

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

Contents	ii
List of tables	v
List of figures	viii
List of abbreviations	xi
1 Introduction	1
1.1 Decomposing the title	1
1.2 The content of this dissertation	6
1.3 The scope of this dissertation	7
1.3.1 Case attraction	7
1.3.2 Syncretism	7
1.3.3 The genitive	8
I Case competition	11
2 A recurring pattern	13
2.1 In headless relatives	13
2.2 In syntax	23
2.2.1 Agreement	23
2.2.2 Relativization	31
2.3 In morphology	40
2.3.1 Syncretism	40

<i>Contents</i>	iii
-----------------	-----

2.3.2	Morphological case containment	42
2.4	Summary	43
3	Case decomposition	45
3.1	The basic idea	46
3.2	Deriving syncretism	47
3.3	Deriving morphological case containment	68
3.4	The intuition for headless relatives	73
3.5	Summary	76
II	The typology	77
4	Languages with case competition	79
4.1	Four possible patterns	80
4.2	Internal and external case allowed	85
4.3	Only internal case allowed	94
4.4	Only external case allowed	104
4.5	Only matching allowed	108
4.6	Summary	112
5	Aside: languages without case competition	117
5.1	Always external case	119
5.2	A typology of headless relatives	127
III	Deriving the typology	133
6	Constituent containment	135
6.1	Underlying assumptions	136
6.2	The point of departure	140
6.3	Changing constituency	142
6.4	Syncretism	148
6.5	Summary	154

7	Deriving the internal-only type	157
7.1	The Modern German relative pronoun	160
7.2	Combining morphemes in Nanosyntax	170
7.3	The Modern German (extra) light head	188
7.4	Comparing Modern German constituents	199
7.5	Summary	206
8	Deriving the matching type	207
8.1	The Polish (extra) light head	210
8.2	The Polish relative pronoun	224
8.3	Comparing Polish constituents	232
8.4	Summary	238
9	Discussing the unrestricted type	241
9.1	The relative pronoun	244
9.2	The light head	247
9.3	Comparing constituents	249
9.4	Summary	257
10	Aside: a larger syntactic context	259
11	Discussion	267
11.1	Diachronic part	267
11.2	Suppletive nominatives in Gothic	268
11.3	Towards deriving the always-external pattern	268
11.4	On clitics	268
11.5	More languages	268
	Primary texts	269
	Bibliography	271

List of tables

2.1	Gothic headless relatives (matching)	15
2.2	Gothic headless relatives (NOM — ACC)	18
2.3	Gothic headless relatives (NOM — DAT)	19
2.4	Gothic headless relatives (ACC — DAT)	22
2.5	Summary of Gothic headless relatives	22
2.6	Typology for agreement hierarchy	27
2.7	Syncretism patterns	41
2.8	Morphological case containment in Khanty	42
3.1	Case decomposed	46
3.2	Syncretism patterns (repeated)	47
3.3	Morphological case containment of 3singular in Khanty	68
3.4	Summary of Gothic headless relative (repeated)	74
4.1	Internal and external case allowed	82
4.2	Only internal case allowed	83
4.3	Only external case allowed	83
4.4	Only matching allowed	85
4.5	Internal and external case allowed (repeated)	85
4.6	Summary of Gothic headless relatives (repeated)	86
4.7	Old High German headless relatives (matching)	88
4.8	Old High German headless relatives (NOM — ACC)	90
4.9	Old High German headless relatives (NOM — DAT)	91
4.10	Old High German headless relatives (ACC — DAT)	93
4.11	Only internal case allowed (repeated)	94

4.12	Modern German headless relatives (matching)	96
4.13	Modern German headless relatives (NOM — ACC)	99
4.14	Modern German headless relatives (NOM — DAT)	101
4.15	Modern German headless relatives (ACC — DAT)	104
4.16	Only external case allowed (repeated)	104
4.17	Classical Greek headless relatives possibility 1	105
4.18	Classical Greek headless relatives possibility 2	106
4.19	Summary of Classical Greek headless relatives	107
4.20	The matching type (repeated)	108
4.21	Polish headless relatives (matching)	109
4.22	Polish headless relatives (ACC — DAT)	112
4.23	Relative pronoun follows case competition	112
4.24	Relative pronoun follows case competition	114
5.1	Always internal case	118
5.2	Always external case	118
5.3	Always external case (repeated)	119
5.4	Old English headless relatives possibility 1	120
5.5	Old English headless relatives possibility 2	120
5.6	Old English headless relatives possibility 3	121
5.7	Summary of Old English headless relatives	122
5.8	Modern Greek headless relatives possibility 1	123
5.9	Modern Greek headless relatives possibility 2	123
5.10	Modern Greek headless relatives possibility 3	124
5.11	Summary of Modern Greek headless relatives	126
5.12	Relative pronoun follows case competition	128
5.13	Relative pronoun in internal case	128
5.14	Relative pronoun in external case	128
5.15	Possible patterns for headless relatives	130
6.1	Options for the surface pronoun	137
6.2	Grammaticality in the internal-only type	140
6.3	Grammaticality in the matching type	143

6.4	Grammaticality in the matching type	148
7.1	Grammaticality in the internal-only type	157
7.2	Modern German relative pronouns (durrell2011 : 5.3.3)	161
7.3	Modern German demonstrative <i>dieser</i> ‘this’ (durrell2011 : Table 5.2) . .	162
7.4	Modern German demonstrative pronouns (durrell2011 : 5.4.1)	167
7.5	Intepretations of <i>wen</i> and <i>den-wen</i> relatives	192
8.1	Grammaticality in the internal-only type	207
8.2	Polish (in)animate relative pronouns (Swan 2002: 160)	212
8.3	Polish (in)animate relative pronouns (Swan 2002: 160)	213
8.4	3sg personal pronouns (Swan 2002: 156)	213
8.5	Polish (in)animate relative pronouns (Swan 2002: 160)	217
8.6	Polish relative pronouns and demonstratives (Swan 2002: 160,171) . . .	226
9.1	Grammaticality in the internal-only type	241
9.2	Relative/demonstrative pronouns in Old High German (braune2018 : 339) 245	
9.3	Adjectives on <i>-a/-ō-</i> in Old High German braune2018 : 300	245
9.4	The surface pronoun with differing cases per language	257

List of figures

2.1	Agreement hierarchy	24
2.2	Agreement hierarchy with languages	26
2.3	Nominative-accusative alignment	28
2.4	Ergative-absolutive alignment	29
2.5	Agreement hierarchy (case)	30
2.6	Agreement hierarchy (NOM/ACC/DAT)	30
2.7	Relativization hierarchy	32
2.8	Relativization hierarchy with languages	37
2.9	Relativization hierarchy (case)	39
2.10	Relativization hierarchy (NOM/ACC/DAT)	40
4.1	Attested patterns in headless relatives with case competition	115
5.1	Attested patterns in headless relatives	129
6.1	Two descriptive parameters generate three language types	136
6.2	LH and RP in the internal-only type	139
6.3	EXT _{NOM} vs. INT _{NOM} in the internal-only type	141
6.4	EXT _{NOM} vs. INT _{ACC} in the internal-only type	141
6.5	EXT _{ACC} vs. INT _{NOM} in the internal-only type	142
6.6	LH and RP in the internal-only type (repeated)	143
6.7	LH and RP in the matching type	144
6.8	EXT _{NOM} vs. INT _{NOM} in the matching type	144
6.9	EXT _{NOM} vs. INT _{ACC} in the matching type	145
6.10	EXT _{NOM} vs. INT _{ACC} in the internal-only type (repeated)	146

6.11	Nominal ellipsis in Dutch	147
6.12	Nominal ellipsis in Kipsigis	148
6.13	LH and RP in the internal-only type (repeated)	149
6.14	LH and RP in the unrestricted type (to be revised)	150
6.15	LH and RP in the unrestricted type	151
6.16	EXT _{NOM} vs. INT _{ACC} in the unrestricted type	152
6.17	EXT _{ACC} vs. INT _{NOM} in the unrestricted type	152
6.18	EXT _{ACC} vs. INT _{NOM} with case syncretism	154
7.1	LH and RP in the internal-only type	158
7.2	LH and RP in Modern German	159
7.3	LH and RP in the internal-only type	189
7.4	Modern German EXT _{ACC} vs. INT _{ACC} → <i>wen</i>	201
7.5	Modern German EXT _{ACC} vs. INT _{DAT} → <i>wem</i>	203
7.6	Modern German EXT _{DAT} vs. INT _{ACC} ↗ <i>m/wen</i>	205
8.1	LH and RP in the matching type	208
8.2	LH and RP in Polish	209
8.3	Polish EXT _{ACC} vs. INT _{ACC} → <i>kogo</i>	234
8.4	Polish EXT _{ACC} vs. INT _{DAT} ↗ <i>ogo/komu</i>	236
8.5	Polish EXT _{DAT} vs. INT _{ACC} ↗ <i>omu/kogo</i>	239
9.1	LH and RP in the unrestricted type (repeated)	242
9.2	LH and RP in Old High German	243
9.3	Old High German EXT _{NOM} vs. INT _{NOM} → <i>dher</i>	251
9.4	Old High German EXT _{NOM} vs. INT _{ACC} → <i>then</i>	253
9.5	Old High German EXT _{ACC} vs. INT _{NOM} → <i>dhen</i>	255
9.6	Delete relative pronoun/light head as parameters	258

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

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 6, I suggested that this difference can be

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

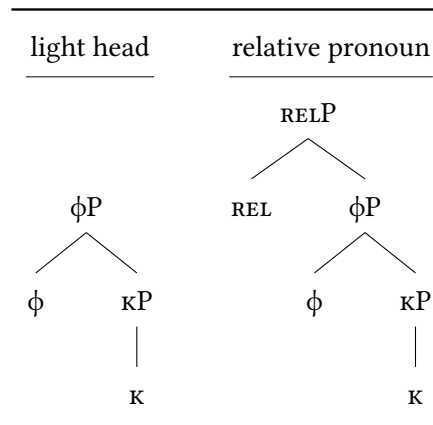


Figure 8.1: LH and RP in the matching type

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

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

morphemes that corresponds to case and phi-features.

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

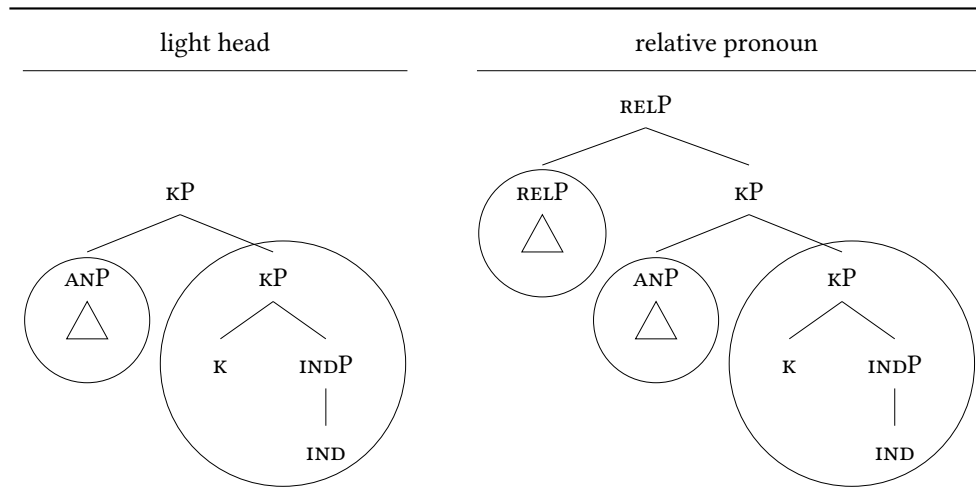


Figure 8.2: LH and RP in Polish

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

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

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

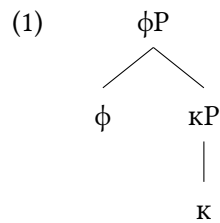
Crucially, the constituency in Figure 7.2 is the same as it is in Figure 6.2. Therefore, the deletion possibilities I described for Figure 6.7 take place.

The chapter is structured as follows. First, I discuss the light head. I decompose

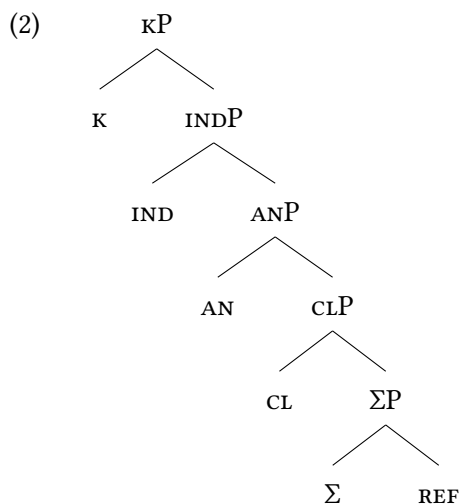
the light heads into the two morphemes I showed in Figure 8.2, and I show which features each of the morphemes corresponds to. I show that Polish headless relatives are derived from a type of light-headed relative clause that does not surface in the language, just like their Modern German counterparts.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

8.1 The Polish (extra) light head

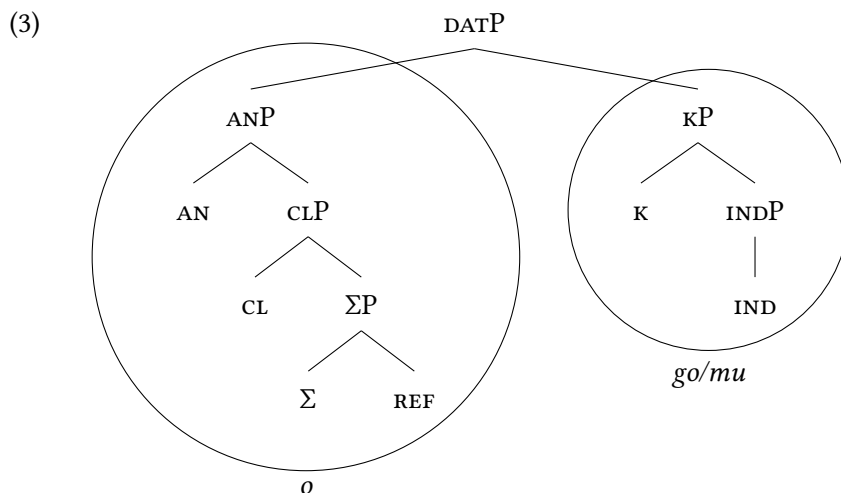
In Chapter 6, I argued that in the matching type, the features of the light head are spelled out in such a way that they form the constituency shown in Figure (1).



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 argue that Polish light heads have the structure shown in (3).



Recall from Chapter 7 that Modern German the extra light head spells out as a single constituent. In this chapter I argue that the Polish extra light head consists of two constituents, as shown in (3). This is the crucial difference between the two languages that leads them to be of different types in headless relatives.

I discuss two extra light heads: the animate accusative and the animate dative. These are the two forms that I compare the constituents of in Section 8.3. I show them in (4).

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

I decompose the extra light heads in two morphemes: the *o* and the final suffix (*go* and *mu*). For each morpheme, I discuss which features they spell out, and I give their lexical entries. In the end, I show how the extra light heads are constructed.

Even though I start with the extra light heads, I start with the relative pronouns. consider the table.

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

	AN	INAM
NOM	kto	c-o
ACC	k-o-go	c-o
GEN	k-o-go	cz-e-go
DAT	k-o-mu	cz-e-mu

The inanimates start with a *cz*. The *cz* is not a primary vowel but a derived one. it appears when it is combines with a *xx*.

give example of that

The *e* is also a product of the *j* coming together with the *xx*.

give example of that

So, actually, what we are looking at is this:

Now, analyze the personal pronouns like this too:

I start from *je*-pronouns.

this *je* differs in one feature from the extra light head: namely the *c*. I assume that the strong pronoun spells out *j*. and the rest of the structure is light head. now the question is: which portion does *o* spell out and which portion does the suffix?

I start with the morphemes *go* and *mu*. Consider the masculine and neuter

Table 8.3: Polish (in)animate relative pronouns (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

personal pronouns in Table 8.4.¹

Table 8.4: 3SG personal pronouns (Swan 2002: 156)

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

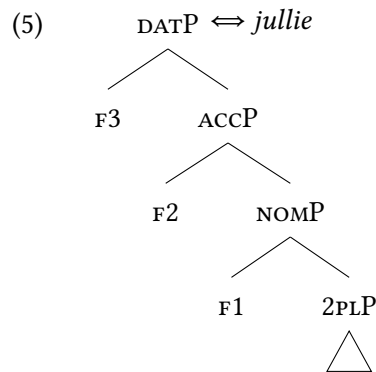
Notice that the morpheme *mu* does not only appear as the dative suffix in the masculine, but also in the neuter. The morpheme *go* appears as the accusative and genitive suffix in the masculine and as the genitive suffix in the neuter.² Moreover, the complete pronouns are syncretic: in all cases, the suffix combines with the mor-

¹Polish 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.

²I include genitive 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. However, I do not incorporate them in the syntactic structures. The reason for that is that the genitive in Polish is comes between the accusative and the dative, i.e. it is more complex than the accusative and less complex than the dative. This does not change anything about the main point about case I want to make: the dative is more complex than the accusative.

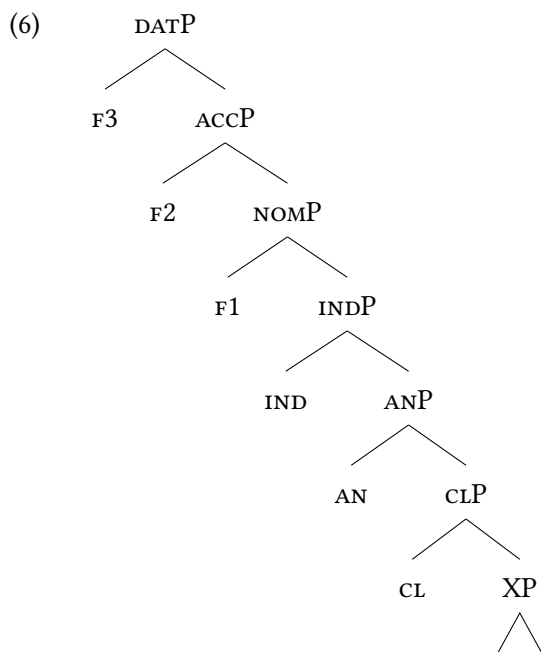
pheme *je*. I set up a system that can derive the syncretism between the two genders. Doing this allows me to establish which features the morphemes *go* and *mu* spell out.

I discussed in Chapter 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 (5).

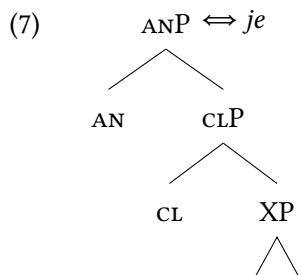


Jullie is syncretic between nominative, accusative and dative. It is specified for dative in the lexicon, because the dative contains the accusative and the nominative. The nominative and accusative second person plural in Dutch are spelled out as *jullie* as well, because the DATP contains the ACCP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

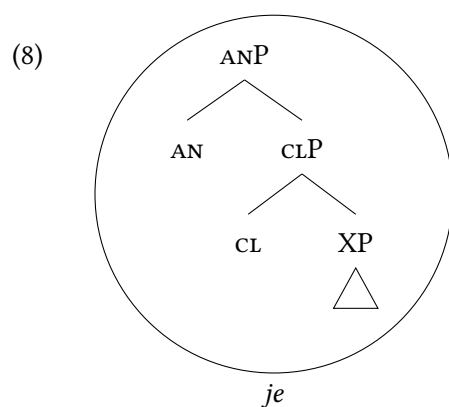
I show how I get this syncretism for *jemu*. Different from *jullie*, *jemu* consists of two morphemes: *je* and *mu*. I give the functional sequence that I assume *jemu* spells out. These are case features up to the dative, the feature IND for singular number, the gender features CL and AN and some XP for whatever other features *jemu* contains.



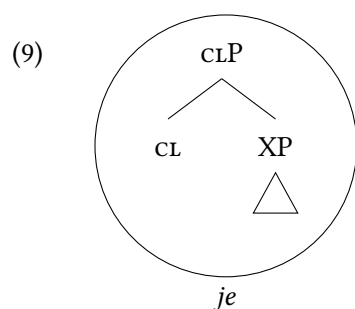
The morpheme *je* is syncretic between the masculine and neuter. That means that the highest feature in the lexical tree needs to be the feature AN. I give the lexical entry in (7).



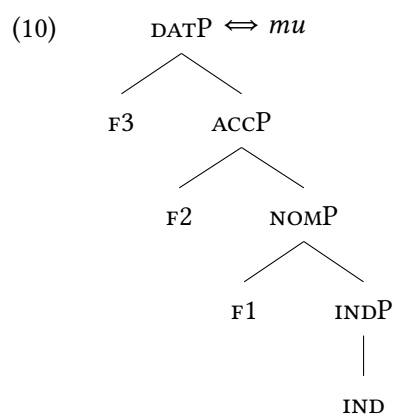
When the lexical entry for *je* is as in (7), it can be inserted if there is a animate or an inanimate syntactic structure. In (8) I give a syntactic structure of an animate. The syntactic structure forms a constituent within the lexical tree in (7), and the structure can be spelled out as *je*.



In (9) I give a syntactic structure of an animate. The syntactic structure also forms a constituent within the lexical tree in (7), and the structure can be spelled out as *je*.

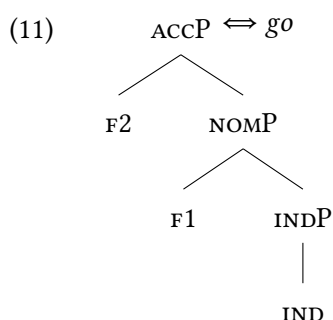


What follows from this is that the lexical trees for the suffix *mu* should contain all features in (6) that are not spelled out by *je* so far. These are the feature **IND** and all case features up to the dative. I give the lexical entry for *mu* in (10).



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* and *mu* comes about. I show how this works when I construct the relative pronouns.

The morpheme *go* is not used in the accusative neuter, but it is in the genitive. What I take away from this is that the morpheme *go* needs to have IND as the lowest feature too, so that it can combine with the feature AN if that is present and with the feature CL if AN is absent. I give the lexical entry for *go* in (11).



I continue with the morpheme *o*. I propose that *o* spells out the features THING, PERSON, Σ , CL and AN. Compare the animate and inanimate relative pronouns in Table 8.5.

Table 8.5: Polish (in)animate relative pronouns (Swan 2002: 160)

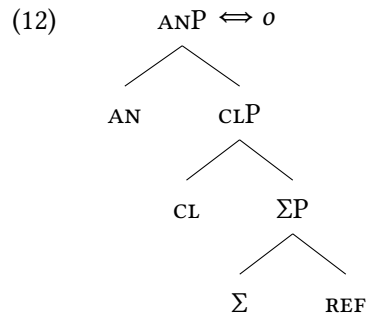
	AN	INAM
NOM	kto	c-o
ACC	k-o-go	c-o
GEN	k-o-go	cz-e-go
DAT	k-o-mu	cz-e-mu

The animate and the inanimate combine with the same suffix in the genitive and the dative. They differ, however, in the initial consonant and the following vowel. The animate form starts with a *k* and has the *o* as a vowel, and the inanimate form starts with a *cz* and has the *e* as a vowel. In Polish, the consonant *k* is replaced by

a *cz* when it is followed by an *e* (Swan 2002: 24).^{3,4} Therefore, I assume that the change from *k* to *cz* is phonology. The lexical entry for the *o* differs from the one for the *e* in that it spells out the feature **THING** plus the feature **PERSON** (and not only the feature **THING**), and the feature **ANIMATE** plus the feature **CLASS** (and not only the feature **CLASS**).

Finally, as it is a pronominal element which is not a clitic, I assume that the *o* spells out the feature Σ .

I give the lexical entry for *o* in (12).



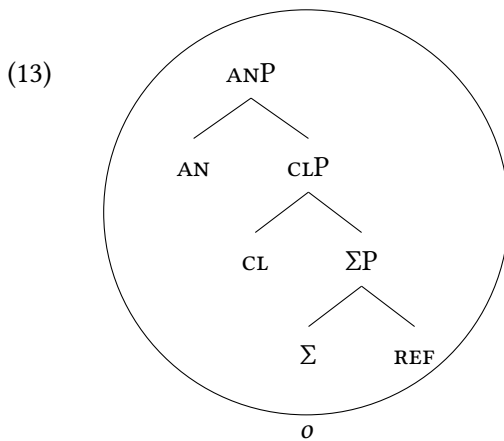
In what follows, I construct the Polish relative pronouns. I follow the same functional sequence as I did for Modern German. Also, of course, the spellout procedure is identical. The outcome is different because of the different lexical entries Polish has.

Starting from the bottom, the first two features that are merged at **THING** and **PERSON**, creating a **PERSONP**. The syntactic structure forms a constituent in the lexical tree in (12), repeated from (12), which corresponds to the *o*. Therefore, the **PERSONP** is spelled out as *o*, which I do not show here.

³I assume that the change from *c* to *cz* is palatalization as a consequence of the combination of /ʃs/ and /ɛ/ (Swan 2002: 26).

⁴In demonstratives, there is no alternation between the masculines and the neuters, even though they combine with the same suffixes as **WH**-pronouns do. I attribute this difference to how **WH**-pronouns and demonstratives differ regarding gender. Demonstratives get their gender from the (possibly phonologically empty) head noun, and the gender is syntactic (i.e. it depends on the grammatical gender of the head noun). **WH**-pronouns do not combine with a noun, so they get their gender from themselves. I assume that this difference translates into that the demonstratives always have only **THING** as their lowest feature and **WH**-pronouns can have **THING** or **THING** plus **PERSON**.

The features Σ , CL and AN are merged and spelled out in the same way. First, the feature Σ is merged, and a ΣP is created. The syntactic structure forms a constituent in the lexical tree in (12). Therefore, the ΣP is spelled out as *o*. Then, the feature CL is merged, and a CLP is created. The syntactic structure forms a constituent in the lexical tree in (12). Therefore, the CLP is spelled out as *o*. Finally, the feature AN is merged, and a ANP is created. The syntactic structure forms a constituent in the lexical tree in (12). Therefore, the ANP is spelled out as *o*, shown in (13).



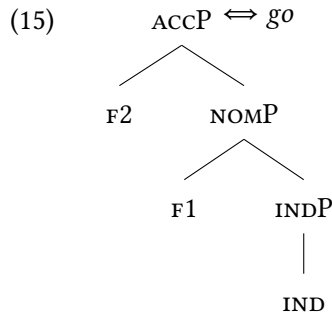
The next feature in the functional sequence is the feature IND. This feature cannot be spelled out as the other ones before. The feature IND is merged, and a INDP is created. This syntactic structure does not form a constituent in the lexical tree in (12). There is also no other lexical tree that contains 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 ((14a) in the Spellout Algorithm, repeated from Chapter 7).

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

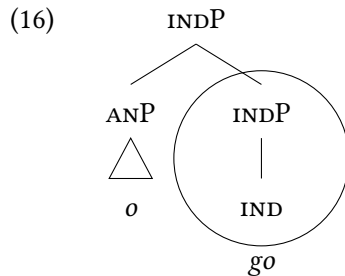
- a. Merge F and spell out.
- b. If (a) fails, move the Spec of the complement and spell out.
- c. If (b) fails, move the complement of F and spell out.

The first movement option in the Spellout Algorithm is moving the specifier, as described in (14b). As there is no specifier in this structure, so the first movement

option irrelevant. The second movement option in the Spellout Algorithm is moving the complement, as described in (20c). In this case, the complement of IND, the ANP, is moved to the specifier of INDP. 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 in (15).

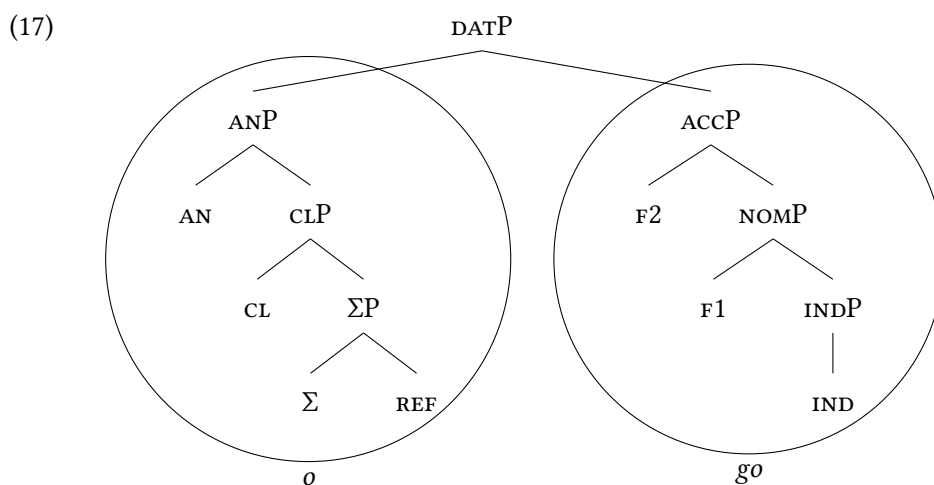


Therefore, the INDP is spelled out as *go*, as shown in (16).



The feature F1 is merged with the INDP, forming an NOMP. This phrase is not contained in any of the lexical entries in *??*. The first movement is tried: the specifier of the INDP, the ANP, is moved to the specifier of NOMP. This phrase is contained in the lexical tree in *??*, so it is spelled out as *go*. The feature F2 is merged with the NOMP, forming an ACCP. This phrase is not contained in any of the lexical entries in *??*. The first movement is tried: the specifier of the NOMP, the ANP, is moved to the specifier of ACCP. This phrase is contained in the lexical tree in *??*, so it is spelled out as *go*.

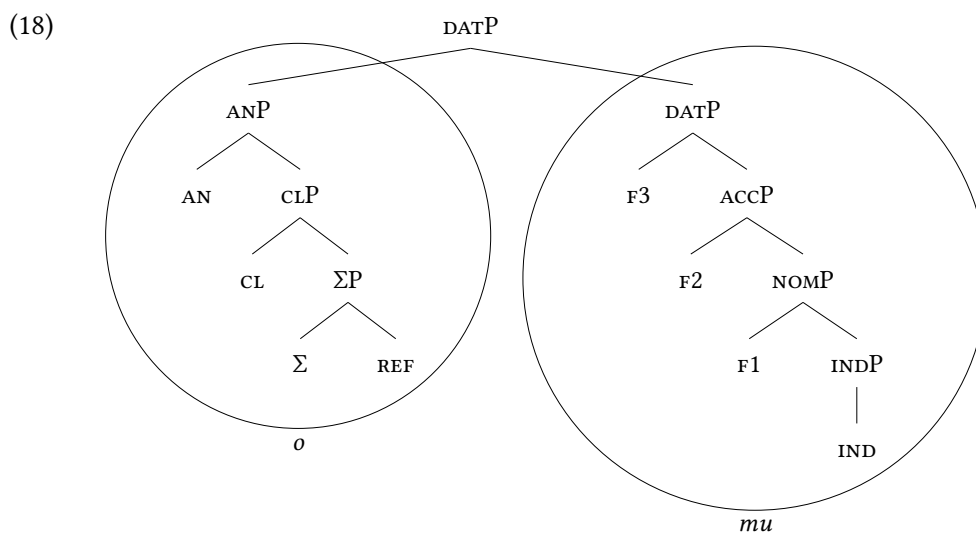
The accusative animate extra light head is shown in (17).



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

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

The dative animate extra light head is shown in (18).



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

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

For Modern German, I considered two kinds of light-headed relatives as the source of the headless relative. First, the light-headed relative is derived from an existing light-headed relative, and the deletion of the light head is optional. Second, the light-headed relative is derived from a light-headed relative that does not 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 (20).

- (20) 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 (21).

- (21) 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 (22).

- (22) *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.⁵

The second argument against the existing light-headed relatives being the source of headless relatives comes from their interpretation. Headless relatives have two possible interpretations, and light-headed relatives have only one of these. Just like in Modern German, Polish headless relatives can be analyzed as either universal or definite (Citko 2004: 103). Light-headed relatives, such as the one in (20), 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.

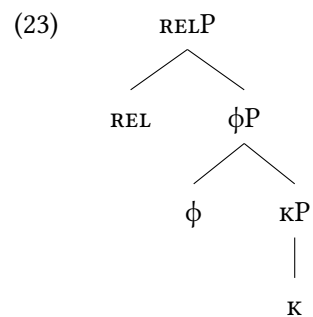
⁵Citko (2004) takes the complementary distribution of *kolwiek* ‘ever’ and the light head to mean that they share the same syntactic position. I have nothing to say about the exact syntactic position of *ever*, but in my account it cannot be the head of the relative clause, as this position is reserved 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.

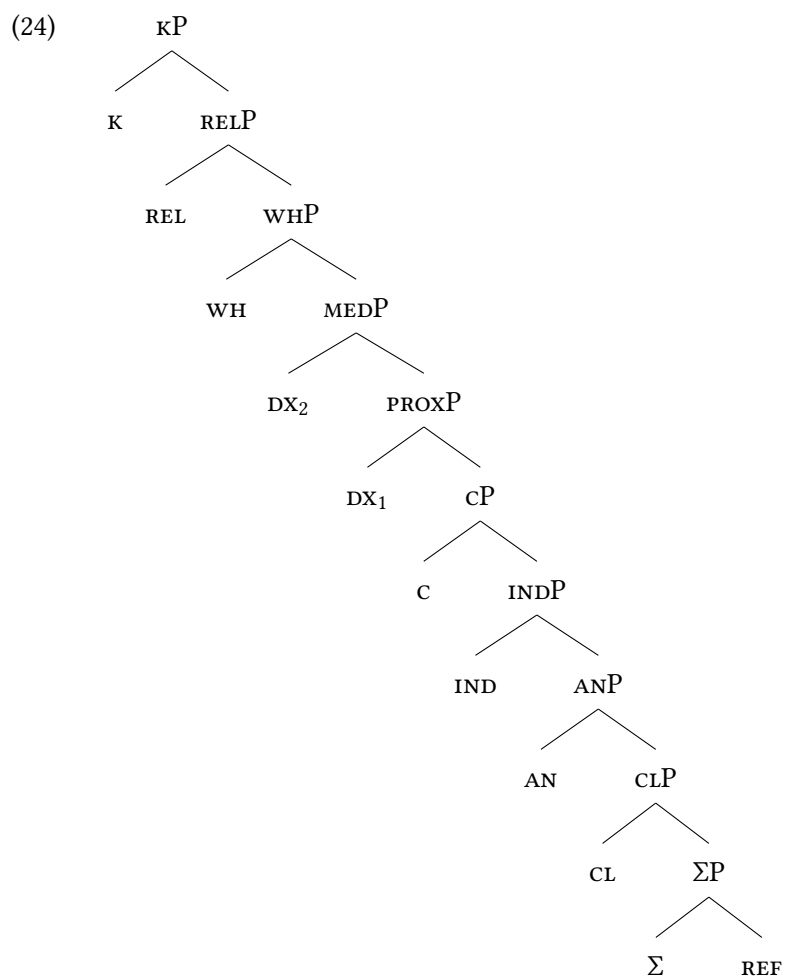
- (i) a. Sním, co -koliv mi uvaříš.
 eat.1sg what ever I.DAT cook.2sg
 ‘I will eat whatever you will cook for me.’
 b. Sním co -koliv, co mi uvaříš.
 eat.1sg what ever what I.DAT cook.2sg
 ‘I will eat anything that you will cook for me.’ (Czech, Šimík 2016: 115)

8.2 The Polish relative pronoun

In Chapter 6, I argued that in the matching type, the features of the light head are spelled out in such a way that they form the constituency shown in Figure (23).

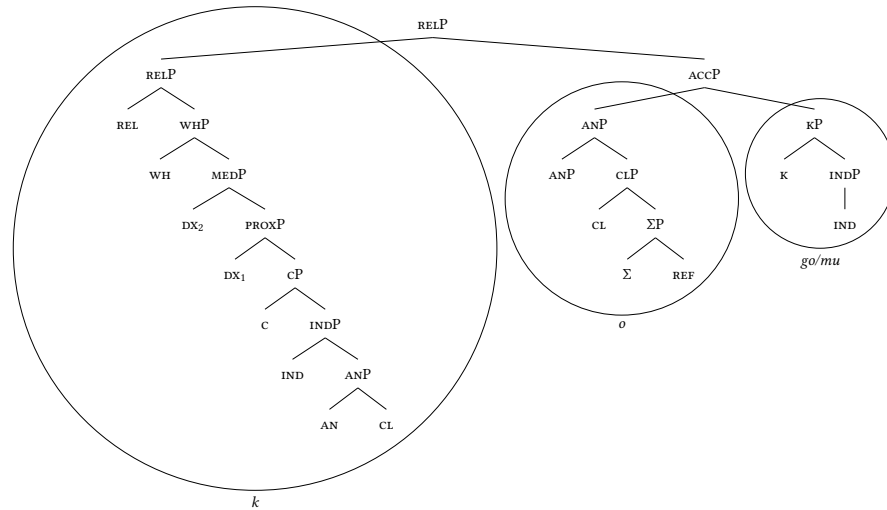


In Chapter 7, I argued for Modern German that the functional sequence for the extra light head contains the features in (24).



In this section, I argue that Polish relative pronouns have the structure shown in (25).

(25)



For the *o* and the final suffix I already gave the lexical entries in the previous section. I discuss which features the κ spells out, and I give their lexical entries. *k* spells out all the extra features. In the end, I show how the relative pronouns are constructed.

I argue that *k* spells out five features: WH, REL, DX₁, DX₂ IND. I discuss them 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 deixis features. Consider Table 8.6 again.

Table 8.6: Polish relative pronouns and demonstratives (Swan 2002: 160,171)

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

So, the *k* spells out the feature that are contained in the *t* and in the *j*, which are

C, DEIX₁ and DEIX₂.⁶

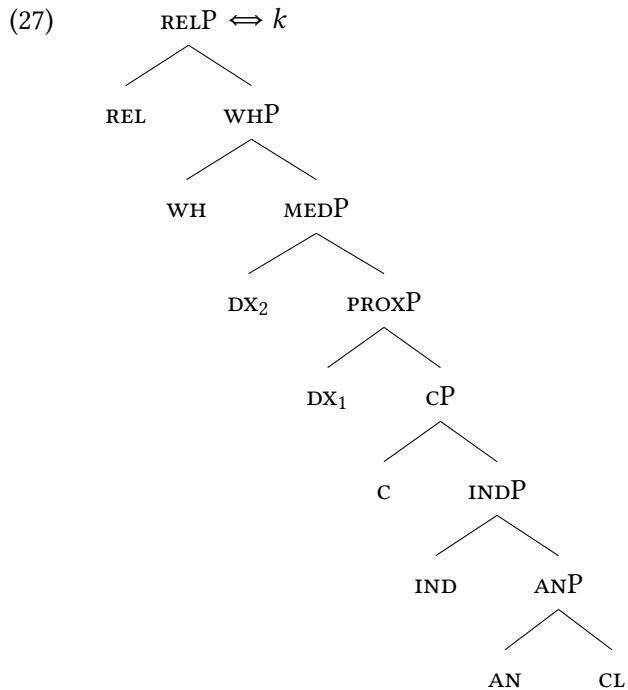
The demonstratives I gave in Table 8.6 are used as proximal and medial. I give an example in (26a). There is a separate marker for the distal, as shown in (26b).

- (26) a. to auto
DEM.PROX/MED car.N.NOM
- b. tam-to auto
DEM.DIST car.N.NOM

(Polish, Wiland 2019: 93)

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

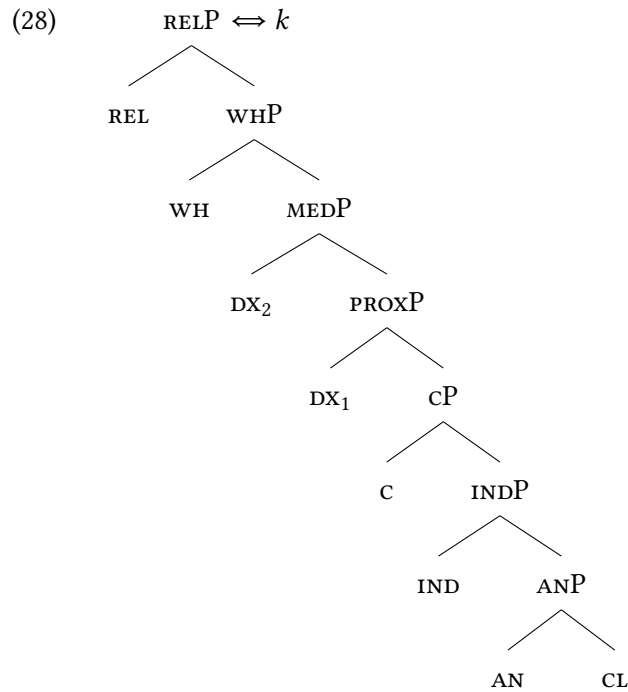
In sum, the morpheme *k* realizes the features WH, REL, DX₁, DX₂ and IND.



how I derive the *czego*

⁶Unlike Modern German, Polish demonstratives are not marked for definiteness.

The next feature in the functional sequence is the feature DX_1 . The derivation for this feature resembles the derivation of DX_1 in Modern German. The feature is merged with the existing syntactic structure, creating a $PROXP$. This structure does not form a constituent in any of the lexical trees in the language's lexicon, and neither of the spellout driven movements leads to a successful spellout. Therefore, in a second workspace, the feature DX_1 is merged with the feature IND (the previous syntactic feature on the functional sequence) into a $PROXP$. This syntactic structure forms a constituent in the lexical tree in (28), repeated from (27), which corresponds to k .



Therefore, the $PROXP$ 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 (29).

The diagram illustrates a hierarchical tree structure for a context-free grammar (CFG). The root node is cP . It branches into two main subtrees: k (left) and o (right). The subtree k contains nodes cP , c , $INDP$, IND , ANP , AN , and CL . The subtree o contains nodes ANP , CLP , CL , ΣP , Σ , and REF . A third subtree, labeled go , contains nodes $INDP$ and IND . The nodes are connected by lines, and the subtrees are enclosed in circles.

The derivations for the features `WH` and `REL` happen the same way. The feature `WH` is merged with the existing syntactic structure, creating a `whP`. This structure does not form a constituent in any of the lexical trees in the language’s lexicon, and neither of the spellout driven movements leads to a successful spellout. Backtracking leads splitting up the `INDP` from the `INDP`. The feature `WH` is merged in both workspaces, so with `MEDP` and and with `INDP`. The spellout of `WH` is successful when it is combined with the `MEDP`. It namely forms a constituent in the lexical tree in (28), which corresponds to the k . The `whP` is spelled out as k , and the `whP` is merged back to the existing syntactic structure.

Similarly, the feature REL is merged with the existing syntactic structure, creating a RELP. This structure does not form a constituent in any of the lexical trees in

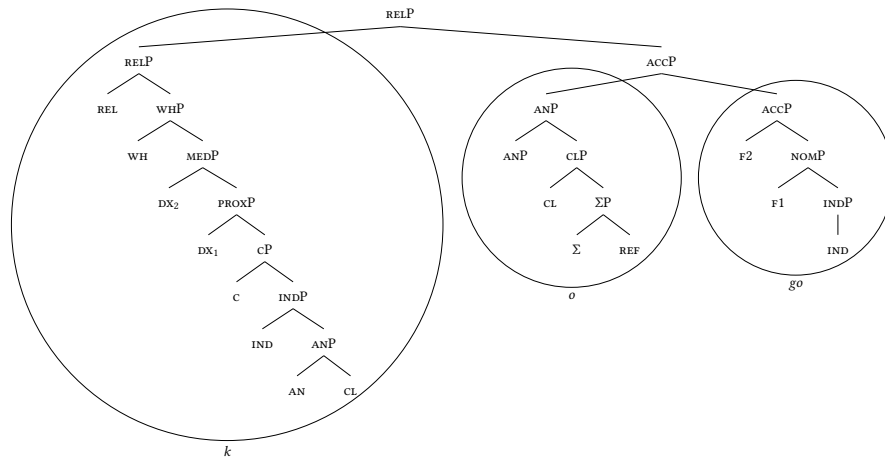
the language's lexicon, and neither of the spellout driven movements leads to a successful spellout. Backtracking leads splitting up the WHP from the INDP. The feature REL is merged in both workspaces, so with WHP and and with INDP. The spellout of REL is successful when it is combined with the MEDP. It namely forms a constituent in the lexical tree in (28), 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 (15), 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 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 (15), which corresponds to the *go*. The NOMP is spelled out as *go*, and the NOMP is merged back to the existing syntactic structure.

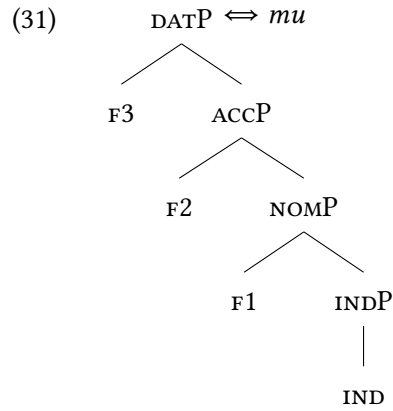
For the accusative relative pronoun, the last feature on the functional sequence is the feature F2. Its derivation preceeds the same as the one for the feature F1. The feature F2 is merged with the existing syntactic structure, creating a ACCP. This structure does not form a constituent in any of the 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 (15), which corresponds to the *go*. The ACCP is spelled out as *go*, and the ACCP is merged back to the existing syntactic structure.

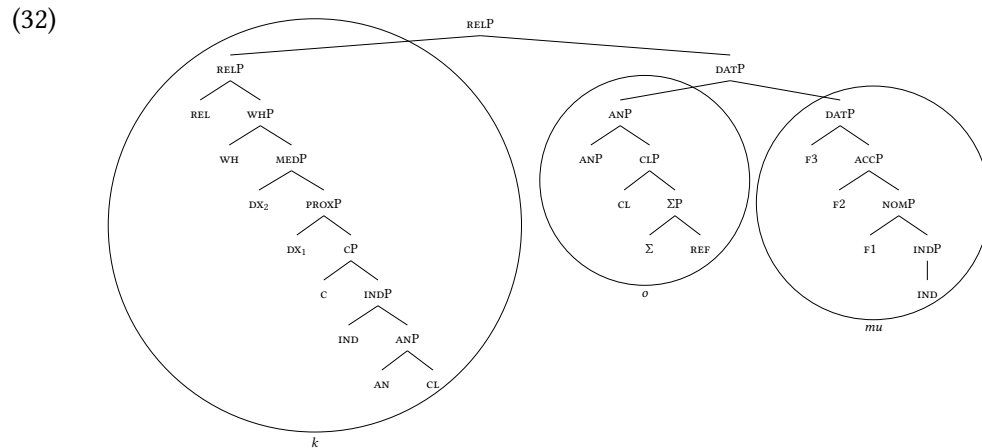
(30)



For the accusative relative pronoun, the last feature on the functional sequence is the feature F3. Its derivation precedes 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 (31), which corresponds to the *mu*.



The DATP is spelled out as *mu*, and the DATP is merged back to the existing syntactic structure.



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

8.3 Comparing Polish constituents

In this section, I compare the constituents of extra light heads to those of relative pronouns in Polish. I give three examples, in which the internal and external case

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

I start with the matching cases. Consider the example in (33), 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.

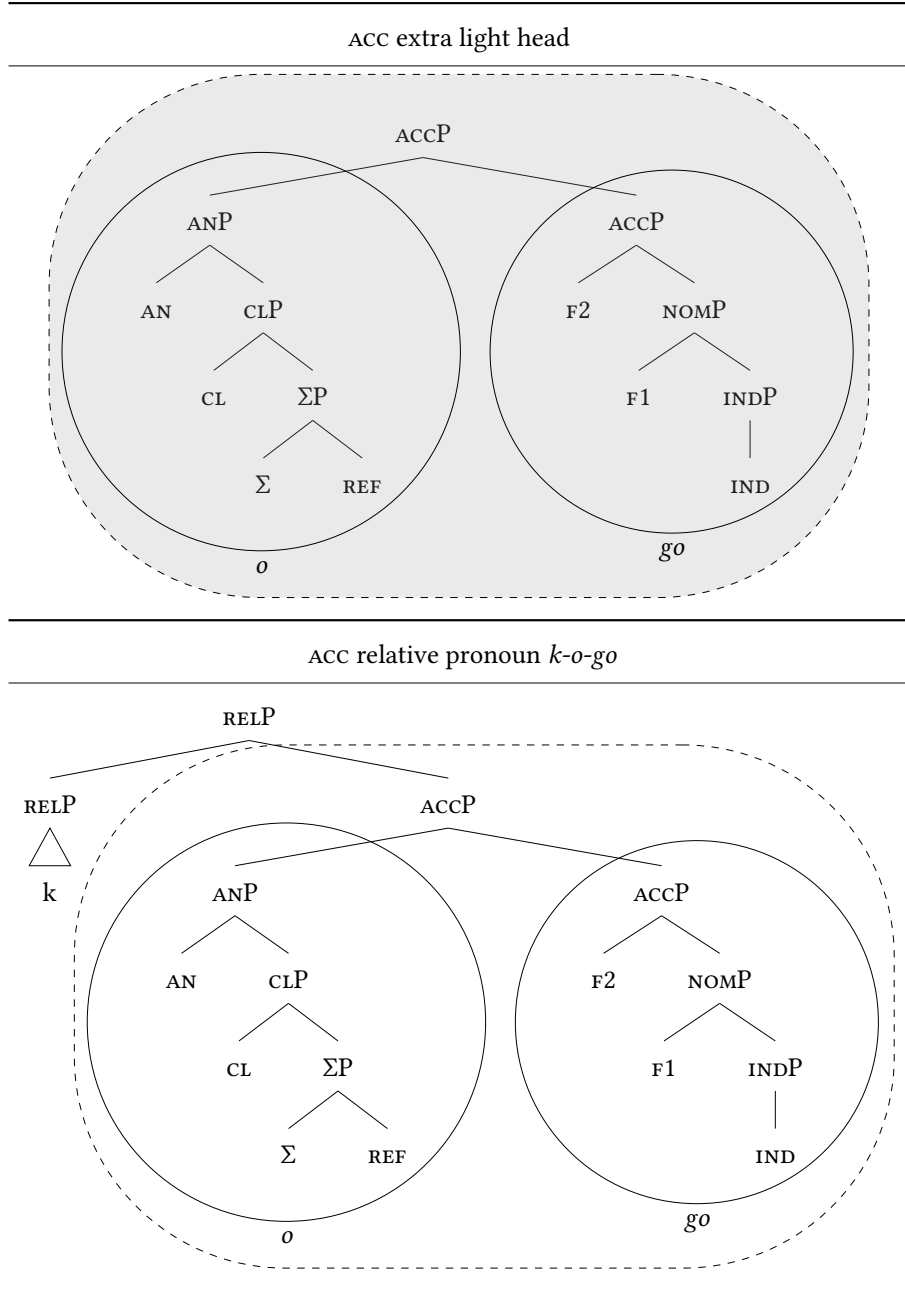
- (33) Jan lubi [ogo] kogo -kolkwiek Maria lubi.
 Jan like.3SG_[ACC] DEM.ACC.AN.SG RP.ACC.AN ever Maria like.3SG_[ACC]
 ‘Jan likes whoever Maria likes.’

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

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

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

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

Figure 8.3: Polish EXT_{ACC} vs. $\text{INT}_{\text{ACC}} \rightarrow kogo$

signal the deletion of the extra light head by marking the content of its circle gray.

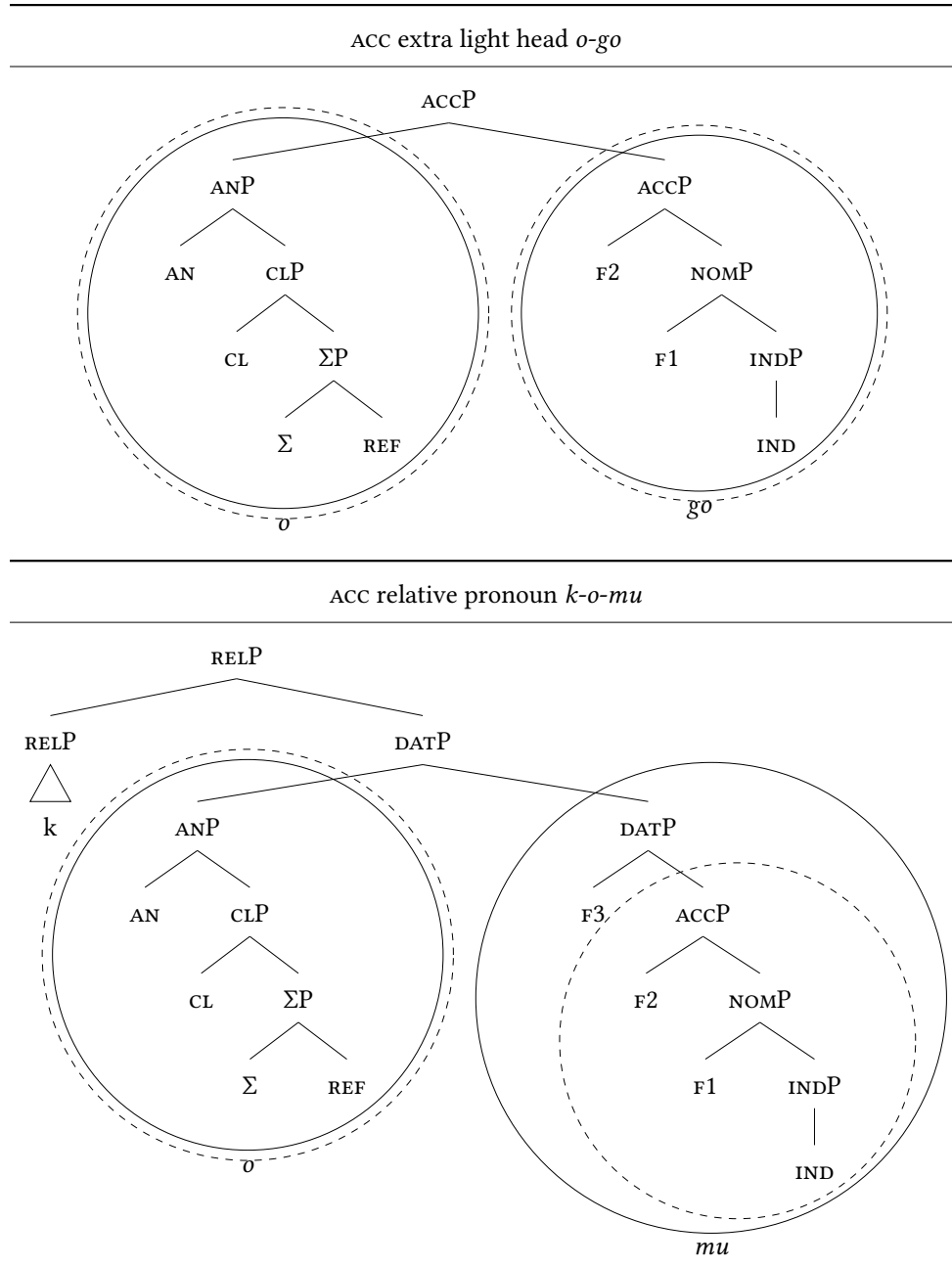
I continue with the example in which the internal case is more complex than the external case. Consider the examples in (34), in which the internal dative case competes against the external accusative case. The relative clauses are marked in bold. It is not possible to make a grammatical headless relative 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. (34a) 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. (34b) 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.

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

In Figure 8.4, I give the syntactic structure of the extra light head at the top and the syntactic structure of the relative pronoun at the bottom.

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

The extra light head consists of two constituents: the ANP and the (lower) ACCP. Together they form the (higher) ACCP. Both of these constituents are also constituents within the relative pronoun. However, the (higher) ACCP is not a con-

Figure 8.4: Polish EXT_{ACC} vs. $\text{INT}_{\text{DAT}} \rightarrow \text{ogo/komu}$

stituent within the relative pronoun. The constituent in which the ACCP is contained namely also contains the feature F3 that makes it a DATP. In other words, each feature and even each constituent of the extra light head is contained in the relative pronoun. However, they are not contained in the relative pronoun as a single constituent. Therefore, the relative pronoun cannot delete the extra light head.

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

I continue with the example in which the external case is more complex than the internal case. Consider the examples in (35), 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. (35a) 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. (35b) 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.

- (35) a. *Jan ufa [omu] **kogo** **-kolkwiek wpuścił do**
 Jan trust.3SG_[DAT] ELH.DAT.AN RP.ACC.AN ever let.3SG_[ACC] to
 domu.
 home
 ‘Jan trusts whoever he let into the house.’

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

- b. Jan ufa omu [kogo] -kolkwiek wpuścil do
 Jan trust.3SG_[DAT] ELH.DAT.AN RP.ACC.AN ever let.3SG_[ACC] to
domu.
 home
 'Jan trusts whoever he let into the house.'

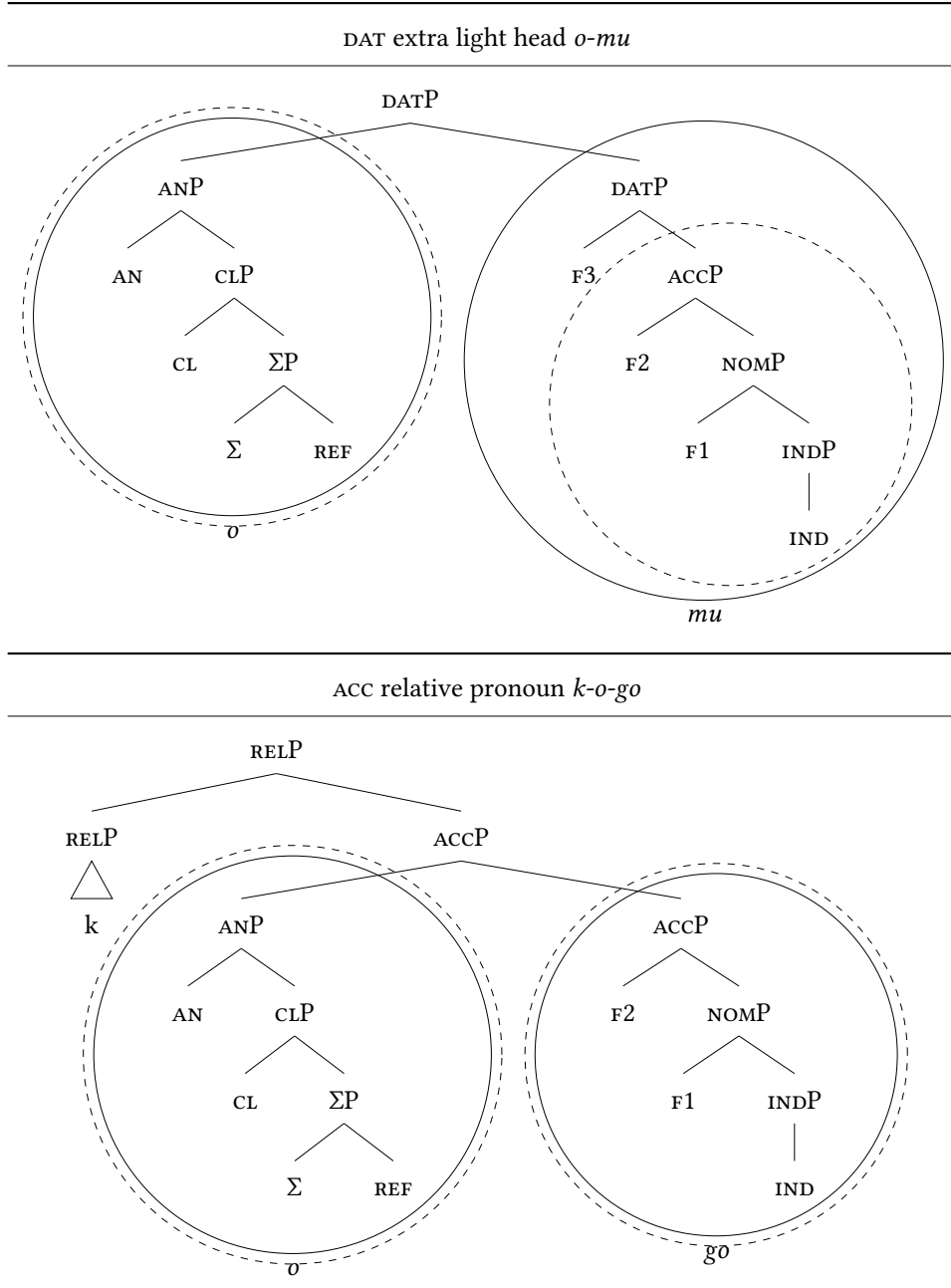
(Polish, adapted from Citko 2013 after Himmelreich 2017: 17)

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

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

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

8.4 Summary

Figure 8.5: Polish EXT_{DAT} vs. $\text{INT}_{\text{ACC}} \rightarrow \text{omu/kogo}$

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 13th Poznan Linguistic Meeting*.
- Franks, Steven, Uwe Junghanns, and Paul Law (2004). “Pronominal clitics in Slavic”. In: *Journal of Slavic linguistics* 12.1/2, pp. 3–36.
- 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.