Table 8.5.

Table 8.5: Polish inanimate relative pronouns (underlying + surface forms) (Swan 2002: 160)

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

The sequence *k-i-i* becomes *czy* in the instrumental, and the sequence *k-i-o* becomes *cze* in the genitive and dative.[5] To get from the underlying form to the surface form, several phonological processes are taking place, which are all independently observed within Polish. I start with the combination of *k* and *i* becoming *c*, as shown in (12).

(12)   a.   /k/ + /i/ → /c/

Consider the paradigm for the singular of *lampa* 'light' and the singular of *córka*

---

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

'daugther' in Table 8.6.

Table 8.6: 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

The stem and the suffixes are identical in both paradigms, except for in the dative.[6] There, the stem of *córka* does no longer end with a *k*, but with a *c*. Also, part of the suffix, namely the *i* has disappeared. Analyzing *córc-e* as *córk-i-e* brings back regularity in the paradigm.

Consider the forms after this first phonological change and the surface forms in Table 8.7.

Table 8.7: Polish inanimate relative pronouns (after change 1 + surface forms) (Swan 2002: 160)

	after change 1	surface
NOM	c-o	c-o
ACC	c-o	c-o
GEN	c-o-go	cz-e-go
DAT	c-o-mu	cz-e-mu
INS	c-i-m	cz-y-m

I continue with the combination of *c* and *i* becoming *czy*, as shown in (13).

(13)   a.   /c/ + /i/ → /czy/

---

[6]There is also the change from /i/ to /y/ in the genitive of *lampa*.

This change can be independently observed in (14).

(14)   walc-ik: walczyk
         waltz-DIM waltz.DIM

<div align="right">(Swan 2002: 26)</div>

The noun *walc* 'waltz' combines with the diminutive marker *ik*. The sequence *c-ik* changes to *czyk*.

Consider the forms after this second phonological change and the surface forms in Table 8.8.

Table 8.8: Polish inanimate relative pronouns (after change 1 + surface forms) (Swan 2002: 160)

	after change 1	surface
NOM	c-o	c-o
ACC	c-o	c-o
GEN	c-o-go	cz-e-go
DAT	c-o-mu	cz-e-mu
INS	cz-y-m	cz-y-m

The last phonological change is the combination of *c* and *o* becoming *cze* in the genitive and dative.

(15)   a.   /c/ + /o/ → /cze/

Note, however, that the *co* in the nominative and the accusative does not become *cze*. I assume that the *o* in the nominative and accusative resists the process in (15). This is because the *o* in the nominative and accusative is a 'different' *o* than the *o* in the genitive and dative. This *o* namely spells out different features than the *o*.

I do not know of an example that independently shows this change. There is an example in which the combination of *c* and *e* results in *cze*. I show this in (16).

(16)   ojc-e: ojcze
       father-VOC father.VOC

(Swan 2002: 26)

The noun *ojc* 'father' combines with the vocative marker *e*. The sequence *c-e* changes to *cze*.

This could indicate that there is an independent cause that triggers the change of the *o* into the *e*. A likely candidate for that is the *i*, that also changed the *k* into a *c*. Phonologically, this seems realistic because the *e* appears between the *o* and the *i* in frontness of the vowel.

The conclusion I draw from this is that the morpheme *o* is not specific to animate relative pronouns, but it also appears elsewhere, for instance in inanimate relative pronouns, demonstratives and the *ni-* and *je*-pronouns, as shown in 8.9.

Table 8.9: Polish dative pronouns (underlying and surface)

	underlying	surface
DEM	t-i-o-mu	t-e-mu
nie-pronoun	ni(-i)-o-mu	n-i-e-mu
JE-pronoun	j(-i)-o-mu	j-e-mu

What these elements all have in common is that they are pronouns. Moreover, they can all appear in both animate and inanimate gender Therefore, I assume that the *o* spells out pronominal features and gender features.

(17)   ANP ⟺ *o*

        AN   CLP

              CL   REF

Finally, I discuss the feature content of the morpheme*k*. This morpheme corresponds to what I called the REL-feature in Chapter 6 and the introduction to this

chapter. I argue that this morpheme actually also spells out wh-operator features and number and gender features.

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 *we*, the Polish *k* spells out the features wh and rel.

Finally, since the relative pronouns do not have a morphological plural, I assume that *k* contains the feature ind. Lastly, I assume that k also contains the features an and cl.

In sum, the morpheme *k* realizes the features wh, rel, ind, an and cl.[7]

---

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

(i)
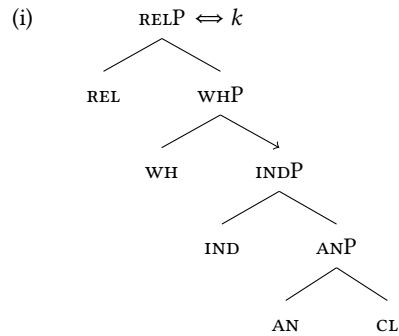
The pointer is situated above the indP. That means that if there is no animate feature in the structure, the ind can also not be spelled out with *k*. Then there is another morpheme necessary that contributes the feature ind. I propose that this is *i*, which causes the phonological processes described in this section.

(18)

RELP ⟺ k

REL   WHP

WH   INDP

IND   ANP

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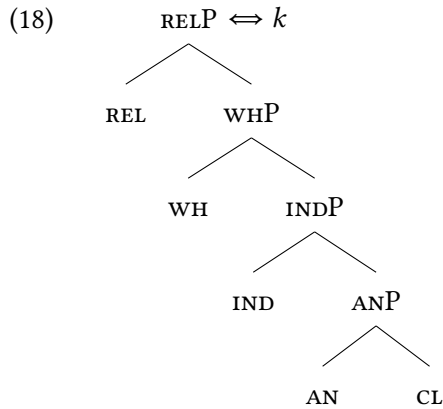
In what follows, I show how the Polish relative pronouns are constructed. I follow the same functional sequence as I did for Modern German. Also, of course, the spellout procedure is identical. The outcome is different because of the different lexical entries Polish has.

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 (19).

(19)

ANP

AN   CLP

CL   REF

o
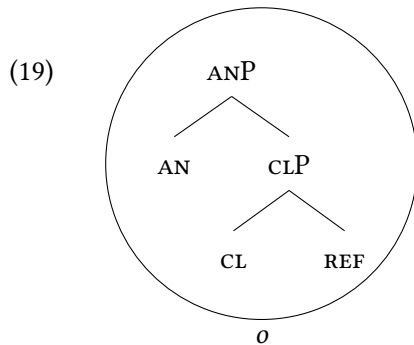
The next feature in the functional sequence is the feature IND. This feature cannot be spelled out as the other ones before. The feature IND is merged, and a INDP is created. This syntactic structure does not form a constituent in the lexical tree in

(17). There is also no other lexical tree that contains the syntactic structure as a constituent. Therefore, there is no succesfull spellout for the syntactic structure in the derivational step in which the structure is spelled out as a single phrase ((20a) in the Spellout Algorithm, repeated from Chapter 7).

(20)   **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 (20b). As there is no specifier in this structure, so the first movement option irrelevant. The second movement option in the Spellout Algorithm is moving the complement, as described in (12c). In this case, the complement of IND, the ANP, is moved to the specifier of INDP. I show this movement in (21).

(21)
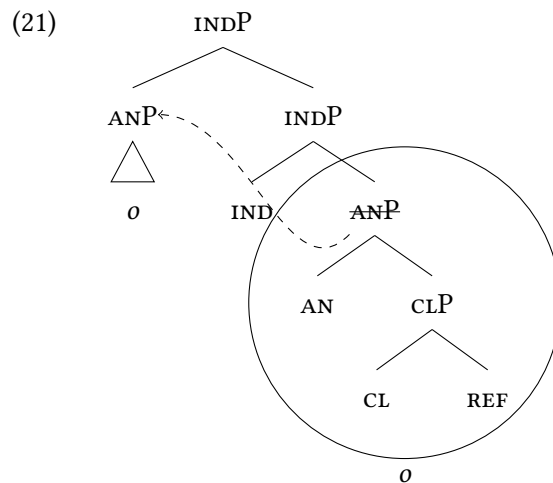
The INDP is a different constituent now. It still contains the feature IND, but it no longer contains the ANP. The syntactic structure forms a constituent in the lexical tree of (10). Therefore, the INDP is spelled out as *go*, as shown in (22).

(22)

```
              INDP
             ╱  ╲
        ANP    ╱ INDP ╲
         △    │   │   │
              │  IND  │
         o    │   │   │
              ╲  go  ╱
```
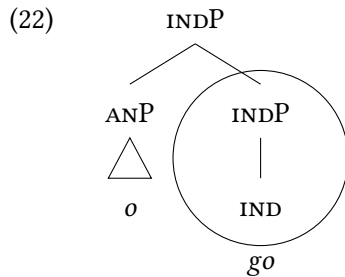
Next, the feature WH is merged. The derivation for this feature resembles the derivation of WH in Modern German. The feature is merged with the existing syntactic structure, creating a WHP. This structure does not form a constituent in any of the lexical trees in the language's lexicon, and neither of 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 (18), 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 (23).

(23)

```
                              whP
          ┌────────────────────┴──────────────────┐
        whP                                      indP
     ┌───┴───┐                           ┌─────────┴─────┐
    wh      indP                        anP             indP
         ┌───┴───┐                   ┌───┴───┐            │
        ind     anP                anP     clP          ind
              ┌──┴──┐            ┌──┴──┐                  go
             an    cl          cl    ref
              k                  o
```
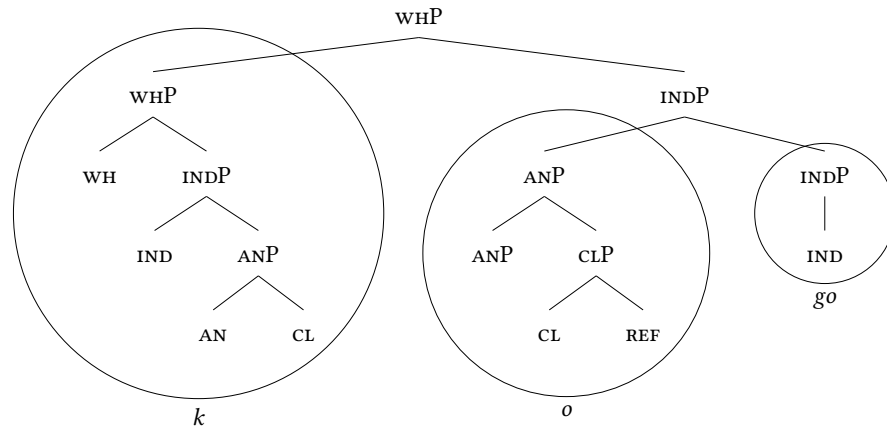
The next feature in the functional sequence is the feature rel. The derivation for this feature resembles the derivation of rel in Modern German. The feature is merged with the existing syntactic structure, creating a relP. This structure does not form a constituent in any of the lexical trees in the 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 (18), which corresponds to the *k*. The relP is spelled out as *k*, and the relP is merged back to the existing syntactic structure.

The next feature on the functional sequence is f1. This feature should somehow end up merging with indP, because it forms a constituent in the lexical tree in (35b), repeated from (10), which corresponds to the *go*.

(24)

```
        accP ⟺ go
     ┌────┴────┐
    f2        nomP
           ┌───┴───┐
          f1      indP
                   │
                  ind
```
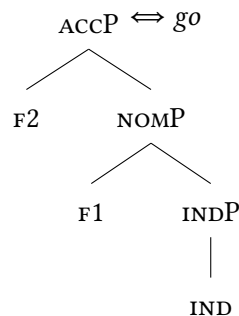
This is achieved via Backtracking in which phrases are split up and going through the Spellout Algorithm. I go through the derivation step by step. The feature F1 is merged with the existing syntactic structure, creating a NOMP. This structure does not form a constituent in any of the lexical trees in the language's lexicon, and neither of the spellout driven movements leads to a successful spellout. Backtracking leads splitting up the RELP from the INDP. The feature F1 is merged in both workspaces, so with the RELP and and with the INDP. None of these phrases form a constituent in any of the lexical trees in the language's lexicon. The first movement option in the Spellout Algorithm is moving the specifier. In the RELP there is no specifier, so this movement option is irrelevant. In the INDP, however, there is a specifier, which is moved to the specifier of NOMP. This syntactic structure forms a constituent in the lexical tree in (35b), which corresponds to the *go*. The NOMP is spelled out as *go*, and the NOMP is merged back to the existing syntactic structure.

For the accusative relative pronoun, the last feature on the functional sequence is the feature F2. Its derivation proceeds the same as the one for the feature F1. The feature F2 is merged with the existing syntactic structure, creating a ACCP. This structure does not form a constituent in any of the lexical trees in the language's lexicon, and neither of the spellout driven movements leads to a successful spellout. Backtracking leads splitting up the RELP from the NOMP. The feature F2 is merged in both workspaces, so with the RELP and and with the NOMP. None of these phrases form a constituent in any of the lexical trees in the language's lexicon. The first movement option in the Spellout Algorithm is moving the specifier. In the RELP there is no specifier, so this movement option is irrelevant. In the NOMP, however, there is a specifier, which is moved to the specifier of ACCP. This syntactic structure forms a constituent in the lexical tree in (35b), 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 (25).

(25)
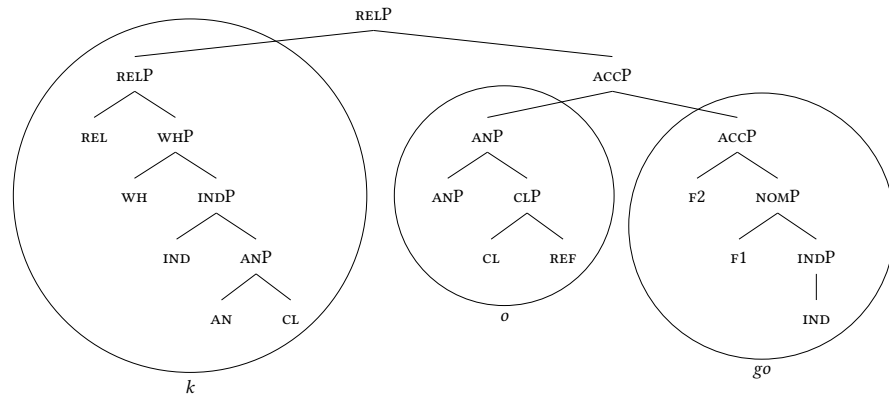
```
                                        RELP
                    RELP                                    ACCP
              REL      WHP                         ANP               ACCP
                    WH    INDP                 ANP    CLP         F2     NOMP
                        IND    ANP                 CL   REF          F1    INDP
                            AN    CL                                          IND
                                                     o                       go
                        k
```

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 (35c), which corresponds to the *mu*.

(26)   DATP ⟺ *mu*

```
              DATP
        F3           ACCP
               F2           NOMP
                       F1       INDP
                                   IND
```
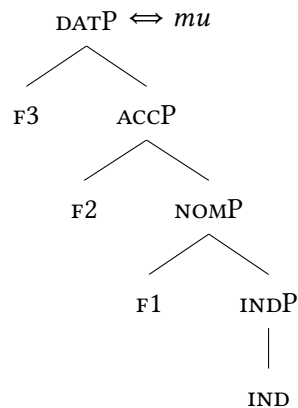
The DATP is spelled out as *mu*, and the DATP is merged back to the existing syntactic structure, as shown in (27).

(27)
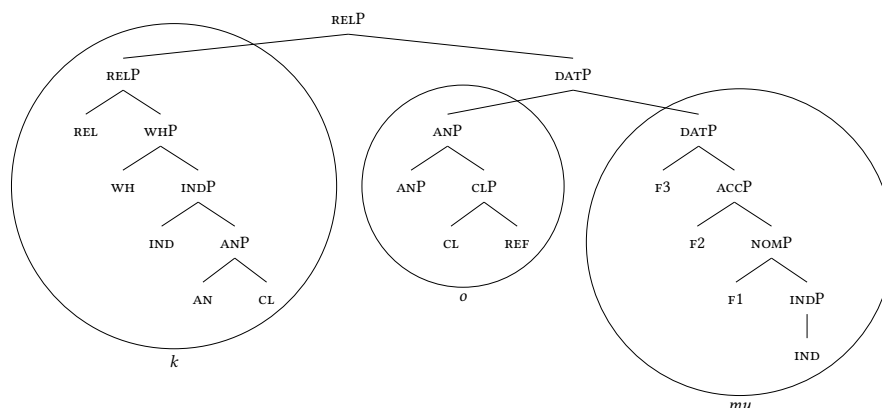
To summarize, I decomposed the relative pronoun into the three morphemes *k*, *o* and the suffix (*go* and *mu*). I showed which features each of the morphemes spells out, and in which constituents the features are combined. It is these constituents that determine whether the light head can be deleted or not.

8.2 The Polish extra light head

I have suggested that headless relatives are derived from light-headed relatives. The light head or the relative pronoun can be deleted when either of them forms a constituent within other. In the introduction of this chapter, I claimed that in Polish features of the light head are spelled out in such a way that they form the constituency shown in (28).

(28)
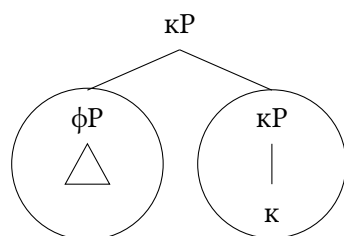
(28) shows that light heads consist of at least two features: ϕ and κ, as I suggested

in Chapter 6. In this section, I specify the feature content of the light head in more detail. Just like I suggested in Chapter 7, I end up claiming that the phi- and case-feature morphemes of the relative pronoun are the light head in headless relatives. I show the complete structure that I work towards in this section in (29).

(29)
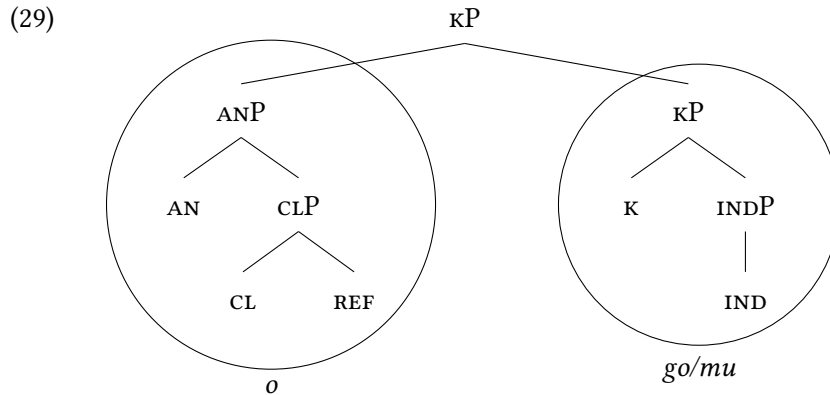
For Modern German, I considered two kinds of light-headed relatives as the source of the headless relative. First, the light-headed relative is derived from an existing light-headed relative, and the deletion of the light head is optional. Second, the light-headed relative is derived from a light-headed 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. I do the same investigation for Polish, and I reach the same conclusion as I did for Modern German.

Consider the existing Polish light-headed relative in (30).

(30)   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)

This light-headed relative, in which the demonstrative is the light head, could potentially be the source for headless relatives.

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 (31).

(31)　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 (32).

(32)　*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.[8]

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

---

[8]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)

or definite (Citko 2004: 103). Light-headed relatives, such as the one in (30), only have the definite interpretation.[9]

In the remainder of this section, I discuss the two extra light heads that I compare the constituents of in Section **??**. The are the accusative animate and the dative animate, shown in (33).

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

         b.   o-mu
               ELH.AN.DAT

In Chapter **??**, I showed that the relative pronoun contains two features more than the extra light head, namely WH and REL. This means that the functional for the extra light head as shown in (34).

(34)
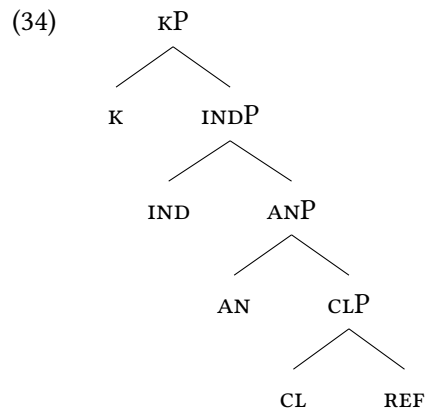
It contains the pronominal feature REF, the gender features CL and AN, the number feature IND and case features K.

---

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

I introduced the lexical entries that are required to spell out these features in Section 8.1. I repeat them in (35).

(35)   a.   ANP ⟺ *o*

AN   CLP

CL   REF

b.   ACCP ⟺ *go*

F2   NOMP

F1   INDP

IND

c.   DATP ⟺ *mu*

F3   ACCP

F2   NOMP

F1   INDP

IND
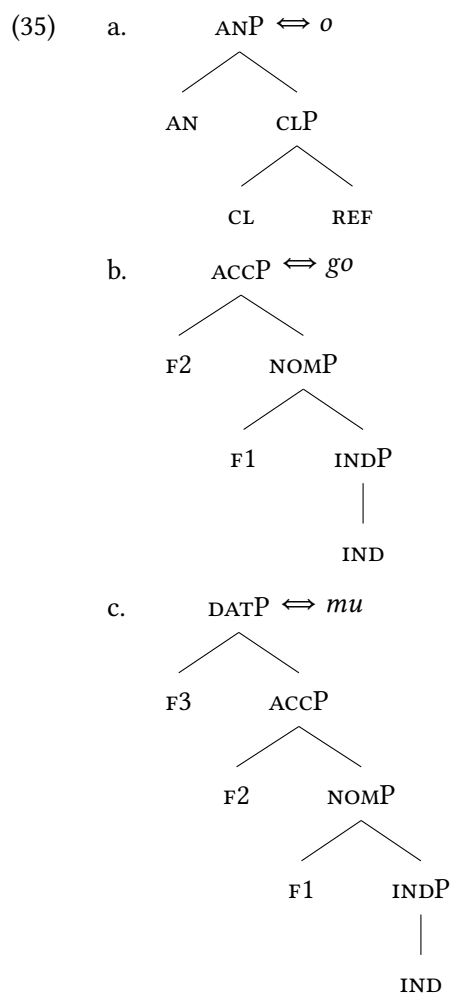
In what follows, I construct the Polish extra light heads. Until the feature IND, the derivation is identical to the one of the relative pronoun. I give the syntactic structure at that point in (36).

(36)

```
            INDP
           /    \
        ANP     INDP
        /\       |
       /  \      |
       o    IND
             |
            go
```
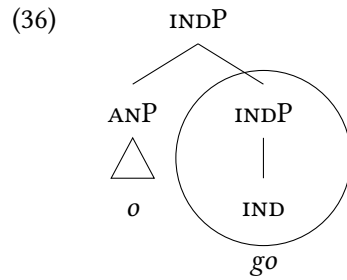
Next, the feature F1 is merged. The feature F1 is merged with the INDP, forming an NOMP. This phrase is not contained in any of the lexical entries Polish. The first movement is tried, and the specifier of the INDP, the ANP, is moved to the specifier of NOMP. This phrase is contained in the lexical tree in (35b), so it is spelled out as *go*, as shown in (37).

(37)

```
                        NOMP
                       /    \
             ANP                   NOMP
            /   \                  /   \
          AN     CLP            F1      INDP
                /   \                    |
              CL     REF               IND
               o                        go
```
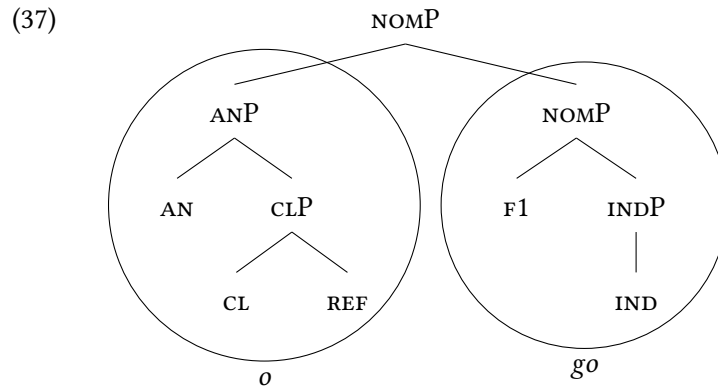
For the accusative extra light head, the last feature is merged: the F2. The feature is merged with the NOMP, forming an ACCP. This phrase is not contained in any of the lexical entries. The first movement is tried, and the specifier of the NOMP, the ANP, is moved to the specifier of ACCP. This phrase is contained in the lexical tree in (35b), so it is spelled out as *go*, as shown in (38).

(38)

ACCP

ANP
AN   CLP
CL   REF
o

ACCP
F2   NOMP
F1   INDP
IND
go
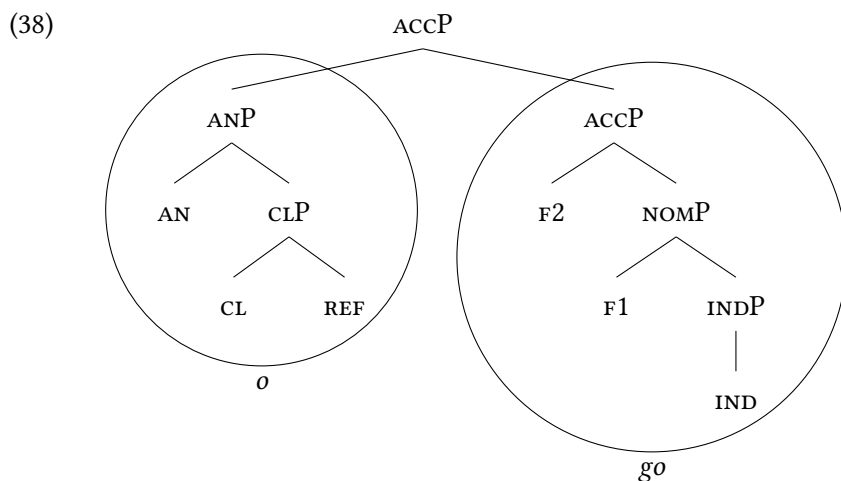
For the dative relative pronoun, one more feature is merged: the F3. The feature is merged with the ACCP, forming an DATP. This phrase is not contained in any of the lexical entries. The first movement is tried, and the specifier of the ACCP, the ANP, is moved to the specifier of DATP. This phrase is contained in the lexical tree in (35c), so it is spelled out as *mu*, as shown in (39).

(39)

DATP

ANP
AN   CLP
CL   REF
o

DATP
F3   ACCP
F2   NOMP
F1   INDP
IND
mu
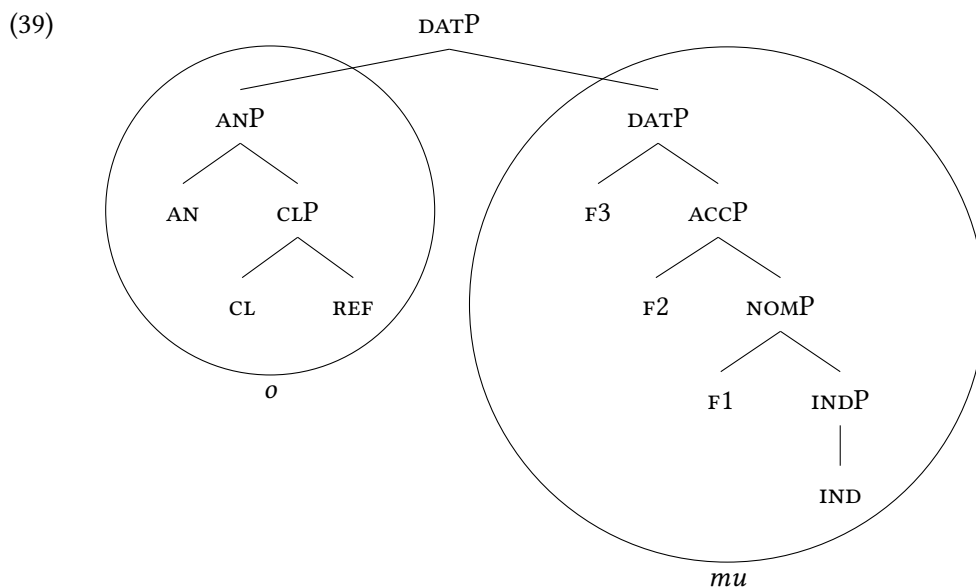
In sum, just like Modern German, Polish headless relatives do not seem to be derived

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

8.3   Comparing Polish constituents

In this section, I compare the constituents of extra light heads to those of relative pronouns in Polish. This is the worked out version of the comparisons in Section 6.2.2. What is different here is that I show the comparison for Polish specifically, and that I motivated the content of the constituents that are being compared.

I give three examples, in which the internal and external case vary. I start with an example with matching cases, in which the internal and the external case are both accusative. Then I give an example in which the internal dative case is more complex than the external accusative case. I end with an example in which the external dative case is more complex than the internal accusative case. I show that the first examples is grammatical and that the last two are not. I derive this by showing that only in the first situation the light head forms a constituent within the relative pronoun, and that it can therefore then be deleted.

I start with the matching cases. Consider the example in (40), 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.

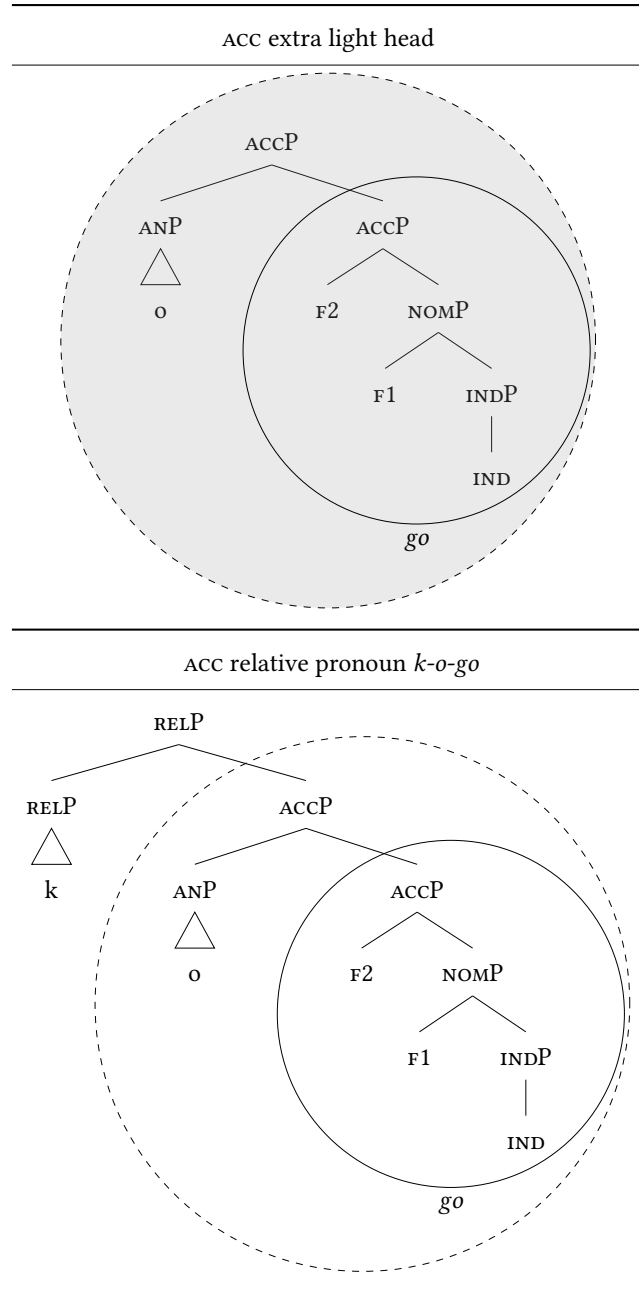(40)   Jan lubi   [ogo]   **kogo   -kolkwiek Maria lubi**.
       Jan like.3SG$_{[ACC]}$ DEM.ACC.AN.SG RP.ACC.AN ever   Maria like.3SG$_{[ACC]}$
       'Jan likes whoever Maria likes.'
                              (Polish, adapted from Citko 2013 after Himmelreich 2017: 17)

In Figure 8.3, I give the syntactic structure of the extra light head at the top and the syntactic structure of the relative pronoun at the bottom.

The relative pronoun consists of three morphemes: *k*, *o* and *go*. The extra light head consists of two morphemes: *o* and *go*. As usual, I circle the part of the structure that corresponds to a particular lexical entry, and I place the corresponding phonology under it, or I reduce the structure to a triangle, 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 the external case. Consider the examples in (41), 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. (41a) 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. (41b) 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.

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

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

ACC extra light head

ACCP

ANP

o

ACCP

F2   NOMP

F1   INDP

IND

go

ACC relative pronoun *k-o-go*

RELP

RELP

k

ACCP

ANP

o

ACCP

F2   NOMP

F1   INDP

IND

go

Figure 8.3: Polish EXT$_{\text{ACC}}$ vs. INT$_{\text{ACC}}$ $\rightarrow$ *kogo*
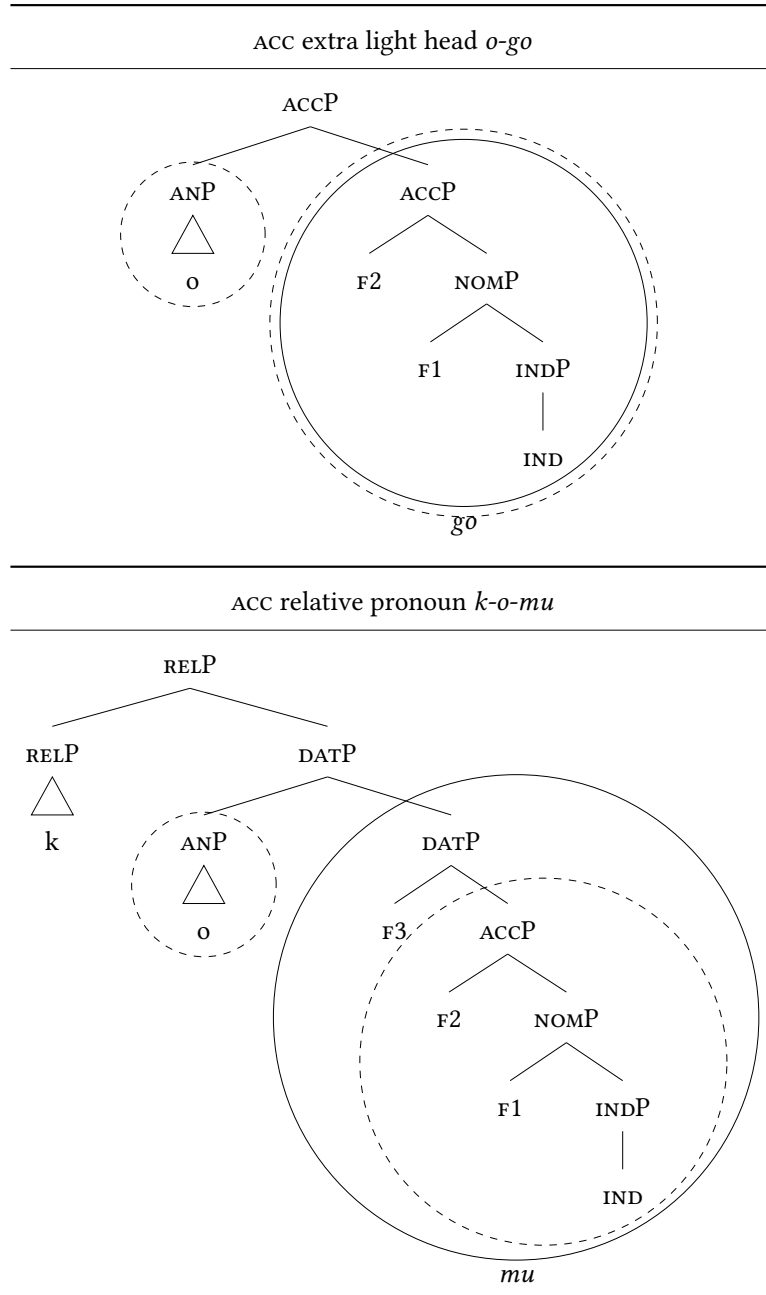
In Figure 8.4, I give the syntactic structure of the extra light head at the top and the syntactic structure of the relative pronoun at the bottom.

The relative pronoun consists of three morphemes: *k*, *o* and *mu*. The light head consists of two morphemes: *o* and *go*. Again, I circle the part of the structure that corresponds to a particular lexical entry, and I place the corresponding phonology under it, or I reduce the structure to a triangle, 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 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 (42), 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
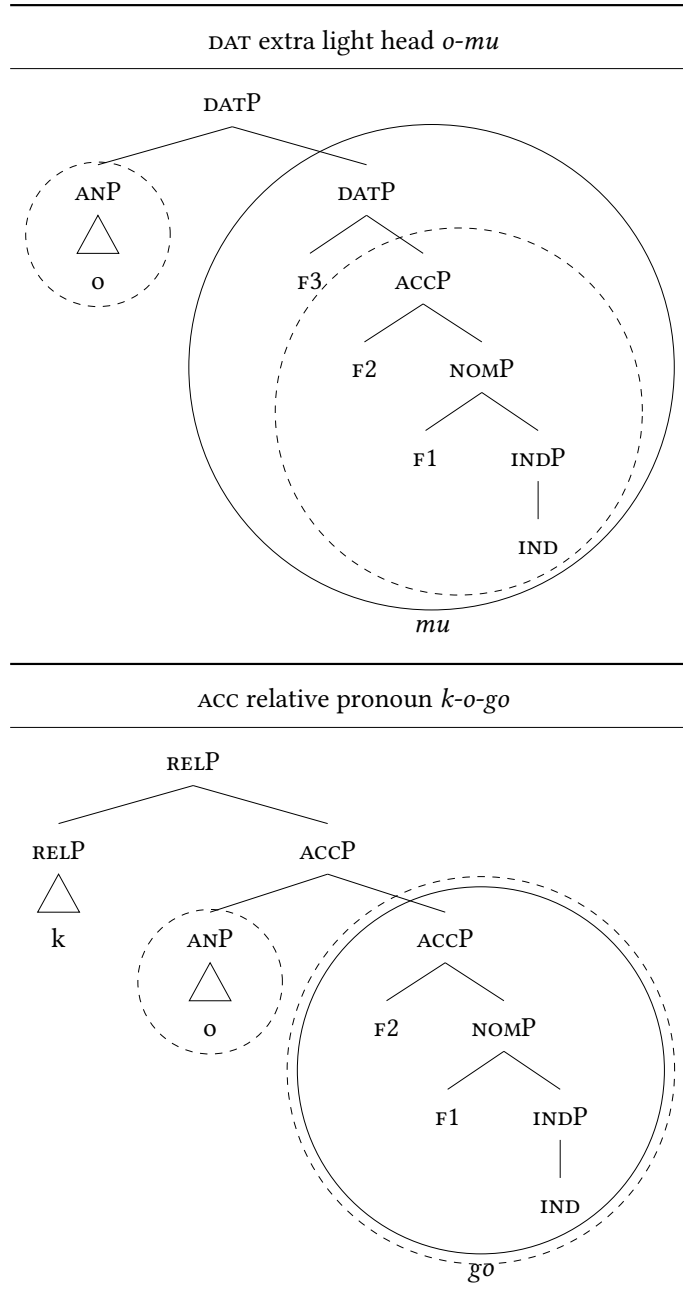
ACC extra light head *o-go*

ACC relative pronoun *k-o-mu*

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

light head *omu* 'ᴇʟʜ.ᴀɴ.ᴅᴀᴛ' appears in the dative case. (42a) 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. (42b) 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.

(42) a. *Jan ufa   [omu]   **kogo**   **-kolkwiek wpuścil   do**
          Jan trust.3sɢ₍ᴅᴀᴛ₎ ᴇʟʜ.ᴅᴀᴛ.ᴀɴ ʀᴘ.ᴀᴄᴄ.ᴀɴ ever   let.3sɢ₍ᴀᴄᴄ₎ to

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

      b. Jan ufa   omu   **[kogo]**   **-kolkwiek wpuścil   do**
          Jan trust.3sɢ₍ᴅᴀᴛ₎ ᴇʟʜ.ᴅᴀᴛ.ᴀɴ ʀᴘ.ᴀᴄᴄ.ᴀɴ ever   let.3sɢ₍ᴀᴄᴄ₎ to

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

In Figure 8.5, I give the syntactic structure of the extra light head at the top and the syntactic structure of the relative pronoun at the bottom.

The relative pronoun consists of three morphemes: *k*, *o* and *go*. The light head consists of two morphemes: *o* and *mu*. Again, I circle the part of the structure that corresponds to a particular lexical entry, and I place the corresponding phonology under it, or I reduce the structure to a triangle, 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 ᴀɴP and the (lower) ᴅᴀᴛP. In this case, the relative pronoun does not contain both these constituents. The relative pronoun only contains the ᴀᴄᴄP, and it lacks the ꜰ3 that makes a ᴅᴀᴛP. Since the weaker feature containment requirement is not met, the stronger constituent containment requirement cannot be met either. The extra light head also does not contain all constituents or features that the relative pronoun contains, because it

Figure 8.5: Polish EXT$_{\text{DAT}}$ vs. INT$_{\text{ACC}}$ $\nrightarrow$ *omu*/*kogo*

lacks the complete RELP. Therefore, the extra light head cannot be deleted, and the relative pronoun cannot be deleted either.

8.4 Summary

Polish is an example of a matching type of language. This means that headless relatives are grammatical in the language only when the internal and external case match.

I derive this from the morphology of light heads and relative pronouns in Polish. The light head corresponds to two lexical entries, which respectively spells out phi- and case-features. The relative pronoun corresponds in addition to that to another lexical entry, one that amongst other spells out a relative feature. The Polish light head and relative pronoun are schematically shown in Figure 8.6.
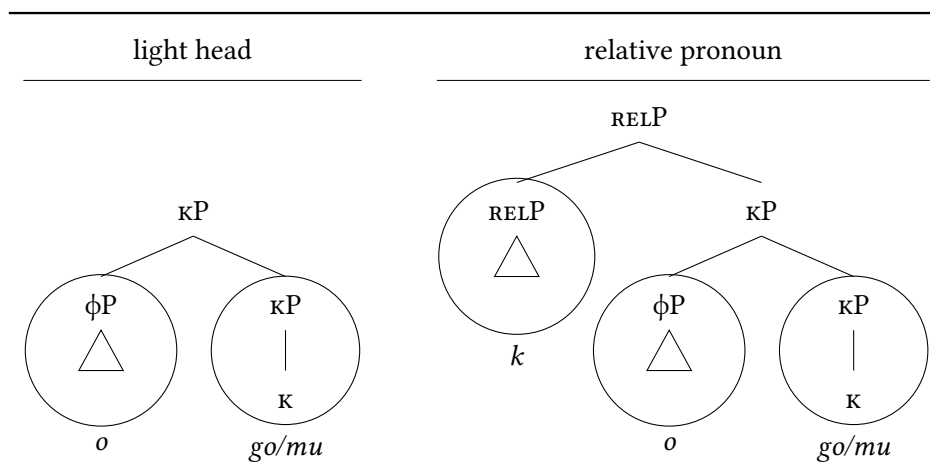
Figure 8.6: LH and RP in Polish (repeated)

A crucial characteristic of matching languages such as Polish is that they have separate morphemes for phi- and case-features. Therefore, the light head is contained as a constituent within the relative pronoun when the internal and the external case match. As the light head can be recovered from within the relative pronoun, it can be deleted. There is a grammatical headless relative that surfaces with the relative pronoun which bears the internal case.

When the internal and external case differ, neither the light head nor the relative pronoun is contained as a constituent within the other element. None of the elements can be deleted, and there is no grammatical headless relative possible.

Primary texts

Bibliography

Caha, Pavel (2020). "Modeling declensions without declension features". In.

Citko, Barbara (2004). "On headed, headless, and light-headed relatives". In: *Natural Language & Linguistic Theory* 22.1, pp. 95–126.

Citko, Barbara (2013). "Size matters: Multidominance and DP structure in Polish". In: *Talk at the th Poznan Linguistic Meeting.*

Harley, Heidi and Elizabeth Ritter (2002). "Person and number in pronouns: A feature-geometric analysis". In: *Language*, pp. 482–526.

Himmelreich, Anke (2017). "Case Matching Effects in Free Relatives and Parasitic Gaps: A Study on the Properties of Agree". PhD thesis. Universität Leipzig.

Šimík, Radek (2016). "On the semantics of Czech free relatives". In.

Starke, Michal (2018). "Complex Left Branches, Spellout, and Prefixes". In: *Exploring Nanosyntax.* Ed. by Lena Baunaz et al. Oxford: Oxford University Press, pp. 239–249. DOI: 10.1093/oso/9780190876746.003.0009.

Swan, Oscar E (2002). *A grammar of contemporary Polish.* Slavica, Bloomington, Indiana.

Wiland, Bartosz (2019). *The spell-out algorithm and lexicalization patterns: Slavic verbs and complementizers.* Berlin: Language Science Press.