

CASE COMPETITION IN HEADLESS RELATIVES

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## List of abbreviations

<b>ACC</b>	accusative
<b>AN</b>	animate
<b>DAT</b>	dative
<b>ELH</b>	extra light head
<b>F</b>	feminine
<b>INAN</b>	inanimate
<b>NOM</b>	nominative
<b>PRES</b>	present tense
<b>REL</b>	relative marker
<b>SG</b>	singular



## **Part I**

# **Case competition**







## **Part II**

# **The typology**





## **Part III**

# **Deriving the typology**



## Chapter 7

# Deriving the internal-only type

In Chapter 6, I suggested that languages of the internal-only type have two lexical entries that spell out light heads and relative pronouns in the language: a portmanteau for phi and case features and a separate lexical entry that spells out the feature REL. This means that the internal syntax of light heads and relative pronouns looks as shown in Figure 7.1.

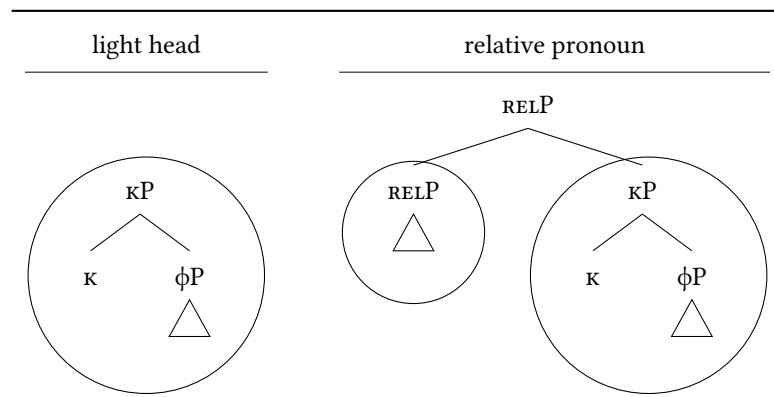


Figure 7.1: ELH and RP in the internal-only type

These lexical entries lead to the grammaticality pattern shown in Table 7.1.

Consider the first situation in which the internal and the external case match. The light head consists of a phi and case feature portmanteau. The relative pronoun consists of the same morpheme plus an additional morpheme that spells out the feature REL. The lexical entries create a syntactic structure such that the light head is structurally contained in the relative pronoun. Therefore, the light head can be deleted, and the relative pronoun surfaces, bearing the internal case.

Consider now the situation in the internal case wins the case competition. The light head consists of a phi and case feature portmanteau. The relative pronoun consists of a phi and case feature portmanteau that contains at least one more case

Table 7.1: Grammaticality in the internal-only type

situation	lexical entries		containment	deleted	surfacing
	LH	RP			
$\kappa_{\text{INT}} = \kappa_{\text{EXT}}$	$[\kappa_1[\phi]]$	$[\text{REL}], [\kappa_1[\phi]]$	structure	LH	$\text{RP}_{\text{INT}}$
$\kappa_{\text{INT}} > \kappa_{\text{EXT}}$	$[\kappa_1[\phi]]$	$[\text{REL}], [\kappa_2[\kappa_1[\phi]]]$	structure	LH	$\text{RP}_{\text{INT}}$
$\kappa_{\text{INT}} < \kappa_{\text{EXT}}$	$[\kappa_2[\kappa_1[\phi]]]$	$[\text{REL}], [\kappa_1[\phi]]$	no	none	*

feature than the light head ( $\kappa_2$  in Figure 7.1) plus an additional morpheme that spells out the feature REL. The lexical entries create a syntactic structure such that the light head is structurally contained in the relative pronoun. Therefore, the light head can be deleted, and the relative pronoun surfaces, bearing the internal case.

Finally, consider the situation in which the external case wins the case competition. The relative pronoun consists of a phi and case feature portmanteau 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 ( $\kappa_2$  in Figure 7.1). The lexical entries create a syntactic structure such that neither the light head nor the relative pronoun is structurally contained in the other element. Therefore, none of the elements can be deleted, and there is no headless relative construction possible.

In Chapter 4, I showed that Modern German is a language of the internal-only type. In this chapter, I show that Modern German light heads and relative pronouns have the type of internal syntax described in Figure 7.1. I give a compact version of the internal syntax of Modern German light heads and relative pronouns in Figure 7.2.

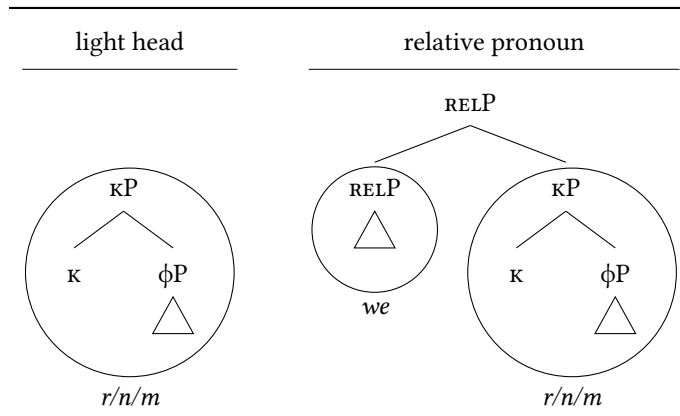


Figure 7.2: LH and RP in Modern German

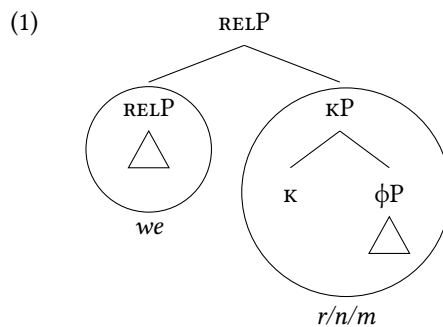


Consider the light head in Figure 7.2. Light heads (i.e. phi and case features) in Modern German are spelled out by a single morpheme, indicated by the circle around the structure. They are spelled out as *n* or *m*, depending on which case they realize. Consider the relative pronoun in Figure 7.2. Relative pronouns in Modern German consist of two morphemes: the constituent that forms the light head (i.e. phi and case features) and the RELP, again indicated by the circles. The constituent that forms the light head has the same spellout as in the light head (*n* or *m*), and the RELP is spelled out as *we*. Throughout this chapter, I discuss the exact feature content of light heads and relative pronouns, I give lexical entries for them, and I show how these lexical entries lead to the internal syntax shown in Figure 7.2.

The chapter is structured as follows. First, I discuss the relative pronoun. I start by decomposing it into the two morphemes I showed in Figure 7.2. Then I show which features each of the morphemes corresponds to. I illustrate how different morphemes are combined into the internal syntax in Figure 7.2. Then I discuss the light head. I argue that Modern German headless relatives are derived from a type of light-headed relative clause that does not surface in the language. I show that the light head corresponds to one of the morphemes of the relative pronoun (the  $\kappa$ P in Figure 7.2). Finally, I compare the internal syntax of the light head and the relative pronoun. I show that the light head can be deleted when the internal case matches the external case or when the internal case is more complex than the external case. When the external case is more complex, I show that none of the elements can be deleted.

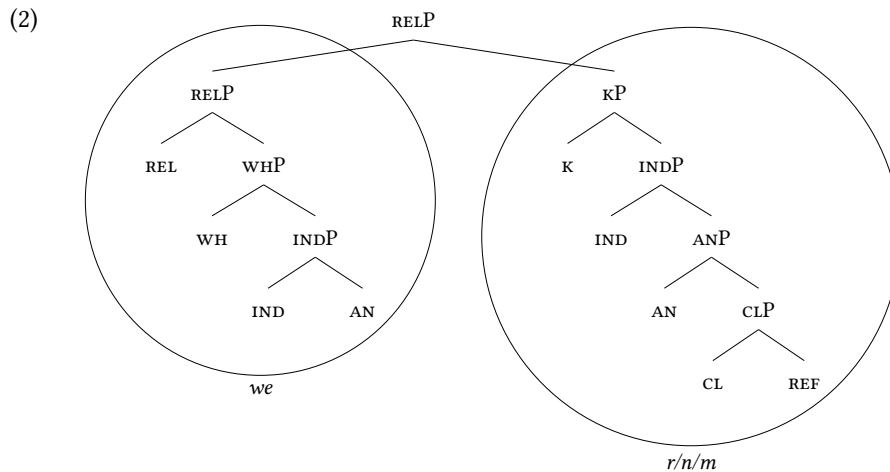
## 7.1 The Modern German relative pronoun

In the introduction of this chapter, I suggested that the internal syntax of relative pronouns in Modern German looks as shown in (1).



In Chapter 6, I suggested that relative pronouns consist of at least three features: REL,  $\phi$  and  $\kappa$ . In this section, I show that relative pronoun consists of more features than that. Still, the crucial claim I made in Chapter 6 remains unchanged: internal-

only languages (of which Modern German is an example) have a portmanteau for the features that correspond to phi and case features and a morpheme that spells out the features the light head does not contain. I show the complete structure that I work towards in this section in (2).<sup>1</sup>



I discuss two relative pronouns: the animate accusative and the animate dative. These are the two forms that I compare the internal syntax of in Section 7.4.<sup>2</sup> I show them in (3).

- (3) a. we-n  
       ‘RP.AN.ACC’  
       b. we-m  
       ‘RP.AN.DAT’

I decompose the relative pronouns into two morphemes: the *we* and the final consonant (*n* or *m*). For each morpheme, I discuss which features they spell out, and I give their lexical entries. In the next section, I show how I construct the relative pronouns by combining the separate morphemes.

I start with the final consonants: *n* and *m*. These two morphemes correspond to what I called the phi and case feature portmanteau in Chapter 6 and the introduction to this chapter. I argue that the phi features actually correspond to gender features,

<sup>1</sup>The KP in this functional sequence is a placeholder for multiple case projections. When the relative pronoun is the nominative, the KP consists of the feature F1, and it forms the NOMP. When the relative pronoun is the accusative, the KP consists of the features F1 and F2, and they form the ACCP. When the relative pronoun is the dative, the KP consists of the features F1, F2 and F3, and they form the DATP.

<sup>2</sup>For reasons of space, I do not discuss the animate nominative *wer* ‘RP.AN.ACC’. I assume its analysis is identical to the one I propose for *wen* and *wem*, except that *wer* spells out fewer case features. I work out the proposal for *wen* and *wem* to be able to do a comparison between Modern German and Polish in which the relative pronouns spell out exactly the same feature content.

number features and pronominal features. Adding this all up, I claim that the final consonants correspond to number features, gender features, pronominal features and case features. Consider Table 7.2.

Table 7.2: Modern German relative pronouns (Durrell 2011: 5.3.3)

	AN	INAN
NOM	we-r	wa-s
ACC	we-n	wa-s
DAT	we-m	-

The final consonants change depending on animacy and case.<sup>3</sup> The differing final consonant can be observed in several contexts besides relative pronouns. Table 7.3 gives an overview of the demonstrative *dieser* ‘this’ in Modern German in two numbers, three genders and three cases.<sup>4</sup>

Table 7.3: Modern German demonstrative *dieser* ‘this’ (Durrell 2011: Table 5.2)

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

Table 7.3 shows that the final consonant differs depending on gender, number and case. There is no vowel that differs between the different forms. I conclude from this that the consonant realizes features having to do with gender, number and case. In other words, the final consonant is a portmanteau that realizes gender, number and case features.

For number and gender, I adopt the features that are distinguished by Harley and Ritter (2002) for pronouns. The feature CL corresponds to a gender feature, which is inanimate or neuter if it is not combined with any other features. Combining CL with the feature AN gives the animate or masculine gender.<sup>5</sup> The feature IND corresponds to number, which is singular if it is not combined with any other features.

<sup>3</sup>The vowel also differs between animacy. I return to this point when I discuss the feature content of the *we*.

<sup>4</sup>Notice that the animate forms in Table 7.2 are the masculine forms in Table 7.3 and that the inanimate forms in Table 7.2 are the neuter forms in Table 7.3. This is a pattern that appears more often.

<sup>5</sup>If the features CL and AN are combined with the feature FEM, it becomes the feminine gender.

For case, I adopt the features of Caha (2009), already introduced in Chapter 3. The feature  $\text{F1}$  and  $\text{F2}$  corresponds to the accusative, and the features  $\text{F1}$ ,  $\text{F2}$  and  $\text{F3}$  correspond to the dative.

Having discussed the number, gender and case features, only the pronominal features remain. Another context in which the final consonants appear (besides their use in relative pronouns and demonstrative pronouns) is as pronouns on their own. In (4), I give examples of the masculine accusative singular and masculine dative singular.

- (4) a. Ich wollte  $n$  gestern schon anrufen.  
       I wanted 3SG.M.ACC.WK yesterday already call  
       ‘I already wanted to call him yesterday.’  
       b. Ich helfe  $m$  sein Fahrrad zu reparieren.  
       I help 3SG.M.DAT.WK his bike to repara  
       ‘I help him repairing his bike.’

This means that the forms also correspond to pronominal features. I follow Harley and Ritter (2002) who claim that all pronouns contain the feature  $\text{REF}$ , because they are referential expressions.<sup>6</sup>

I give the lexical entries for  $n$  and  $m$  in (5). The  $n$  is the accusative animate

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6

To be more precise, the final consonants correspond to the weak pronoun in Modern German. Cardinaletti and Starke (1994) split pronouns in three classes: strong pronouns, weak pronouns and clitics. Following the tests in Cardinaletti and Starke (1994) that distinguish the types from each other, the pronouns in (4) are neither strong pronouns nor clitics, and therefore, should be classified as weak pronouns.

First,  $n$  and  $m$  are not strong pronouns because of how they behave under coordination and under focus. Strong pronouns can be coordinated.  $n$  and  $m$  cannot be coordinated, as shown in (i).

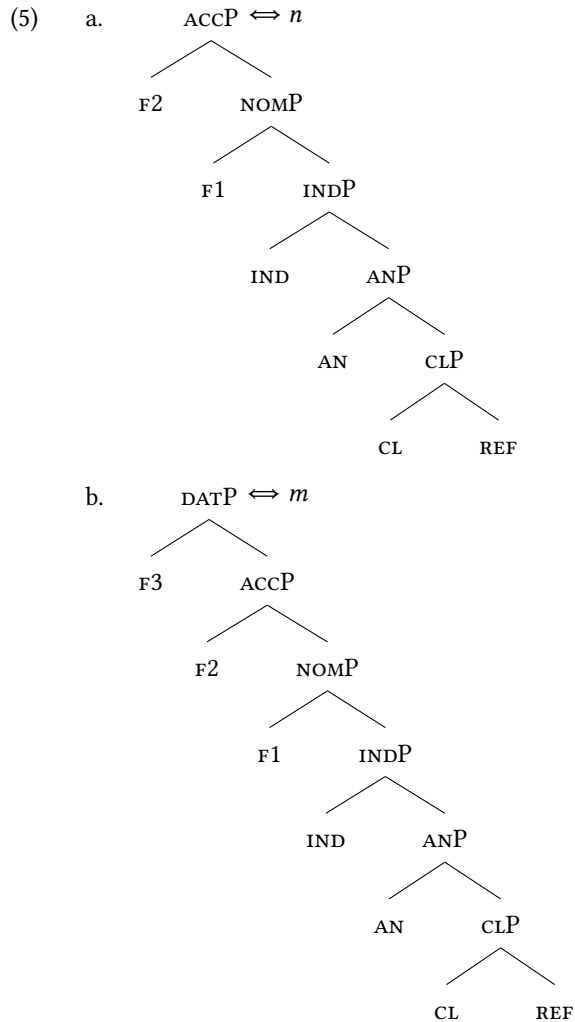
- (i) a. \*Ich wollte Jan und  $n$  gestern schon anrufen.  
       I wanted Jan and 3SG.M.ACC.WK yesterday already call  
       ‘I already wanted to call Jan and him yesterday.’  
       b. \*Ich helfe Jan und  $m$  sein Fahrrad zu reparieren.  
       I help Jan and 3SG.M.ACC.WK his bike to repara  
       ‘I help Jan and him repairing his bike.’

Strong pronouns can be focused, whereas  $n$  and  $m$  cannot be focused.

Second, the consonants are not clitics because clitics cannot combine with prepositions, but  $n$  and  $m$  can, as shown in (ii).

- (ii) a. Ich bin schnell auf  $n$  zu gelaufen.  
       I am fast on 3SG.M.ACC.WK to walked  
       ‘I walked toward him fast.’  
       b. Ich war mit  $m$  im Wald wandern.  
       I have already a gift for 3SG.M.DAT.WK bought  
       ‘I was hiking with him in the woods.’

singular, so it spells out the features REF, CL, AN, IND, F1 and F2. The *m* is the dative animate singular, so it spells out the features that the *n* spells out plus F3.



Note that the ordering of the features here is not random. I motivate the ordering in Section 7.2.

I continue with the morpheme *wē*. This morpheme corresponds to what I called the REL-feature in Chapter 6 and in the introduction to this chapter. I argue that

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Clitics can either follow a dative object or precede it. Strong and weak pronouns can only follow it. *n* and *m* can only follow a dative object.

Since *n* and *m* are not strong pronouns and not clitics, they are weak pronouns. Therefore, I propose that actually two pronominal features are present: REF and  $\Sigma$ . The feature  $\Sigma$  is present because the consonants are weak pronouns (Cardinaletti and Starke, 1994). I assume that clitics lack the features REF (which corresponds to the LP in Cardinaletti and Starke 1994: 61) and the feature  $\Sigma$ . Strong pronouns have, in addition to REF and  $\Sigma$ , another feature (C in terms of Cardinaletti and Starke 1994: 61).

this morpheme actually spells out the operator features *WH* and *REL* and number and gender features.

Consider Table 7.4 and Table 7.5, repeated from Table 7.2.

Table 7.4: Modern German demonstrative pronouns (Durrell 2011: 5.4.1)

	masculine	N	F	plural
NOM	de-r	da-s	die	die
ACC	de-n	da-s	die	die
DAT	de-m	de-m	de-r	de-n

Table 7.5: Modern German relative pronouns (Durrell 2011: 5.3.3)

	AN	INAN
NOM	we-r	wa-s
ACC	we-n	wa-s
DAT	we-m	-

The morpheme *we* combines with the same endings as the morpheme *de* does in demonstrative pronouns (or relative pronouns in headed relatives).<sup>7</sup> This identifies the *de* and, more importantly for the discussion here, the *we* as a separate morpheme.<sup>8,9</sup>

<sup>7</sup>Note that *WH*-pronouns, unlike the demonstratives, do not have feminine and plural forms. As far as I know, this holds for all relative pronouns in languages of the internal-only type (cf. also for Finnish, even though it makes a lot of morphological distinctions) and of the matching type. Relative pronouns in languages of the unrestricted type do inflect for feminine and plural, as well as always-external languages.

<sup>8</sup>It is also possible to analyze *we* as two separate morphemes: *w* and *e*. This further decomposition would not make a difference for the analysis I propose here. What is crucial is that *phi* and case features correspond to a single morpheme and the other part has its own morpheme or morphemes.

<sup>9</sup>I actually think that *we* also spells out deixis features. In relative pronouns it does not express spatial deixis, but discourse deixis: it establishes a relation with an antecedent. Generally, three types of deixis are distinguished: proximal, medial and distal. I argue that *e* in the relative pronoun corresponds to the medial. Generally speaking, *WH*-pronouns combine with the medial or the distal. English has morphological evidence for this claim. Demonstratives in English can combine with either the proximal or this medial/distal, as shown in (i).

- (i) a. this  
DEM.PROX  
b. that  
DEM.MED/DIST

I start with discussing the operator features *WH* and *REL*. *WH* is a feature that *WH*-pronouns, such as *WH*-relative pronouns and interrogatives, share. The feature triggers the construction of a set of alternatives in the sense of Rooth (1985, 1992) (Hachem, 2015). This contrasts with the *D* in Table 7.4, which is responsible for establishing a definite reference. The feature *REL* is present to establish a relation.

I continue with the last two features that are spelled out by *we*, namely the number feature *IND* and the gender feature *AN*. Consider again Table 7.5. In the different genders, not only the final consonants differ, but also the vowel. This suggests that *we* also realizes gender features.<sup>10</sup>

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*WH*-pronouns combine with the medial/distal and are ungrammatical when combined with the proximal, shown in (ii).

- (ii) a. \*whis  
          WH.PROX  
      b. what  
          WH.MED/DIST

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

I adopt the features for deixis distinguished by Lander and Haegeman (2018). The feature *DX*<sub>1</sub> corresponds to the proximal, the features *DX*<sub>1</sub> and *DX*<sub>2</sub> correspond to the medial, and the features *DX*<sub>1</sub>, *DX*<sub>2</sub> and *DX*<sub>3</sub> correspond to the distal. The difference between the proximal, the medial and the distal cannot be observed in Modern German, because it is syncretic all of them (Lander and Haegeman 2018: 387), see Table 7.4.

I leave the deixis features out of the discussion and the lexical entries because they are not relevant for the analysis.

<sup>10</sup> An alternative to this analysis is to let *wer* correspond two lexical entries of which the phonological part look as in (i).

- (i) a. /w/ + CV  
      b. /er/ + C

Under this analysis, the final consonant has the vowel *e* in its lexical entry (as shown in (ib)), but it does not have a phonological slot for a vowel (i.e. no C). When the lexical entry is present without the lexical entry in (ia), the vowel *e* does not surface, because there is only a slot for a consonant. Only when the lexical entry combines with a lexical entry that does have a slot for a vowel (such as (i)), the vowel *e* gets to surface.

A theoretical advantage of this analysis is that there is no need to specify a *da* and a *de* and a *wa* and a *we* for the different genders in the lexicon. The vowel is part of the lexical entry that belongs to the final consonant and it gets to surface because of the vowel slot that the *w* or *d* introduces.

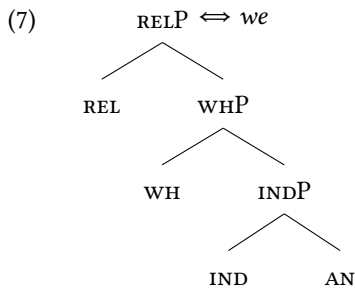
An empirical advantage of this analysis concerns the vowel *e*. The dative forms in all gender and numbers have the *e*, which I assigned to masculine gender. This holds for the genitive forms too, which I

I end with discussing the feature *IND*. I derive its presence from the fact that *WH*-pronouns in Modern German can only show singular verbal agreement and no plural agreement. Consider the examples in (6).

- (6) a. Wer mach-t das?  
       who do-3SG that  
       ‘Who is/are doing that?’  
       b. \*Wer mach-en das?  
       who do-3PL that  
       intended: ‘Who are doing that?’

In (6a), the verb *macht* appears in third person singular. It agrees with the *WH*-pronoun *wer* ‘who’. This question can be interpreted as referring to a single referent or multiple, as indicated by the translation. The sentence in (6b), in which the verb *machen* has third person plural agreement, is ungrammatical.

In sum, the morpheme *we* corresponds to the features *WH*, *REL*, *IND* and *AN* as shown in (7).



At this point, I gave lexical entries for each of the morphemes that the relative pro-

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have not given here. If *we* is not specified for gender (but maybe still for number) and the vowel belongs to the final consonant, it can be inserted for non-masculines too.

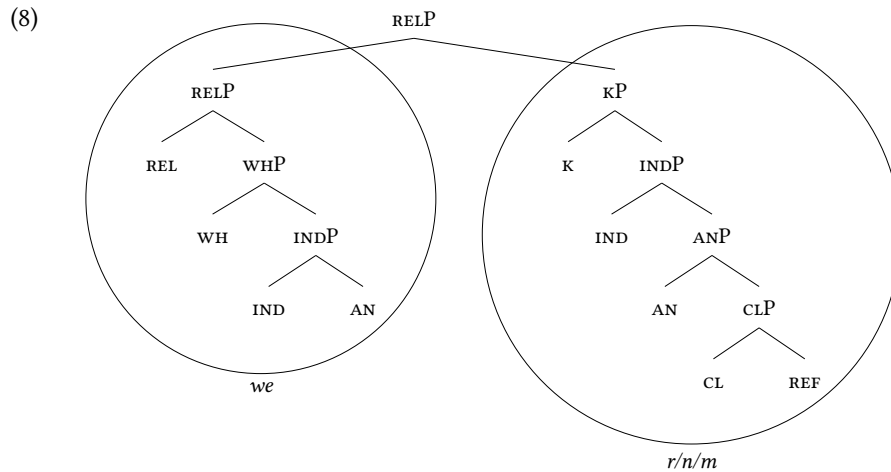
The strong masculine singular pronoun in nominative in Modern German is *er*. It seems it can be spelled out by the lexical entry in (ib) and another lexical entry that just introduces a slot for a vowel. This is not the case for the same pronoun in accusative and dative case: then the additional lexical entry seems to be a slot for a vowel that has already been filled with in /i/ (for *ihn* and *ihm*). For the nominative and accusative neuter singular pronoun, the slot is filled with an /ε/ (for *es*). I leave it for future research to investigate how this difference should be modeled. An observation that might be relevant in doing that is that in the paradigm of the possessives (*mein*) there are three cells that do not take an ending: the masculine singular nominative and the neuter singular nominative and accusative.

Notice also that the feminine singular and the plurals do not have a weak pronoun and they do not have a marker in forms like *diese* ‘this’ (see Table 7.3). This could be because their lexical entries also contain only a slot for a consonant, and their phonology only consists of vowels, so the content of the lexical entry only appears when it is combined with a morpheme that introduces a slot for a vowel.

As this matter is not relevant for the core of my analysis, I put it aside for now. For ease of exposition I simply assign a phonological exponent to each lexical entry and I do not make further distinctions in C and V slots.



noun consists of (in (5a), (5b) and (7)), and I showed what the relative pronoun as a whole looks like. I repeat it from (2) in (8).

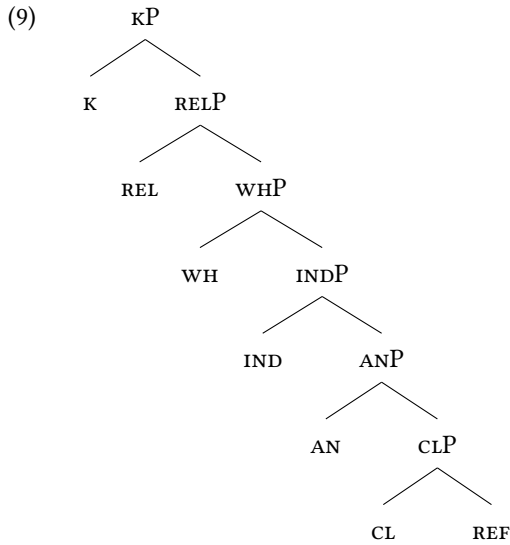


What is still needed, is a theory for combining the morphemes into relative pronouns. This theory should determine which morphemes should be combined with each other in which order. Ultimately, the result needs to be the internal syntax in (8). Ideally, the theory that derives this is not language-specific, but the same for all languages. In what follows I show how this is accomplished in Nanosyntax. Readers who are not interested in the precise mechanics can proceed directly to Section 7.3.

## 7.2 Combining morphemes in Nanosyntax

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

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



Starting from the bottom, these are pronominal feature REF, gender features CL and AN, a number feature IND, operator features WH and REL and case features κ.

This order is motivated as follows. Pronominal features (REF) are the nominal part of the structure and therefore the bottom-most feature. Both Picallo (2008) and Kramer (2016) argue that number (IND) is hierarchically higher than gender (CL and AN). Case (κ) is agreed to be higher than number (IND) (cf. Bittner and Hale, 1996).

For the position of the operator features (WH and REL) consider (10).

- (10) a. of the children  
b. of which children

The linear order in (10a) reflects the hierarchical ordering of  $\kappa > D > N$ . *Of* is namely an instance of κ, *THE* is an instance of D, and *CHILD* is an instance of N. (10b) shows that the order is the same if the definite is substituted by the WH-word *which*, suggesting that the operator features are also positioned between κ and N. Notice also that the plural morpheme *-ren* appears more to the right, hence lower in the structure, than the operator features. Finally, I assume that the feature REL is hierarchy higher than WH.

Before I construct the relative pronouns, I explain how the spellout procedure in Nanosyntax works. Features (Fs) are merged one by one according to the functional sequence, starting from the bottom. After each instance of merge, the constructed phrase must be spelled out, as stated in (11).

- (11) **Cyclic phrasal spellout** (Caha, 2020)

Spellout must successfully apply to the output of every Merge F operation. After successful spellout, the derivation may terminate, or proceed to an-

other round of Merge F.

Spellout is successful when the phrase that contains the newly merged feature forms a constituent in a lexical tree that is part of the language's lexicon. When the new feature is merged, it forms a phrase with all features merged so far. If this created phrase cannot be spelled out successfully (i.e. when it does not form a constituent in a lexical tree), there are two movement operations possible that modify the syntactic structure in such a way that the newly merged feature becomes part of a different syntactic structure. These movements are triggered because spellout needs to successfully apply. Therefore, they are called spellout-driven movements. A Spellout Algorithm specifies which movement operations apply and in which order this happens. I give it in (12).

(12) **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.

I informally reformulate what is in (12), starting with the first line in (12a). This says that a feature F is merged, and we try to spell out the newly created phrase FP. When the spellout in (12a) fails (i.e. when there is no match in the lexicon), we continue to the next two lines, (12b) and (12c), which describe the two types of rescue movements that can take place then. In the discussion about Modern German, only the first line leads to successful spellout. In the next chapter in which I discuss Polish derivations, the second and third line also lead to successful spellouts. I give the full algorithm here to give the complete picture from the start.

If these two movement operations still do not lead to a successful spellout, there are two more derivational options possible: Backtracking and Spec Formation. I return to these options later in this section, when they are relevant in the derivation of Modern German relative pronouns.

With this background in place, I start constructing the accusative relative pronoun. I repeat the available lexical entries in (13).

- (13) a.  $\text{ACCP} \Leftrightarrow n$
- ```

      /  \
    F2    NOMP
         /  \
        F1    INDP
             /  \
            IND  ANP
                /  \
               AN   CLP
                   /  \
                  CL   REF
  
```
- b.  $\text{DATP} \Leftrightarrow m$
- ```

      /  \
    F3    ACCP
         /  \
        F2    NOMP
             /  \
            F1    INDP
                 /  \
                IND  ANP
                    /  \
                   AN   CLP
                       /  \
                      CL   REF
  
```
- c.  $\text{RELP} \Leftrightarrow we$
- ```

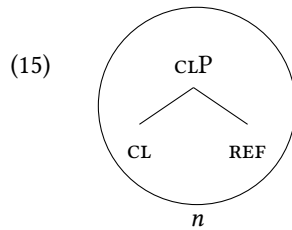
      /  \
    REL   WHP
         /  \
        WH   INDP
             /  \
            IND  AN
  
```

Starting from the bottom of the functional sequence, the first two features that are merged at REF and CL, creating a CLP.

- (14)
- ```

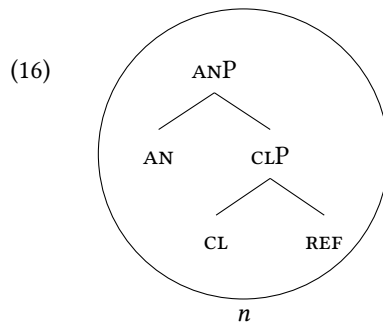
      /  \
    CL   REF
  
```

The syntactic structure forms a constituent in the lexical tree in (13a). Therefore, the *CLP* is spelled out as *n*, as shown in (15).

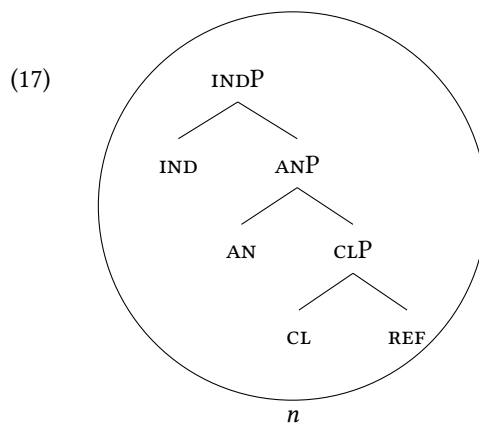


As usual, I mark this by circling the part of the structure that corresponds to the lexical entry, and placing the corresponding phonology below it. This spellout option corresponds to (12a) in the Spellout Algorithm.

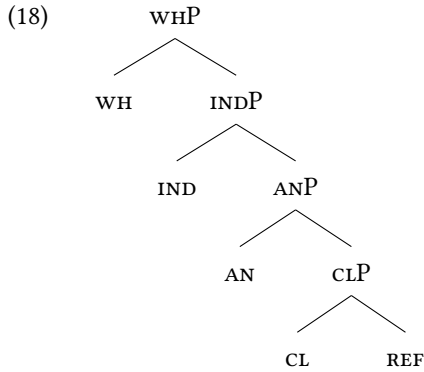
There are more features in the functional sequence, so the next feature is merged. This next feature is the feature *AN*, and a *ANP* is created. The syntactic structure forms a constituent in the lexical tree in (13a). Therefore, the *ANP* is spelled out as *n*, shown in (16).



The next feature is the feature *IND*, and a *INDP* is created. The syntactic structure forms a constituent in the lexical tree in (13a). Therefore, the *INDP* is spelled out as *n*, shown in (17).



The next feature in the functional sequence is the feature *WH*. This feature cannot be spelled out as the other ones before, which I show in what follows. The feature *WH* is merged, and a *WHP* is created, as shown in (18).



This syntactic structure does not form a constituent in the lexical tree in (13a). It namely contains the feature *WH*, which (5a) does not contain. There is also no other lexical tree that contains the structure in (18) 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 ((12a) in the Spellout Algorithm).

The first movement option in the Spellout Algorithm is moving the specifier, as described in (12b). As there is no specifier in this structure, the first movement option is irrelevant. The second movement option in the Spellout Algorithm is moving the complement, as described in (12c). In this case, the complement of *WH*, the *INDP*, is moved to the specifier of *INDP*. As this movement option does not lead to a successful match, I do not show it here. I come back to it in Chapter 8, in which it does lead to a successful match.

As I mentioned earlier, there are two more derivational options possible: Backtracking and Spec Formation. Derivationally, Backtracking comes first. However, since this does not lead to a successful spellout here I first introduce Spec Formation and I return to Backtracking later. Spec Formation is a last resort operation, when the feature cannot be spelled out by any of the preceding options. It is formalized as in (19).

(19) **Spec Formation** (Starke, 2018):

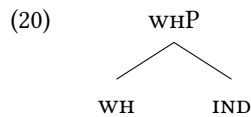
If Merge *F* has failed to spell out (even after Backtracking), try to spawn a new derivation providing *F* and merge that with the current derivation, projecting *F* to the top node.

I reformulate this informally: if none of the preceding spellout options lead to a successful spellout, a last resort operation applies. The feature that has not been spelled out yet, is merged with some other features (to which I shortly come back) in a

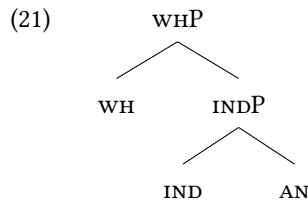
separate workspace. Crucially, the phrase that is created is contained in a lexical tree in the language's lexicon. Finally, the feature is spelled out successfully. The newly created phrase (the spec) is merged as a whole with the already existing structure.

Now I come back to the 'other' features that the feature is merged with to create a phrase that can be spelled out. This cannot be just any feature. What is crucial here again is the functional sequence. The newly merged feature is merged with features that precede it in this sequence.<sup>11</sup> This can be a single feature or multiples ones. I illustrate this with the Modern German relative pronouns.

For the feature *WH* it means that it is merged with the feature *IND*. Then, the lexicon is checked for a lexical tree that contains the phrase *WHP* that contains *WH* and *IND*, as shown in (20).



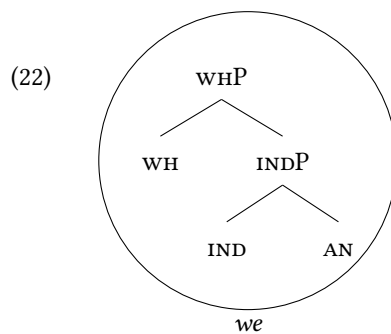
This syntactic structure does not form a constituent in any of the lexical trees in the language's lexicon. Therefore, the feature *WH* combines not only with the feature merged before it, but with a phrase that consists of the two features merged before it: *IND* and *AN*. I give the phrase this gives in (21).



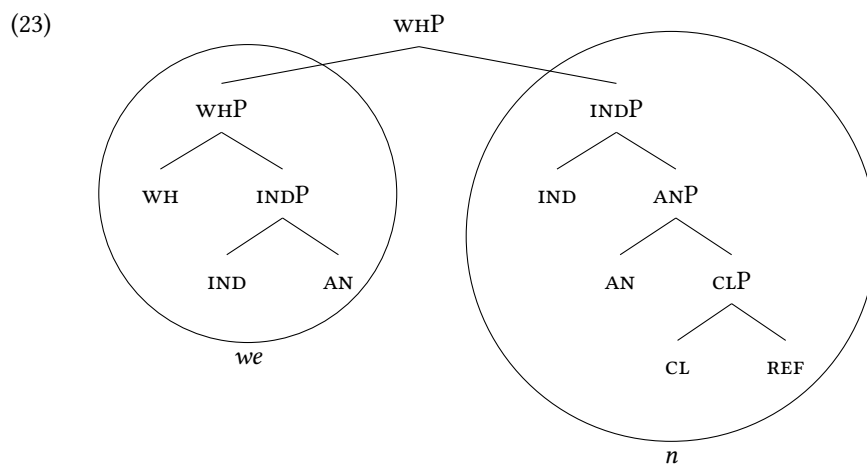
This syntactic structure forms a constituent in the lexical tree in (13c). Therefore, the *WHP* is spelled out as *we*, as shown in (22).

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<sup>11</sup>There are three different proposals on Spec Formation. Caha (2019) argue that there can only be a single feature overlap between the two phrases. De Clercq and Vanden Wyngaerd (2018) argue that there cannot be any overlap at all. The features that used in the second workspace are removed from the structure in the main workspace. In this dissertation, I work with the proposal in Starke (2018), in which the the overlap between the phrase on the left and the phrase on the right can also be more than a single feature. This is the only proposal of the three that allows me to derive all the forms I encounter.



The newly created phrase is merged as a whole with the already existing structure. As specified in (19), the feature *WH* projects to the top node. I show the results in (23).

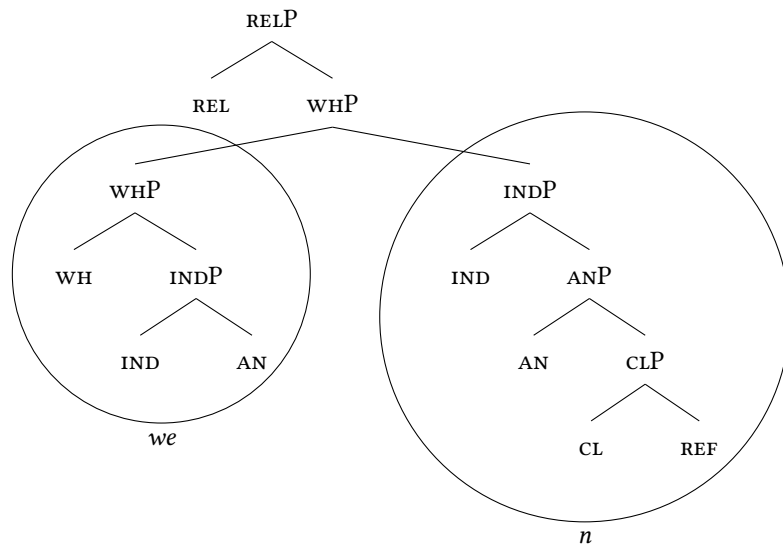


Notice here that there is an overlap of multiple features between the phrase on the right and the phrase on the left.

The next feature in the functional sequence is the feature *REL*. As always, it is merged to the existing syntactic structure, which is now the *wHP*. The result is the *REL*P shown in (24).



(24)



This whole structure does not form a constituent in any of the lexical trees in the language's lexicon. Neither of the spellout driven movement operations leads to a successful spellout. This means that, once again, the derivation reaches a point at which one of the two other possible derivational options come into play. As I mentioned before, Backtracking comes first, and this is the operation that leads to a successful spellout here.

Consider the syntactic structure in (24) again. The feature REL is merged with the highest WHP. In this position it cannot be spelled out. Consider now the lexical entry in (13c). This is a lexical tree that contains REL. This means that the feature REL somehow needs to end up in the Spec that has just been merged. I follow Caha (2019) who proposes that this happens via Backtracking. He argues that the main idea of Backtracking is that a feature is merged with a different tree than the one it was merged with before, as stated in (25).<sup>12</sup>

(25) **The logic of backtracking** (Caha 2019: 198)

When spellout of F fails, go back to the previous cycle, and provide a different configuration for Merge F.

Imagine a situation in which the previous feature was spelled out with a complex specifier and the next feature reaches the derivational option Backtracking. This is exactly the situation that arises after REL is merged. Providing a different configuration means splitting up the two phrases, and then merging the feature again.

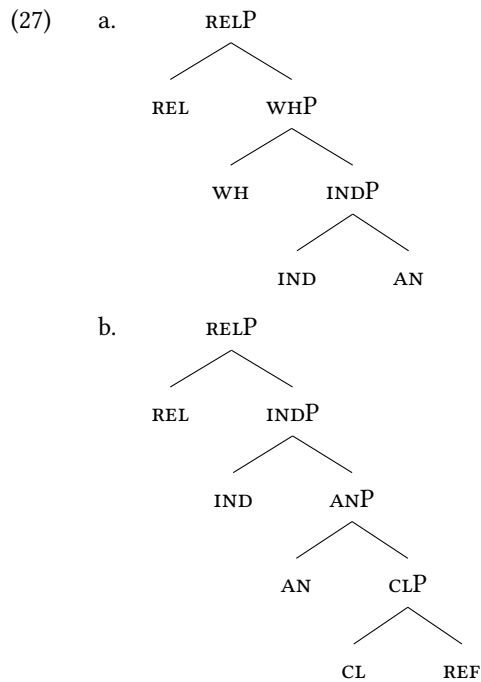
<sup>12</sup>In this dissertation I do not discuss the effect that Backtracking 'normally' has, namely to try a different spellout option at the previous cycle. That does not mean that I assume it is not part of the derivation: I actually assume it a step that is attempted. I refrain from mentioning it, because this does not lead to a successful spellout in any of the derivations I discuss.

Specifically, I adopt the proposal in which the feature is merged in both workspaces, as stated in (26).

(26) **Multiple Merge** (Caha 2019: 227)

When backtracking reopens multiple workspaces, merge F in each such workspace.

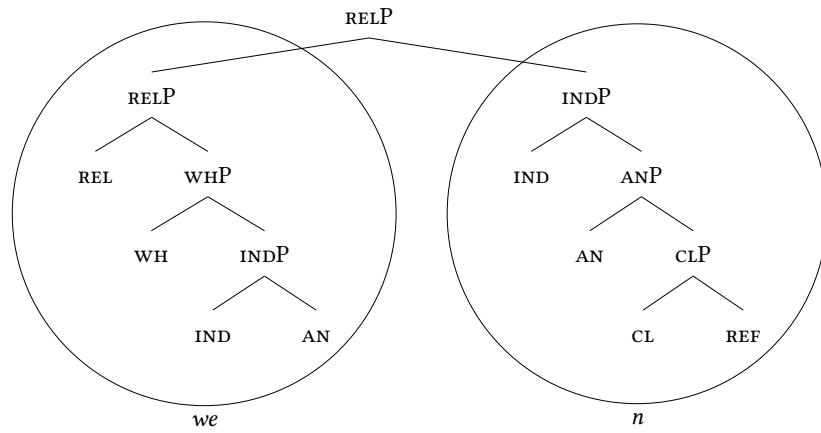
For the example under discussion, the situation looks as in (27).



The feature REL is merged in both workspaces, so it combines with the RELP in (27a) and with the INDP in (27b). From here on, the derivation proceeds, as usual, according to the Spellout Algorithm, with the only difference that it happens in two workspaces simultaneously. Spellout has to be successful in at least one of the two workspaces.

In the case of (27), the spellout of REL is successful in the syntactic structure in (27a). This syntactic structure namely forms a constituent in the lexical tree in (13c), which corresponds to the *we*. As spellout has succeeded, the workspaces can be merged back together. The result is shown in (28).

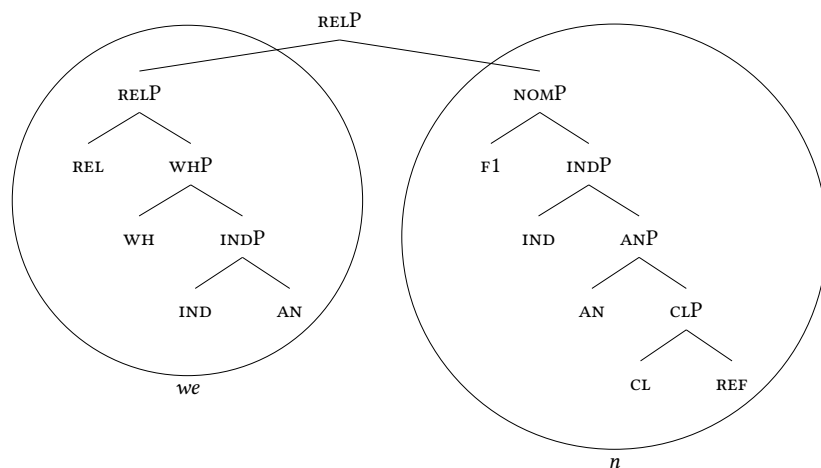
(28)



The next feature in the functional sequence is F1. This feature should somehow end up merging with INDP, because it forms a constituent in the lexical tree in (13a), which corresponds to *n*. This can again be achieved via Backtracking in which phrases are split up. I go through the derivation step by step.

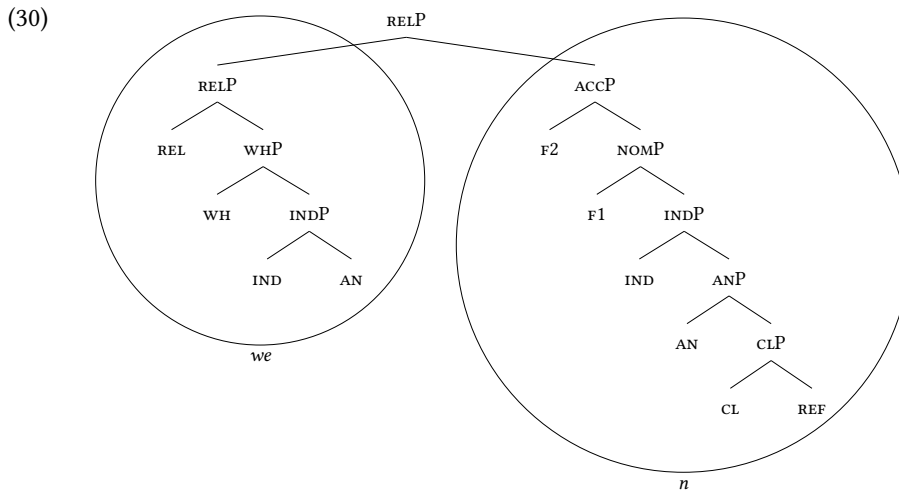
The feature F1 is merged with the existing syntactic structure, creating a NOMP. This structure does not form a constituent in any of the lexical trees in the language's lexicon, and neither of the spellout driven movements leads to a successful spellout. Backtracking leads to splitting up the RELP from the INDP. The feature F1 is merged in both workspaces, so with the RELP and and with the INDP. The spellout of F1 is successful when it is combined with the INDP. It namely forms a constituent in the lexical tree in (13a), which corresponds to the *n*. The NOMP is spelled out as *n*, and all constituents are merged back into the existing syntactic structure, as shown in (29).

(29)



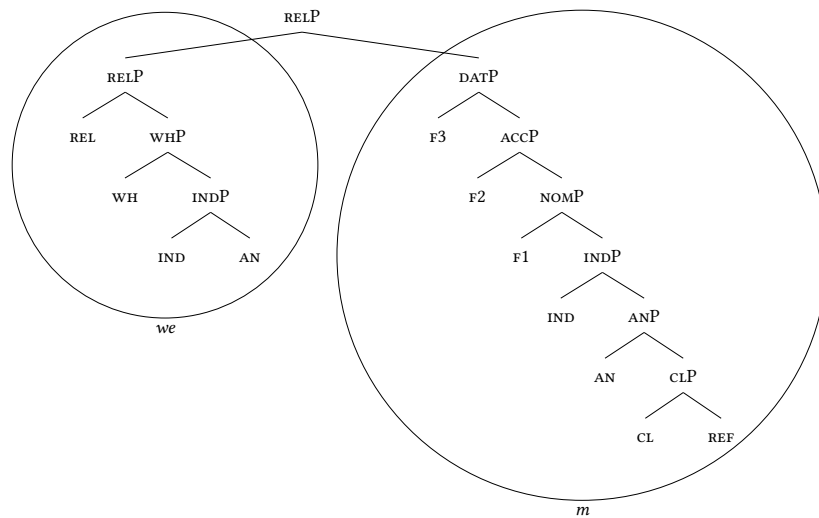
For the accusative relative pronoun, the last feature is merged: the F2. The derivation for F2 resembles the derivation of F1. The feature is merged with the existing syntactic structure, creating a ACCP. This structure does not form a constituent in

any of the lexical trees in the language's lexicon, and neither of the spellout driven movements leads to a successful spellout. Backtracking leads to splitting up the RELP from the NOMP. The feature  $f_2$  is merged in both workspaces, so with the RELP and and with the NOMP. The spellout of  $f_2$  is successful when it is combined with the NOMP. It namely forms a constituent in the lexical tree in (13a), which corresponds to the  $n$ . The ACCP is spelled out as  $n$ , and all constituents are merged back into the existing syntactic structure, as shown in (30).



For the dative relative pronoun, one more feature is merged: the  $f_3$ . The derivation for  $f_3$  resembles the derivation of  $f_1$  and  $f_2$ . The feature 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 to splitting up the RELP from the ACCP. The feature  $f_3$  is merged in both workspaces, so with the RELP and and with the ACCP. The spellout of  $f_3$  is successful when it is combined with the ACCP. It namely forms a constituent in the lexical tree in (13b). The DATP is spelled out as  $m$ , and all constituents are merged back into the existing syntactic structure, as shown in (31).

(31)

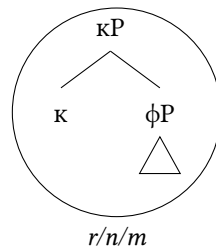


To summarize, I decomposed the relative pronoun into the two morphemes: *we* and the final consonant (*n* and *m*). I showed which features each of the morphemes spells out and what the internal syntax looks like that they are combined into. It is this internal syntax that determines whether the light head can be deleted or not.

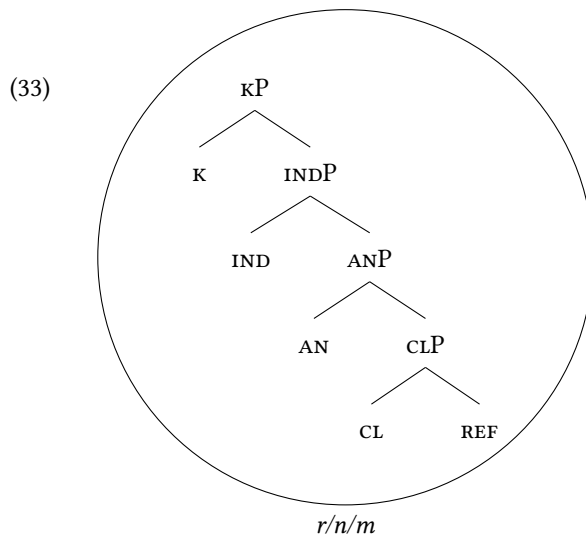
### 7.3 The Modern German (extra) light head

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 is structurally contained in the other one. In the introduction of this chapter, I claimed that the internal syntax of light heads in Modern German looks as shown in (32).

(32)



In Chapter 6, I suggested that light heads consist of at least two features:  $\phi$  and  $\kappa$ . In this section, I determine the exact feature content of the light head. I end up claiming that the phi and case feature portmanteau of the relative pronoun is the light head in headless relatives. I show the complete structure that I work towards in this section in (33).



Before I dive into the feature content of the light head, I first need to identify it, as it does not surface in headless relatives. I consider two kinds of light-headed relatives as the potential source of the headless relative. The first possible scenario is that the headless relative is derived from an existing light-headed relative, in which case the deletion of the light head would have to be optional. The second possible scenario is that the headless relative is derived from a light-headed relative that does not surface in Modern German, in which case the deletion of the light head would have to be obligatory. I consider the first scenario first, and I give two arguments against it. Then, to identify the exact input structure, I take the light head from the existing light-headed relative as a point of departure, and I modify it in such a way that it is appropriate as a light head for a headless relative.

I give an example of a Modern German light-headed relative in (34).<sup>13</sup>

<sup>13</sup>Modern German also has another light-headed relative, in which the relative pronoun is the D-pronoun. I give an example in (i).

- (i) Jan umarmt den **den** **er** mag.  
 Jan hugs D.M.SG.ACC RP.M.SG.ACC he likes  
 'Jan hugs the man that he likes.'

This relative pronoun generally appears in headed relatives, shown in (ii).

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

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

- (34) Jan umarmt den **wen** **er** mag.  
 Jan hugs DEM.M.SG.ACC RP.AN.ACC he likes  
 ‘Jan hugs the man that he likes.’

In (34), the relative pronoun is the WH-pronoun *wen* ‘RP.AN.ACC’, and the light head is the D-pronoun *den* ‘DEM.M.SG.ACC’. For easy reference, I call this light-headed relative the *den-wen* relative.

One hypothesis is that the demonstrative *den* ‘DEM.M.SG.ACC’ is deleted from the light-headed relative in (34) and that the headless relative in (35) remains.<sup>14</sup> For easy reference, I call this headless relative the *wen* relative.

- (35) Jan umarmt **wen** **er** mag.  
 Jan hugs RP.AN.ACC he likes  
 ‘Jan hugs who he likes.’

I give two arguments against this hypothesis. First, in headless relatives the phrase *auch immer* ‘ever’ can appear, as shown in (36).

- (36) Jan umarmt **wen** **auch immer er** mag.  
 Jan hugs RP.AN.ACC ever he likes  
 ‘Jan hugs whoever he likes.’

Light-headed relatives do not allow for this morpheme to be inserted, illustrated in (37).

- (37) \*Jan umarmt den **wen** **auch immer er** mag.  
 Jan hugs DEM.M.SG.ACC RP.AN.ACC ever he likes  
 ‘Jan hugs him whoever he likes.’

I assume that headless relatives are not derived from an ungrammatical structure.<sup>15</sup>

The second argument against the *den-wen* relative being the source of the *wen* relative comes from the interpretation differences between the two. Broadly speaking, the *wen* relative has two interpretations (see Šimík 2020 for a recent elaborate overview on the semantics of free relatives). The *den-wen* has only one of them. I show this schematically in Table 7.6.

The first interpretation of the *wen* relative is a definite-like one. This interpretation corresponds to a definite description. Consider the context which facilitates a definite-interpretation and the repeated *den-wen* and *wen* relative in (38a).

<sup>14</sup>This is exactly what Hanink (2018) argues for. She claims that the feature content of the light head *den* matches the feature content of the relative pronoun *wen*. Therefore, the light head is by default deleted. Only if the light head carries an extra focus feature it surfaces.

<sup>15</sup>I am aware that such an analysis is common for sluicing.

Table 7.6: Interpretations of *wen* and *den-wen* relatives

	<i>wen</i>	<i>den-wen</i>
definite-like	✓	✓
universal-like	✓	*

- (38) a. Context: Yesterday Jan met with two friends. He likes one of them. The other one he does not like so much.
- b. Jan umarmt den **wen** **er mag**.  
 Jan hugs DEM.M.SG.ACC RP.AN.ACC he likes  
 ‘Jan hugs who he likes.’
- c. Jan umarmt **wen** **er mag**.  
 Jan hugs RP.AN.ACC he likes  
 ‘Jan hugs who he likes.’

A definite-like interpretation is one in which Jan hugs the person that he likes. The interpretation is available for the *wen* relative and for the *den-wen* relative.

The second interpretation of the *wen* relative is a universal-like one. This interpretation corresponds to a universal quantifier. Consider the context which facilitates a universal-interpretation and the repeated *den-wen* and *wen* relative in (39a).

- (39) a. Jan has a general habit of hugging everybody that he likes.
- b. #Jan umarmt den **wen** **er mag**.  
 Jan hugs DEM.M.SG.ACC RP.AN.ACC he likes  
 ‘Jan hugs who he likes.’
- c. Jan umarmt **wen** **er mag**.  
 Jan hugs RP.AN.ACC he likes  
 ‘Jan hugs who he likes.’

A universal-like interpretation is one in which Jan hugs everybody that he likes. This interpretation is available for the *wen* relative, but not for the *den-wen* relative.

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

In sum, there are two arguments against the *den-wen* relative being the source



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

The light head in the *den-wen* relative is a demonstrative. A demonstrative refers back to a linguistic or extra-linguistic antecedent. Consider the context in (38a) again. The demonstrative *den* in the *den-wen* relative refers back to the friend of Jan that he likes, and the construction is grammatical. Now consider the context in (39a) again. In this case, there is no antecedent for the demonstrative *den* to refer back to, and the structure is infelicitous.

I decompose demonstrative *den* into different morphemes to investigate what it is about the demonstrative that forces the definite-like interpretation. The demonstrative consists (at least) of the two morphemes *de* and *n*. One of these morphemes is identical to the WH-relative pronoun: the *n*, which spells out pronominal, number, gender and case features. The other morpheme differs: the *de*, which establishes a definite reference.

So far, I established that the *den-wen* relative cannot be the source from which the headless relative is derived. Still, there must be some light-headed relative that is the source. I propose that the light head in the light-headed relative is even lighter than the head in the *den-wen* relative: it is an extra light head.

I propose that the extra light head is the element that is left once the morpheme *de* is absent. This is the morpheme that is the final consonant of the relative pronoun. I give the extra light-headed relative that the *wen*-relative is derived from in (40). The brackets around the light head indicate that it is obligatorily deleted.<sup>16</sup>

<sup>16</sup> The light head and the extra light head I discuss resemble the strong and weak definite in Schwarz (2009), at least morphologically (although my light head is always obligatorily deleted). Schwarz's (2009) strong definite is anaphoric in nature, and the weak definite encodes uniqueness. I give an example of a strong definite in (i). The strong definite is *dem* that precedes *Freund* 'friend'. It refers back to the linguistic antecedent *einen Freund* 'a friend'.

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

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

- (ii) a. Der Einbrecher ist zum Glück vom Hund verjagt worden.  
 the burglar is luckily by the<sub>WEAK</sub> dog chased away been  
 'Luckily, the burglar was chased away by the dog.'

- (40) Jan umarmt [n]            **wen**        **er mag**.  
 Jan hugs     ELH.AN.ACC RP.AN.ACC he likes  
 ‘Jan hugs who he likes.’

A question that remains open is why the extra light head in (40) cannot surface and needs to be deleted. I assume this is because of two independent restrictions. The first one is that headless relatives are always restrictive relative clauses and cannot be used non-restrictively (Emonds 1979: 232).

The second restriction is that restrictive relative clauses cannot surface with a head that is not definite. Consider the sentence in (41).

- (41) \*Fritz ist jetzt im    Haus, das er sich letztes Jahr gebaut hat.  
 Fritz is   now in the house that the REFL last    year built   has  
 ‘Fritz is now in the house that he built last year.’  
 (Modern German, Schwarz 2009: 22 after Hartmann 1978: 77)

The head of the relative clause is *m Haus*, and the sentence is ungrammatical. Now consider the sentence in (42).

- (42) Fritz ist jetzt in dem Haus, das er sich letztes Jahr gebaut hat.  
 Fritz is   now in the   house that the REFL last    year built   has  
 ‘Fritz is now in the house that he built last year.’  
 (Modern German, Schwarz 2009: 22 after Hartmann 1978: 77)

Here the head of the relative clause is *dem Haus* and the sentence has become grammatical. There seems to be a parallel between the examples in (41) and (42) and the extra light head (see also footnote 16). The morpheme *m* in *m Haus* could be the same *m* as the extra light head, only lacking the overt noun. Just as *m Haus*, *m* cannot surface as the head of the relative clause. However, unlike *m Haus*, *m* is deleted.

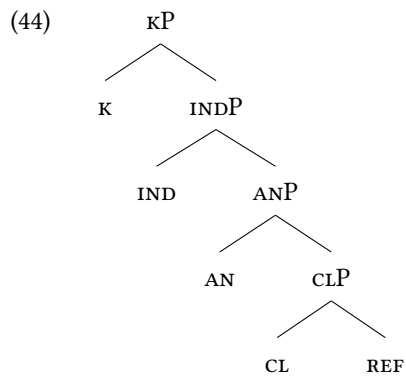
In the remainder of this section, I discuss the two extra light heads that I compare the internal syntax of in Section 7.4. They are the accusative animate and the dative animate, shown in (43).

- 
- b.    Armstrong flog als erster    zum        Mond.  
       Armstrong flew as   first one to the<sub>WEAK</sub> moon  
       ‘Armstrong was the first one to fly to the moon.’        (Modern German, Schwarz 2009: 40)

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

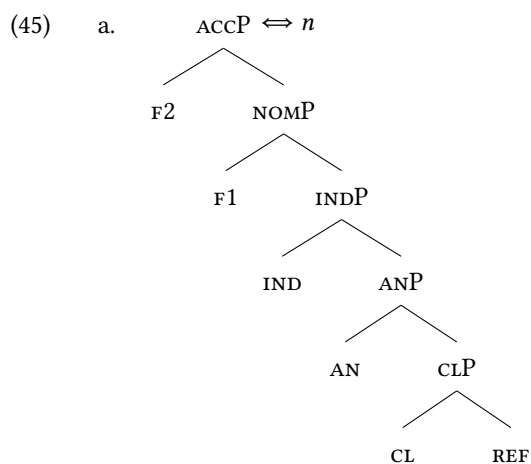
- (43) a. n  
ELH.AN.ACC
- b. m  
ELH.AN.DAT

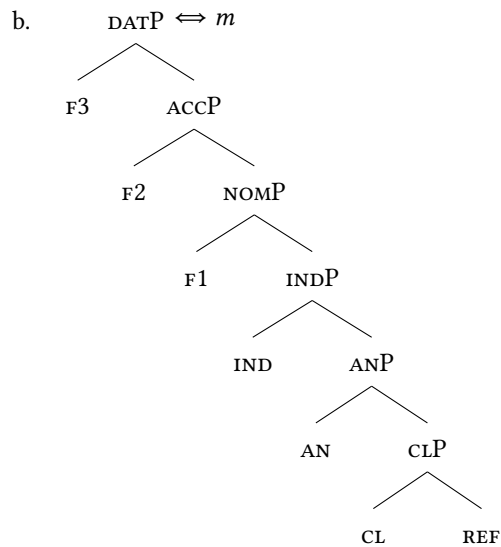
In Chapter 6, I suggested that the relative pronoun contains at least one feature more than the extra light head. In my proposal, it is actually two features, namely *WH* and *REL*. This leaves the functional sequence for the extra light head as shown in (44).



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

I introduced the lexical entries that are required to spell out these features in Section 7.1. I repeat them in (45).



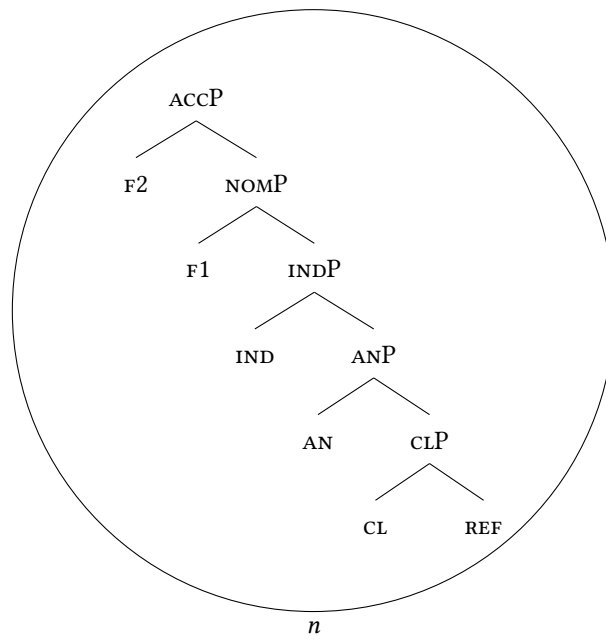


The derivations of the extra light heads are straight-forward ones. The features are merged one by one, and after each new phrase is created, it is spelled out as a whole. I still go through them step by step.

First, the features REF and CL are merged, and the CLP is created. The syntactic structure forms a constituent in the lexical tree in (45a). Therefore, the CLP is spelled out as *n*. Exactly the same happens for the features AN, IND and F1. They are merged, they form a constituent in the lexical tree in (45a), and they are spelled out as *n*.

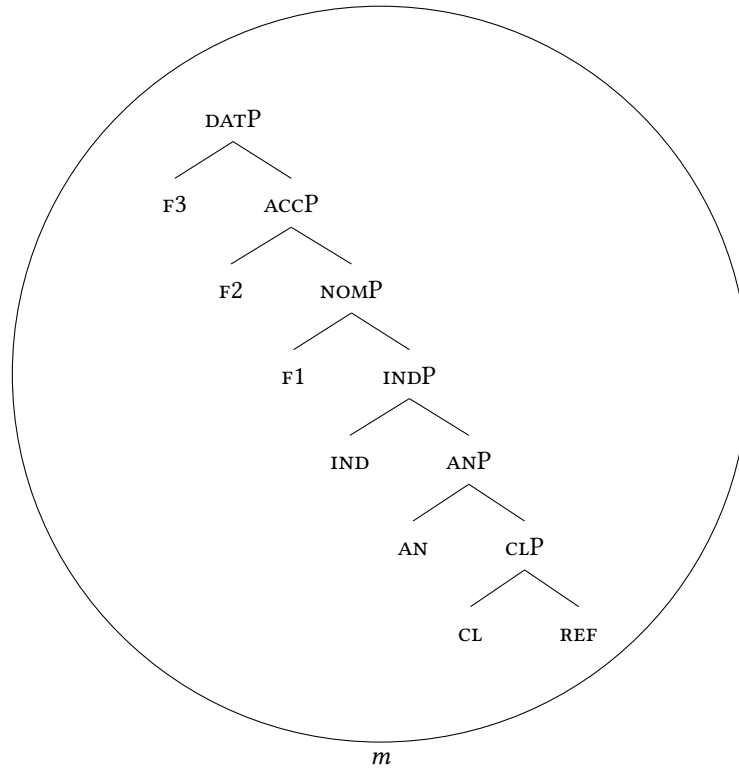
The last feature that is merged for the accusative extra light head is the F2. It is merged, and the ACCP is created. The syntactic structure forms a constituent in the lexical tree in (45a). Therefore, the ACCP is spelled out as *n*, as shown in (46).

(46)



For the dative extra light head another feature is merged: the **f3**. The feature **f3** is merged, and the **DATP** is created. The syntactic structure forms a constituent in the lexical tree in (45b). Therefore, the **DATP** is spelled out as *m*, as shown in (47).

(47)



In sum, Modern German headless relatives are derived from a light-headed relative with an extra light head. This extra light head is spelled out by a single phi and case feature portmanteau. The lexical entries used to spell this light head out are also used to spell out part of the internal syntax of the relative pronoun.

## 7.4 Comparing light heads and relative pronouns

In this section, I compare the internal syntax of extra light heads to the internal syntax of relative pronouns in Modern German. This is the worked out version of the comparisons in Section 6.2.1. What is different here is that I show the comparison for Modern German specifically, and that the content of the internal syntax that is being compared is motivated earlier in this chapter.

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 two examples are grammatical and the last one is not. I derive this by showing that only in the first two situations the light head is structurally contained in the relative pronoun, and that it can therefore then be deleted. In the last example, neither the light head nor the relative pronoun is structurally contained in the other element. I do not discuss formal containment in this chapter, because it never leads to a successful deletion when structural containment does not.

I start with the situation in which the cases match. Consider the example in (48), 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 *mögen* ‘to like’ takes accusative objects. The relative pronoun *wen* ‘REL.AN.ACC’ appears in the accusative case. This is the element that surfaces. The external case is accusative as well, as the predicate *einladen* ‘to invite’ also takes accusative objects. The extra light head *n* ‘ELH.AN.ACC’ appears in the accusative case. It is placed between square brackets because it does not surface.

- (48) Ich lade ein [n], **wen auch**  
 1SG.NOM invite.PRES.1SG<sub>[ACC]</sub> ELH.AN.ACC RP.AN.ACC Maria.NOM  
**Maria mag.**  
 like.PRES.3SG<sub>[ACC]</sub>  
 ‘I invite who Maria also likes.’  
 (Modern German, adapted from Vogel 2001: 344)

In Figure 7.3, I give the syntactic structure of the extra light head at the top and the

syntactic structure of the relative pronoun at the bottom.

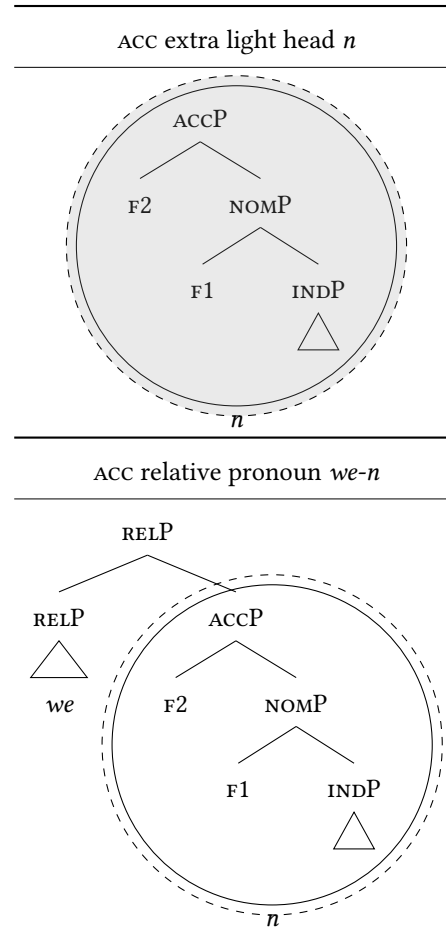


Figure 7.3: Modern German  $\text{EXT}_{\text{ACC}}$  VS.  $\text{INT}_{\text{ACC}} \rightarrow \text{wen}$

The extra light head consists of a single morpheme: *n*. The relative pronoun consists of two morphemes: *we* and *n*. As usual, I circle the part of the structure that corresponds to a particular lexical entry, or I reduce the structure to a triangle, and I place the corresponding phonology below it. I draw a dashed circle around the biggest possible element that is structurally contained in both the extra light head and the relative pronoun.

The extra light head consists of a single morpheme: the ACCP. This ACCP is structurally contained in 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. The surface pronoun is the relative pronoun that bears the internal case: *wen*.

For reasons of space I do not show the comparisons of the other matching situations. These are situations in which both the internal and external case are nomina-

tive or both the internal and external case are dative. The same logic as I showed in Figure 7.3 works for these situations too.

I continue with the situation in which the internal case is the more complex one. Consider the example in (49), in which the internal dative case competes against the external accusative case. The relative clause is marked in bold. The internal case is dative, as the predicate *vertrauen* ‘to trust’ takes dative objects. The relative pronoun *wem* ‘REL.AN.DAT’ appears in the dative case. This is the element that surfaces. The external case is accusative, as the predicate *einladen* ‘to invite’ takes accusative objects. The extra light head *n* ‘ELH.AN.ACC’ appears in the accusative case. It is placed between square brackets because it does not surface.

- (49) Ich lade ein [n], **wem auch Maria**  
 1SG.NOM invite.PRES.1SG<sub>[ACC]</sub> ELH.AN.DAT RP.AN.DAT also Maria.NOM  
**vertraut.**  
 trust.PRES.3SG<sub>[DAT]</sub>  
 ‘I invite whoever Maria also trusts.’  
 (Modern German, adapted from Vogel 2001: 344)

In Figure 7.4, I give the syntactic structure of the extra light head at the top and the syntactic structure of the relative pronoun at the bottom.

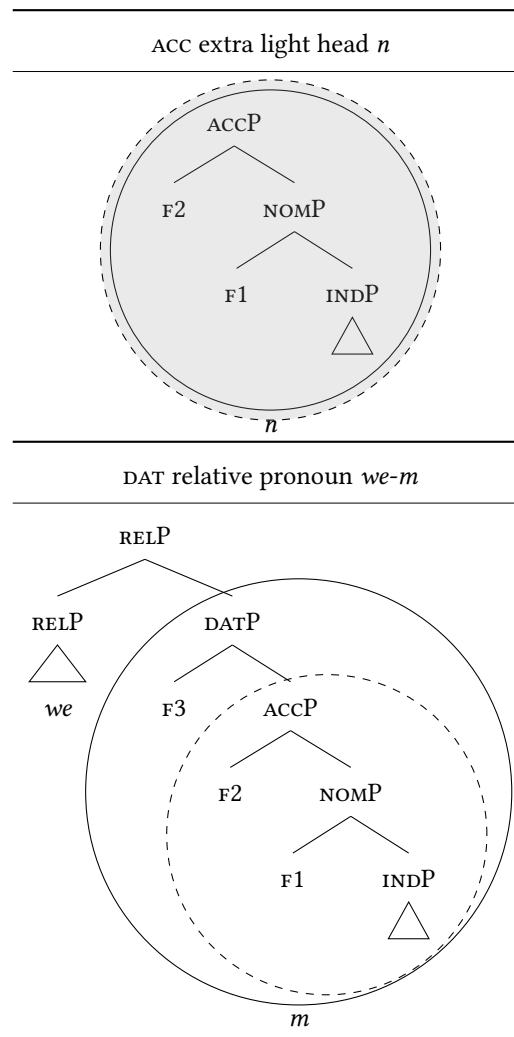
The extra light head consists of a single morpheme: *n*. The relative pronoun consists of two morphemes: *we* and *m*. Again, I circle the part of the structure that corresponds to a particular lexical entry, or I reduce the structure to a triangle, and I place the corresponding phonology below it. I draw a dashed circle around the biggest possible element that is structurally a constituent in both the extra light head and the relative pronoun.

The extra light head consists of a single morpheme: the ACCP. This ACCP is structurally contained in the relative pronoun. Therefore, the extra light can be deleted. I signal the deletion of the extra light head by marking the content of its circle gray. The surface pronoun is the relative pronoun that bears the internal case: *wem*.

For reasons of space I do not show the comparisons of the other situations in which the internal case is more complex. These are situations in which the internal case is dative and the external case is nominative and in which the internal case is accusative and the external case is nominative. The same logic as I showed in Figure 7.4 works for these situations too.

I end with the situation in which the external case is the more complex one. Consider the examples in (50), in which the internal accusative case competes against the external dative 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 *mögen* ‘to like’ takes accusative objects. The relative



Figure 7.4: Modern German  $\text{EXT}_{\text{ACC}}$  vs.  $\text{INT}_{\text{DAT}} \rightarrow \text{wem}$ 

pronoun *wen* ‘REL.AN.ACC’ appears in the accusative case. The external case is dative, as the predicate *vertrauen* ‘to trust’ takes dative objects. The extra light head *m* ‘ELH.AN.DAT’ appears in the dative case. (50a) is the variant of the sentence in which the extra light head is absent (indicated by the square brackets) and the relative pronoun surfaces, which is ungrammatical. (50b) is the variant of the sentence in which the relative pronoun is absent (indicated by the square brackets) and the extra light head surfaces, which is ungrammatical too.

- (50) a. \*Ich vertraue [m], **wen** **auch** Maria  
 1SG.NOM trust.PRES.1SG<sub>[DAT]</sub> ELH.AN.DAT RP.AN.ACC also Maria.NOM

**mag.**

like.PRES.3SG<sub>[ACC]</sub>

‘I trust whoever Maria also likes.’

(Modern German, adapted from Vogel 2001: 345)

- b. \*Ich vertraue m, [wen] auch Maria  
1SG.NOM trust.PRES.1SG<sub>[DAT]</sub> ELH.AN.DAT RP.AN.ACC also Maria.NOM

**mag.**

like.PRES.3SG<sub>[ACC]</sub>

‘I trust whoever Maria also likes.’

(Modern German, adapted from Vogel 2001: 345)

In Figure 7.5, 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 extra light head consists of a single morpheme: *m*. The relative pronoun consists of two morphemes: *we* and *n*. Again, I circle the part of the structure that corresponds to a particular lexical entry, or I reduce the structure to a triangle, and I place the corresponding phonology below it. I draw a dashed circle around the biggest possible element that is structurally a constituent in both the extra light head and the relative pronoun.

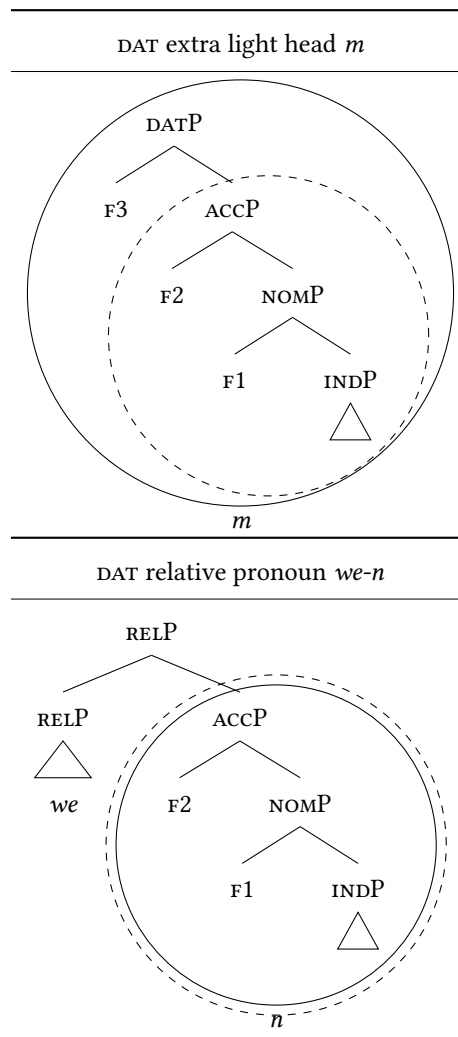
In this case, the light head is not structurally contained in the relative pronoun. The extra light head consists of a single morpheme: the DATP. The relative pronoun only contains the ACCP, and it lacks the F3 that makes a DATP. Since the weaker feature containment requirement is not met, the stronger constituent containment requirement cannot be met either.

The relative pronoun is not structurally contained in the light head. It namely lacks the complete constituent and RELP. Therefore, the extra light cannot be deleted, and the relative pronoun cannot be deleted either. As a result, there is no grammatical headless relative possible.

For reasons of space I do not show the comparisons of the other situations in which the external case is more complex. These are situations in which the internal case is nominative and the external case is accusative and in which the internal case is nominative and the external case is dative. The same logic as I showed in Figure 7.5 works for these situations too.<sup>17</sup>

<sup>17</sup>This is true for the headless relatives with animates that I gave examples of in Chapter 4. It does not hold for headless relatives with inanimates, which I already briefly mentioned in Chapter 6. I repeat the relevant example in (i), including the extra light head which I assume to be there.

- (i) Ich erzähle [s] was immer mir gefällt.  
1SG.NOM tell.PRES.1SG<sub>[ACC]</sub> ELH.INAN.ACC RP.INAN.NOM ever 1SG.DAT pleases.PRES.3SG<sub>[NOM]</sub>  
‘I tell whatever pleases me.’ (Modern German, adapted from Vogel 2001: 344)

Figure 7.5: Modern German  $EXT_{DAT}$  vs.  $INT_{ACC} \rightarrow m/wen$ 

In (i), the internal nominative case competes against the external accusative case. The relative clause is marked in bold. The internal case is nominative, as the predicate *gefallen* ‘to please’ takes nominative objects. The relative pronoun *was* ‘ $REL.INAN.NOM$ ’ appears in the nominative case. This is the element that surfaces. The external case is accusative, as the predicate *erzählen* ‘to tell’ takes accusative objects. The extra light head *s* ‘ $ELH.INAN.ACC$ ’ appears in the accusative case. It is placed between square brackets because it does not surface. For inanimates, there is a syncretism between nominative and accusative. In these cases, the extra light head can be deleted via formal containment. In what follows, I briefly describe the comparison.

The inanimate accusative extra light head consists of a single morpheme (*s*). The inanimate nominative relative pronoun consists of two morphemes (*wa* and *s*) (see footnote 10). The extra light head (the  $ACC$  realized by *s*) is formally contained in the relative pronoun (the  $REL$  realized by *wa-s*). Therefore, the extra light head can be deleted, and the surface pronoun is the relative pronoun that bears the external case: *was*.

## 7.5 Summary

Modern German is an example of an internal-only type of language. This means that headless relatives are grammatical in the language, as long as the internal and external case match or the internal case is the more complex one.

I derive this from the internal syntax of light heads and relative pronouns in Modern German. The features of the light head are spelled out by a single lexical entry, which spells out phi and case features. The features of the relative pronoun are spelled out by the same lexical entry plus one which amongst other spells out a relative feature. The internal syntax of the Modern German light head and relative pronoun are shown in Figure 7.6.

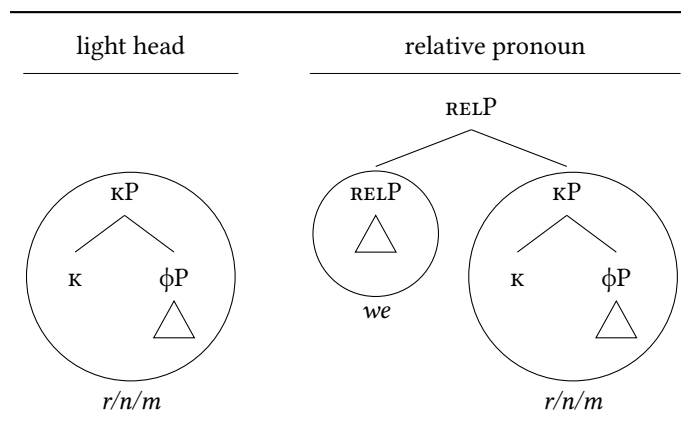


Figure 7.6: ELH and RP in Modern German (repeated)

A crucial characteristic of internal-only languages such as Modern German is that they have a portmanteau for phi and case features. Therefore, the light head is structurally contained in the relative pronoun when the internal and the external case match and when the internal case is the more complex one. As a result, the light head can be deleted, and the relative pronoun can surface, bearing the internal case.

When the internal case is the more complex one, neither the light head nor the relative pronoun is structurally contained in the other element. None of the elements can be deleted, and there is no grammatical headless relative possible.



## **Primary texts**



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