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The Matching Analysis of relative clauses: an argument from antipronominal contexts

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abstract

This paper provides a novel argument for the Matching Analysis of relative clauses. The argument is based on antipronominal contexts in German. Antipronominal contexts are syntactic environments that require lexical DPs and therefore bar pronouns. It is argued that the behavior of relative clauses in antipronominal contexts in German points to two conclusions. First, relative pronouns contain a phonologically invisible NP that is identical to the NP contained in the head noun. Second, the two NPs are not connected via movement. Since only the Matching Analysis takes the two NPs to be base-generated, it is concluded that the Matching Analysis represents the correct structure for relative clauses.

keywords: syntax, relative clauses, matching analysis, antipronominal contexts, German

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Abstract

This paper provides a novel argument for the Matching Analysis of relative clauses. The argument is based on antipronominal contexts in German. Antipronominal contexts are syntactic environments that require lexical DPs and therefore bar pronouns. It is argued that the behavior of relative clauses in antipronominal contexts in German points to two conclusions. First, relative pronouns contain a phonologically invisible NP that is identical to the NP contained in the head noun. Second, the two NPs are not connected via movement. Since only the Matching Analysis takes the two NPs to be base-generated, it is concluded that the Matching Analysis represents the correct structure for relative clauses.

1 Introduction

Ever since Kayne's (1994) work on linearization, the analysis of relative clauses such as in (1) has received renewed interest.

(1) the gorilla which Mary tickles

The main difference between the competing analyses of relative clauses center on the treatment of the head noun (*gorilla* in 1). The head noun is assumed to be exclusively part of the clause embedding the relative clause, to be related to an elided copy of the head noun inside the relative clause, or to be moved out of the relative clause. Arguments in favor of one view or another so far have focused on interpretive effects the different analyses entail, so-called reconstruction effects. The first aim of this paper is to show that there are also purely structural, syntactic differences between the different analyses. The relevant structural differences center on the distinction between lexical and non-lexical DPs. I will argue that each analysis makes a unique claim about the status of the head noun and the relativized element as lexical or non-lexical DPs, respectively, that allows one to decide between the analyses. The second aim is to argue that only the prediction of the Matching Analysis is correct, and that therefore the Matching Analysis is ultimately the correct analysis for relative clauses.

The paper is structured as follows. In section 2, I briefly introduce the four major analyses for relative clauses and point out their respective unique properties. In section 3, I introduce antipronominal contexts and show that they represent the relevant diagnostic to investigate the syntactic differences between the competing approaches. In section 4, I argue that the Matching Analysis neatly captures the distribution of lexical and non-lexical DPs in relativization structures. In sections 5-7, I show that the competing analyses neither capture the distribution of lexical and non-lexical DPs nor can be adjusted to achieve this. In section 8, I discuss the role of NP-ellipsis for the choice of the relative determiner. Section 9 concludes this paper.

2 Approaches to relative clauses and their syntactic properties

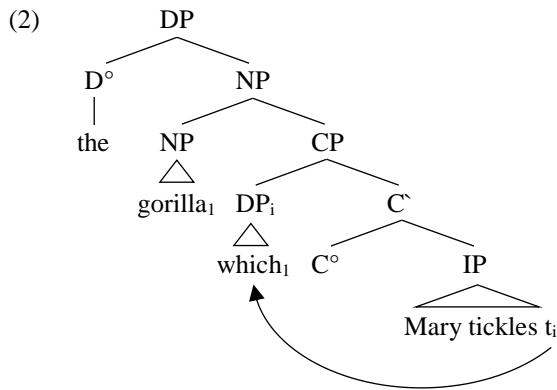
There are currently four analyses for relative clauses¹ discussed in the literature (cf. Bhatt 2015): the Head External Analysis, the Matching Analysis, and two variants of the Raising Analysis.

According to the Head External Analysis (Boef 2013; Chomsky 1977, 1982; Jackendoff 1977; Webelhuth et al., in press), the head noun of the host clause is coindexed with an extracted proform² (the so-called relative pronoun) inside the relative clause. The Head External Analysis is illustrated in (2).³

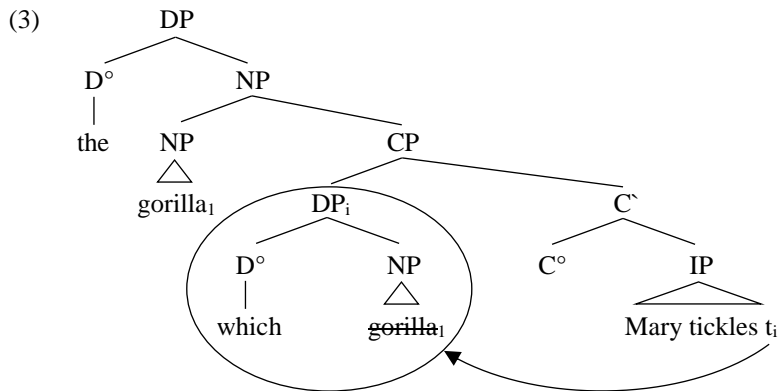
¹ I will restrict myself in this paper to headed restrictive relative clauses, and exclude non-restrictive/appositive relative clauses (de Vries 2002, chapter 6; McCawley 1998, chapter 13), amount/maximalizing relative clauses (Carlson 1977; Grosu & Landman 1998), continuative relative clauses (Holler 2005), and free relative clauses (Bresnan & Grimshaw 1978; Riemsdijk 2006).

² The term *proform* is deliberately used because the relativized element need not be a DP, but can also be an adverb. I return to this difference at the end of section 2.

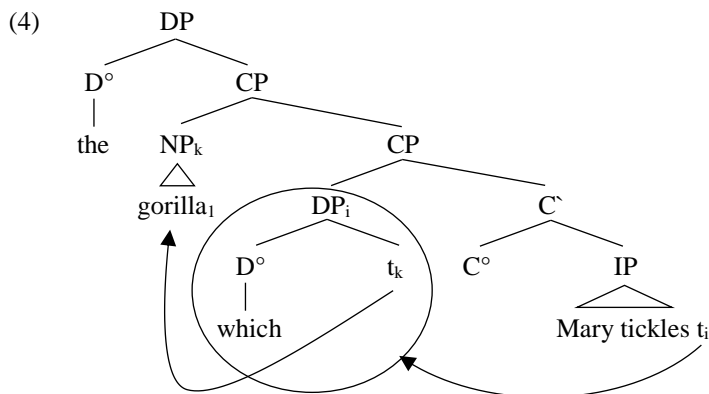
³ Numerical subscripts indicate coindexation between two nominals, alphabetical subscripts indicate the relation between an extracted element and its base position, strike-through indicates ellipsis inside the relativized element, and double strike-through indicates other types of ellipsis.



Under the Matching Analysis⁴ (Chomsky 1965, 1973; Citko 2001; Lees 1961; Katz & Postal 1964; Pankau 2013, 2016; Salzmann 2006, 2017), the head noun and the relativized element contain an identical NP. The NP inside the relativized element is elided, similar to the deletion found in NP-ellipsis. The Matching Analysis is illustrated in (3).



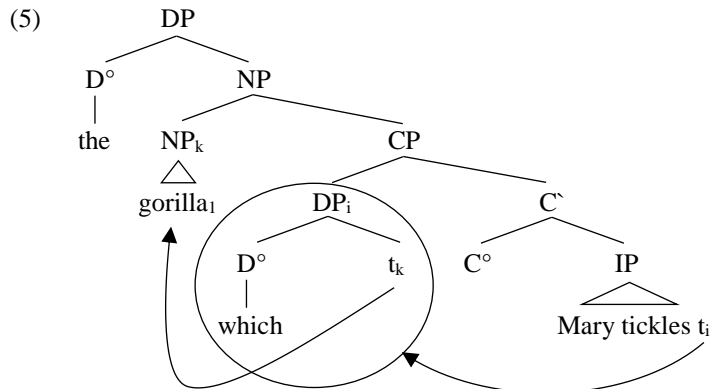
The Raising Analysis (Bianchi 1999, 2000; Kayne 1994; de Vries 2002) takes the NP inside the head noun to be base-generated inside the relativized element. The relativized element undergoes extraction to a left peripheral position, followed by a second extraction of only the NP to a distinct left peripheral position inside the relative clause. The Raising Analysis is illustrated in (4).⁵



⁴ The term *Matching Analysis* is used ambiguously in the literature. It either refers to an analysis where the head noun and the relativized element contain an identical NP (Bhatt 2015; Cecchetto & Donati 2015: 55; Salzmann 200; Schachter 1973: 31), or it refers to an analysis where the NP is contained within the head noun, no matter whether that NP is also contained within the relativized element (Aoun & Li 2003: 99; Bianchi 1999: 34; Cinque 2015; Sauerland 1998, 2003). The second usage therefore also comprises the Head External Analysis. In this paper, the first usage is intended.

⁵ The specific proposals differ with respect to the exact landing sites for each extraction step (cf. Salzmann 2006, p. 14-16). All proposals, however, agree that the head noun remains inside the relative clause throughout the derivation. Since only this aspect is relevant for my discussion of the Raising Analysis, I ignore the differences between the various proposals in the rest of the paper and take the relevant left peripheral position to be inside CP.

The Promotion Analysis (Bhatt 2002; Heycock 2014; Henderson 2007; Schachter 1973; Vergnaud 1974, 1985) is similar to the Raising Analysis, but differs from it in one important aspect: the NP is moved to a position inside the host clause. The Promotion Analysis is shown in (5).⁶



The evidence adduced so far to decide between the competing analyses is mainly based on interpretative differences, namely reconstruction effects (cf. Salzmann 2006, 2017 for a detailed overview). But there are also purely structural, syntactic differences between these analyses that one can employ to favor one over the other. For each structure differs in a unique way from every other structure. The Head External Analysis is unique in that it analyzes the relativized element as a proform. All other analyses take the head noun and the relativized element to be lexical DPs whose NP is identical. (Throughout the paper, I will refer to this identical NP inside the head noun and the relativized element as *pivot NP*.) That the pivot NP is present in both positions is concealed either because it is elided (under the Matching Analysis) or because it undergoes extraction from one position to the other (under the Raising and the Promotion Analysis). What makes the Matching Analysis unique is that the pivot NP is base-generated in both positions. Under the Raising and the Promotion Analysis, the pivot NP is not base-generated in both positions, but undergoes extraction from one position to the other. Raising and Promotion differ from each other with respect to the landing site of this extraction step. Under the Raising Analysis, the pivot NP is never extracted to the position of the head noun, but to a position internal to the relative clause that is only linearly adjacent to the position of the head noun. So the pivot NP always remains inside the relative clause. Under the Promotion Analysis, the pivot NP is extracted from the position of the relativized element to that of the head noun. The distinctive properties of each analysis are given in (6)-(9).

- (6) PROPERTY OF THE HEAD EXTERNAL ANALYSIS
The pivot NP is base-generated only inside the head noun; the relativized element is a proform
- (7) PROPERTY OF THE MATCHING ANALYSIS
The pivot NP is base generated inside the head noun and inside the relativized element
- (8) PROPERTY OF THE RAISING ANALYSIS
The pivot NP is extracted from inside the relativized element to the left periphery of the relative clause
- (9) PROPERTY OF THE PROMOTION ANALYSIS
The pivot NP is extracted from inside the relativized element into the head noun

3 Antipronominal contexts

What the properties in (6)-(9) have in common is that they all make reference to the pivot NP, irrespective of its role as head noun or relativized element. In order to derive syntactic predictions from this, one needs a tool that

⁶ The Raising Analysis and the Promotion Analysis are often grouped together, either under the label *Raising Analysis* (Kayne 1994) or under the label *Promotion Analysis* (de Vries 2002). I separate these two analyses here as they make distinct claims about the structure of relative clauses. The (Re)labeling/HEAD Raising analysis recently suggested by Donati & Cecchetto (2011) and Cecchetto & Donati (2015) represents a hybrid between the Raising and the Promotion Analysis. Similar to the Raising Analysis, the second extraction step targets a position inside the relative clause. However, this extraction (re)labels the structure so that the resulting structure resembles the one according to the Promotion Analysis: the head noun has become part of the host clause. I will not discuss this variant separately as all the arguments against the Promotion and the Raising analysis carry over to the (Re)labeling/HEAD Raising analysis as well.

allows one to inspect the properties of the pivot NP. Such a diagnostic exists, namely so-called *antipronominal contexts* (Perlmutter 1972; Cinque 1975, 1990; Pankau 2013, 2016; Postal 1994, 1998, 2001). Antipronominal contexts are syntactic environments that license DPs but bar pronouns. (10) and (11) illustrate two antipronominal contexts from English (Postal 1994).⁷

- (10) CHANGE OF COLOR CONTEXT
 a. I painted my house **that color**.
 b. *I painted my house **it**.
- (11) MANNER ADVERBIALS
 a. I fixed the car **that way**.
 b. *I fixed the car **it**.

The a-examples show that DPs are in principle licit in the relevant contexts, whereas the b-examples demonstrate that such DPs must not be pronouns. Antipronominal contexts are not an exclusive property of English. German, too, features a number of antipronominal contexts. They divide into three classes: adverbials (comprising locational, temporal, manner, amount, and circumstantial adverbials), inner objects, and idioms, cf. (12)-(18).

- (12) LOCATIONAL ADVERBIALS⁸
 a. Er kommt / stammt $\sqrt{\text{aus diesem Land}}$ / ***aus ihm**.
he comes descends out this country out it
 ‘He comes/descends from that country/*from it.’
 b. Ich muss $\sqrt{\text{diese Station}}$ /***sie** aussteigen.⁹
I must this station it leave
 ‘I have to leave at the next stop (*at it).’
- (13) TEMPORAL ADVERBIALS
 a. Ich traf ihn $\sqrt{\text{in diesem Jahr}}$ /***in ihm**.
I met him in this year in it
 ‘I met him this year (*it).’
 b. Wir waren $\sqrt{\text{zu der Zeit}}$ /***zu ihr** verabredet.
we were to the time to it arranged
 ‘We had an appointment at that time (*at it).’
- (14) MANNER ADVERBIALS
 a. Er spricht $\sqrt{\text{mit der Stimme eines kleinen Kindes}}$ /***mit ihr**.
he speaks with the voice of a small child with it
 ‘He speaks with the voice of a little child (*with it).’
 b. Er läuft $\sqrt{\text{auf einem Bein}}$ /***auf ihm**.
he walks on one leg on it
 ‘He walks on one leg (*on it).’
- (15) AMOUNT/MEASURE ADVERBIALS¹⁰
 a. Ein Bäcker würde niemals $\sqrt{\text{für den Betrag}}$ /***für ihn** arbeiten.
a banker would never for that amount for it work
 ‘A banker would never work for that amount (*for it).’

⁷ Here and throughout the paper, I will set antipronominal contexts in **bold**.

⁸ DPs specifying a location do not generally induce an antipronominal context, cf. (i).

(i) Ich laufe den Weg / ihn lieber nochmal ab.
I walk the route it better one more time PRT
 ‘I better comb the route one more time.’

⁹ This example is non-standard mainly used by younger speakers. The standard version for (12b) is shown in (i), which does not induce an antipronominal context.

(i) Ich muss an dieser Station / an ihr aussteigen.
I must on this station at it depart
 ‘I have to leave at the next stop (*at it).’

¹⁰ DPs specifying an amount do not generally induce an antipronominal context, cf. (i).

(i) Die drei zusätzlichen Urlaubstage / sie gingen schnell vorüber.
the three additional vacation days they went quickly over
 ‘The extra seven days of vacation/they passed quickly.’

- b. Er leitete den Verlag $\sqrt{18 \text{ Jahre}}$ /*sie als Herausgeber.
he led the publishing house 18 years them as editor
 ‘He has been running the publishing house for 18 years (*for them) as an editor.’

(16) CIRCUMSTANTIAL ADVERBIALS

- a. Wir hören $\sqrt{\text{unter diesen Umständen}}$ /*unter ihnen lieber auf.
we stop under these circumstances under them better PRT
 ‘We better stop under these circumstances (*under them).’
- b. Wir haben uns $\sqrt{\text{aus diesem Grund}}$ /*aus ihm getrennt.
we have us out that reason out it broken up
 ‘We broke up for this reason (*for it).’

(17) INNER OBJECTS

- a. Er starb $\sqrt{\text{den Tod eines Märtyrers}}$ /*ihn.
he died the death of a martyr it
 ‘He died the death of a martyr (*it).’
- b. Attila reitet $\sqrt{\text{einen Angriff}}$ /*ihn gegen seine Widersacher.
Attila rides an attack it against his enemies
 ‘Attila runs an attack against his enemies.’

(18) IDIOMS/COLLOCATIONS

- a. Er hat mit $\sqrt{\text{seinen Pfunden}}$ /*ihnen gewuchert.
he has with his pounds them practiced usury
 ‘He showed off.’
- b. Peter guckt $\sqrt{\text{in die Kamera}}$ /*in sie.
Peter watches in the camera in it
 ‘Peter looks into the camera.’

Before proceeding to a characterization of antipronominal contexts, two caveats about antipronominal contexts are in order. First, all the ungrammatical sentences in (12)-(18) are ungrammatical only under the intended adverbial reading (cf. Postal 1994: 168-171 for the same observation about English). Consider manner and amount adverbials. The sentence in (14a) *Er spricht mit ihr* is ungrammatical under the manner reading of *mit ihr*, but is perfectly grammatical under a non-manner reading where the PP *mit ihr* is interpreted as a comitative adverbial with *ihr* referring to a female person. The sentence in (14b) *Er läuft auf ihm* is ungrammatical under the manner reading of the PP *auf ihm* but is fine under a locational reading of that PP where it refers to some concrete object (for example a cupboard). Similarly, the example in (15a) is fine under a reading where *für ihn* refers to the beneficiary. Replacing *für ihn* by *dafür* is equally fine under a non-amount reading, namely one where *dafür* refers to the purpose of work.¹¹ Second, there appears to be interspeaker variation with respect to which contexts exactly count as antipronominal. This does not affect the argumentation in this paper. Antipronominal contexts only serve as a diagnostic for distinguishing the four analyses regarding the distribution of lexical and non-lexical DPs. All that matters for that purpose is to have *some* contexts that can be used as a diagnostic. What does not matter is whether the contexts are constant across speakers. In other words: if some context X is an antipronominal context for speaker A but not for speaker B, then for speaker B simply nothing can be concluded about the proper analysis of relative clauses with respect to X.

Although the name *antipronominal context* gives the impression that such contexts exclusively bar pronouns, the proper characterization is not about pronouns, but about the presence or absence of a lexical DP.

(19) LEXICALITY REQUIREMENT OF ANTIPRONOMINAL CONTEXT¹²

An antipronominal context is any context α that, if occupied by a DP, requires that DP to be a lexical DP

¹¹ Incidentally, that pronouns can receive adverbial readings shows that adverbials do not generally define antipronominal contexts.

¹² This characterization does not attempt to provide sufficient criteria for antipronominal contexts. That is, I do not deal in this paper with the question why antipronominal contexts exist to begin with. Again, this does not affect the claims in this paper, as the paper is not about antipronominal contexts *per se*, but only about their usefulness as a diagnostic tool. Apparently, antipronominal contexts to some extent reflect language particular idiosyncrasies. Whereas English bars pronouns in the position of a predicate nominal, German allows them, cf. (i).

(i) Peter became $\sqrt{\text{president}}$ /*it.
 ‘Peter wurde $\sqrt{\text{Präsident}}$ / $\sqrt{\text{es}}$.’

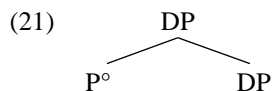
I leave this aspect for future research.

By *lexical DP*, I refer to any DP where D° has a complement NP with *descriptive* content (for example *gorilla*). The characterization in terms of *lexical DP* is to be preferred over one that excludes only pronouns because antipronominal contexts also bar indefinite pronouns, as shown in (20).¹³

- (20) a. *Er kommt / stammt **aus etwas** / **aus einem**.
he comes descends out something out something
 *‘He comes/descends from something.’
- b. *Wir waren **zu etwas** / **zu einem** verabredet.
we were to something to something arranged
 *‘We had an appointment at that something.’
- c. *Er leitete den Verlag **etwas** / **eins** als Herausgeber.
he led the publishing house something something as editor
 *‘He has been running the publishing house for something as an editor.’
- d. *Wir haben uns **aus etwas** / **aus einem** getrennt.
we have us out something out something broken up
 *‘We broke up for something.’

Indefinite pronouns share with lexical DPs the property that they are semantically independent, in contrast to personal pronouns, which are referentially dependent on some DP antecedent. But indefinite pronouns share with personal pronouns the property that neither contains an NP with descriptive content. Since indefinite pronouns are banned from antipronominal contexts as much as personal pronouns, I conclude that the lack of a lexical NP is the factor at work in antipronominal contexts.¹⁴

Four remarks are needed for the proper understanding of the lexicality requirement in (19). First, antipronominal contexts are defined with respect to DPs. However, the majority of examples involve contexts that require PPs, hence seem to constitute *antinominal* contexts. So one might ask to what extent they fit under the category of antipronominal context at all. I will follow the general idea sketched in Johnson & Postal (1980) and the explicit account given in Pankau (2013: 194-219) that PPs and DPs do not constitute separate categories. More specifically, adpositions and case markers belong to the same class of elements, so-called *flags*.¹⁵ The only difference between case markers and adpositions is their morphological status: the former are affixes, the latter are not. Other alleged differences between DPs and PPs are either non-existing or reducible to the grammatical relation the phrases bear (Pankau 2013: 238-240, 390-414). Given this idea, the characterization also subsumes PPs because PPs are DPs. Throughout the paper, then, I will assign PPs the structure of DPs where the preposition is adjoined, cf. (21).



Second, the condition *if occupied by a DP* is needed because of examples like (22).

- (22) a. Ich muss diese Station / da aussteigen.
I must this station there leave
 ‘I have to leave this station/there.’
- b. Ich traf ihn in diesem Jahr / dann.
I met him in this year then
 ‘I met him in this year/then.’
- c. Er sprach mit der Stimme eines kleinen Kindes / so.
he spoke with the voice of a small child so
 ‘He spoke with the voice of a little child/that way.’

The sentences in (22) are identical to the ones in (12b), (13a), and (14a), respectively, but with an adverbial proform instead of a pronoun at the site of the antipronominal context. All the sentences in (22) are grammatical. What this

¹³ Importantly, (20a) is fine under a reading of *aus was* in which the PP refers to some concrete object, but ungrammatical under the reading in which it refers to some geopolitical entity. Similarly, (20b) is fine when *zu was* is interpreted as an event, but ungrammatical when referring to some point in time.

¹⁴ The exclusion of both personal pronouns and indefinite pronouns from antipronominal contexts suggests that antipronominal contexts possibly reflect the distinction between light/non-chromatic DPs (Kishimoto 2000; Postal 2004).

¹⁵ Nothing hinges on this specific implementation. A more standard implementation of this idea could analyze case markers and adpositions as members of the same functional category within the extended DP-spine.

highlights is that antipronominal contexts are neither *antiproform contexts* nor *antianaphoric contexts*. Antipronominal contexts do allow proforms (and hence an anaphoric relation to some antecedent) as long as these proforms are not DPs. In other words, antipronominal contexts require a lexical DP only if a DP is present there to begin with. If no DP is present, but an adverb, the restriction on lexical DPs does not (and cannot) apply.

Third, the lexicality requirement is deliberately stated as a requirement, and not as a selectional restriction or an LF-legibility condition. On the one hand, it reflects that antipronominal contexts remain not very well understood (Poole to app., for a recent suggestion), so any characterization should make as little analytical commitment as possible. On the other hand, antipronominal contexts only serve as a diagnostic in this paper. In the discussion of the theories of relative clauses to come, I will in fact discuss – especially in section 7 – both the option that antipronominal contexts reflect selectional restrictions and the option that they reflect an LF-legibility condition.

Fourth, two anonymous reviewers wonder how antipronominal contexts can be made compatible with recent work on pronouns as hidden definite descriptions, that is, as DPs whose NP-complement is present but silent (Elbourne 2001, 2005). There are two options. One is to redefine (19) as requiring the NP to be overt. This, however, clashes with the data in section 3 and 8.3, where I show that lexical DPs with a silent NP can satisfy the lexicality requirement. The second, more promising option is to reinterpret pronouns as being derivationally linked to lexical DPs. Under this view, pronouns do not contain a silent NP with descriptive content, but the position the pronoun appears in was occupied by a lexical DP at an earlier stage of the derivation (Hornstein 2007; Johnson & Postal 1980: chapter 11; Kayne 2002; Pankau 2013: chapter 6.5.2 and 7.2; Postal 2010). This option allows one to have access to the descriptive content of the NP without making that NP part of the pronoun, namely by inspecting earlier stages of the derivation. In order to prevent the DP anteceding the pronoun from satisfying the lexicality requirement, the lexicality requirement needs to be adjusted to a constraint requiring *all* DPs in an antipronominal context to be lexical (cf. Pankau 2013: 268). Since a pronoun occupying an antipronominal context is non-lexical, it induces a violation of the lexicality requirement, despite the presence of the antecedent lexical DP.

4 The Matching Analysis and its advantages

The defining property of the Matching Analysis is repeated in (23).

(23) PROPERTY OF THE MATCHING ANALYSIS

The pivot NP is base generated inside the head noun and inside the relativized element

If the pivot NP is an NP with descriptive content, then the two DPs defining the head noun and the relative pronoun count as lexical DPs. The Matching Analysis then makes the following prediction with respect to antipronominal contexts.

(24) PREDICTION OF THE MATCHING ANALYSIS

Both the head noun and the relative pronoun are jointly licit in antipronominal contexts

The prediction says, first, that head nouns are licit in antipronominal contexts. This follows because if the pivot NP is an NP with descriptive content, then the DP defining the head noun counts as a lexical DP and satisfies the lexicality requirement. The prediction says, second, that relative pronouns are licit in antipronominal contexts. This, too, is a consequence of the fact that the pivot NP is an NP with descriptive content. The DP defining the relative pronoun contains an NP with descriptive content, counts as a lexical DP and satisfies the lexicality requirement. Lastly, the prediction says that the head noun and the relative pronoun together are licit in antipronominal contexts. This follows because the pivot NP is base-generated inside the DP defining the head noun and inside the DP defining the relative pronoun. If the pivot NP is an NP with descriptive content, both DPs simultaneously count as lexical DPs and can jointly satisfy the lexicality requirement. The data in (25)-(27) show that the prediction is confirmed.

(25) HEAD NOUN IN ANTIPRONOMINAL CONTEXT

a. Er kommt **aus einem Land**, das in der belgischen Gruppe gespielt hat.
he comes out a country which in the Belgian group played has
 ‘He comes from a country that was part of the Belgian group.’
 (www.n-tv.de/sport/fussball_wm_2014/Klinsmann-kritisiert-Referee-gegen-Belgien-article13130141.html)

b. Wenn das früher geschieht als **zu der Zeit**, die für den Kunden angekündigt ist.
if that earlier happens than to the time which for the customer announced is
 ‘If this happens earlier than announced to the customer.’
 (www.zeit.de/2014/18/post-dumpingloehne/seite-3)

- c. Man soll Priester sein **mit innerer Freude**, die aus dieser Gottesnähe wächst.
one should priest be with internal pleasure which out this nearness to god grows
 ‘You should be priest with a pleasure from within, resulting from god’s presence.’
 (www.schoenstatt.de/de/news/575/112/Mit-Freude-Priester-sein-in-Gottes-und-Menschenergriffenheit.htm)
- d. Ich habe den Verlag nur **1 Monat** geleitet, in dem ich nicht gemobbt wurde.
I have the publishing house only one month led in which I not bullied became
 ‘I led the publishing house only one month during which I was not bullied.’
- e. Die Kündigung erfolgt **aus einem Grund**, der in seiner Persönlichkeit liegt.
the quitting results out a reason which in his character lies
 ‘His quitting is a result of his character.’
 (www.kanzlei-oppermann.info/?cat=9)
- f. Scheer hatte **einen Angriff** geritten, den Laufs nicht parieren konnte.
Scheer had an attack ridden which Laufs not parry could
 ‘Scheer attacked Laufs in a way Laufs couldn’t properly react to.’
 (www.blogille.de/superminister-hermann)
- g. Die Wintersportgebiete müssen **mit den Pfunden** wuchern, die schon da sind.
the winter sports areas must with the pounds practice usury which already there are
 ‘The winter sports areas have to focus on their strengths they already have.’
 (www.deutschlandradiokultur.de/schweiz-harter-franken-harte-zeiten.1076.de.html?dram:article_id=311694)

(26) RELATIVE PRONOUN IN ANTIPRONOMINAL CONTEXT¹⁶

- a. Vaterland bezeichnet das Land, **aus dem** man stammt.
homeland signifies the country out which one descends
 ‘Homeland denotes the country where one comes from.’
 (gfds.de/vaterlandmutterland)
- b. Das ist die Zeit, **zu der** die Kälte ins Tal kommt.
that is the time to which the coldness in the valley comes
 ‘This is the time when coldness comes to the valley.’
 (www.zeit.de/1990/50/fluch-und-segen-am-grossglockner)
- c. Das unterstreicht auch die Geschwindigkeit, **mit der** die Kurse jetzt fallen.
this underlines also the speed with which the indices now fall
 ‘This emphasizes the speed of dropping indices.’
 (www.handelsblatt.com/wirtschaft-handel-und-finanzen-roundup-aktien-frankfurt-schluss-dax-mit-groesstem-wochenverlust-seit-juni-2013/9754318.html)
- d. In den 18 Jahren, **die** ich den Verlag jetzt leite, habe ich zwei Fehler gemacht.
in the 18 years which I the publishing house now lead have I two mistakes made
 ‘I have made two mistakes during the 18 years that I run the publishing house.’
 (www.fr-online.de/frankfurter-buchmesse/joachim-unseld-buecher-sind-zu-billig,4687284,20493016.html)
- e. Der Grund, **aus dem** der Kirche täglich mehr und mehr Leute fortlaufen, liegt hierin.
the reason out which the church daily more and more people run away lies therein
 ‘The reason why more and more people leave the church is this one.’
 (www.aphorismen.de/zitat/97082)

¹⁶ Surprisingly, R-pronouns used as relative pronouns are sensitive to antipronominal contexts, as shown in (i).

- (i) Der Begriff wird für jedes Land benutzt, **in dem** / ***worin** es ein solches System gibt.
the term becomes for every country used in which in which it a such system gives
 ‘The term is used for every country where such a system can be found’

One way to account for this is to assume that ellipsis of the pivot NP optionally licenses the insertion of a *pro*-NP. If this insertion applies, the resulting phrase surfaces as an R-pronoun. If this insertion does not apply, the resulting phrase surfaces with a d-pronoun. Interestingly, R-pronouns in Dutch are not sensitive to antipronominal contexts.

- (ii) $\sqrt{\text{De}}$ term wordt ook gebruikt for een land **waarin** een dergelijk system werkt.
the term becomes also used for a country in which a similar system works
 ‘The term is also used for a country where a similar system can be found’

(nl.wikipedia.org/wiki/Verzorgingsstaat)

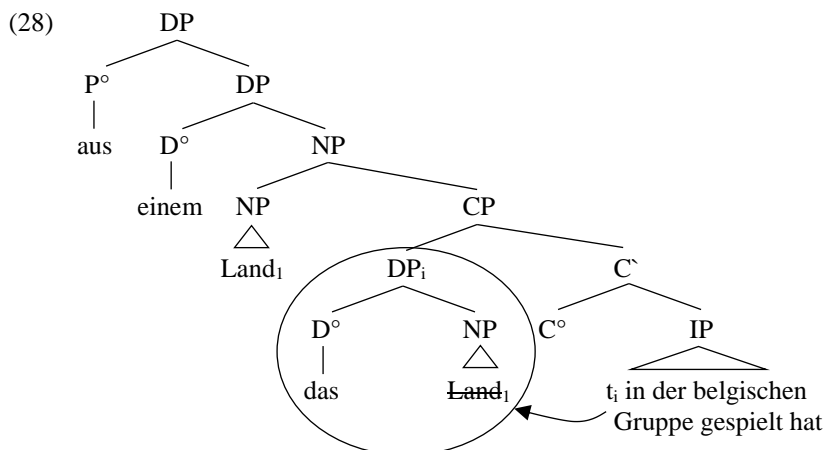
This indicates that the insertion of the *pro*-NP can take place after movement of the relativized DP in Dutch. What is moved in (ii) is *met die*, and only after this movement step is the NP *die* replaced by a *pro*-NP, resulting in *waarmee*. So the R-pronoun is inserted in SpecCP. This option would then be blocked in German. More investigation on this topic and the difference between German and Dutch is needed, which I leave to future research.

- f. Es ist ein leiser Angriff, **den** sie zurzeit reitet.
it is a silent attack which she currently rides
 ‘It is a silent attack she currently runs.’
 (www.stern.de/politik/deutschland/angela-merkel-wer-leiten-will-muss-schoen-sein-541816.html)
- g. Gensert hat die Pfunde aufgezählt, **mit denen** die CDU wuchern kann.¹⁷
Gensert has the pounds listed with which the CDU practice usury can
 ‘Gensert listed the successes of the CDU.’
 (www.op-online.de/region/roedermark/andere-liste-urberach-interview-perihan-demirdoeven-stefan-gerl-5328679.html)

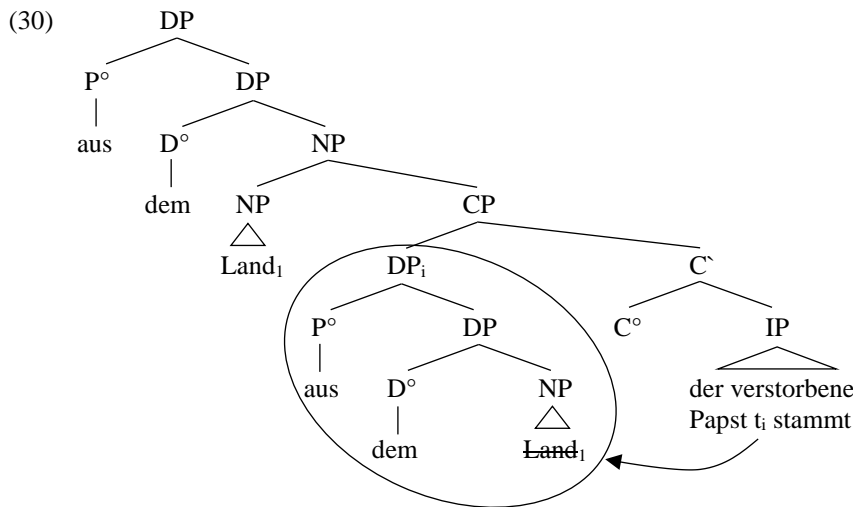
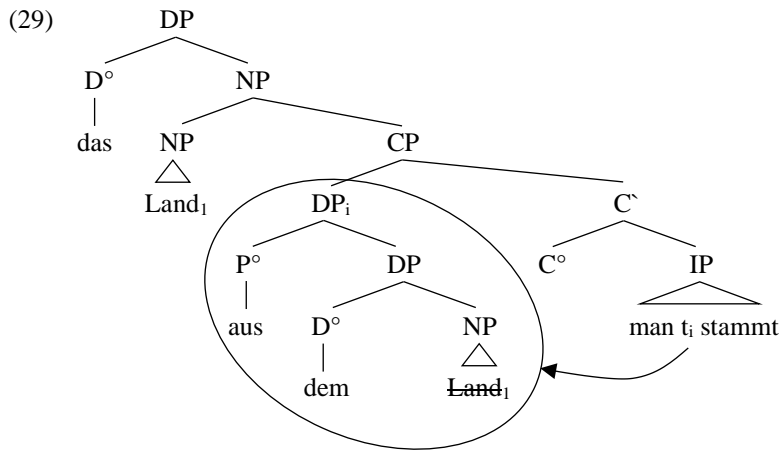
(27) HEAD NOUN & RELATIVE PRONOUN IN ANTIPRONOMINAL CONTEXT

- a. Ich komme **aus dem Land**, **aus dem** der verstorbene Papst stammt.
I come out the country out which the deceased pope descends
 ‘I come from the country where the deceased pope comes from.’
 (www.merkur-online.de/lokales/regionen/benedikt-xvi-weckt-freude-hoffnung-221003.html)
- b. **Zu der Uhrzeit**, **zu der** ich aufstehen muss, kann ich noch nichts essen.
to the time to which I get up must can I yet nothing eat
 ‘I can’t a thing at the time I have to get up.’
 (Hans-Joachim Linke, Doing Time, p. 192)
- c. Hackfleisch isst er nicht **mit dem Appetit**, **mit dem** er Rind in Stücken isst.
mincemeat eats he not with the appetite with which he beef in pieces eats
 ‘He doesn’t eat minced meat with the appetite that he eats sliced beef with.’
 (www.katzen-forum.net/barfen/140870-die-matschtanten-oder-herren-192.html)
- d. Die **18 Jahre**, **die** ich den Kirchenchor geleitet habe, hat er den Schützenverein geleitet.
the 18 years which I the church choir led have has he the gun club led
 ‘I ran the church choir for 18 years in which he ran the gun club.’
- e. Ich mache es **aus einem Grund**, **aus dem** hier keiner mehr irgendwas macht.
I make it out a reason out which here no one more something makes
 ‘I do it for a reason that is no longer relevant for anyone here anymore.’
 (www.team-andro.com/phpBB3/komisches-gefuehl-nach-laufband-einheit-t162904.html)
- f. Peter reitet **einen Angriff**, **den** er noch nie zuvor geritten ist.
Peter rides an attack which he yet never before ridden has
 ‘Peter attacked in a way he never tried out before.’
- g. Peter hat **mit Pfunden** gewuchert, **mit denen** man nicht wuchern sollte.
Peter has with pounds practiced usury with which one not practice usury should
 ‘Peter showed off in a way that turned out unfortunate for him.’

The structures for the a-examples according to the Matching Analysis are given in (28)-(30).



¹⁷ The grammaticality of this example casts doubt on the claim by Hulsey & Sauerland (2006) that extraposition of relative clauses generally blocks reconstruction of the head noun. To the extent that extraposition bleeds reconstruction in English (cf. Heycock 2005: 363-4), it represents a language particular constraint of English.



As these structures show, both the head noun and the relativized element are lexical DPs and the lexicity requirement is satisfied.

5 The inadequacy of the Head External Analysis

The defining property of the Head External Analysis is repeated in (31).

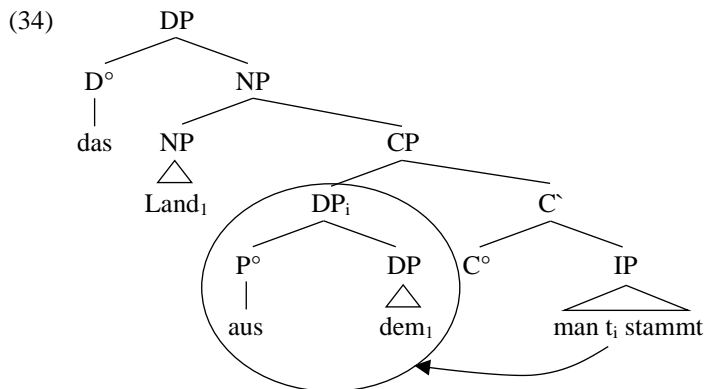
- (31) PROPERTY OF THE HEAD EXTERNAL ANALYSIS
The pivot NP is base-generated only inside the head noun; the relativized element is a proform

If the head noun and the relative pronoun are DPs and if the pivot NP is an NP with descriptive content, then only the DP defining the head noun counts as a lexical DP. Consequently, the Head External Analysis makes the following prediction.

- (32) PREDICTION OF THE HEAD EXTERNAL ANALYSIS
Head nouns are licit in antipronominal contexts, relative pronouns are not

That head nouns are fine in antipronominal contexts follows because if the pivot NP is an NP with descriptive content, then the DP defining the head noun counts as a lexical DP and satisfies the lexicity requirement. That relative pronouns are barred from antipronominal contexts follows because the Head External Analysis takes the relative pronoun to be a pronoun. As pronouns are DPs that do not contain an NP with descriptive content, they do not count as lexical DPs and will therefore not satisfy the lexicity requirement. As the examples in (25) showed, head nouns are fine in antipronominal contexts. But the examples in (26) and (27) showed that relative pronouns are licit in antipronominal contexts as well. So the prediction in total is not confirmed. One problematic example containing a relative pronoun in an antipronominal context together with its structure according to the Head External Analysis is given in (33) and (34).

- (33) RELATIVE PRONOUN IN ANTIPRONOMINAL CONTEXTS
 Vaterland bezeichnet das Land, **aus dem** man stammt.
homeland signifies the country out which one descends
 ‘Homeland denotes the country where one comes from.’



Since a pronoun appears in an antipronominal context, the grammaticality of this and similar sentences is unaccounted for under the Head External Analysis.

I will argue in the following three subsections that the availability of relative pronouns in antipronominal context is irreducible to interfering syntactic aspects. More specifically, the availability of relative pronouns in antipronominal contexts is independent of (a) their morphological properties, (b) the extraction of the relative pronoun, and (c) the presence of the head noun.

5.1 The irrelevance of *d*-pronouns

In German, relative pronouns are usually drawn from the set of *d*-pronouns and not from the set of personal pronouns. So possibly *d*-pronouns count as pronominal for the purpose of relative clause formation, but as non-pronominal with regard to antipronominal contexts. But this is not the case: *d*-pronouns are as sensitive to antipronominal contexts as personal pronouns, cf. (35).

- (35) a. Er kommt / stammt $\sqrt{\text{aus diesem Land}}$ / ***aus dem**.
he comes descends out this country out it
 ‘He comes/descends from that country/*from it.’
- b. Wir waren $\sqrt{\text{zu der Zeit}}$ /***zu der** verabredet.
we were to the time to it arranged
 ‘We had an appointment at that time (*at it).’
- c. Er spricht $\sqrt{\text{mit der Stimme eines kleinen Kindes}}$ /***mit der**.
he speaks with the voice of a small child with it
 ‘He speaks with the voice of a little child (*with it).’
- d. Er läuft $\sqrt{\text{auf einem Bein}}$ /***auf dem**.
he walks on one leg on it
 ‘He walks on one leg (*on it).’
- e. Er leitete den Verlag $\sqrt{\text{18 Jahre}}$ /***die** als Herausgeber.
he led the publishing house 18 years them as editor
 ‘He has been running the publishing house for 18 years (*for them) as an editor.’
- f. Wir haben uns $\sqrt{\text{aus diesem Grund}}$ /***aus dem** getrennt.
we have us out that reason out it broken up
 ‘We broke up for this reason (*for it).’
- g. Attila reitet $\sqrt{\text{einen Angriff}}$ /***den** gegen seine Widersacher.
Attila rides an attack it against his enemies
 ‘Attila runs an attack against his enemies.’
- h. Er hat mit $\sqrt{\text{seinen Pfunden}}$ /***denen** gewuchert.
he has with his pounds them practiced usury
 ‘He showed off.’

5.2 The irrelevance of the extraction

The second way to save the Head External Analysis vis-à-vis the availability of relative pronouns in antipronominal contexts is to take advantage of the fact that relative pronouns are extracted. Under a GB style implementation of the Head External Analysis, traces of extraction do not count as pronominal but as empty R-expressions. More Minimalist inspired analyses could argue that relative pronoun extraction is extraction of an operator, which has

the distribution of a lexical DP. Alternatively, extraction could be assumed to leave behind elements that eventually behave like silent definite descriptions, thereby satisfying the lexicality requirement. Lastly, analyses inspired by Postal's (1994, 1998) work on A- vs. B-extractions could argue that the extraction of a relative pronoun is A-extraction, which is never sensitive to antipronominal contexts, irrespective of the lexical status of the element undergoing extraction.¹⁸

However, the idea that extraction is responsible is untenable, for three reasons. First, if extraction allowed a circumvention of antipronominal contexts, then extraction of a DP out of an antipronominal context should *always* rescue a violation of the lexicality requirement. The examples in (36) show that this is not the case: extraction of non-relative pronouns to SpecCP is ungrammatical.

- (36) a. * **Aus ihm / aus dem** kommt / stammt er.
out it out it comes descends he
 * 'He comes/descends from that/from it.'
- b. * **Zu ihr / zu der** waren wir verabredet.
to it to it were we arranged
 * 'We had an appointment at that/at it.'
- c. * **Mit ihr / mit der** spricht er.
with it with it speaks he
 * 'He speaks in that/in it.'
- d. * **Sie / die** leitete er den Verlag als Herausgeber.
them them led he the publishing house as editor
 * 'He has been running the publishing house for them.'
- e. * **Aus ihm / aus dem** haben wir uns getrennt.
out it out it have we us broken.up
 * 'We broke up for that/for it.'
- f. * **Ihn / den** ist er geritten.
it it is he ridden
 intended: 'He attacked someone.'
- g. * **Mit ihnen / mit denen** hat er gewuchert.
with them with them has he practiced usury
 intended: 'He showed off.'

Let me stress here that the versions with d-pronouns will certainly seem acceptable for some speakers of German. I return to this issue at the end of section 8.3 where I argue that this is due to the option of assigning a structure to such sentences with NP-ellipsis of a silent lexical NP.

Second, if mere extraction of the relative pronoun would suffice, then the question whether the pivot NP is an NP with descriptive content is predicted to be irrelevant. The contrast in (37) shows that this is not the case.

- (37) a. Ich bedauere den Grund, **aus dem** sie sich getrennt haben.
I regret the reason out which they REFL broken up have
 'I regret the reason for which they broke up.'
- b. * Ich bedauere etwas, **aus dem** sie sich getrennt haben.
I regret something out which they REFL broken up have
 'I regret something for which they broke up.'

The circumstantial adverbial in (37) defines an antipronominal context (cf. 16b). Relativizing it results in grammaticality in (37a) but in ungrammaticality in (37b). If only extraction were at stake, this contrast is a mystery. The Matching Analysis, however, predicts this contrast. The relativized element in (37a) contains a pivot NP that is an NP with descriptive content, the one in (37b) does not contain such an NP. Therefore, the DP containing this pivot NP in (37a) counts as a lexical DP and can satisfy the lexicality requirement, as shown in (38).

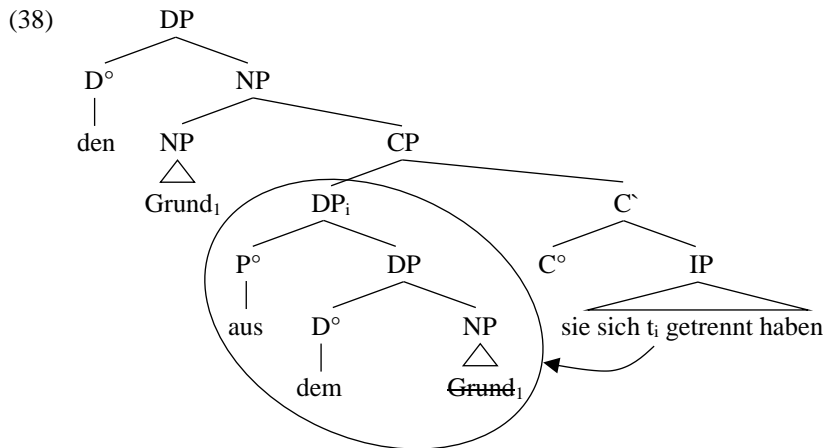
¹⁸ According to Postal (1994), wh-question extraction is an A-extraction and therefore insensitive to antipronominal contexts, whereas topicalization is a B-extraction and therefore sensitive to antipronominal contexts. Importantly, this (in)sensitivity shows up regardless of the lexical status of the extracted DP, cf. (i).

- (i) a. **What/what kind of dancer** are you going to become?
 b. * **That/that kind of surgeon**, you will never become.

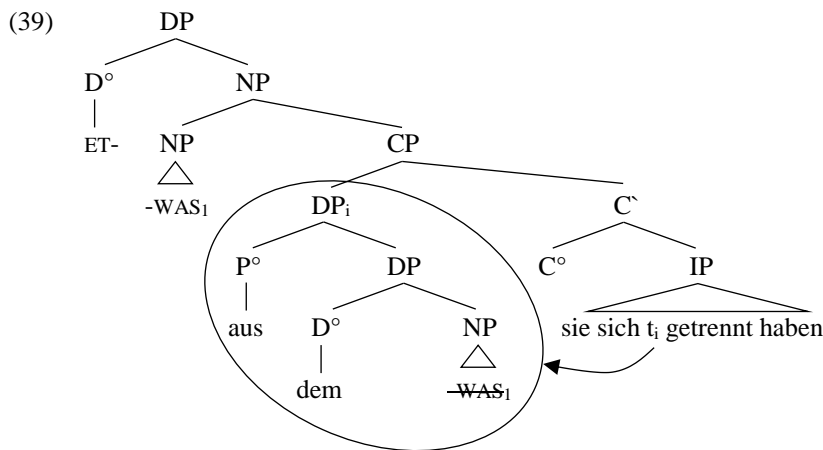
(Postal 1994, exx. 44a, 18b, 18a & 19c)

German differs in this respect: the contrast in (ii) shows that the type of element is crucial.

- (ii) √ **Aus welchem Land** /* **aus was** kommst / stammst du?
out which country out what come descend you
 'Which country (what) do you come from?'



The relativized element in (37b), however, contains a pivot NP that is an indefinite NP. Since indefinite NP lack descriptive content, the DP containing that NP does not count as a lexical DP and cannot satisfy the lexicality requirement, cf. (39).¹⁹



Third, if mere extraction would matter, then free relative pronouns should be licit in antipronominal contexts as well. The contrast between (40c) and (40d) shows that this is not the case.

- (40) a. Ein Jahr / es geht schnell vorüber.
one year it goes quickly over
 ‘One year (it) passes quickly.’
- b. Ich habe $\sqrt{\text{ein Jahr}}$ /*es auf dich gewartet.
I have a year it on you waited
 ‘I waited a year (*it) for you.’
- c. Das Jahr, **das** du auf mich warten wirst, geht schnell vorüber.
the year which you on me wait will goes quickly over
 ‘The year that you will wait for me will pass quickly.’
- d. ***Was** du auf mich warten wirst, geht schnell vorüber.
What you on me wait will goes quickly over
 ‘What you will wait for me will pass quickly.’

The examples in (40a) and (40b) illustrate two predicates selecting a DP that specifies a duration, only the latter of which defines an antipronominal context. The example in (40c) shows that if the antipronominal context is inside a regular relative clause, grammaticality results. However, if the antipronominal context is inside a free relative clause as in (40d), ungrammaticality results. For the Head External Analysis, this contrast is unexpected if the extraction of the relative pronoun is crucial. The Matching Analysis predicts this result, no matter what analysis of free relative clauses one adopts. If the pivot NP in free relatives is an empty pronominal (Suñer 1984;

¹⁹ I use upper case *ETWAS* and *WAS* in (39) because I wish to remain agnostic how precisely the indefinite pronoun *etwas* is structurally represented both as a head noun and inside the relative pronoun.

Grosu 1994), then the DP containing that NP is not a lexical DP and cannot satisfy the lexicality requirement. Alternatively, if free relatives involve a structure where an empty D°-head merges with a CP (Assmann 2013; Caponigro 2002; Groos & van Riemsdijk 1981, de Vries 2002), then the DP will not count as lexical either with respect to the lexicality requirement, because D°'s sister is not an NP to begin with.

5.3 The irrelevance of the presence of an antecedent

The availability of relative pronouns in antipronominal contexts could finally be tied to the presence of a lexical DP as an antecedent, namely the head noun. All the bad cases of antipronominal contexts illustrated so far have in common the lack of a sentence-internal antecedent for the proform. All the good cases, however, have such an antecedent, namely the pivot NP inside the DP defining the head noun. Consequently, antipronominal contexts could be circumvented just in case a proform has a lexical DP as its sentence-internal antecedent. This factor is irrelevant, too. It predicts that the presence of a sentence-internal antecedent for a proform in an antipronominal context should *always* suffice to rescue the violation of an antipronominal context. The contrast between Left Dislocation and Hanging Topic Left Dislocation shows that this is not the case.

(41) LEFT DISLOCATION

- a. **Aus dem Schwarzwald, aus dem** kommen einige berühmte Dichter.
out the Black Forest out that come some famous poets
'Some famous poets come/descend from the Black Forest.'
- b. **Zu diesem Zeitpunkt, zu dem** war er schon tot.
to this time to that was he already dead
'He had already died at that time.'
- c. **Mit der Stimme eines Kindes, mit der** hat er die ganze Zeit gesprochen.
with the voice of a child with that has he the whole time spoken
'He spoke like a child all the time.'
- d. **Diesen Sommer, den** habe ich den Verlag probeweise geleitet.
this summer that have I the publishing house on.trial led
'I ran the publishing house on trial this summer.'
- e. **Aus diesem Grund, aus dem** hat er sich von ihr getrennt.
out this reason out that has he REFL of her broken up
'He broke up with her for that reason.'
- f. **Diesen Angriff, den** reite ich selber.
this attack that ride I self
'I myself will ride the attack.'
- g. **Mit deinen Pfunden, mit denen** musst du mehr wuchern.
with your pounds with them must you more practice usury
'You need to show off.'

(42) HANGING TOPIC LEFT DISLOCATION

- a. ***Der Schwarzwald, aus dem** kommen einige berühmte Dichter.
the Black Forest out that come some famous poets
Some famous poets come/descend from the Black Forest.
- b. ***Dieser Zeitpunkt, zu dem** war er schon tot.
this time to that was he already dead
'He had already died at that time.'
- c. ***Die Stimme eines Kindes, mit der** hat er die ganze Zeit gesprochen.
the voice of a child with that has he the whole time spoken
'He spoke like a child all the time.'
- d. ***Dieser Sommer, den** habe ich den Verlag probeweise geleitet.
this summer that have I the publishing house on.trial led
'I ran the publishing house on trial this summer.'
- e. ***Dieser Grund, aus dem** hat er sich von ihr getrennt.
this reason out that has he REFL of her broken up
'He broke up with her for that reason.'
- f. ***Dieser Angriff, den** reite ich selber.
this attack that ride I self
'I myself will ride the attack.'
- g. ***Deine Pfunden, mit denen** musst du mehr wuchern.
your pounds with them must you more practice usury
'You need to show off.'

Both dislocations have an XP with a topic function in an adjoined position that is coindexed with an extracted proform. In Left Dislocation, this XP agrees with the proform in morphosyntactic features (ϕ -features, case, and prepositional marking), whereas in Hanging Topic Left Dislocation this XP is subject to an anti-identity constraint requiring the XP to always bear nominative case. As both dislocations feature a sentence-internal antecedent for the extracted proform, the extracted proforms of both dislocations are expected to be licit in antipronominal contexts. But only the extracted proforms in Left Dislocation are fine in an antipronominal contexts. The extracted proforms in Hanging Topic Left Dislocation are illicit in antipronominal contexts. The presence of a sentence-internal antecedent is therefore not sufficient to account for the availability of a proform in an antipronominal context. Consequently, the availability of relative pronouns in antipronominal contexts cannot be due to the presence of the antecedent head noun either. Incidentally, the ungrammaticality of the examples with Hanging Topic Left Dislocation cannot be due to the mismatch in morphosyntactic features between the adjoined XP and the extracted proform because in relative clauses, head nouns and relative pronouns can show a similar mismatch with no effect whatsoever on the grammaticality of the relative clause.

In order to account for the differences between the two types of dislocation, Grewendorf (2002) and Grohmann (2003) have argued for different structures underlying the two types of dislocation. In Hanging Topic Left Dislocation, the proform is extracted and the topic XP is base generated in its adjoined position. In Left Dislocation, on the other hand, both the topic XP and the proform are extracted.²⁰ This distinction derives the observed differences between the two types of left dislocation vis-à-vis antipronominal contexts. In Left Dislocation, if the topical XP is a lexical DP and if it is base-generated in an antipronominal context, then that lexical DP can satisfy the lexicality requirement prior to its extraction. In Hanging Topic Left Dislocation, however, the status of the topical XP as a lexical DP doesn't matter. What is extracted is only the proform. If it is base-generated in, and extracted from, an antipronominal context, then that proform cannot satisfy the lexicality requirement because it is not a lexical DP. Even though the correctness of this analysis is independent of the structure for relative clauses, it is compatible with the account offered by the Matching Analysis for the availability of relative pronouns in antipronominal contexts: only lexical DPs can satisfy the lexicality requirement.

6 The inadequacy of the Raising Analysis

The defining property of the Raising Analysis with respect to the pivot NP is repeated in (43).

- (43) PROPERTY OF THE RAISING ANALYSIS
The pivot NP is extracted from inside the relativized element to the left periphery of the relative clause

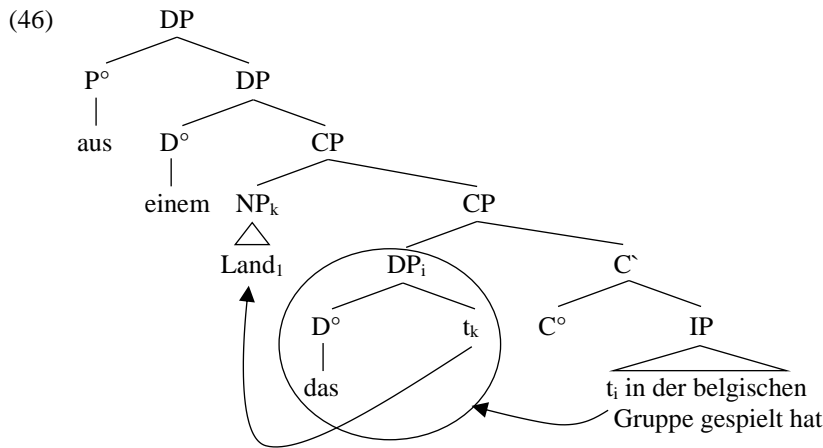
If the head noun and the relative pronoun are DPs and if the pivot NP is an NP with descriptive content, then only the DP defining the relativized element counts as a lexical DP. So the Raising Analysis makes the following prediction with respect to antipronominal contexts.

- (44) PREDICTION OF THE RAISING ANALYSIS
Relative pronouns are licit in antipronominal contexts, head nouns are not

That relative pronouns are fine in antipronominal contexts follows because if the DP defining the relative pronoun contains a pivot NP that is an NP with descriptive content, then that DP counts as lexical and can satisfy the lexicality requirement. That head nouns are banned from antipronominal contexts follows because the DP defining the head noun is a DP that lacks an NP-complement altogether. This DP therefore does not count as lexical and cannot satisfy the lexicality requirement. The first part of the prediction is confirmed, cf. (26) and (27), but the second is not: head nouns are fine in antipronominal contexts (cf. 25). So the prediction in total is not confirmed. I repeat one crucial example from (25) together with its structure according to the Raising Analysis in (45) and (46).

- (45) HEAD NOUN IN ANTIPRONOMINAL CONTEXT
Er kommt **aus einem Land**, das in der belgischen Gruppe gespielt hat.
he comes out a country which in the Belgian group played has
'He comes from a country that was part of the Belgian group.'

²⁰ This requires that the left dislocated XP and the proform are extracted from the same position. This can be handled in two ways. First, the XP and the proform are base-generated as one constituent and are later in the derivation separated from each other (the *Big DP* approach, cf. Grewendorf 2002). What needs to be guaranteed is that the proform is adjoined to XP and not the head, otherwise the resulting constituent could not satisfy the lexicality requirement. Alternatively, the proform is an extracted resumptive proform, itself licensed through the extraction of the XP. What needs to be guaranteed under this approach is that the proform undergoes a type of extraction that rescues the violation of the lexicality requirement induced by the proform (cf. Postal 1994, 1998).

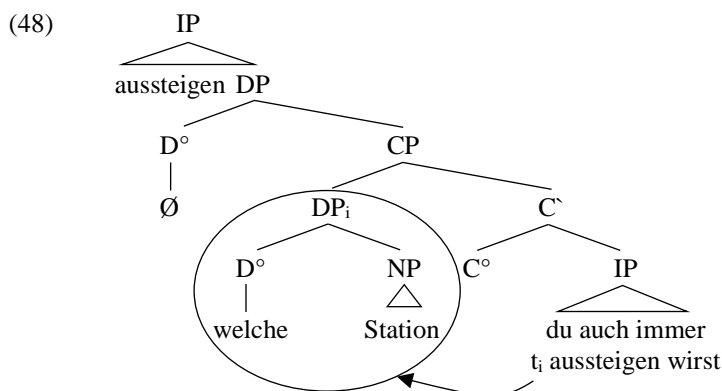


As the structure in (46) shows, the pivot NP remains inside the relative clause, does therefore not appear within the DP defining the head noun, so that this DP cannot satisfy the lexicality requirement.

Similar to the Head External Analysis, independent syntactic aspects of the structure could be responsible for the availability of the head noun in antipronominal contexts. The first possibility is found in Bianchi (2000: 127-9). According to this analysis, the external determiner can enter into a selection relation with an NP that is either the external determiner's sister or that is the specifier (of the specifier etc.) of the external determiner's sister. The pivot NP occupying the specifier of the relative clause is then accessible to the external determiner and can enter into a selection relation with it. The relation between the determiner *einem* 'one' and the pivot NP *Land* 'land' in (46) is then identical to the relation between a determiner and a complement NP. Therefore, the DP defining the head noun will count as a lexical DP and can therefore satisfy the lexicality requirement. The problem with this modification is that it predicts specifiers to always be accessible for selection. Data from *ever*-relative clauses in German show that this prediction is not confirmed, though. Consider the examples in (47).

- (47) a. Ich werde \surd **die nächste Station** /**sie* aussteigen.
I will the next station she depart
 'I will depart the next station (*it).'
- b. *Ich werde aussteigen, **welche Station** du auch immer aussteigen wirst.²¹
I will depart which station you also ever depart will
 'I will depart whichever station you will depart.'

Example (47a) repeats the antipronominal context already illustrated in (12b). The example in (47b) shows a relativization structure with the German equivalent of *ever*-relatives, formed with *auch immer* 'ever'. *Ever*-free relative clauses differ from plain free relatives in that the relativized element can be phrasal. As indicated, (47b) is ungrammatical. This is unexpected under the idea that the pivot sitting in SpecCP is visible for selection. To see this, consider the structure of (47b) in (48).



This structure incorporates standard assumptions about free relatives according to which they are relative clauses to an empty D°-head (Assmann 2013; Groos & Riemsdijk 1981) that enters into some selection relation with the

²¹ This sentence is grammatical under the irrelevant reading where the free relative clause acts as a free adjunct free relative. Under this reading, the sentence translates as 'I will depart, no matter what station you will depart.'

pivot in SpecCP (Caponigro 2002; de Vries 2002). Since according to Bianchi's modification a selection relation between the pivot in SpecCP allows that pivot to become accessible outside that CP, it is predicted that *welche Station* 'which station' becomes accessible outside the CP for the matrix predicate *aussteigen* 'depart'. Consequently, *welche Station* 'which station' is predicted to satisfy the lexicality requirement, contrary to fact. Under the Matching Analysis, the ungrammaticality of (47b) is expected because the D°-head in (48) has a CP-complement and not an NP-complement, so that the resulting DP does not count as lexical.

An anonymous reviewer wonders how the invisibility of the specifier in free relative clauses is compatible with matching effects observed in free relatives (Bresnan & Grimshaw 1978; Groos & Riemsdijk 1981), cf. (49).

- (49) a. Ich vertraue_[DAT], wem du vertraust_[DAT].
I trust who.DAT you help
 'I trust whoever you trust.'
- b. *Ich vertraue_[DAT], wer einen guten Eindruck macht_[NOM].
I trust who.NOM a good impression makes
 'I trust whoever makes a good impression.'

In (49a), the case of the free relative pronoun matches the case requirement of the matrix predicate: the free relative pronoun bears dative case and the matrix predicate requires dative case. In (49b), on the other hand, the free relative pronoun in SpecCP does not match the case requirement of the matrix predicate: the free relative pronoun bears nominative, but the matrix predicate requires dative. Adopting the structure in (48), according to which the relative proform occupies SpecCP, matching effects seem to show that the phrase in SpecCP of the relative clause can satisfy the selectional requirements of the matrix predicate. In order to achieve this, however, the phrase in SpecCP of the relative clause has to be accessible by the matrix predicate for selectional purposes. This of course clashes with the observation in (47b), which shows that the phrase in SpecCP of a relative clause is not accessible for selectional purposes by the matrix predicate. This could be taken as indication that (47b) is ungrammatical for an independent reason. However, I wish to take an alternative route: there is no conflict because matching effects do not provide evidence that the phrase in SpecCP of relative clauses is accessible for selectional purposes by the matrix predicate. As repeatedly pointed out (Grosu 2003; Pittner 1991, 1995; Vogel 2001, 2002), many speakers of German do not show the strict pattern reported in Groos & Riemsdijk (1981) but allow mismatches, cf. (50).

- (50) Ich unterstütze_[ACC], wem du hilfst_[DAT].
I support who.DAT you help
 'I support whoever you help.'

As indicated, *unterstützen* 'to support' requires accusative, *wem* 'who' bears dative, but the sentence is nevertheless fine for many speakers. Crucially, German doesn't allow any type of mismatch in free relatives. Even speakers who allow (50) will not allow (49b) nor the reverse pattern of (50) shown in (51).

- (51) *Ich helfe_[DAT], wen du unterstützt_[ACC].
I help who.ACC you support
 intended: 'I help whoever you support'

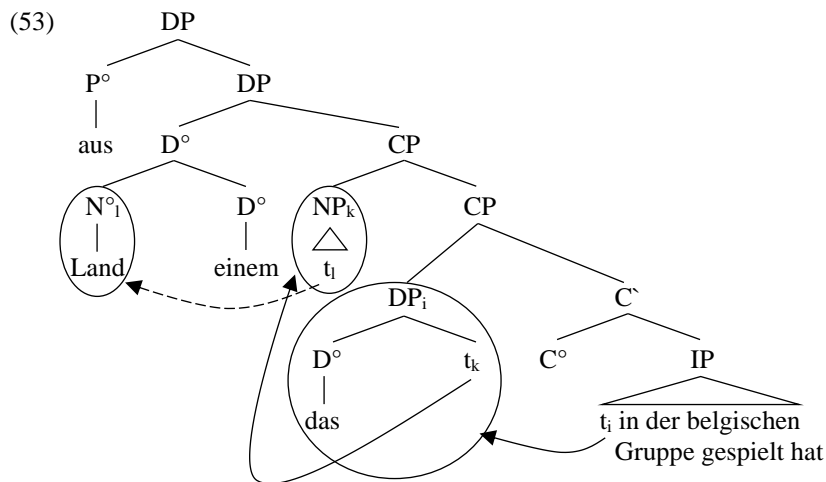
Under the approach that the relative pronoun in SpecCP is accessible for selectional purposes by the matrix predicate, neither the grammaticality of (50) nor the contrast between (50) on the one hand and the contrast (51) and (49b) on the other hand is captured. So matching effects in German in themselves are not indicative for accessibility of SpecCP. Instead, it is generally acknowledged (op. cit.) that free relative clauses in German obey a case hierarchy constraint, holding between the case required by the position the free relative clause appears in and the case of the free relative proform, formulated in (52).

- (52) Given the following hierarchy
NOM > ACC > DAT > other cases
 the case feature of the free relative proform must not be further to the left than the case required by the position the free relative clause appears in

The sentence in (50) obeys the constraint: *unterstützen* 'to support' requires accusative case, *wem* 'who' bears dative case, and the dative is not further to the left than the accusative. The sentence in (51) violates the constraint: *helfen* 'to help' selects for dative case, *wen* 'who' bears accusative case, but the accusative is further to the left than the dative. Similarly, *vertrauen* 'to trust' selects for dative case in (49b), *wer* 'who' bears nominative case, but the nominative is further to the left than the dative. No matter how one eventually wishes to implement the

case hierarchy constraint,²² matching then represents the special case where the case feature of the relative proform and the case requirement of the position the free relative clause appears in are *identical*. Importantly, given the case hierarchy approach, the ungrammaticality of (47b) does not clash with the existence of matching effects; it only clashes with a certain theoretical interpretation of matching effects as involving accessibility of SpecCP for selectional purposes from outside.

The second modification is hinted at by Kayne (1994: 154, fn. 9), who suggests that the pivot NP undergoes covert extraction and adjoins to the external determiner, as shown in (53).



This structure is in relevant aspects identical to the one adopted by the Promotion Analysis. I will discuss this analysis in more detail in the next section and argue that extraction of the pivot NP is of no help.

7 The inadequacy of the Promotion Analysis

The defining property of the Promotion Analysis is repeated in (54).

- (54) PROPERTY OF THE PROMOTION ANALYSIS
The pivot NP is extracted from inside the relativized element into the head noun

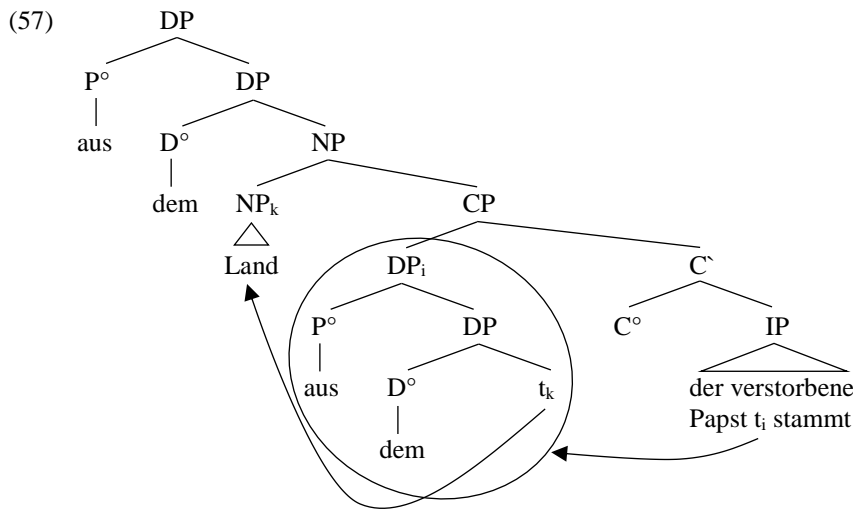
If the head noun and the relative pronoun are DPs and if the pivot NP is an NP with descriptive content, then the status of the DPs defining the head noun and the relative pronouns as lexical DPs changes throughout the derivation. Before movement of the pivot NP, the DP defining the relativized element is a lexical DP because it contains a pivot NP that is an NP with descriptive content, whereas the DP defining the head noun contains an empty NP position and hence does not count as lexical a DP. But after movement of the pivot NP, the reverse holds. The DP defining the relativized element lacks an NP so it cannot count as a lexical DP. The DP defining the head noun, however, now contains the pivot NP that is an NP with descriptive content and therefore counts as a lexical DPs. Importantly, there is no stage at which both DPs count as lexical DPs. So the Promotion Analysis makes the following prediction.

- (55) PREDICTION OF THE PROMOTION ANALYSIS
Either the head noun or the relative pronoun is licit in an antipronominal context, but not both

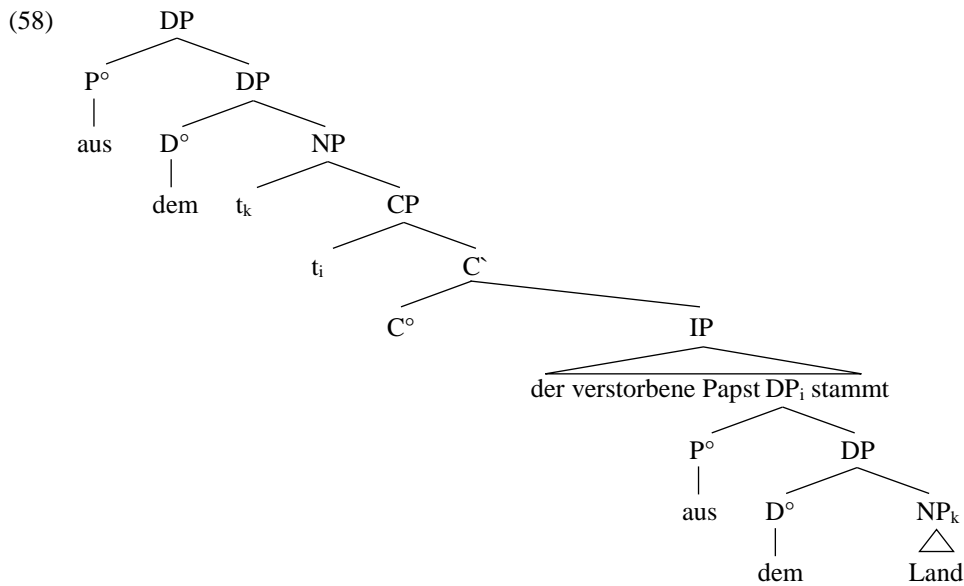
This prediction might appear dubious but it is the consequence of the simple fact that the pivot NP is extracted, that is, undergoes movement. As movement configurations create a chain and since a moved XP is ultimately present only at one position of the chain, this means that the pivot NP is either visible in its top position or at its bottom position, via reconstruction. So the simple fact that the pivot NP is moved precludes the option of having the pivot available at both positions. As the data in (27) showed, this prediction is not confirmed: both the head noun and the relative pronoun can appear in antipronominal contexts. One crucial example and its structure according to the Promotion Analysis are given in (56) and (57).

²² Pittner (1991, 1995) takes the case hierarchy be a representational constraint, whereas Vogel (2001, 2002) and Assmann (2003) attempt to derive it from the interaction of local constraints.

- (56) HEAD NOUN & RELATIVE PRONOUN IN ANTIPRONOMINAL CONTEXT
 Ich komme **aus dem Land**, **aus dem** der verstorbene Papst stammt.
I come out the country out which the deceased pope descends
 'I come from the country where the deceased pope comes from.'



The sentence in (56) has an antipronominal context in the position of the relativized element and one in the position of the head noun. The problem the Promotion Analysis faces is that the pivot NP *Land* is present in only one of the two positions: either in the position of the head noun as shown in (57), or after reconstruction in the position of the relativized element, as shown in (58). But no matter what option is chosen, the pivot NP will never appear in both positions.²³



This problem the Promotion Analysis faces also emerges under the two modifications of the Raising Analysis discussed in section 6. Kayne's modification involved covert movement into the host clause (cf. 53). Bianchi's modification involved the idea that the structure in (46) is sufficient because the pivot NP in SpecCP is close enough to the external D° and hence can satisfy the lexicality requirement. Both modifications are of no help. Kayne's is of no help because covert extraction only adds another chain link in which the moved pivot NP appears in, but it does not solve the problem that the moved pivot NP cannot end up in more than one chain link. But this would be required to make the pivot NP visible both in the position of the head noun and in the position of the relativized element. Irrespective of the general problem discussed in section 5 for Bianchi's modification, it is of no help either for the same reason. For Bianchi's modification to work, selectional restrictions must be checked

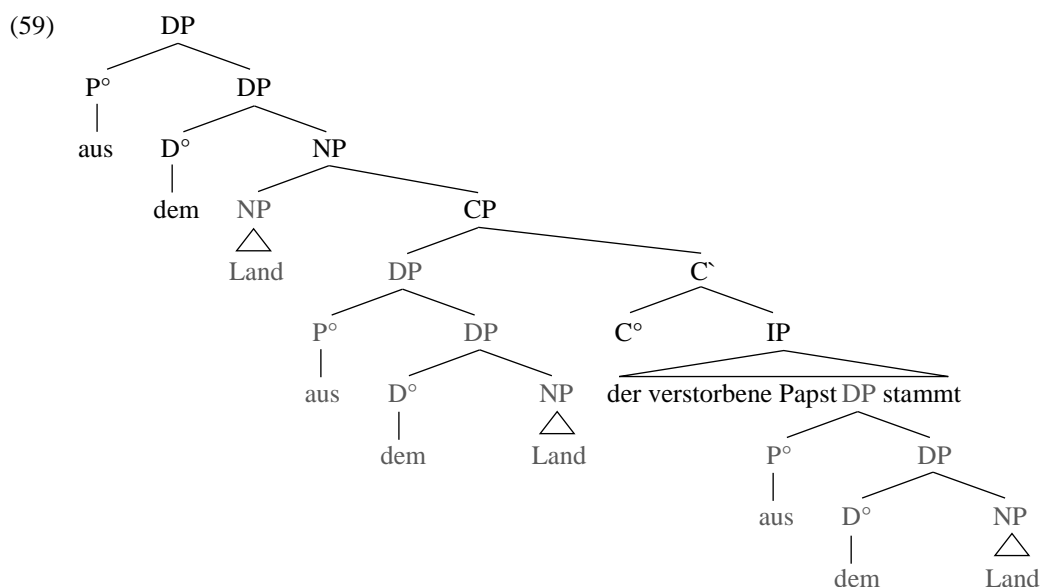
²³ Movement of the relativized element causes no problem for the Matching Analysis because the relativized element undergoes reconstruction into its base position so that the DP containing the lexical pivot NP will re-appear in the antipronominal context.

after movement because only after movement does the pivot NP occupy a position accessible for the external D° -head. However, after movement the pivot NP is no longer available at the position of the relativized element. To be available there, the pivot NP has to reconstruct, that is, moved back to its launching site. This, however, results in a configuration where the pivot NP no longer occupies SpecCP, is therefore invisible for the external D° -head and consequently unable to satisfy the lexicality requirement.

Similar to the Head External and the Raising Analysis, independent syntactic aspects could be responsible for the grammaticality of both head nouns and relative pronouns in antipronominal contexts. The first option to achieve this result is to resort to the copy theory of movement according to which extraction leaves behind a copy of the extracted element. The second option is to resort trace conversion, whereby traces are converted into hidden definite description, which then contain silent NPs with descriptive content. The third option is to suggest a local satisfaction of the lexicality requirement. I will discuss each option in turn and argue that they are untenable.

7.1 The irrelevance of copies

The most obvious strategy for the Promotion Analysis to arrive at the correct prediction is to resort to the copy theory of movement, as developed by Chomsky (1993, 1995). According to this theory, movement leaves behind copies instead of traces. Incorporating this modification into the Promotion Analysis results in structure (59) for the sentence in (56), with copies here and throughout set in gray.



Since the pivot NP now appears as a copy both inside the DP defining the head noun and inside the DP defining the relativized element, the lexicality requirement seems to be satisfied. In addition, incorporating that modification into the Raising Analysis, the problems for Kayne's and Bianchi's proposals discussed below (58) also seem to disappear.

Although intuitively appealing, copies neither solve the problem for the Promotion Analysis nor for the modifications of the Raising Analysis. The reason that resort to copies is of no help is that having multiple copies does *not* entail that all of them are accessible for syntactic operations. Consider in this respect the argument from Chomsky (1993) illustrating the advantage of copies over traces. Replacing traces with copies, Chomsky (1993: 38) observes that the sentence in (60a) has the structure in (60b).

- (60) a. John wonders which picture of himself Bill saw.
 b. John wonders [which picture of himself] Bill saw [which picture of himself]

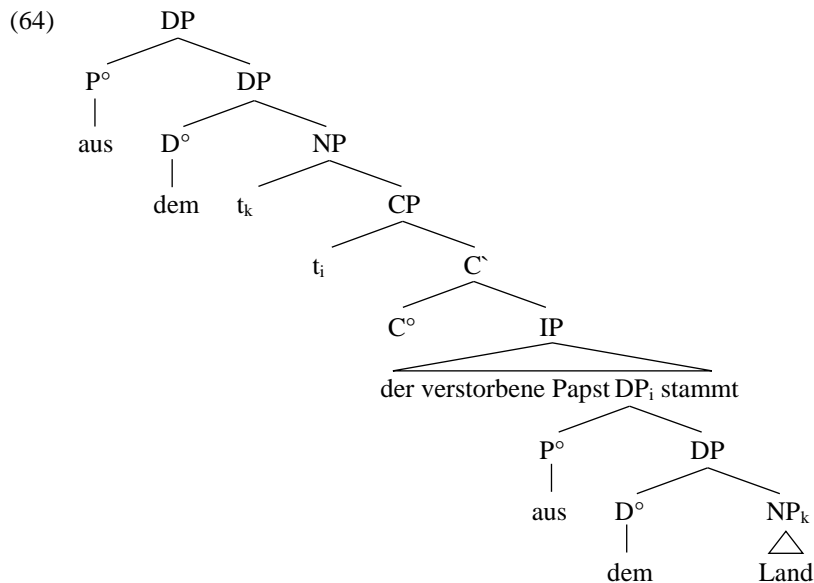
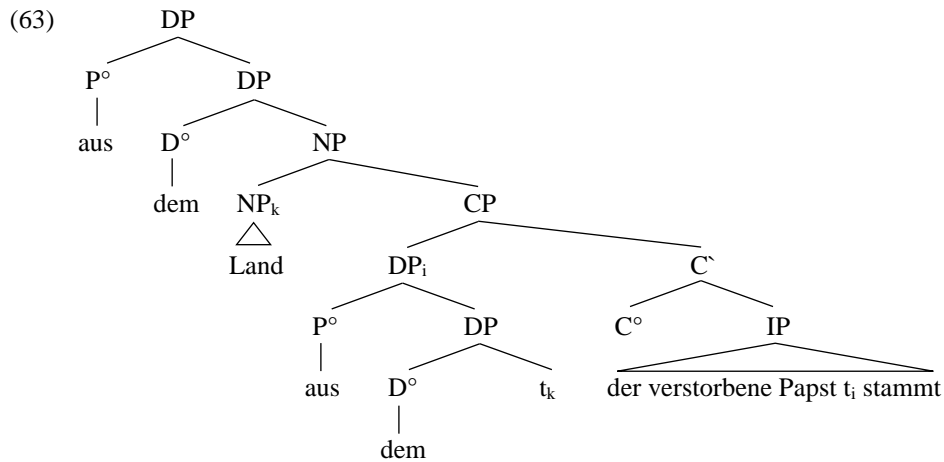
Despite the presence of two copies, the *Preference Principle* guarantees that one of them will eventually be deleted so that only one copy is interpreted at LF. If the lower copy is deleted at LF, then *John* will bind *himself*, cf. (61a). If the higher copy is deleted at LF, that is, if reconstruction takes place, then *Bill* acts as a binder for *himself*, cf. (61b).

- (61) a. John₁ wonders [which x, x picture of himself₁] Bill saw x
 b. John wonders [which x] Bill₁ saw [x picture of himself₁]

Crucially, what is impossible is that both copies are retained at LF, as shown in (62).

- (62) * John₁ wonders [which x, x picture of himself₁] Bill₂ saw [x picture of himself₂]

If (62) were a licit LF-structure, then the two DPs *John* and *Bill* should be able to simultaneously bind *himself*. However, the sentence in (60a) does not have such a reading. Consequently, at LF all but one copy has to be deleted. This argument – that at most one copy can be interpreted at LF – carries over to the structure in (59). At LF, all but one copy is deleted. The two possible LF-structures resulting from the structure in (59) are given in (63) and (64).



Since only a single copy of the pivot NP can be visible at LF, only one copy can serve to satisfy the lexicality requirement. Distributed deletion (Fanselow & Čavar 2001), or alternatively, partial reconstruction, is of no help because the relevant distributedly deleted subparts correspond to subconstituents of the moved XP. Since the pivot NP appears only once as a subconstituent inside the moved DP, partial reconstruction of that DP implies that the pivot NP is equally present in only in one position. But then the lexicality requirement can again only be satisfied in *one* position.

Two anonymous reviewers suggest that the impossibility interpreting both copies in (60b) is a simple consequence of the fact that an inconsistent reading would result, cf. (65).

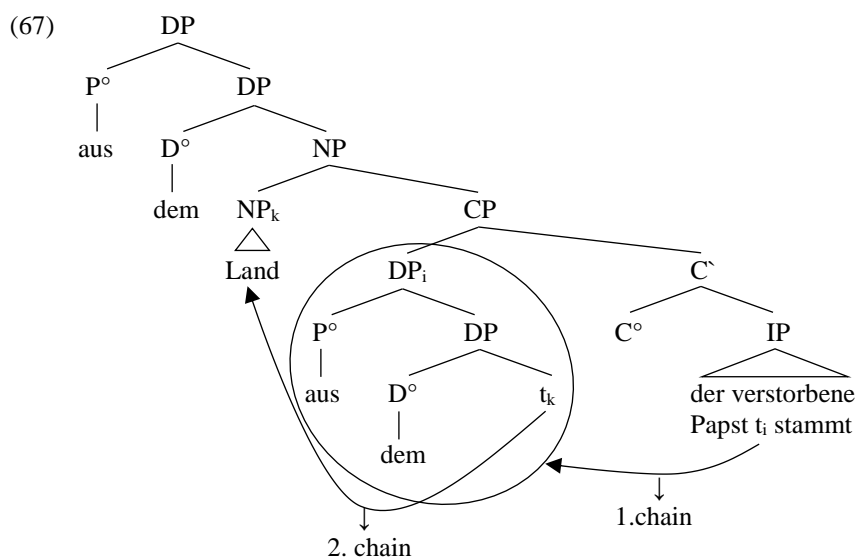
(65) John wonders the following: which is the picture of myself such that Bill likes this picture of himself.

The absence of this reading then does not show that two copies can never be interpreted in two positions; it only shows that two copies cannot be interpreted in both positions *in this particular case*. However, if only consistency were at stake, then it remains mysterious why the sentence in (66) has only the readings (66a) and (66b), but not the reading (66c).

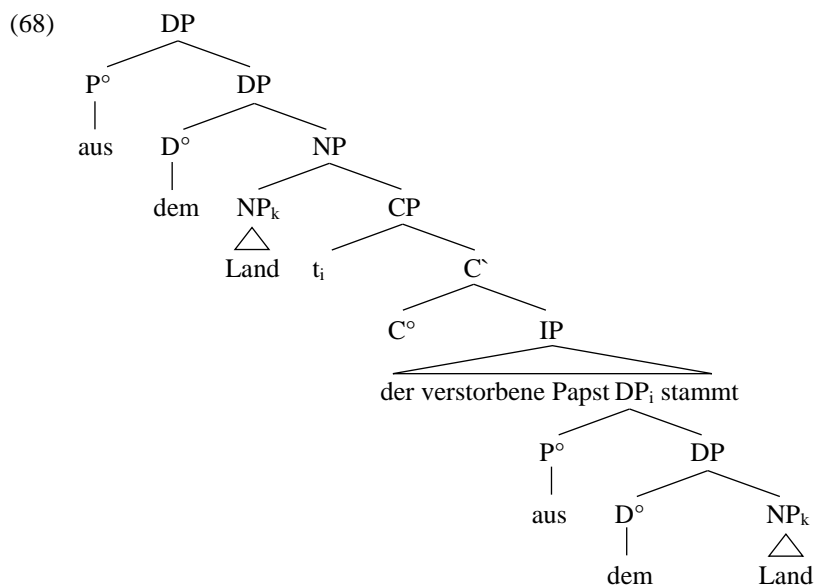
- (66) Which presents for themselves did Peter and Mary think the kids bought?
- Which presents for themselves_i did [Peter and Mary]_i think [the kids]_k bought?
 - Which presents for themselves_k did [Peter and Mary]_i think [the kids]_k bought?
 - * Which presents for themselves_{i+k} did [Peter and Mary]_i think [the kids]_k bought?

The unavailability of (66c) is unexpected because *themselves* is compatible with plural antecedents. It should then be able to interpret both copies of *themselves*, as no inconsistency could result. That this is impossible indicates quite strongly that under the copy view of movement only a single copy is available for interpretation at LF. A third reviewer suggests that (66c) is out because of *self-movement* applies, which “entails that only one copy can be retained.” *self-movement* applies at LF (Chomsky 1993: 104, 208) and adjoins *self* to I° , thereby establishing the relevant local relation between *themselves* and its antecedent. I do not see how *self-movement* entails that not two copies of *which presents for themselves* are retained in (66c), one in the base-position and one in the intermediate SpecCP position, but only one. As each position alone defines an environment out of which *self-movement* can apply, both positions jointly should do so as well. So nothing prohibits double application of *self-movement*: one copy of *themselves* is raised to the matrix I° and the other to the embedded I° so that both *Peter and Mary* and *the kids* serve as the antecedents of *themselves*.

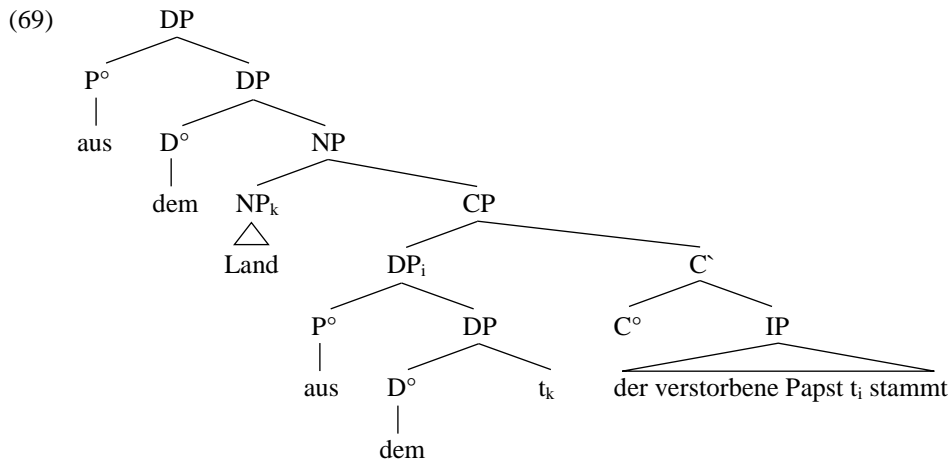
There is a potential problem with the argument against a solution in terms of copies in (59) just developed, namely that it is based on the assumption that all copies of *Land* form a chain. This assumption can be challenged by suggesting that there are actually two chains in (59). The first is formed by movement of the PP to SpecCP, the second is formed by movement of the pivot NP.



This modification allows the option that the bottom copy of the first chain is retained at LF, whereas the top copy of the second chain is retained at LF, as shown in (68).



Although tempting, the idea that there are two chains instead of one cannot be correct. For if it were correct, then the sentence in (56) must be ungrammatical at PF as no full copy of the first chain is retained at PF, cf. (69).



The bottom copy of the DP *aus dem Land* is deleted in total at PF so the top copy should be fully retained. But this is not the case: the top copy only contains *aus dem*, but not *aus dem Land*. Possibly, the deletion of *Land* in the top copy is tied to the fact that it is the lower link of another chain. This, however, requires the *ad hoc* modifications that a copy can be partly visible if part of that copy forms a separate chain. In other words, one is left with three options, neither of which is satisfactory. The first option is that the copies of *Land* form a single chain; but then the algorithm for copy deletion at LF gives the wrong result. The second option is that the copies of *Land* do not form a chain; this solves the problem for copy deletion at LF, but then the mechanism for copy deletion at PF gives wrong results. The third option is to invoke a special condition for chains that are “intertwined”; but this special condition is only needed for relative clauses and therefore a mere stipulation to save the Promotion Analysis.

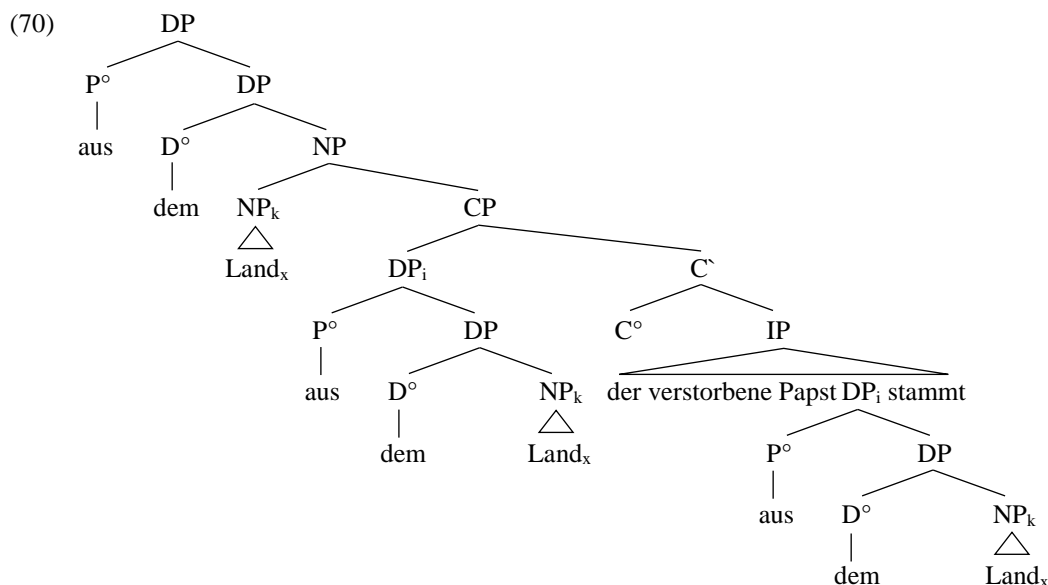
To conclude, copies are of no help for the Promotion Analysis, nor for Kayne’s or Bianchi’s modifications of the Raising Analysis because the derivationally created copies of the lexical DP will eventually be deleted except for one. But one copy in one position is not enough to satisfy the lexicality requirement of two positions. Let me stress here that one can of course adopt the brute force solution that copies in relative clause chains are differently treated than copies in other chains. But then, the Promotion Analysis is not reducible to independent aspects of movement.

7.2 Trace conversion

The second option to save the Promotion Analysis and Kayne’s and Bianchi’s modification of the Raising Analysis is to deny that copies and parts thereof can only be interpreted in a single position. Instead, identical parts of a copy can appear in multiple positions, as most prominently suggested in Sauerland (1998) and Fox (1999, 2002) under the label *trace conversion*.^{24, 25} According to this work, trace conversion translates trace into definite descriptions at LF. The resulting definite descriptions contain a silent copy of the NP that is identical to the NP of the moved DP. In the case of relativization structures, this silent lexical NP corresponds to the pivot NP. Under this analysis, both the top copy and the bottom copy contain the pivot NP. Incorporating this idea, the offending example from (56) has the structure in (70).

²⁴ Trace conversion is also suggested in Sportiche (2006) and Safir (1999) (thanks to an anonymous reviewer for pointing this out to me). Sportiche (2006: chapter 5.2) uses it to account for wide scope readings of *how many* phrases; but Cresti (1995: 83) shows that this can be done without. Safir (1999: chapter 2.2) claims that without trace conversion, weak crossover violations cannot be accounted for. Although I haven’t investigated this topic in much detail, it seems to me that these violations can be handled in the way suggested by Cresti (1995) for the wide scope readings of *how many* phrases, namely with the help of coindexed variables. This of course leads to the question how variables are represented DP-internally, but this question is beyond the scope of this paper.

²⁵ An anonymous reviewer wonders why trace conversion is treated separately since trace conversion “is a means to make copies interpretable.” I agree that both the preference principle and trace conversion attempt this, but they make partly distinct claims. First, trace conversion copies the lexical NP of a DP to the launching site of a moved DP so that the NP is visible both at landing site and at the launching site of a moved DP. This contrasts with preference principle, where the NP is visible either at the landing site or at the launching site of a moved DP. Second, trace conversion applies to all positions a moved DP passed through (Sauerland 1998: 46, 49-50) so that the NP is visible at every at every chain link. Again, this contrasts with the preference principle where the NP is visible at most at one position of the chain.



Since both the position of the head noun and that of the relativized element feature a lexical DP, the lexicality requirement can be satisfied in both positions.

Technically, this solution is sound. It is nevertheless instructive to inspect where the assumption that bottom copies are definite descriptions derives from. Both Sauerland (1998) and Fox (1999, 2002) introduce it to deal with problems for the interpretation of certain movement chains – namely those found in relative clauses.²⁶ In particular, the assumption is introduced to account for identity effects in ACD (antecedent-contained deletion) constructions, cf. (71), and for reconstruction of the pivot NP into the position of the relativized element, cf. (72).

- (71) a. * Polly visited every town that's near the lake Eric did.
 b. Polly visited every town that's near the town Eric did.

- (72) a. The interest in [each other]_i that [John and Mary]_i showed was fleeting.
 b. The headway John made proved insufficient.

Both sets of examples show that traces are not empty. The elided VPs in (71) contain a copy of the DP in the object position of the verb, capturing the contrast between (71a) and (71b): only in (71b) are the two VPs identical and can be elided. The examples in (72) show the by now familiar effect that the pivot NP of the head noun is also represented inside the relativized element. All these and similar examples can be accounted for with the Matching Analysis, which neither Sauerland (1998) nor Fox (1999, 2002) take into account,²⁷ and without making non-standard assumptions about multiple interpretation of copies in a movement chain.²⁸ In (71b), the pivot NP *town* is part of both VPs so that deletion is licensed. In (72), the pivot NPs *interest in each other* and *headway* are contained in the relativized element and are therefore visible inside the relative clause. So crucially, the suggested modification that copies are definite descriptions becomes unnecessary once the Matching Analysis is adopted.²⁹

²⁶ A second source for this idea derives from Elbourne's (2001, 2005) work, which for reasons independent of relative clauses argues for the interpretation of copies as definite descriptions; cf. the last paragraph of section 2 for a sketch how to reconcile Elbourne's insights with a view that bottom copies are not definite descriptions.

²⁷ Sauerland (1998: 65-7) discusses the Matching Analysis but uses the term with a different meaning; cf. fn. 4.

²⁸ An anonymous reviewer objects that multiple realization of copies is not as non-standard as I suggest, since it is also found at PF, as argued by Nunes (2004). One of Nunes' main arguments for multiple copy realization at PF is based on *wh*-copying in German, cf. (i).

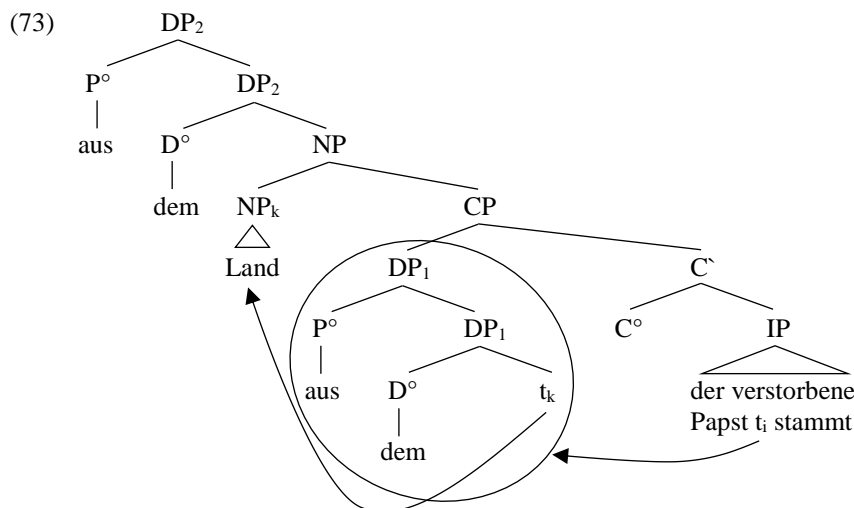
(i) Wen glaubst du, wen sie liebt?
who believes you who she loves
 'Who do you think she loves?'

According to Nunes (2004: 38-43), the two *wen*'s are part of a chain. The intermediate *wen* can exceptionally cliticize onto the intermediate C°-head (due to this C°-head's weak [-wh]-feature), it thereby become invisible for the LCA and can be spelled out in addition to the top copy of *wen*. Pankau (2013), however, shows that *wh*-copying does not involve the realization of multiple copies but that the intermediate *wen* is the result of a pronominalization operation affecting copies in intermediate positions.

²⁹ Without going into much detail, the Matching Analysis also captures the well-known phenomenon that there is no reconstruction for Principle C in relative clauses but that there is reconstruction for Principle C in *wh*-questions.

7.3 Derivational satisfaction of the lexicality requirement

The two modifications looked at so far all rested on the idea that the two copies of the pivot NP have to be visible at LF. This tacitly takes for granted the idea that the lexicality requirement applies at LF and that antipronominal contexts are an LF legibility condition. But nothing forces one to make this assumption. Instead, the lexicality requirement could be interpreted as a selectional restriction that applies locally at any point in the derivation where the pivot NP is merged. Consider again the structure in (57), repeated here for convenience in (73).



NP_k , the pivot NP, is first merged inside DP_1 , the DP defining the relativized element. DP_1 counts as a lexical DP and satisfies the lexicality requirement. In the second step, NP_k is moved to a position inside the external DP_2 , the DP defining the head noun. DP_2 now also counts as lexical DP and satisfies the lexicality requirement. That after this movement step DP_1 no longer counts as a lexical DP – the relevant NP, NP_k , is no longer present in there – is irrelevant because the lexicality requirement is satisfied derivationally.

In principle, this option is viable. It reduces the satisfaction of the lexicality requirement to a side effect of the pivot NP's obligatory movement. However, here the well-known problem comes in *why* this movement step is obligatory (Salzmann 2006: 14-6). There are three ideas discussed in the literature. Two of them are problematic for independent reasons, whereas the third option runs into problems vis-à-vis antipronominal contexts.

The first option is that movement of the pivot NP is triggered by the same feature that triggers movement of the relativized DP to SpecCP (Bianchi 1999: 76-7). As far as I can tell, neither Bianchi (1999) nor anyone else has pursued this option. She gives no reason, but it is clear that this option is unviable because similar structure are sharply ungrammatical, cf. (74).

(74) * Who_i do you think [to t_i]_k she gave a present t_k ?

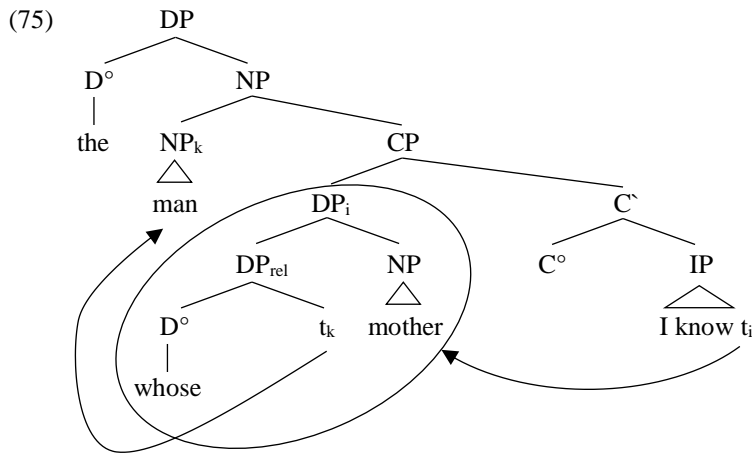
In (74), a DP is subextracted out of a moved PP that pied-pipes this very DP. Both the movement of DP and PP are triggered by the [wh]-feature on DP. The structure underlying the sentence in (74) is identical in all relevant aspects to the structure in (73): a phrase XP is subextracted out of phrase YP and movement of the two phrases is triggered by the same feature. Yet the structure in (74) is completely ungrammatical (Postal 1972).

The second and more widely adopted idea is that movement of the pivot NP reduces to requirements of the external determiner, either to satisfy its selectional requirements (Bianchi 1999: 77; Donati & Cecchetto: 544-8) or to check its ϕ -features (de Vries: 124). The problem with this approach is that it only entails that *some* NP has to be moved, but not that it is the pivot NP that has to be moved. Consider in this respect the relative clause structure in (75).

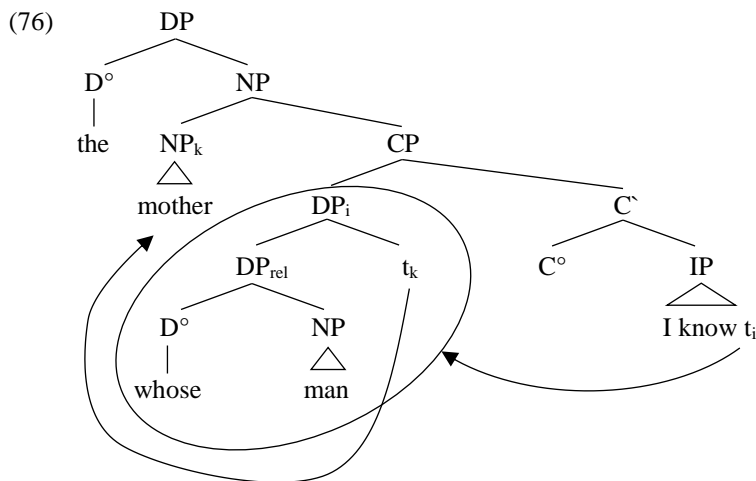
- (i) a. \sqrt the picture of John₁ that he₁ likes most
 b. * Which picture of John₁ does he₁ like most?

This contrast is a problem for the Promotion Analysis in general and trace conversion in particular because the modifier is expected to undergo optional reconstruction in both relativization and wh-questions. Sauerland (2003: 211) concludes from this contrast that relative clauses are ambiguous between a structure with movement of the head noun and one without such a movement. Under the Matching Analysis, the contrast between (ia) and (ib) is captured because the identical NP in (ia) can be *picture* alone and need not be *picture of John*, cf. (ii).

- (i) the [_{NP} [_{NP} picture]₁ of John₂] [_{CP} [_{DP} D° [_{NP} picture]₁]_i that he₂ likes most t_i]



The structure in (75) results in the relative clause *the man whose mother I know*. The pivot NP is moved in order to satisfy the external determiner's requirement for an NP. However, this requirement could have also been satisfied by moving *mother* instead of the pivot NP *man*, as shown in (76).



Movement of *mother* instead of *man* is expected to be fine because *mother* is an NP and hence satisfies the external determiner's requirement of an NP-complement.³⁰ Moreover, both NPs are contained in a phrase occupying SpecCP, so both *mother* and *man* occupy the edge-position of the CP-phase and therefore define licit goals. Yet the structure in (76) is not licit. If it were licit, it would result in the sentence *the mother whose man I know* with the meaning *the x, x a man, such that I know x's mother*. Crucially, the sentence does not have this meaning.

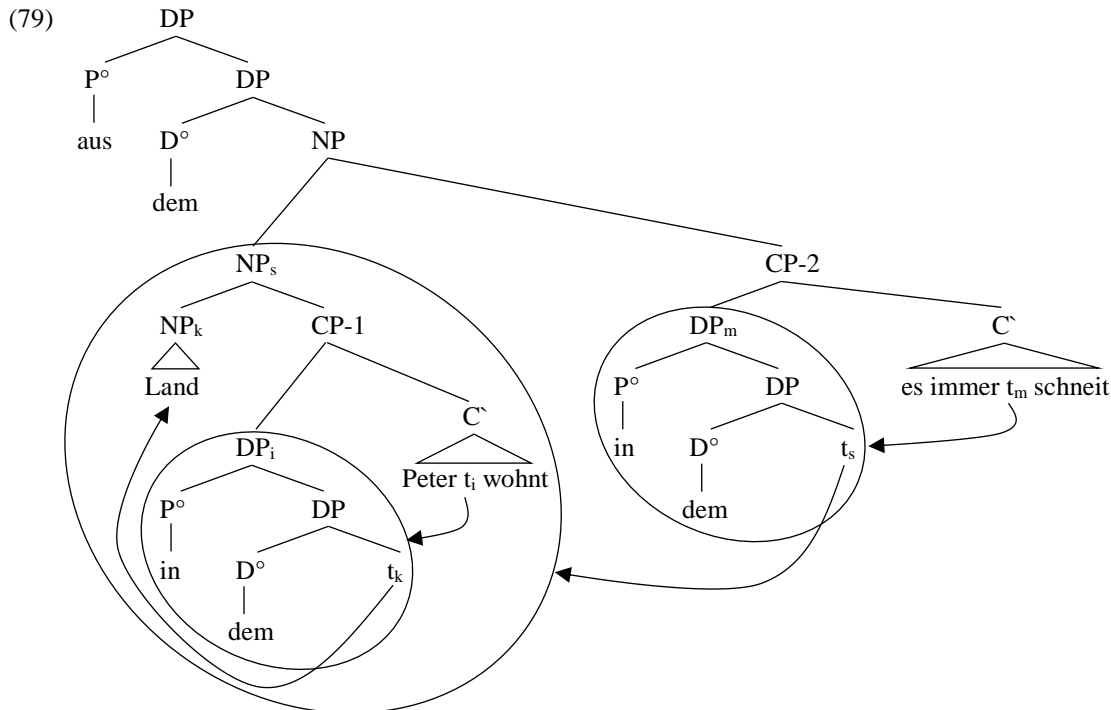
The third option is that the pivot NP moves to check a separate feature independent of the feature that triggers movement of the DP containing the pivot NP (Bianchi 1999: 289, fn. 5). This option obviously does not face the problem of the first option. Nor does it face the problem of the second option because the pivot NP is identified as the relevant NP that has to be moved to the external determiner. The problem with this option is that it wrongly predicts that the pivot NP is frozen in place after movement. This prediction follows from the behavior of other movement types: *wh*-phrases cannot undergo double \bar{A} -movement and nominative DPs cannot undergo double A-movement to the subject positions of two finite clauses.

- (77) a. * Who do you wonder came to the party?
 b. * John seems (that) eats pizza.

A pivot NP, however, can undergo multiple movement, as stacked relative clauses reveal.

³⁰ In de Vries' (2002: 124) analysis, *man* in (75) is moved to SpecDP_{rel} before DP_i containing DP_{rel} is moved to SpecCP, because only an NP in SpecDP of a DP occupying SpecCP can be attracted by the external determiner. As nothing in de Vries' system forces movement of the pivot NP to SpecDP, *mother* can move to SpecDP_i and hence be attracted by the external determiner.

- (78) Ich komme **aus dem Land**, **in dem** Peter wohnt, **in dem** es immer schneit.
I come out the country in which Peter lives in which it always snows
 ‘I come from the country where Peter lives where it always snows.’



The derivation in (79) (adapted from Bianchi 2000: 132) proceeds as follows. The pivot NP_k *Land* is first merged inside DP_i , the DP defining the relativized element of the inner relative clause CP-1. DP_i moves to SpecCP-1, from which position the pivot NP_k *Land* is subextracted to NP_s . NP_s is merged as the complement of DP_m , the DP defining the relativized element of the outer relative clause CP-2. DP_m moves to SpecCP-2 and NP_s is subextracted to the position of the top NP. Finally, the top NP is merged with the external determiner to form the head noun. The problematic step in this derivation is movement of NP_s . According to Bianchi (1999: 330, fn. 4), this movement step is an instance of pied-piping. What therefore moves is actually NP_k , pied-piping NP_s . The problem with this step is that NP_k already underwent movement. Consequently, NP_k should no longer be able to undergo another movement step nor should it be able to trigger pied-piping. Importantly, the double movement of the pivot NP in (79) is necessary because the two relativized DP and the head noun define antipronominal contexts. So the pivot NP *must* have passed through all three positions, otherwise the lexicality requirement of each position could not have been satisfied derivationally. Yet the relevant means to achieve this, namely movement, shows properties that *bona fide* cases of movement do not have.

In sum, the viability of the option to satisfy antipronominal contexts locally crucially hinges on whether or not the movement of the pivot NP can be given independent motivation. Since the proposals made so far either have not achieved this or only at the expense of introducing a new type of movement, the idea that the lexicality requirement is satisfied derivationally should be treated with caution.³¹

8 The ellipsis of the pivot NP: consequences and interactions

In this final section, I argue that the ellipsis operation the Matching Analysis postulates targeting the pivot NP internal to the DP defining the relativized element is responsible for the shape of the relative determiner. I further show that this ellipsis operation interacts with NP-ellipsis, giving rise to apparent counterexamples that the head noun and the pronoun are lexical DPs.

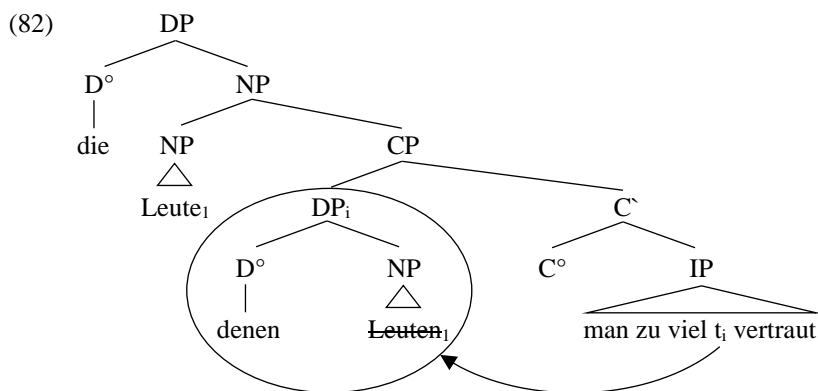
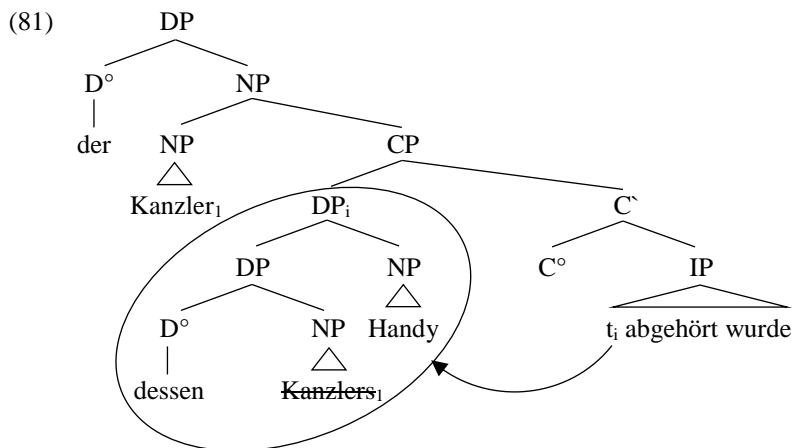
8.1 The shape of relative determiners

As pointed out by Sternefeld (2011) and Webelhuth et al. (in press), the Matching Analysis has the unwelcome consequence that DP-structures have to be assumed which are in fact ungrammatical. Consider in this respect (80).

³¹ The Matching Analysis faces no problems with stacked relative clauses. All the instances of the pivot NP are connected to each other via ellipsis and not via movement, so no unknown type of movement needs to be stipulated.

- (80) a. der Kanzler, dessen Handy abgehört wurde
the chancellor whose cellphone intercepted became
 ‘the chancellor whose cellphone was intercepted’
 b. die Leute, denen man zu viel vertraut
the people whom one too much trusts
 ‘the people who one trusts too much’

In (80a), the relativized element is a possessor DP, and in (88b) it is a dative plural DP. According to the Matching Analysis, the pivot NPs *Kanzlers* ‘chancellor’s’ and *Leuten* ‘people’ are part of the relevant DPs and elided, as shown in (81) and (82).



The problem with these structures is that the two DPs are overtly, that is, without ellipsis, ungrammatical.

- (83) a. *Dessen Kanzlers Handy wurde abgehört.
his chancellor's cellphone became intercepted
 ‘The chancellor’s cellphone was intercepted.’
 b. *Denen Leuten wird zu sehr vertraut.
the people becomes too much trusted
 ‘People are trusted too much.’

But this problem is easily solved once the ellipsis of the pivot NP is taken into account. In that respect, note first that the sentences in (83) become grammatical when the so-called long form of the definite determiner *dessen* and *denen* is replaced by the so-called short of the determiner *des* and *den*, as shown in (84).

- (84) a. Des Kanzlers Handy wurde abgehört.
his chancellor's cellphone became intercepted
 ‘The chancellor’s cellphone was intercepted.’
 b. Den Leuten wird zu sehr vertraut.
the people becomes too much trusted
 ‘People are trusted too much.’

Second, the long forms *dessen* and *denen* have to be used when the complement NP is elided, as shown in (85).

- (85) a. A: Erzähl mir was über den Kanzler.
tell me something about the chancellor.
 ‘Tell me something about our chancellor’
 B: Dessen Handy wurde abgehört.
his cellphone became intercepted
 ‘The chancellor’s cellphone was intercepted.’
- b. A: Erzähl mir was über die Leute.
tell me something about the people
 ‘Tell me something about the people.’
 B: Denen wird zu sehr vertraut.
them becomes too much trusted
 ‘People are trusted too much.’

The following conditions capture the distribution of the long and the short forms of the definite determiner.

- (86) CONDITIONS ON THE SHAPE OF DEFINITE DETERMINERS
- a. If the NP-complement of a definite determiner is elided, the long form has to be used³²
- b. If the NP-complement of a definite determiner is not elided, the short form has to be used

Adopting the approach that d-pronouns used as relative determiners in (80) are regular definite determiners (Wilt-schko 1998), then the use of the long forms *dessen* and *denen* in (80) as well as the contrast between (80) and (83) fall out naturally from the conditions in (86). In (80), the complement NP of the definite determiner, the pivot NP, is elided so that (86a) applies. In (83), however, the complement NP is not elided so that (86b) applies. As correctly predicted by the conditions in (86), the use of the short forms in (80) and (85) is sharply ungrammatical, cf. (87).

- (87) a. *der Kanzler, des Handy abgehört wurde
the chancellor whose cellphone intercepted became
 ‘the chancellor whose cellphone was intercepted’
- b. *die Leute, den man zu viel vertraut
the people whom one too much trusts
 ‘the people who one trusts too much’
- c. *Des Handy wurde abgehört.
his cellphone became intercepted
 ‘His cellphone was intercepted.’
- d. *Den wird zu sehr vertraut.
them becomes too much trusted
 ‘They are trusted too much.’

In sum, the mismatch between (80) and (83) is only apparent and follows from independent constraints on the shape of definite determiners in German.

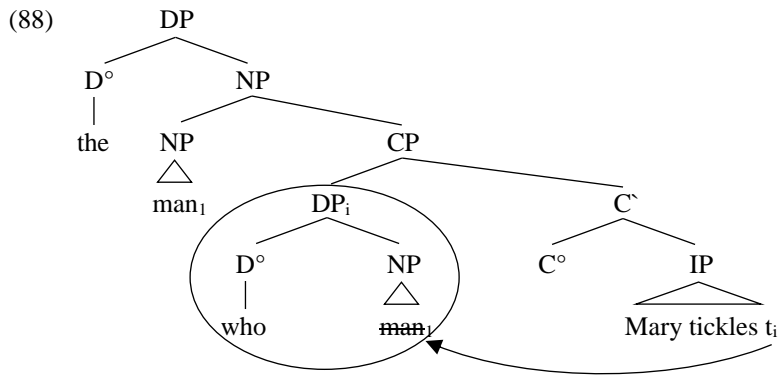
8.2 Relative determiners in English

Once the ellipsis of the pivot NP is taken into account, one can also account for a problem relating to the structure in (88).

³² An anonymous reviewer wonders why the examples in (42) with Hanging Topic Left Dislocation do not allow for a structure with NP-ellipsis “if d-pronouns always involve NP-ellipsis.” The reason is that the conditions in (86) only specify sufficient but not necessary conditions for the use of definite determiners (= d-pronouns). In other words, (86a) does not entail that definite determiners always involve NP-ellipsis. Another anonymous reviewer points out that Hanging Topic Left Dislocation features the long form of the definite determiner, “suggesting NP-ellipsis,” so that Hanging Topic Left Dislocation is predicted to be insensitive to antipronominal contexts as much as Left Dislocation.

- (i) Dieser Mord, dessen / *des wurden sie überführt.
this.GEN murder the.GEN.LONG the.GEN.SHORT became they convicted
 ‘They were convicted of this murder’

Again, the prediction does not follow because the conditions in (86) only specify sufficient conditions for the use of the long form of definite determiners, and not necessary conditions: (86a) does not state that the use of the long form of definite determiners implies NP-ellipsis.



As Boef (2013) and Webelhuth et al. (in press) observe, the DP *who man* is never grammatical.

(89) * Who man does Mary tickle?

What I would like to suggest is that *who* is a determiner after all, but one that *requires* its complement NP to be elided. In that respect it differs from the definite determiner used in German as relative determiner because the German definite determiner only *optionally* allows its complement NP to be elided. It might appear odd to assume a determiner that requires its complement NP to be elided, but such determiners are attested outside the domain of relativization. German possesses the determiner *welcher*, usually used as an interrogative determiner, cf. (90).

(90) Welcher Mann liebt dich?
‘Which man loves you?’

There is yet a second use of *welcher* as an indefinite determiner. In this usage, the NP-complement of *welcher* is obligatorily elided, similar to the complement NP of *who* in English, as shown in (91).

- (91) a. Wir brauchen Milch; haben Sie hier welche (*Milch)?
we need milk have you here which milk
‘We need milk. Do you have any?’
b. Hier soll es Einhörner geben, ich hab aber hier noch nie welche (*Einhörner) gesehen.
here should it unicorns give I have but here yet never which unicorns seen
‘They say that there are unicorns here, but I have never seen anyone so far.’

8.3 NP-Ellipsis and the ellipsis of the pivot NP

In order to capture the fact that they are licensed in antipronominal contexts, I analyzed relative pronouns as lexical DPs in disguise. There seem to be some counterexamples to this analysis, brought to my attention by Gert Webelhuth (p.c.). Consider the scenario in (92).

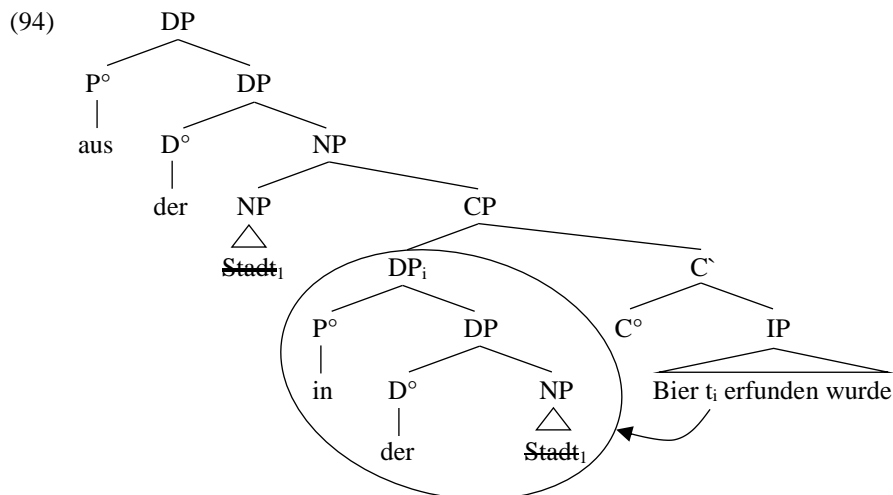
- (92) A group of priests sit together and talk about their personal life. After a couple of beers, they play a little game: they have to guess which city each of them comes from. In order to make correct guesses, everyone has to specify some prominent feature of the city. The first priest says:
a. Ich komme aus der Stadt, die die älteste deutsche Universität beherbergt.
I come out the city which the oldest German university hosts
‘I come from the city with the oldest German university.’
The second priest goes on and says:
b. Ich komme aus der Stadt mit den meisten Brauereien.
I come out the city with the most breweries
‘I come from the city with the highest number of breweries.’
The game continues until it’s the last priest’s turn, who says:
c. Ich komme aus der, in der das Bier erfunden wurde.
I come out the in which the beer invented became
‘I come from the city where beer was invented.’

As Webelhuth observes, the grammaticality of (92c) is unexpected because neither the head noun nor the relativized element is a lexical DP, even though they both appear in antipronominal contexts, cf. (93).

- (93) a. Ich komme \surd aus der Stadt / *aus ihr / *aus der.
I come out the city out it out it
‘I come from the city (*from it).’

- b. Das Bier wurde \surd in dieser Stadt /*in ihr/*in der erfunden.
the beer became in this city in it in it invented
 ‘Beer was invented in this city (*in it).’

What I want to suggest is that the example in (92c) is not a counterexample at all. Rather, it has the regular structure of a headed restrictive relative clause, that is, it does contain a lexical DP. What makes this relative clause special is that the pivot NP inside the head noun undergoes NP-ellipsis, as shown in (94).



Adopting such a structure is potentially dangerous because the diagnostic of antipronominal contexts could become a vacuous proposal, as each counterexample could be saved by postulating an elided lexical NP. Although a potential danger, it does not arise because NP-ellipsis is restricted to a specific context (cf. Saab to app.), stated in (95).

- (95) RESTRICTION ON NP-ELLIPSIS
 If an NP is elided, it is discourse given

For relative clauses, this means that the pivot NP can only undergo NP-ellipsis if the NP is already established in the discourse. Conversely, if it is not discourse given, it must not be elided. The correctness of this restriction on NP-ellipsis of the head noun is supported by two observations. First, the sentence in (90c) is fine only given a context where *Stadt* ‘city’ is already established in the discourse. If uttered out of the blue, this sentence is ungrammatical. Second, and more importantly, NP-ellipsis is not restricted to relative clauses with antipronominal contexts, but occurs in relativization structures quite generally, as well as in non-relativization structures. As for the former, there are relative clauses whose grammaticality is dependent on (95), cf. (96).

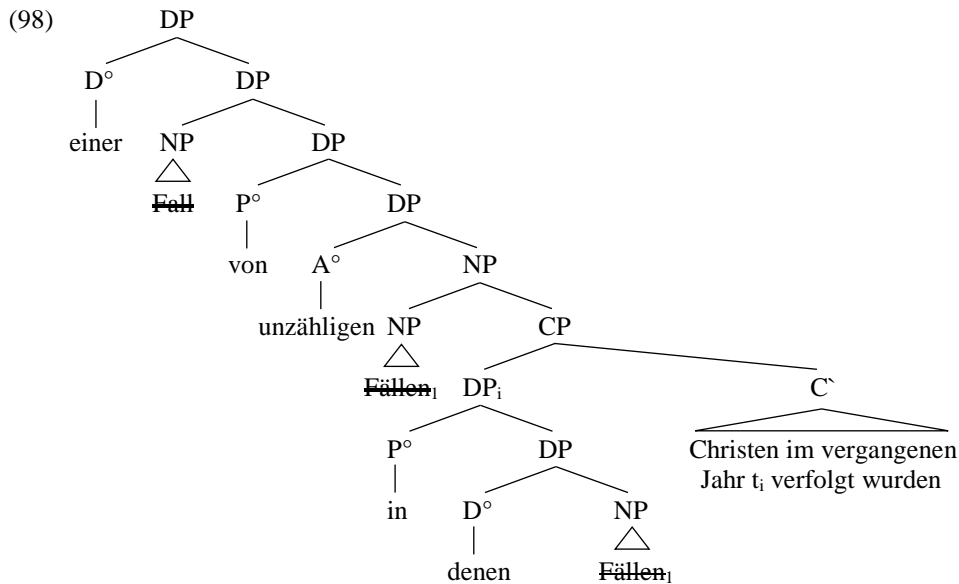
- (96) Der Fall ist nur einer von unzähligen, in denen Christen im vergangenen Jahr verfolgt wurden.
this case is only one of countless in which Christians in past year persecuted became
 ‘This incident is only one of many others where Christians were persecuted last year.’
 (www.heise.de/tp/artikel/47/47127/1.html)

Importantly, *unzählige* ‘countless’ in (96) cannot be the real pivot NP, as revealed in (97).

- (97) *Christen wurden in unzähligen verfolgt.
Christians became in countless persecuted
 * ‘Christians were persecuted in many.’

Taking the whole sentence into account, the question what constitutes the head noun becomes obvious: it is the noun *Fällen* ‘cases’, cf. (98).³³

³³ I will follow Cardinaletti & Giusti (2006) and Sauerland & Yatsushiro (2017) and assume that in indirect partitives (Vos 1999) such as (98) the noun with the partitive DP is also covertly represented inside the DP containing the quantifier. I ignore why and how this noun is eventually elided. The presence of the strong form *einer* instead of *ein* (**einer Fall* vs. \surd *ein Fall*) is due to the relevant elision operation (Lobeck 1995).



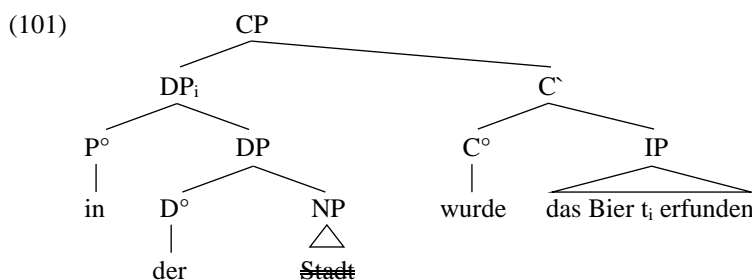
This not only captures the interpretation of this sentence, it also gives the desired result vis-à-vis the example in (97) because its modified version is grammatical, cf. (99).

- (99) Christen wurden in unzähligen Fällen verfolgt.
Christians became in countless cases persecuted
 ‘Christians were persecuted in many cases.’

As for contexts other than relative clauses, consider (100).

- (100) a. Was ist das besondere an dieser Stadt?
what is the special on this city
 ‘What’s so special about this city?’
 b. In der wurde das Bier erfunden!
in that became the beer invented
 ‘Beer was invented there!’

If uttered out of the blue, (100b) is ungrammatical. But given the context from (100a), it is fine. Importantly, in this context, (100b) has only the reading where one talks about the already mentioned city. Therefore, (100b) has the following structure with NP-ellipsis.



The analysis also accounts for the difference in grammaticality between d-pronouns and personal pronouns extracted from antipronominal contexts, noted in section 5.2 in connection to the examples in (36). What distinguishes these two cases is that the cases with extracted d-pronouns can have a structure where the d-pronoun is a definite determiner to an elided discourse given NP. Such an alternative structure is not available for the cases with extracted personal pronouns because personal pronouns cannot function as determiners. Therefore, they cannot host an elided NP, so that these cases can only have a structure where a personal pronoun underwent extraction.

8.4 NP-ellipsis of silent NPs

I just said that (92c), (93a) and (100b) are ungrammatical when uttered out of the blue. This is not fully correct, though. The three sentences are grammatical without context, but only under an absurd reading where one talks

about a person. So the sentences in (92c) and (100b) when uttered without context only mean that beer was invented in a person; and the sentence in (93a) when uttered without context only means that someone crawls out of a person. The question is where these absurd readings come from. The tentative analysis I would like to suggest is that there is an elided NP in such cases after all and that this elided NP is an empty noun with minimal descriptive content referring to a mind-possessing entity³⁴ (Saab to app.). This seems to be the default interpretation quite generally when no discourse given element can be established. Consider in this respect the following contrasts.

- (102) a. Die Liste derer, die nicht auf der Liste standen.
the list of the which not on the list stood
 ‘The list of those who did not appear on the list.’
 (www.welt.de/print/wams/kultur/article122941765/Die-Liste-derer-die-nicht-auf-der-Liste-standen.html)
- b. Die Liste aller behandelten Worte und die Liste derer, die es werden wollen.
the list of all covered words and the list of the which it become want
 ‘The list of all words which have been covered and the list of those which want to be covered.’
 (www.fair-sprech.de/alle-behandelten-worte)
- (103) a. Die, die er rettet, hassen ihn womöglich.
the which he saves hate him possibly
 ‘Those ones he saves might hate him.’
 (www.sexycripples.de/filme/review-man-of-steel)
- b. Die Leben, die er rettet, sind nicht so wertvoll wie die, die du rettest.
the lives which he saves are not so worthy as the which you save
 ‘The lives he saves aren’t as good as the lives you save.’
 (House MD, S02 E04, 10m37s, German dubbing)

In the a-examples, there is no context that might provide for an interpretation of the referent of *derer* or *die*. Without any context, *derer* and *die* will be interpreted as referring to some group of mind possessing entities. Given the remainder of the article in (102a) and general knowledge about Superman in (103a), this is exactly the intended interpretation. In the nearly parallel b-examples, however, the interpretation of *derer* and *die* differs completely because an antecedent is already established, namely *words* in (102b) and *lives* in (103b).

9 Conclusion

The main empirical result of this paper is that both head nouns and relative pronouns have the distribution of lexical DPs, where a lexical DP is any DP containing an NP with descriptive content. The relevant diagnostic showing this are antipronominal contexts, that is, contexts licensing lexical DPs but barring non-lexical DPs. The main theoretical result is that only the Matching Analysis captures the distribution of head nouns and relative pronouns as lexical DPs. The Matching Analysis recognizes an elided NP inside the DP defining the relativized element so that the relativized element is predicted to pattern with lexical DPs. The Head External Analysis is inadequate because the DP defining the relativized element is analyzed as a pronoun so that it should have the distribution of a pronoun. The Raising Analysis was shown to be inadequate because the DP defining the head noun doesn’t contain an NP but a CP. Therefore, the head noun doesn’t count as a lexical DP under the Raising Analysis, which clashes with the observation that the head noun does have the distribution of a lexical DP. Finally, the Promotion Analysis is inadequate because it fails to capture that both the head noun and the relative pronoun simultaneously behave like lexical DPs. Since the NP is moved from within the DP defining the relativized element into the DP defining the head noun, the NP is never present in both DPs simultaneously. Therefore, the two DPs never count as lexical DPs simultaneously but only one of the two will. Finally, I showed how the ellipsis of the pivot NP regulates the choice of relative determiners in German and English and how it interacts with NP-ellipsis.

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³⁴ The restriction on mind-possessing entities is chosen deliberately in favor of a restriction like [+HUMAN]. As pointed out in Johnson & Postal (1980: 390), what is usually understood as a restriction on human beings (for example, in the interpretation of the implicit but unexpressed subject in short passives) is actually one that also comprises extraterrestrials, angels, or personified objects, none of which are humans.

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