Case attraction in headless relatives

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Contents

Chapter 1

Introduction

The topic of this thesis is case attraction in headless relative clauses. First I talk about the role of case in language. Second I discuss regular headed relative clauses and how they handle case. Third I introduce a phenomenon called case attraction in headed relative clause. Finally, I get to headless relative clauses that show case attraction.

1.1   Case attraction

Languages can use case to mark the grammatical role of a noun phrase in a clause. Consider the two Modern German sentences in (1). In (1a), *der Lehrer* 'the teacher' is marked nominative, and it is the subject. *Den Schüler* 'the student' is marked accusative, and it is an object. In (1b), the roles are reversed: *der Schüler* 'the student' is marked nominative and it is the subject, and *den Lehrer* 'the teacher' is marked accusative and it is the object. Notice also that the subject precedes the predicate *mag* 'likes' and the object follows it.

(1) a. Der   Lehrer mag den   Schüler.
         the.M.NOM teacher likes the.M.ACC student
         'The teacher likes the student.'
     b. Der   Schüler mag den   Lehrer.
         the.M.NOM student likes the.M.ACC
         'The student likes the teacher.'

Not only full noun phrases, but also other elements can be marked for case, such relative pronouns. Modern German marks relative pronouns, just like full noun phrases, for the grammatical role they have in the clause. Consider the two sentences in (2). In (2a), the relative pronoun *der* 'that.M.NOM' introduces a clause that modifies *den Schüler* 'the student'. *Der* 'that.M.NOM' is marked masculine and nominative. The relative pronoun is marked masculine, because it agrees in gender with its antecedent *den Schüler* 'the student'. It is marked nominative, because of its grammatical role: it is the subject in the relative clause. In (2b), the relative pronoun *den* 'that.M.ACC' is marked masculine and accusative. Again, the relative pronoun is marked masculine,

because it agrees in gender with its antecedent *den Schüler* 'the student'. It is marked accusative, because of its grammatical role: it is the object in the relative clause.

(2) a. Der   Lehrer mag den   Schüler, der   nach draußen
         the.M.NOM teacher likes the.M.ACC student that.M.NOM to   outside
         guckt.
         looks
         'The teacher likes the student that is looking outside.'
    b. Der   Lehrer mag den   Schüler, den   er beim
         the.M.NOM teacher likes the.M.ACC student that.M.ACC he at the
         Verstecktspiel   sucht.
         hide-and-seek game seeks
         'The teacher likes the student that he is looking for playing hide-and-
         seek.'

–from here on it still needs working out–

This pattern occurs in German, most other modern languages. In some ancient languages the relative pronoun did not take the case of the grammatical role in its own clause. Instead, it agrees in case with its antecedent. This is called case attraction. The relative pronoun is attracted to its antecedent(?).

(3) sie gedâht'   ouch maniger leide,   der   ir dâ héimé
     she thought$_{GEN}$ also some.GEN sufferings.GEN which.GEN her at home
     geschach.
     happened$_{NOM}$
     'She thought about some misfortunes that happened to her at home' attraction
     headed relative

there is a generalization here: more complex case wins. maybe don't mention that here yet.

1.2   Headless relatives

So far I discussed headed relatives. Headless relatives also exist. The antecedent is missing. We also observe case attraction there. It is less easy to see because the antecedent NP is missing, but we know what's going on because of the case requirements of the predicates. So this actually means is that the relative pronoun takes the case from the main clause (where normally the antecedent was). This is called proper attraction.

(4) Aer antuurta demo   zaimo sprah.
     he   replied$_{DAT}$ who.DAT to him spoke$_{NOM}$
     'He replied to the one who spoke to him.' proper attraction headless relative

Attraction can also go in the other direction (i.e. NP takes the case from relative pronoun), which is called inverse attraction. Below I give an example of inverse

attraction with a head. This boils down to the relative pronoun taking the case from the embedded clause.

(5) Ich lade ein, wem   Maria vertraut.
     I   invite$_{ACC}$ who.DAT also   Maria   trusts$_{DAT}$
     'I invite whoever Maria also trusts.'   invserse attraction headless relative

1.3 The variation

Old High German goes left, Modern German goes right. How can this variation be captured, other than stipulating a parameter for direction of attraction.

Part I

Morphological case

Chapter 2

Direction of attraction

–here is going to be an introduction to this section, something like this:

The case complexity story holds for all languages. The direction of the attraction does not. In this chapter I discuss three different patterns that appear in languages. I show that the direction of attraction correlates with the type of pronoun that is used as free relative pronoun. Inverse attraction = wh-pronoun, proper attraction = demonstrative, both attraction types = demonstrative + complementizer.–

I illustrated the case complexity story in the previous chapter mostly with Modern German. A relative pronoun can license the case requirement of a predicate if the case is contained in the case it expresses.

In this chapter I show there is an additional restriction on whether the relative pronoun can license a less complex case. This has to do with whether the case requirement comes from internal to the relative clause or from external to the relative clause. For Modern German it holds that the case requirement of the internal predicate needs to be more complex than the case requirement of the external predicate. In the literature this is referred to as *inverse attraction* (lots of references). An example is given in (1). The internal predicate *vertraut* 'trusts' requires its object to be in dative, and the external predicate *lade ein* 'invite' requires its object to be in accusative. The internal dative case requirement is more complex than the external accusative one. The free relative pronoun appears in the internal dative case as *wem* 'who.DAT'.

(1)   Ich lade ein, wem   Maria vertraut.
        I   invite$_{ACC}$ who.DAT also   Maria   trusts$_{DAT}$
        'I invite whoever Maria also trusts.'

In Modern German, examples become ungrammatical when the complexity is reversed, i.e. when the case requirement of the external predicate is more complex than the one of the interal predicate. This is called *proper attraction* in the literature (lots of examples). An example of that is shown in (2). The external predicate *vertraut* 'trusts' requires its object to be in dative, and the internal predicate *mag* 'likes' requires its object to be in accusative. The external dative case requirement is more complex than the internal accusative one. The free relative pronoun appears in the

internal dative case as *wem* 'who.DAT'.[1]

(2)   *Ich vertraue, wem   Maria mag.
       I   trust_DAT who.DAT also   Maria likes_ACC
       'I trust whoever Maria also likes.'   Vogel

Modern German can be schematically represented as follows in Table (2). Mismatch-ing headless relatives are grammatical if the internal case is more complex than the external case, and they are ungrammatical if they external case is more complex than the internal case. In other words, Moden German allows for inverse attraction but it does not allow for proper attraction.

Table 2.1: INT VS. EXT in Modern German

	INT>EXT inverse attraction	EXT>INT proper attraction
Modern German	✓	*

Old High German is the exact opposite of Modern German: what is grammatical in Old High German is not in Modern German and the other way around. Old High German allows for proper attraction, i.e. mismatching headless relatives are gram-matical if the external case is more complex than the internal one. This is exemplified by the example in (3). The external predicate *antuurta* 'replied' requires its object to be in dative, and the internal predicate *sprah* 'spoke' requires a nominative subject. This configuration is similar to the Modern German one in (2): the external dative case requirement is more complex than the internal nominative one. However, the example in Old High German is grammatical and it is not in Modern German.

(3)   Aer antuurta demo   zaimo sprah.
       he   replied_DAT who.DAT to him spoke_NOM
       'He replied to the one who spoke to him.'   Lenerz

Second, inverse attraction is not permitted in Old High German, i.e. mismatching headless relatives are not grammatical if the internal case is more complex than the external one. This claim can only be motivated by the lack of instances in historical texts, since there are no longer speakers of Old High German.

Table (3) shows schematically that Modern German and Old High German are each others mirror image.

Gothic allows for both types of attraction. (4) gives is a proper attraction exam-ple with the internal case being more complex than the external case. The external predicate *taujau* 'do' requires its object to be in dative, and the internal predicate *qiþiþ* 'say' requires its object to be in accusative. Gothic it like Old High German here and unlike Modern German.

---

[1]Also changing the relative pronoun to the accusative case required by the internal predicate does not render a grammatical result. This can be understood from Chapter X: only more complex cases can license less complex cases, and dative is more complex than accusative, so an accusative relative pronoun cannot license a dative case requirement.

Table 2.2: INT vs. EXT in Modern and Old High German

	INT>EXT inverse attraction	EXT>INT proper attraction
Modern German	✓	*
Old High German	*	✓

(4) hva nu wileiþ ei   taujau þamm-ei qiþiþ þiudan Iudaie?
     what now want that do_DAT DAT-COMP say_ACC king   of Jews
     'What now do you wish that I do to him whom you call King of the Jews?'
     (Harbert, 1978, pp. 339, 434)

In (5), I give an example of inverse attraction in which the external case is more complex than the internal case. Just like in Modern German, and unlike in Old High German, this type of mismatch is allowed in Gothic. The internal predicate *lag* 'lay' requires its object to be in dative, and the internal predicate *ushafjands* 'picking up' requires its object to be in accusative.

(5) ushafjands   ana þamm-ei lag
     picking up_ACC on DAT-COMP lay_DAT
     'picking up that on which he lay'   (Harbert, 1978, pp. 339, 434)

In Table (5), Gothic is added to the schematic representation.

Table 2.3: INT vs. EXT in Modern and Old High German and Gothic

	INT>EXT inverse attraction	EXT>INT proper attraction
Modern German	✓	*
Old High German	*	✓
Gothic	✓	✓

The fourth logical option that is missing from this table, namely a language that does not allow mismatching cases at all. –am I going to discuss that here or not? the languages that are like this have the following profile: lightheaded relatives are = wh + d.–

Ok, so languages differ in which direction of attraction they allow for. Is this variation parametric per language or can we trace it back to other properties within the language? In this chapter I show that the property variation can be traced back to it the form of the relative pronoun in the headless relative. In order to show that I first need to discuss the underlying syntactic structure of a relative clause. I start by looking at headed relatives that exhibit proper attraction, and I that proper attraction in headless relatives can readily be derived from proper attraction in headed relatives. Then I show that inverse attraction in headless relatives differs strongly

from inverse attraction in headed relatives, and the former cannot be derived from the latter (Section. I end up..

2.1 Proper attraction

2.1.1 Proper attraction in headed relative clauses

Normal situation without attraction: head of the relative clause takes external case, relative pronoun takes internal case.

(6)   Ich sehe   den   Mann, der   einen lustigen Hut trägt.
      I   see_ACC the.ACC man, that.NOM a.ACC funny   hat wears_NOM
      'I see the man that is wearing a funny hat.'

The example in (7) shows an example of attraction with a headed relative clause in Old High German. The predicate in main clause *gedâht* 'thought' combines with genitive objects. The predicate in the embedded clause *geschach* 'happened' combines with nominative subjects. As expected, the head of the relative clause takes the external case, the genitive[2]. Unexpectedly, the relative pronoun does not take the internal nominative case. Instead, it takes the external genitive case, just like head of the relative clause. The relative pronoun is attracted to the head of the relative clause and takes on its case.

(7)   sie gedâht'   ouch maniger leide,   der   ir dâ héimé
      she thought_GEN also some.GEN sufferings.GEN which.GEN her at home
      geschach.
      happened_NOM
      'She thought about some misfortunes that happened to her at home' attraction

A few things should be noted here. First, proper (but also inverse) attraction is always optional (references). Proper attraction never occurs when the head of the relative clause and the relative pronoun are split (show Bianchi with interfering elements). Attracted elements are 'low in agentivity' and 'high in discourse prominence' (Scott Grimm, see what I can do with that later). Specific for proper attraction, a prototypical sentence is 'main clause - head of relative clause - relative pronoun - embedded clause'. Cases that are involved are ACC, GEN and DAT, and they override each other from left to right.

In what follows I will work towards the following structure.

(8)   tree of (7)

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[2]External case = the case required by the predicate that is external to the relative clause; internal case = the case required by the predicate that is internal to the relative clause

```
                    PP
           ┌────────┴────────┐
           P                 DP
          /\        ┌────────┴────────┐
        about       D                 YP
                    /\        ┌────────┴────────┐
                some-GEN      CP               Y
                        ┌─────┴─────┐          /\
                       DP           IP       sufferings
                   ┌───┴───┐       /\
                  NP       DP   happened to her at home
                  /\    ┌──┴──┐
            sufferings-GEN DP  t_NP
                          /\
                      which-GEN
```
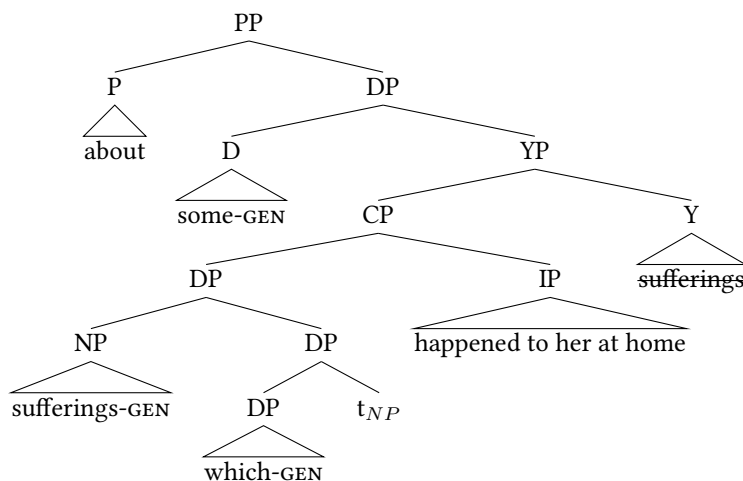
Why this structure? First, *sufferings* and *which* cannot be split.[3] Second, it does not come as a surprise that attraction occurs: it is not only *which* but also *sufferings* that is situated within the relative clause.

   –But more general why this double-headed Cinque structure? Maybe I will be able to get away with just the raising story, so then there is no need to go into more detail. I'll leave this for now and concentrate on the details–

   In what comes next I go through the derivation of (7). I start from a double headed Cinque structure. The head of the relative clause *suffering* is in both clauses.

(9)
```
                          YP
                 ┌────────┴────────┐
                CP                 Y
           ┌────┴────┐            /\
          DP         IP        sufferings
        ┌──┴──┐     /\
       DP    NP  happened to her at home
       /\    /\
     which sufferings
```
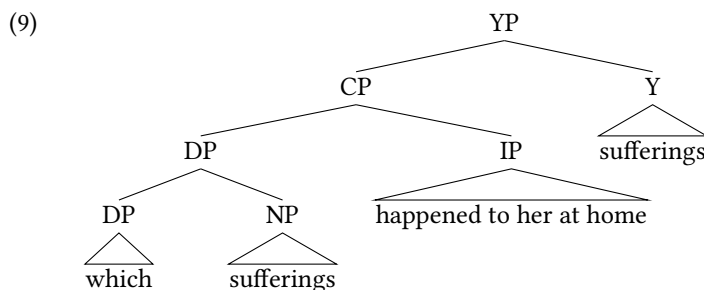
Standard raising: *which* moves over *sufferings*. –what triggers this movement? I am looking for an answer different from 'there is a feature rel'– From this position, however, *sufferings* in the relative clause can delete *sufferings* outside of the relative clause. *Sufferings* is namely in the spec of the spec of Y.

---

[3]A question that remains open is whether *some* and *sufferings* can be split. –look into the Bianchi paper–

(10)

```
                                    YP
                        CP                    Y
                DP              IP          △
           NP        DP    happened to    sufferings
          △        DP   t_NP  her at home
       sufferings  △
                  which
```
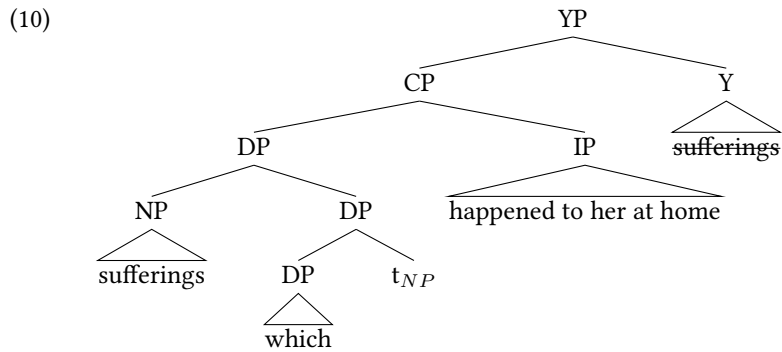
Now *some* comes into the picture. It merges outside the relative clause.

(11)

```
                                    DP
                        D                    YP
                       △         CP              Y
                      some   DP        IP      △
                          NP     DP  happened  sufferings
                         △     DP  t_NP to her
                     sufferings △    at home
                               which
```
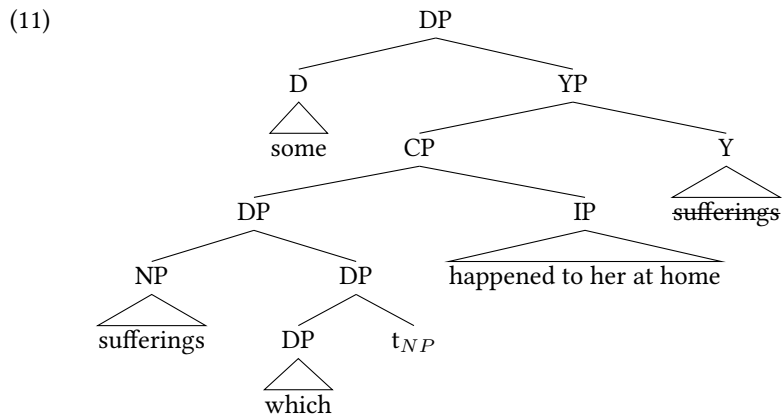
Then case features need to be merged, because *about* takes a genitive complement.
The genitive is not only realized on *some*, but also on *sufferings* and *which*. –actually,
I do not see any genitive marking on *sufferings*, even though it has been glossed like
that. The point still is that genitive needs to land on elements both inside and outside
the relative clause.–

(12)

```
                                    DP
                        D                    YP
                       △         CP              Y
                   some-GEN  DP        IP      △
                          NP     DP  happened  sufferings
                         △     DP  t_NP to her
                  sufferings-GEN △    at home
                            which-GEN
```

Finally, about is merged.

(13)

```
                              PP
                   ┌──────────┴──────────┐
                   P                      DP
                  ╱╲           ┌──────────┴──────────┐
                about          D                      YP
                             ╱╲           ┌───────────┴────────┐
                         some-GEN         CP                    Y
                                 ┌─────────┴─────────┐         ╱╲
                                 DP                  IP       sufferings
                          ┌──────┴──────┐    ┌────────┴────────┐
                          NP            DP   happened to her at home
                        ╱╲        ┌─────┴─────┐
                   sufferings-GEN DP          t_{NP}
                                 ╱╲
                            which-GEN
```
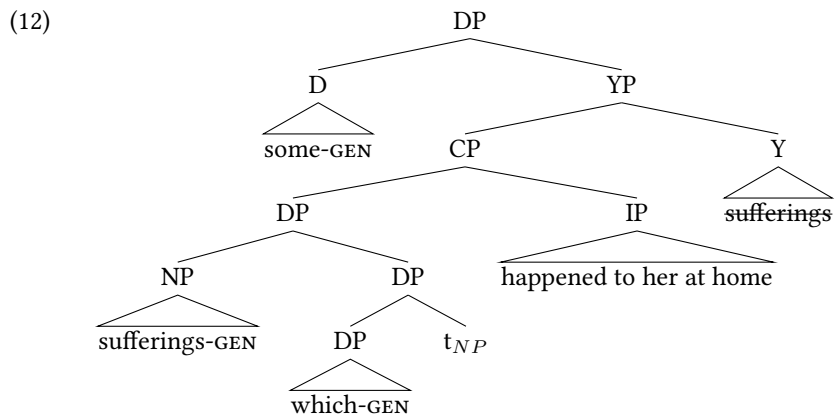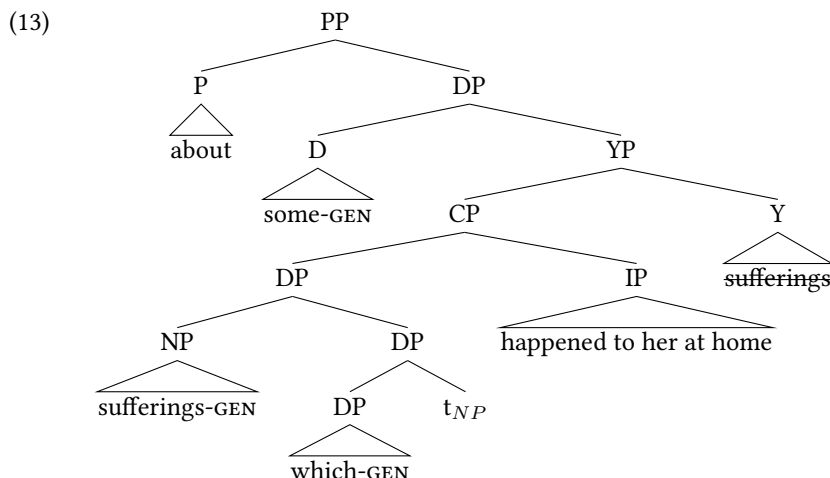
In this section I showed what the structure is for headed relatives that show proper attraction.
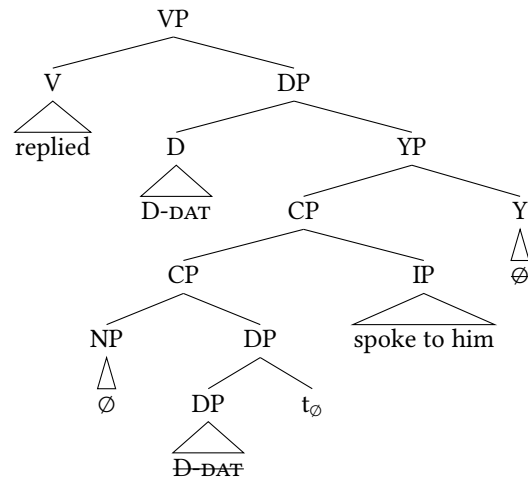
2.1.2 Proper attraction in headless relatives

In this section I discuss headless relatives with proper attraction. I show that the structure of these headless relatives is identical to the structure of their headed counterparts. What we regards as the relative pronoun is actually the demonstrative in the main clause.

In (14) I give an example of proper attraction in a headless relative in Old High German. The internal predicate *sprah* 'spoke' requires a nominative subject. The external predicate *antuurta* 'replied' requires a dative object. The relative pronoun *demo* appers in dative case.

(14) Aer antuurta demo   zaimo sprah.
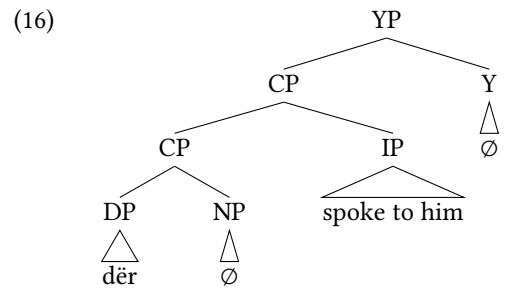   he replied_DAT D-M.SG.DAT to him spoke_NOM
      'He replied to the one who spoke to him.'

The structure I will work towards here is the following. This is basically the same syntactic configuration as the headed relative clause has. There are two differences: (1) the NP is not overt but an ∅ one, and (2) a d-pronoun is deleted under identity under c-command.

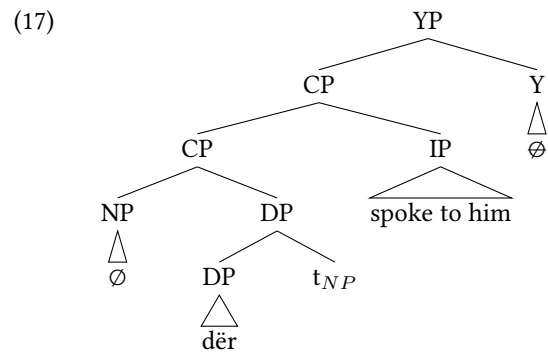(15)   tree of (14)

```
                        VP
            ┌───────────┴───────────┐
            V                       DP
          ╱─╲          ┌────────────┴────────────┐
        replied        D                         YP
                     ╱─╲           ┌──────────────┴──────┐
                   D-DAT           CP                     Y
                          ┌────────┴────────┐            ╱─╲
                          CP                IP            ∅̸
                    ┌─────┴─────┐         ╱──╲
                    NP         DP      spoke to him
                   ╱─╲    ┌────┴────┐
                    ∅    DP        t_∅
                        ╱─╲
                      D̶-̶D̶A̶T̶
```

I start again from a double-headed Cinque structure.

(16)
```
                            YP
                 ┌──────────┴──────────┐
                 CP                     Y
           ┌─────┴─────┐               ╱─╲
           CP          IP               ∅
        ┌──┴──┐      ╱──╲
        DP    NP   spoke to him
       ╱─╲   ╱─╲
      dër    ∅
```

The ∅ moves over the d-pronoun, coming into a position from which it can delete the external head (which is also ∅).

(17)
```
                            YP
                 ┌──────────┴──────────┐
                 CP                     Y
           ┌─────┴─────┐               ╱─╲
           CP          IP               ∅̸
        ┌──┴──┐      ╱──╲
        NP    DP   spoke to him
       ╱─╲  ┌──┴──┐
        ∅  DP    t_{NP}
           ╱─╲
          dër
```

Now the external D comes into the picture. At this point the D does not have any phi and case features yet.

(18)

```
                        DP
                    ┌────┴────────┐
                    D             YP
                    △        ┌────┴────────┐
                    D        CP            Y
                        ┌────┴────┐        △
                        CP        IP       ∅̸
                    ┌───┴───┐  ┌───┴────┐
                    NP      DP  spoke to him
                    △   ┌───┴───┐
                    ∅   DP     t_{NP}
                        △
                        dër
```
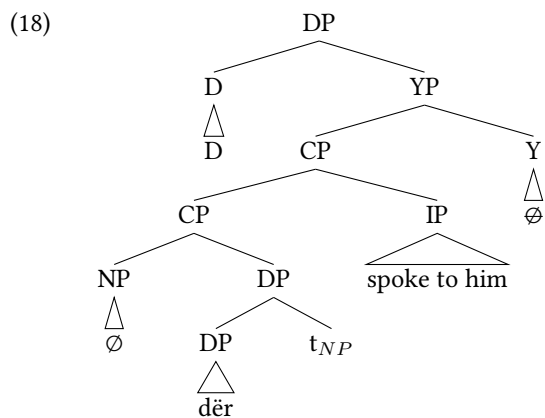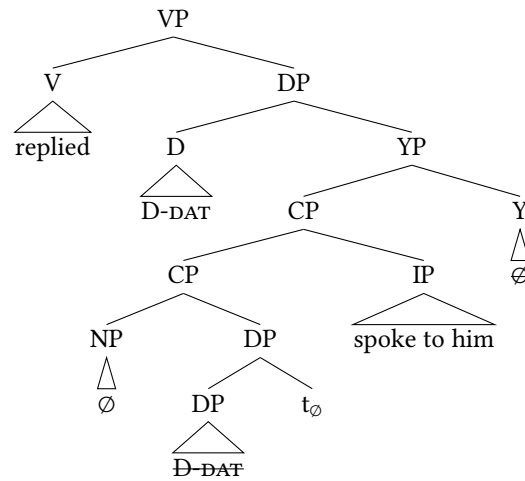
Then phi and case features are merged. Case features do not only end up on the highest D, but also on the lower one.

(19)

```
                        DP
                    ┌────┴────────┐
                    D             YP
                    △        ┌────┴────────┐
                    demo     CP            Y
                        ┌────┴────┐        △
                        CP        IP       ∅̸
                    ┌───┴───┐  ┌───┴────┐
                    NP      DP  spoke to him
                    △   ┌───┴───┐
                    ∅   DP     t_{NP}
                        △
                        demo
```
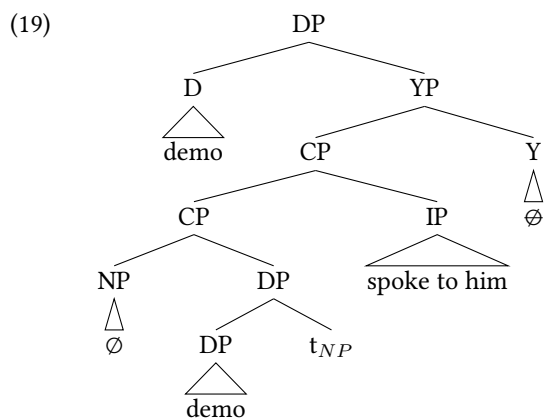
Finally *replied* can be merged. Then, optionally, the lowest *demo* can be deleted. This is deletion under identity under c-command. It is a process that happens at PF.

(20)   tree of (14)

```
                        VP
                   ┌────┴────┐
                   V         DP
                   △      ┌──┴───┐
                 replied  D      YP
                         △     ┌─┴──┐
                       D-DAT   CP   Y
                            ┌──┴──┐  △
                           CP    IP  ∅
                        ┌──┴──┐  △
                       NP    DP  spoke to him
                       △   ┌─┴─┐
                       ∅   DP  t∅
                           △
                         D-DAT
```

Do these two empty elements make sense? I would suggest yes. We indenpendently see that the lower *d*-element is optional in Old High German relative clauses. We can also independently observe that the head NP can be zero, in light headed relatives.

Deletion of the lower d-pronoun is optional. –show evidence for this: Old High German example with full NP as antecedent but no relative pronoun–

The NP is optionally ∅. –show evidence for this: Old High German example of light headed relative–

2.2   Inverse attraction

2.2.1   Inverse attraction in headed relatives

I repeat here the normal situation without attraction: head of the relative clause takes external case, relative pronoun takes internal case.

(21)   Ich sehe   den   Mann, der   einen lustigen Hut trägt.
        I   see$_{ACC}$ the.ACC man,   that.NOM a.ACC funny   hat wears$_{NOM}$
   'I see the man that is wearing a funny hat.'

The example in (22) shows an example of inverse attraction with a headed relative clause in Old High German. The predicate in the main clause *zeslagen* 'shattered' combines with nominative subjects. The predicate in the embedded clause *held* 'held' combines with accusative objects. Under inverse attraction, the head of the relative clause attracts the relative pronoun, and it is the relative pronoun that gives its case to the head of the relative clause. The relative pronoun takes the internal accusative case. The head of the relative pronoun does not take the external nominative case, but rather the internal accusative case.

(22)   Den   schilt   den   er vür bôt der   wart schiere
        the.ACC shield.ACC which.ACC he held$_{ACC}$, that.NOM was   quickly

zeslagen
shattered$_{\text{NOM}}$
'The shield he held was quickly shattered'   inverse attraction

A few things should be noted here. First, inverse (but also proper) attraction is always optional (references). Inverse attraction never occurs when the head of the relative clause and the relative pronoun are split (show Bianchi with interfering elements). Attracted elements are 'low in agentivity' and 'high in discourse prominence' (Scott Grimm, see what I can do with that later). Furthermore, specific to inverse attraction is that the construction looks like it has been left-dislocated. Quite often there is a resumptive pronoun (except for nominatives, but pro-drop?). Inverse attraction mostly targets ACC that overrides NOM. A typical sentence with inverse attraction has the following shape: head NP - relative pronoun pronoun - embedded clause - resumptive pronoun - main clause.

(23)   tree of (22)
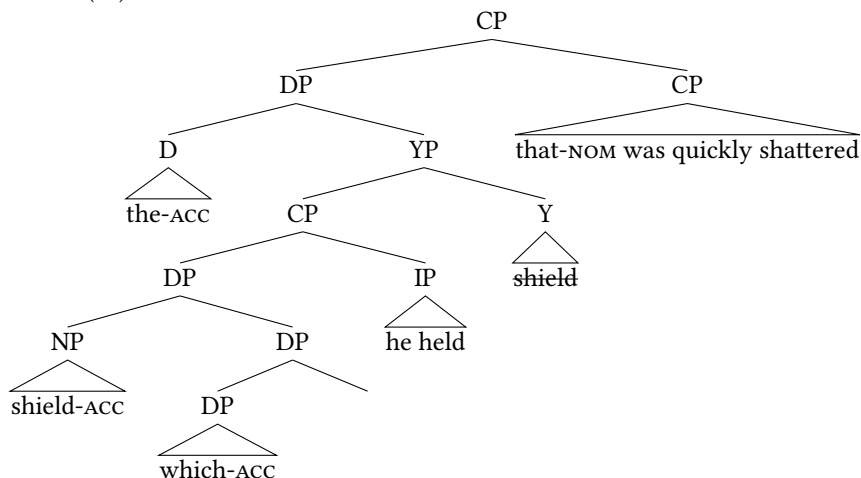
Several languages show that inverse attraction and extraposition are incompatible. Below I give an example of ? IA = inverse attraction, EP = extraposition. The examples show that inverse attraction and extraposition do not cooccur.

(24)   a.   doxtar ey   ∅   [ke   jon   mišnose] inja   æs
              girl   ART NOM COMP John know.3   here be.3
              'the girl that John knows is here'   no IA, no EP
        b.   doxtar ey   ra   [ke   jon   mišnose] inja   æs
              girl   ART ACC COMP John know.3   here be.3
              'the girl that John knows is here'   IA, no EP
        c.   doxtar ey   ∅   inja   æs [ke   jon   mišnose]
              girl   ART NOM here be.3 COMP John know.3
              'the girl that John knows is here'   no IA, EP
        d.   *doxtar ey   ra   inja   æs [ke   jon   mišnose]
              girl   ART ACC here be.3 COMP John know.3

'the girl that John knows is here'   IA, EP

2.2.2   Inverse attraction in headless relatives

Now the examples from inverse attraction in Modern German headless relatives does not resemble inverse attraction in Old High German at all. First, in the headless relatives, there is no resumptive. Second, extraposition makes the situation worse, not better. Third, NOM/ACC combinations are actually harder to get than ACC/DAT.

(25)   a.   Ich lade ein wem du vertraust.
        b.   ?Wem du vertraust, lade ich ein.
        c.   ?Wen du getreten hast, hat einen kaputen Fuß.

The headless headless showing inverse attraction look structurally actually more like the headed structures with attraction. I will come back to now. The point here is: attraction in headless relatives can be derived from attraction in headed relatives, but inverse attraction in headless relatives canNOT be derived from inverse attraction in headed relatives.

2.3   Deriving direction from the relative pronoun

–I do not know yet how to do this–

I will connect demonstratives as relative pronoun to attraction and interrogatives as relative pronouns to inverse attraction.

2.3.1   German

The German free relative pronoun consists of two morphemes: a *w-* and suffix that expresses phi and case features. In Standard German the free relative pronoun can be used in several different syntactic enviroments apart from the free relative pronoun use: as an interrogative, as an indefinite pronoun and as an exclamative marker.

–give examples of these contexts–

A combination of a *d-* and the same phi and case feature suffix gives demonstratives and deteminers.

2.3.1.1   *W-* in German

–here a discussion that ends with this tree:–

(26)   DP ⇒ *w-*
           /   \
         D   RelP
                 /   \
               Rel   Wh
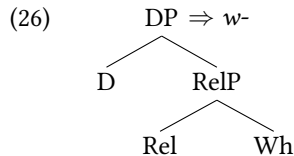
W- does not combine with all possible phi and case combinations.

Table 2.4: Paradigm for *w*-elements in German

	SG		PL
	N	M/F	N/M/F
NOM	w-as	w-er	
ACC	w-as	w-en	
DAT		w-em	
GEN		w-essen	

2.3.1.2 *D-* in German

–here a discussion that ends with this tree:–

(27)   DP $\Rightarrow$ *d-*
          △
          D

Actually not anaphor as a feature, but there needs to be something that does anaphoricity.. tbc

D- combines with all phi and case combinations as a determiner.

Table 2.5: Paradigm for *d*-elements in German

	SG			PL
	N	M	F	N/M/F
NOM	d-as	d-er	d-ie	d-ie
ACC	d-as	d-en	d-ie	d-ie
DAT	d-em	d-em	d-er	d-en
GEN	d-es	d-es	d-er	d-er

Hachem (2015, p. 77) "When *der* is in a position where it refers anaphorically to a noun as an RP or DPR, it displays an additional morpheme in the genitive forms of all numbers and gender and in the dative plural." This should help me explain why *w-* does not combine with plurals (and neuter genitive and dative?).

Table 2.6: More complex *d*-elements in the paradigm

	SG			PL
	N	M	F	N/M/F
NOM	d-as	d-er	d-ie	d-ie
ACC	d-as	d-en	d-ie	d-ie
DAT	d-em	d-em	d-er	d-en-**en**
GEN	d-es-**sen**	d-es-**sen**	d-er-**en**	d-en-**en**

2.3.2 Gothic

2.3.2.1 *þ-* in Gothic

(28) DP ⇒ *þ-*
△
D

Table 2.7: Paradigm for *þ*-elements in German

	SG			PL		
	N	M	F	N	M	F
NOM	þ-ata	s-a	s-ō	þ-ō	þ-ái	þ-ōs
ACC	þ-ata	þ-ana	þ-ō	þ-ō	þ-ans	þ-ōs
DAT	þ-amma	þ-amma	þ-izái	þ-áim	þ-áim	þ-áim
GEN	þ-is	þ-is	þ-izōs	þ-ize	þ-ize	þ-izō

2.3.2.2 *-ei* in Gothic

(29) RelP ⇒ *-ei*
Rel   WhP
|
Wh

Table 2.8: Paradigm for *þ-+-ei*-elements in German

	SG			PL		
	N	M	F	N	M	F
NOM	þ-at-ei	s-a-ei	s-ō-ei	þ-ō-ei	þ-ái-ei	þ-ōz-ei
ACC	þ-at-ei	þ-an-ei	þ-ō-ei	þ-ō-ei	þ-anz-ei	þ-ōz-ei
DAT	þ-amm-ei	þ-amm-ei	þ-izái-ei	þ-áim-ei	þ-áim-ei	þ-áim-ei
GEN	þ-iz-ei	þ-iz-ei	þ-izōz-ei	þ-izē-ei	þ-izē-ei	þ-izō-ei

2.3.2.3 ⬚- in Gothic

(30) WhP ⇒ *ƕ-*
△
Wh

Table 2.9: Paradigm for *ƕ*-elements in Gothic

	SG			PL
	N	M	F	N/M/F
NOM	ƕ-a	ƕ-as	ƕ-ō	
ACC	ƕ-a	ƕ-ana	ƕ-ō	
DAT	ƕ-amma	ƕ-amma	ƕ-izái	
GEN	ƕ-is	ƕ-is	ƕ-izōs	

2.3.3 Old High German

2.3.3.1 *d-* in Old High German

(31)   DP $\Rightarrow$ *d-*
        △
        D

Table 2.10: Paradigm for *d*-elements in Old High German

	SG			PL		
	N	M	F	N	M	F
NOM	d-aʐ	d-ër	d-iu	d-iu	d-ē	d-eo/-io
ACC	d-aʐ	d-ën	d-ea, d-ia	d-iu	d-ē	d-eo/io
DAT	d-ëmu/o	d-ëmu/o	d-ëru/o	d-ēm/n	d-ēm/n	d-ēm/n
GEN	d-ës	d-ës	d-ëra/u/o	d-ëro	d-ëro	d-ëro

m.pl can also be dea dia die

2.3.3.2 *(h)w-* in Old High German

(32)   WhP $\Rightarrow$ *(h)w-*
        △
        Wh

2.4 Conclusion

All languages

Table 2.11: Paradigm for *(h)w*-elements in Gothic

	SG		PL
	N	M/F	N/M/F
NOM	(h)w-aᵻ	(h)w-ër	
ACC	(h)w-aᵻ	(h)w-ën(an)	
DAT	hw-ëmu/w-ëmo	hw-ëmu/w-ëmo	
GEN	(h)w-ës	(h)w-ës	

Table 2.12: INT vs. EXT in Modern and Old High German and Gothic

	free relative	light headed relative	
Modern German	w-	d-, d-	inverse attraction
Old High German	d-	d-, d-?	attraction
Gothic	þ- + -ei	þ-, þ-?	both
Greek	o-pj-	?	attraction
Czech	c-	t-, c-,	none
Italian	c-	q-, c-,	none

Part II

Prepositional case

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