

Relative Clauses in Colloquial and Literary German: A Contrastive Corpus-Based Study

Tim Hirschberg, Carolin Reinert, Anna Roth & Caroline Féry

Abstract

This article focuses on the realization of relative clauses in colloquial and literary German. Two new corpora representing these different registers are compared according to quantitative, syntactic, semantic, and prosodic aspects. The main goal is to approach important issues related to relative clauses from an empirical perspective: the grammatical function of the relative pronoun (subject, object), extraposition, stacking, (non-)restrictivity, and the form of the relative clause introducer. It could be found that the distinction between restrictive and non-restrictive relative clauses is generally reflected in prosody. This stands in contrast to previous work (Schaffranietz 1999; Birkner 2008; Kaland & van Heuven 2010), which did not find much difference between the two types. The corpus data also suggest that the restrictive/non-restrictive distinction both has a referential (semantic) and a conceptual (discourse-pragmatic) side (cf. Fabricius-Hansen 2009), which can be independent. As for stacking, it is argued that all the consecutive relative clauses found in the corpora are instances of asyndetic conjunction. This conflicts with the assumption that stacking involves hierarchical layering, at least in case of multiple restrictive relative clauses (McCawley 1998).

1 Introduction

This overview¹ of relative clauses (RCs) in German examines the use of RCs in two different styles of speech: elicited spontaneous speech in the form of dialogues on the one hand and a literary text read aloud by a professional speaker on the other. The aim of the study is to work out the similarities and differences between RCs in these two registers.

While uncertainty remains about many details, the literature generally agrees on the typical form of a RC. It is a dependent clause introduced by a relative

¹ The authors gratefully acknowledge support by the DFG through the projects NRR and RPR, which are part of FOR 1783 (*Forscherguppe Relativsätze* ‘Research Unit Relative Clauses’).

pronoun referring back to a noun or a noun phrase (the anchor, the head, the antecedent) located in the matrix clause. Other constructions differing from this standard version may be considered as RCs as well. Most importantly, there are clauses that do not have an overtly realized head (free relatives) and others that are anaphoric to a whole sentence instead of just a noun phrase. In this paper, formal definitions serve only as guidelines, and are not to be taken too strictly, so that the full spectrum of the phenomenon can be surveyed. The only relative-like constructions that were excluded from analysis were cleft and pseudo-cleft clauses, which are somewhat marginal as RCs.

1.1 Presentation of the two corpora

The elicited spontaneous speech is represented by the *Lindenstraße Corpus*, which is part of the *Kiel Corpus of Spontaneous Speech* set up in 1990 by the IPDS² at Christian Albrechts University at Kiel, in northern Germany. For this corpus, the so-called *Video Task Scenario* was used to elicit dialogues: Before they met, the dialogue partners were separately presented various scenes from the series *Lindenstraße*³ and the German version of *The Simpsons*. The scenes were chosen randomly and the dialogue partners were asked to find out whether they had viewed the same scenes or different ones, thereby encouraging them to engage in a conversation and describe what they had just seen. All of the participants classified themselves as speakers of a northern German dialect and were personally acquainted with their dialogue partner. The recording has an overall duration of about 69 minutes and consists of six dialogues, each of which lasts between 9:23 and 15:27 minutes. Altogether, there are 49 restrictive RCs, 19 non-restrictive RCs, 1 sentence modifying RC, 3 free RCs, and 8 RCs that could not be classified unambiguously. Note that the *Lindenstraße Corpus* was not set up for eliciting RCs in the first place, rather the aim was to collect spontaneous speech in general. This should not be seen as a disadvantage for the present analysis. In fact, in this way a natural proportion of RCs is produced, in a largely unaffected speech environment.⁴

The unabridged audio version of the novel *Der Vorleser* by the German author Bernhard Schlink was used as a source of professional speech. The book was published in 1995 and is characterized by its natural and plain language. It was recorded in 2005 by Hans Korte, a German television actor, voice actor, and audiobook narrator. The recording has a duration of 297 minutes. It contains 279

² *Institut für Phonetik und digitale Sprachverarbeitung* 'Institute of Phonetics and Digital Speech Processing'

³ *Lindenstraße* is a popular German pre-primetime soap opera which has been shown weekly on a public-service station since 1985.

⁴ Nevertheless, the contextually rather restrictive setting of the *Video Task Scenario* seemed to have a considerable influence on the participants' choice of words. As a consequence of the primary task of describing the scenes that were shown, the use of the noun *Szene* 'scene' as the anchor of a RC was very frequent.

restrictive RCs, 168 non-restrictive RCs, 43 free RCs, and 12 sentence modifying RCs. The novel has been translated into English by Carol Brown Janeway.⁵ Her text is used for the translations, which complement the interlinear glosses of the *Vorleser* examples cited in this study.

Turning to prosody, it comes as no surprise that there is much more variety in the *Lindenstraße Corpus* than in the *Vorleser Corpus*. The second is a read monologue, spoken by a single speaker, whereas the first consists of dialogues, spoken by altogether 12 speakers in same-sex pairs: 4 female and 2 male pairs. The *Lindenstraße Corpus* is full of false starts, hesitations, and ungrammatical productions, whereas the prosody found in the *Vorleser Corpus* is stable, without any of the problems just mentioned.

Sections 2 and 3 address topics frequently discussed in the literature on RCs. Section 2 focuses on syntactic issues: the grammatical function (subject vs. object) of relative pronouns and their antecedents as well as extraposition and stacking of RCs. Especially for stacking, the corpora contain controversial data that contribute to the theoretical discussion in interesting ways. The second core topic, in section 3, deals with differences between restrictive and non-restrictive RCs, both from a semantic and a prosodic perspective. Section 3 also has some relevance for annotation issues, as it shows how the distinction between a restrictive and a non-restrictive RC can be made.

In section 4, unusual cases are discussed: non-standard relative pronouns and verb-second RCs, among others. Section 5 contains a conclusion.

2 Syntactic aspects

2.1 Subject and object relations: Relative pronouns and antecedents

Generalizations concerning the patterning of RCs are formulated in so-called accessibility hierarchies. According to these, cross-linguistic preferences for building and processing RCs depend on the grammatical function of the relative pronoun (the internal role). The hierarchy of Keenan & Comrie (1977), which can be seen as a standard version for the grammatical function of relative pronouns, is given below. Note that it does not take into consideration the (non-)restrictiveness distinction, which will become important in later sections.

Keenan-Comrie Hierarchy:

subject > direct (accusative) object > indirect (dative) object > oblique

The hierarchy plays a prominent role in different fields of linguistics. For instance, studies in first language acquisition relate it to the order of RC acquisition (Hamburger & Crain 1982, among others). Some psycholinguistic accounts (e.g. Keenan & Hawkins 1987; Hawkins 1994) suggest that the lower a con-

⁵ 'The Reader: A Novel' (1997). Vintage International. New York.

struction occurs on the hierarchy, the more difficult it is to process. The hierarchy may also determine the frequency with which the different types of RCs are used in written and spoken communication (Keenan 1975). Subject RCs, where the relative pronoun has the status of a subject, are assumed to be very common.

(1) and (2) are relevant examples:⁶

- (1) Licht fiel durch die Scheiben der Tür, **die**_[SUBJ] VC
 light fell through the panes of.the door which
 auf den Balkon führte.
 onto the balcony led
 ‘Light came in through the panes of the door which led out onto
 the balcony.’
- (2) und dann sind da irgendwelche Bärte, **die**_[SUBJ] LC
 and then are there some.kinds.of beards which
 da rumfliegen.
 there fly.around
 ‘And there are some kinds of beards flying around.’

RCs with a direct object relative pronoun are lower on the scale. Two examples from the corpora are given below:

- (3) In einem Stadtviertel, **das**_[OBJ] ich nicht kenne, steht es VC
 in a district that I not know stands it
 in einer Häuserzeile.
 in a house.row
 ‘It’s one in a row of buildings in a district I don’t know.’
- (4) Das ist dann wieder das, **was**_[OBJ] ich gesehen hab’. LC
 that is then again that what I seen have
 ‘And this is again what I saw.’

Altogether, there were 205 subject RCs (41%) and 127 direct object RCs (25%) in the *Vorleser Corpus*. There are thus twice as many pronouns with subject than with object function, as predicted by the hierarchy. The *Lindenstraße Corpus* contains 20 subject RCs (25%) and 16 direct object RCs (20%). Due to the limited amount of data in this corpus, no generalization can be made. Table 1 gives an overview.

Relative Pronoun	<i>Vorleser</i>	<i>Lindenstraße</i>
Subject	205 (41%)	20 (25%)
Direct Object	127 (25%)	16 (20%)
Other	170 (34%)	44 (55%)
Total	502 (100%)	80 (100%)

Table 1: Relative pronouns according to grammatical function

⁶ Examples from the *Vorleser* and the *Lindenstraße Corpus* are indicated as VC and LC, respectively.

As for the remaining cases, the relative pronoun can be a genitive, dative, or a prepositional (5) object. These are summarized under the term *other*. 34% of the RCs from the *Vorleser Corpus* and 55% of the RCs from the *Lindenstraße Corpus* belong to this category.

- (5) Es ließ mich an das Zucken der Haut denken, VC
 it let me of the twitching of.the skin think
mit dem Pferde Fliegen zu verscheuchen versuchen.
 with which horses flies to repel try
 ‘It reminded me of the way a horse twitches its hide to repel flies.’

The following part of this subsection deals with the syntactic function of the RC’s antecedent (external role) and its interplay with the function of the relative pronoun. Quite a few studies have shown that, in addition to the internal role, this is also of importance (see Kas & Lukács 2012 for an overview). For instance, RCs may be easier to process when the grammatical function of their pronoun matches the grammatical function of their antecedent (*parallel-function hypothesis*: Sheldon 1974; see also Sauerland & Gibson 1998).

First, the RC’s antecedent is considered in isolation. In (6), the anchor noun serves as the matrix clause’s subject. (7) provides an example of a direct object antecedent:

- (6) **Das Gymnasium**_[SUBJ], das ich besuchte, hatte lange VC
 the high.school that I visited had long
 nur Jungen aufgenommen.
 only boys accepted
 ‘My high school traditionally had taken only boys.’
- (7) **Die Frau**_[OBJ] kann’t ich auch gar nicht, die ihn LC
 the woman knew I also at.all not who him
 da abgeholt hat.
 there picked up has
 ‘I also didn’t know the woman who picked him up there at all.’

Altogether, the *Vorleser Corpus* contains 95 RCs (19%) with a subject antecedent and 177 (35%) with a direct object antecedent. In the *Lindenstraße Corpus*, there were 27 RCs (34%) with a subject antecedent and 28 (35%) with a direct object antecedent. This is summarized in table 2.

Antecedent	<i>Vorleser</i>	<i>Lindenstraße</i>
Subject	95 (19%)	27 (34%)
Direct Object	177 (35%)	28 (35%)
Other	230 (46%)	25 (31%)
Total	502 (100%)	80 (100%)

Table 2: Antecedents according to grammatical function

All antecedents that do not have subject or direct object status (e.g. (8) & (9)) are subsumed under the category *other* (see table 2).

- (8) Mein erster Weg führte mich **von der Blumenstraße**, VC
 my first way led me from the Blumenstraße
 in der wir im zweiten Stock eines um die
 in which we in.the second floor of.a around the
 Jahrhundertwende gebauten, wuchtigen Hauses wohnten,
 turn-of-the-century built massive house lived
 in die Bahnhofstraße
 in the Bahnhofstraße
 ‘The first time I ventured outside, it was to go from Blumenstraße,
 where we lived on the second floor of a massive turn-of-the-century
 building, to Bahnhofstraße.’
- (9) Ich erinnere mich an das wohlige Gefühl der VC
 I remember REFL PREP the cosy feeling of.the
 Wärme und **an den Genuss**, den es mir bereitete,
 warmth and PREP the pleasure which it me gave
 in dieser Wärme gewaschen und angekleidet zu werden.
 in this warmth washed and clothed to be
 ‘I remember the wonderful feeling of warmth, and how good it felt to
 be washed and dressed in this warmth.’

As far as the *Lindenstraße Corpus* is concerned, the different types (subject/direct object/other antecedents) were equally distributed. In the *Vorleser Corpus*, subject antecedents were underrepresented.

Furthermore, the interplay of relative pronouns and their antecedents is examined in relationship to their syntactic functions. A RC can modify the subject (S) or object (O) of the matrix clause, and since the relative pronoun can function as the subject or object of the RC’s verb, four possible combinations arise (SS, SO, OO, OS). Consider the following examples from both corpora:

- (10) SS **Die Frau**_[SUBJ], **die**_[SUBJ] sich meiner annahm, VC
 the woman who REFL mine took
 tat es fast grob.
 did it nearly rudely
 ‘The woman who helped me was nearly rude.’
- (11) SO Dass es das Prasseln und Knattern eines Feuers, VC
 that it the crackling and snapping of.a fire
 Feuerschein war, was dass es ab und zu
 glow.of.flames was what that it now and then
 hell hinter den Fenstern zuckte, dass **der**
 brightly behind the windows flared that the
Schlag_[SUBJ], **den**_[OBJ] es über ihren Köpfen tat,
 bump that it above their heads did
 das Übergreifen des Feuers vom Turm
 the spreading of.the fire from.the steeple

aufs Dach bedeutete – die Frauen begriffen es erst,
 to.the roof meant the women realized it first
 als der Dachstuhl sichtbar brannte.
 when the rafters visibly burned

‘That it was the crackling and snapping of a fire, that it was the glow of flames that flared up now and again behind the windows, that the bump that came from above their heads signaled the spreading of the fire from the steeple to the roof – all this the women realized only once the rafters began to burn.’

- (12) *OS* und da hat sie so’n **Skelett**_[OBJ] angeguckt, LC
 and there has she such.a skeleton looked.at
was_[SUBJ] dann da im Treppenhaus stand.
 that then there in.the stairwell stood
 ‘And then she looked at a skeleton that stood in the stairwell.’
- (13) *OO* Das bezieht sich nicht so auf **das**_[OBJ], **was**_[OBJ] LC
 that relates REFL not so on that what
 wir eben gesehen haben.
 we just seen have
 ‘That doesn’t relate to what we have just seen.’

The *Vorleser Corpus* contains 53 (11%) SS combinations, 21 (4%) SO combinations, 74 (15%) OS combinations, and 64 (13%) OO combinations. The distribution resembles the findings in the distribution of subject and object antecedents (cf. table 2), i.e. there are almost twice as many RCs with direct object antecedents (138 RCs, 28%) as with subject antecedents (74 RCs, 15%). This stands in contrast with the *Lindenstraße Corpus*, where SS, SO, OS and OO combinations are distributed almost equally. Again, the limited amount of data in this corpus prohibits definitive conclusions. All findings are summarized in table 3.

Antecedent	Relative Pronoun	Abbreviation	<i>Vorleser</i>	<i>Lindenstraße</i>
Subject	Subject	SS	53 (11%)	5 (6%)
Subject	Object	SO	21 (4%)	7 (9%)
Object	Subject	OS	74 (15%)	8 (10%)
Object	Object	OO	64 (13%)	5 (6%)
		Other	290 (57%)	55 (69%)
		Total	502 (100%)	80 (100%)

Table 3: The interplay of grammatical functions of antecedents and relative pronouns

Cases that do not match any of the above mentioned combinations (SS, SO, OO, OS) are subsumed under the category *other* (see the table above). These are, for instance, combinations where a prepositional phrase serves as the antecedent of a subject or object RC.

2.2 Extraposition

An extraposed RC occurs at the right edge of a sentence, usually in the postverbal position of the sentence (*Nachfeld* ‘post-field’), and is thus not adjacent to its anchor. (14) and (15) are relevant examples:

- (14) Ich habe unlängst **das Heft** gefunden, **in** VC
 I have recently the notebook found in
das ich eintrug, was ich für Hanna
 that I wrote what I for Hanna
 im Lauf der Jahre aufgenommen habe.
 in.the course.of.the years recorded have
 ‘Recently I found the notebook in which I entered what I recorded for Hanna over the years.’
- (15) **Die Frau** kannt’ ich auch gar nicht, **die** LC
 the woman knew I also at.all not who
 ihn da abgeholt hat.
 him there picked.up has
 ‘I also didn’t know the woman who picked him up there at all.’

126 extraposed RCs were identified in the *Vorleser Corpus*, which corresponds to about 25% of the entire corpus. Of these 126 extrapositions, 65 (52%) have a restrictive function (e.g. (16)) and 36 (28%) are non-restrictive (e.g. (17)). The remaining 25 extraposed RCs (20%) have no overt anchor noun, i.e. they are free RCs (e.g. (18)).⁷ As for the entire corpus (both extraposed and non-extraposed RCs), the respective RC types are distributed in the following way: 56% restrictive, 34% non-restrictive, and 9% free RCs.⁸

- (16) Ich habe **Fehler** zugegeben, **die** ich nicht VC
 I have mistakes acknowledged that I not
 begangen hatte, Absichten eingestanden, die ich nie
 made had intentions admitted that I never
 gehegt hatte.
 made had
 ‘I admitted mistakes I hadn’t made, intentions I’d never had.’

⁷ We decided to also apply the extraposed/non-extraposed distinction to free RCs, i.e. we assume that they contain a covert head noun which can be adjacent or non-adjacent to the pronoun of the free relative. In (18), the position of the covert head is marked by an underscore. We are aware that this practice conflicts with some analyses of free RCs (see van Riemsdijk 2006 for an overview of different accounts of free relatives).

⁸ The remaining 1% are RCs that could not be classified unambiguously.

- (17) Innen stellte ich mir ein Treppenhaus mit Stuck, VC
 inside imagined I REFL a stairwell with stucco
 Spiegeln und **einem orientalischem gemusterten Läufer**
 mirrors and a oriental patterned carpet
 vor, **den** blankpolierte Messingstangen auf den Stufen hielten.
 PTCL that bright.polished brass.rods on the steps held
 ‘Inside, I imagined a stairwell with stucco, mirrors, and an oriental
 runner held down with highly polished brass rods.’
- (18) Ich habe__verschwiegen, **was** ich hätte offenbaren müssen. VC
 I have__kept.to.myself what I had reveal must
 ‘I kept something to myself that I should have revealed.’

The *Lindenstraße Corpus* contains 11 extraposed RCs. This corresponds to an amount of 14% of the entire corpus. Of the 11 extrapositions, 7 (64%) are restrictive (cf. (19)) and 4 are non-restrictive (36%) (cf. (20)). The distribution for the *Lindenstraße Corpus* (extraposed and non-extraposed RCs taken together) is as follows: 61% restrictive, 24% non-restrictive RCs, and 4% free RCs.⁹ Table 4 summarizes the data for the extrapositions in both corpora.

- (19) aber ich hab’ auch **die Szene** gesehen, **wo** er dann LC
 but I have also the scene seen where he then
 schwimmt im Pool.
 swims in.the pool
 ‘But I also saw the scene where he is swimming in the pool.’
- (20) **Die Szene** hab’ ich auch, **wo** er ihn am LC
 the scene have I also where he him at.the
 Kragen packt und sagt
 collar grabs and says
 ‘I also have the scene where he grabs him by the collar and says’

RC type	<i>Vorleser</i>	<i>Lindenstraße</i>
Restrictive	65 (52%)	7 (64%)
Non-restrictive	36 (28%)	4 (36%)
Free	25 (20%)	–
Total	126 (100%)	11 (100%)

Table 4: Extrapositions according to RC type

The early literature considered extraposed non-restrictive RCs to be ungrammatical in English (e.g. Ziv & Cole 1974) and marginal in German (e.g. Schachtl 1992). But more recently, this view has been challenged by empirical data (e.g. de Vries 2002; Strunk 2007). In the *Vorleser* and the *Lindenstraße*

⁹ The remaining 11% are RCs that could not be classified unambiguously.

Corpus, the distance between a non-restrictive RC and its anchor can be quite large.¹⁰ In the example below, there are five intervening words:

- (21) 'ne bekannte Szene muss da noch gewesen LC
 a well-known scene must there also been
 sein, die mir jetzt nicht einfällt
 be that me now not comes.to.mind
 'There must have been a well-known scene that I cannot remember
 right now.'

Generalizing from (19) and (20), it might be argued that the possibility of extraposing RCs hinges on discourse relations which express a temporal progression. However, the RC in (21) clearly functions as a side comment and is thus a counterexample to this assumption.

Altogether, the range of words between the antecedent and RC varies between one and five in both corpora. The *Vorleser Corpus* contains 94 (74%) extrapositions with one intervening word, 24 (19%) with two intervening words, five (4%) with three intervening words, one (1%) with four intervening words, and two (2%) with five intervening words. In the *Lindenstraße Corpus*, we identified five cases (46%) with only one intervening word. There are two extrapositions each with a two- and a three-word distance. Two extrapositions with five intervening words represent the largest distance. Below, we provide examples for some types. Table 5 summarizes all RCs with intervening words from both corpora.

- (22) Sie hatte Ringe unter den Augen, und in jeder VC
 she had circles under the eyes and in each
 Backe führte eine Falte von oben nach unten,
 cheek led a wrinkle from top to bottom
 die ich nicht kannte, die noch nicht tief war,
 that I not knew that yet not deep was
 sie aber schon wie eine Narbe zeichnete.
 she but already like a scar marked
 'She had circles under her eyes, and on each cheek a line ran from top
 to bottom that I'd never seen before, that wasn't yet deep, but already
 marked her like scars.'

¹⁰ That RC extraposition may depend on a distance measured in words suggests the work of Hawkins (1994, 2004), for instance.

- (23) Sie waren im Frühjahr 1944 von Auschwitz VC
 they were in.the springtime 1944 from Auschwitz
 dorthin versetzt worden; sie ersetzten Aufseherinnen,
 there transferred been they replaced guards.fem
 die bei einer Explosion **in der Fabrik** getötet oder verletzt
 that at a explosion in the factory killed or injured
 worden waren, **in der** die Frauen des Lagers arbeiteten.
 been were in which the women of.the camp worked
 ‘They had been transferred there from Auschwitz in early 1944 to re-
 place guards that were killed or injured in an explosion in the factory
 where the women in the camp worked.’
- (24) Also bei mir ist es dann noch **’ne Szene** LC
 well at me is it then in.addition a scene
 davor gewesen, letztlich, **wo’s** noch gar
 before been ultimately where.it yet at.all
 nicht so ganz raus ist.
 not so totally out is
 ‘Well, actually I had a scene before that where this is not fully clear
 yet.’
- (25) **Die Frau** kannt’ ich auch gar nicht, LC
 the woman knew I also at.all not
die ihn da abgeholt hat.
 who him there picked.up has
 ‘I also didn’t know the woman who picked him up there at all.’

Distance	<i>Vorleser</i>	<i>Lindenstraße</i>
1 word	94 (74%)	5 (46%)
2 words	24 (19%)	2 (18%)
3 words	5 (4%)	2 (18%)
4 words	1 (1%)	–
5 words	2 (2%)	2 (18%)
Total	126 (100%)	11 (100%)

Table 5: The number of intervening words in extrapositions

Regarding the syntactic function of the relative pronoun and its antecedent, a similar distribution to the one in the preceding subsection holds for extraposed RCs. Both corpora contain more relative pronouns with subject than with direct object status. This can be seen in table 6.

Relative Pronoun	<i>Vorleser</i>	<i>Lindenstraße</i>
Subject	44 (35%)	4 (36%)
Object	31 (25%)	1 (9%)
Other	51 (40%)	6 (55%)
Total	126 (100%)	11 (100%)

Table 6: The grammatical functions of relative pronouns in extrapositions

Consider now the relation of subject and direct object antecedents in connection with extraposed RCs, summarized in table 7. In the *Vorleser Corpus*, 35 (28%) extrapositions have subject antecedents and 43 (34%) have direct object antecedents. The *Lindenstraße Corpus* contains 4 (36%) extrapositions with subject antecedents and 5 (46%) with direct object antecedents. Again, this distribution resembles the one for all RCs in both corpora (table 2).

Antecedent	<i>Vorleser</i>	<i>Lindenstraße</i>
Subject	35 (28%)	4 (36%)
Object	43 (34%)	5 (46%)
Other	48 (38%)	2 (18%)
Total	126 (100%)	11 (100%)

Table 7: The grammatical functions of antecedents in extrapositions

2.3 Multiple RCs

The last part of this section discusses RCs in a sequence. The phenomenon has two variants. Either the consecutive RCs modify one and the same anchor noun (*Peter, who took care of his his daughter, who would have preferred to go to a pub ...*) or there are two or more anchor nouns with a corresponding RC each (*Peter, who took care of his daughter, who is five years old ...*). This article limits itself to the first variant.

The early literature claims that, as opposed to multiple restrictive RCs, multiple non-restrictive ones are unacceptable (Jackendoff 1977; McCawley 1998). But, after careful reconsideration (Arnold 2007; Lehmann 1984: 197ff.; de Vries 2002: 197ff.), this assumption was proved to be unfounded. What is still controversial today is what kind of structure underlies the phenomenon and how the individual meaning components are assembled.

According to Stockwell et al. (1973: 442ff.) and Stump (1976), only multiple restrictive RCs constitute ‘stacking’ in the proper sense: a first restrictive RC combines with the anchor noun to form a larger unit, which is then used as the antecedent for a second restrictive RC, and so on. Each RC increases the depth of embedding and narrows the reference set through intersection. By contrast, Stump does not assign a hierarchical but rather a flat structure to multiple non-restrictive RCs. The reason for this is that their anchor noun (a proper name, for instance) is already fully specified by itself. Sequences of non-restrictive RCs cannot increase the internal complexity of the NP, but only provide additional

information, and this property may speak in favor of an analysis based on coordination.

However, conclusive evidence may be difficult to find for a structural or compositional distinction between stacked restrictive RCs and coordinated multiple non-restrictive ones.¹¹ Set theoretically, it makes no difference whether a NP is modified successively by two restrictive RCs, or whether these two RCs first form a single compound before they modify the NP: $[[\text{NP RC1}] \text{RC2}] = [\text{NP} [\text{RC1} \wedge \text{RC2}]]$. To illustrate this point with naturally occurring data, consider (26) from the *Vorleser Corpus*.¹² The conjunction *und* ‘and’ could be inserted between the two restrictive RCs without affecting truth conditions or acceptability:

- (26) Ich hatte Hanna eine kleine Nische zugebilligt, VC
 I had Hanna a small niche granted
 durchaus **eine Nische, die** mir wichtig war, (**und**) **die**
 certainly a niche which me important was (and) which
 mir etwas gab und für die ich etwas tat,
 me something gave and for which I something did
 aber keinen Platz in meinem Leben.
 but no place in my life
 ‘I had granted Hanna a small niche, certainly an important niche, one
 from which I gained something, (and) for which I did something, but
 not a place in my life.’

Indeed, the *Vorleser Corpus* strengthens the view that multiple RCs may involve coordination – irrespective of (non-)restrictivity. Crucially, there are 20 non-restrictive (e.g. (27)) and 10 restrictive (e.g. (28)) sequences that look like ordinary German RCs (*d*-pronoun, verb-final word order) despite the fact that they begin with an overt coordinative conjunction.

- (27) Außer meinem Banknachbarn, den ich aus der VC
 besides my desk.neighbor who I from the
 alten Klasse kannte, mochte ich in der neuen Klasse
 old class knew liked I in the new class
 besonders **Holger Schlüter, der** sich wie ich für
 especially Holger Schlüter who REFL like I for
 Geschichte und Literatur interessierte **und mit dem** der
 history and literature interested and with whom the
 Umgang rasch vertraut wurde.
 contact quickly familiar became
 ‘Besides my desk neighbor, who I already knew from my old class, in
 the new class I especially liked Holger Schlüter, who was interested in
 history and literature just like I was and to whom I quickly had a famil-
 iar contact.’

¹¹ We thank two anonymous reviewers for pointing this out.

¹² We did not find multiple RCs in the *Lindenstraße Corpus*.

- (28) Sie hatte einen sehr kräftigen und sehr weiblichen Körper, üppiger als **die Mädchen, die** mir gefielen **und denen** ich nachschaute.
 she had a very strong and very feminine body more.voluptuous than the girls that me liked and that I watched
 ‘She had a very strong, feminine body, more voluptuous than the girls I liked and watched.’ VC

The syndetic (i.e. including a conjunction) type clearly outweighs the asyndetic (i.e. without a visible conjunction) type. The *Vorleser Corpus* contains only 5 multiple non-restrictive (e.g. (29)) and 6 multiple restrictive RCs (e.g. (30)) without overt coordinators.¹³

- (29) Es war **eine Munitionsfabrik, in der zwar** die eigentliche Arbeit nicht schwer war, **in der** die Frauen **aber** zur eigentlichen Arbeit kaum kamen, sondern bauen mussten, weil die Explosion im Frühjahr schlimme Schäden hinterlassen hatte.
 it was a ammunition.factory in which admittedly the actual work not hard was in which the women but to.the actual work hardly came but build had.to because the explosion in.the springtime severe damages left had
 ‘It was an ammunition factory, in which, admittedly, the actual work was not hard, but in which the women hardly had time for the actual work but had to build, because the explosion in springtime had caused severe damage.’ VC
- (30) Die Betäubung wirkte nicht nur im Gerichtssaal und nicht nur so, dass ich Hanna erleben konnte, als sei es ein anderer, der sie geliebt und begehrt hatte, **jemand, den** ich gut kannte, **der aber** nicht ich war.
 the anesthetic functioned not only in.the courtroom and not only so that I Hanna see could as.if be EXPL someone else who she loved and desired had someone who I well knew who but not I was
 ‘The anesthetic functioned not only in the courtroom, and not only to allow me to see Hanna as if it was someone else who had loved and desired her, someone I knew well but who wasn’t me.’ VC

Interestingly, both examples above host the adversative *aber* ‘but’ (in (29) it occurs inside the correlative construction *zwar ... aber* ‘though ... but’), which is a sub-type of coordination (e.g. Haspelmath 2007). If one subsumes all sequences containing *aber* under the syndetic type, the overall number of

¹³ The context ensures that *es* ‘it’ functions as an anaphoric pronoun and not as an expletive in (29), i.e. the possibility of a cleft construction can be excluded.

asyndetic multiple RCs reduces to 5 (1 restrictive and 4 non-restrictive). But even these remaining examples show characteristics that typically go together with coordination. First, consider the following non-restrictive sequence:

- (31) Wie sollte es ein Trost sein, dass mein Leiden VC
 how should it a solace be that my suffering
 an meiner Liebe zu Hanna in gewisser Weise das
 on my love to Hanna in certain way the
 Schicksal meiner Generation, **das deutsche Schicksal**
 fate of.my generation the German fate
 war, **dem** ich mich nur schlechter entziehen _{konnte}, **das**
 was which I me only worse escape could which
 ich nur schlechter überspielen **konnte** als die anderen.
 I only worse cover.up could than the others
 ‘How could it be a solace, that the suffering I experienced from my
 love to Hanna was, in a certain way, the fate of my generation, the
 German fate, which I just could escape worse, which I just could cover
 up worse than the others.’

Both RCs of (31) share the modal auxiliary *konnte* ‘could’ but it only surfaces in the second one (elided material is indicated with subscripts). This is an instance of right node raising. Structures that involve coordination are especially prone to license such reduced forms. Second, 3 asyndetic sequences have a prominent enumerative character. (32) mimics the flashbacks of the speaker.¹⁴ The juxtaposition of so many different events leads to the creation of a list, and lists prototypically belong to coordination (see Jasinskaja 2007: 91ff.).

- (32) **Hanna, die** in der Küche die Strümpfe anzieht, **die** VC
 Hanna who in the kitchen the stockings puts.on who
 vor der Badewanne das Frottiertuch hält, **die**
 in.front.of the bathtub the terry.towel holds who
 mit wehendem Rock auf dem Fahrrad fährt, **die** im
 with wafting skirt on the bike rides who in.the
 Arbeitszimmer meines Vaters steht, **die** vor
 Study of.my father stands who in.front.of
 dem Spiegel tanzt, **die** im Schwimmbad zu mir
 the mirror dances who in.the swimming.pool to me
 herüberschaut, **Hanna, die** mir zuhört, **die** zu mir redet,
 look Hanna who me listens who to me talks
die mich anlacht, **die** mich liebt.
 who me smiles.at who me loves

¹⁴ The passage under discussion is introduced as follows: *Wieder und wieder schweiften meine Gedanken ab und verloren sich in Bildern. Ich sah Hanna bei der brennenden Kirche [...] Ich sah Hanna Lagerstraßen entlanggehen [...]* ‘Again and again, my thoughts wandered off and were lost in images. I saw Hanna by the burning church [...] I saw Hanna walking the paths in the camp [...]’.

‘Hanna, who puts on her stockings in the kitchen, who holds the terry towel in front of the bath tub, who rides the bike with her skirt wafting, who stands in my father’s study, who looks at me in the swimming pool, Hanna, who listens to me, who talks to me, who smiles at me, who loves me.’

Since both the restrictive and the non-restrictive RC sequences of the *Vorleser Corpus* are related to coordination almost without exception, it is tempting to suggest that all types of RC sequences should be analyzed this way (this seems also to be the proposal of de Vries 2002: 198). An observation that may be problematic for this assumption is that some RC sequences establish discourse relations that conflict with coordination. Consider the following constructed examples:

- (33) **Hans, der** Deutschland noch nie verlassen hat, **der** genauer
 Hans who Germany yet neverleft has who more.precisely
 gesagt sogar Frankfurt noch nie verlassen hat, fürchtet sich vor
 said even Frankfurt yet never left has is.afraid REFL of
 seinem ersten Flug nach Indien.
 his first flight to India
 ‘Hans, who has never left Germany, who, more precisely, has never left
 Frankfurt, is afraid to fly to India for the first time.’
- (34) # **Hans, der** Deutschland noch nie verlassen hat **und der**
 Hans who Germany yet never left has and who
 genauer gesagt sogar Frankfurt noch nie verlassen hat,
 more.precisely said even Frankfurt yet never left has
 fürchtet sich vor seinem ersten Flug nach Indien.
 is.afraid REFL of his first flight to India
 ‘Hans, who has never left Germany, and who, more precisely, has never
 left Frankfurt, is afraid to fly to India for the first time.’

The second RC of (33) *der genauer gesagt sogar Frankfurt noch nie verlassen hat* ‘who, more precisely, has never left Frankfurt’ conveys the same kind of information about *Hans* as the first one *der Deutschland noch nie verlassen hat* ‘who has never left Germany’, but it is more specific. This is an instance of ‘particularization’, which is signaled here by the cue phrase *genauer gesagt* ‘more precisely’. Comparable to discourse relations like ‘reformulation’ or ‘correction,’ particularization does not go together well with and-conjunction (Jasinskaja 2007: 22ff.), and that appears to be the reason for the oddness of (34). However, this observation does not exclude the possibility that (33) has some sort of underlying linking element. The disjunction *oder* ‘or’ would be appropriate with the abovementioned discourse relations:

- (35) **Hans, der** Deutschland noch nie verlassen hat **oder der**
 Hans who Germany yet never left has or who
 genauer gesagt sogar Frankfurt noch nie verlassen hat,
 more.precisely said even Frankfurt yet never left has
 fürchtet sich vor seinem ersten Flug nach Indien.
 is.afraid REFL of his first flight to India
 ‘Hans, who has never left Germany, or who, more precisely, has never
 left Frankfurt, is afraid to fly to India for the first time.’

To sum up, a first somewhat controversial distinction in multiple RCs relates to the type of the linking mode. The data of the *Vorleser Corpus* suggest that some sort of conjunction (either coordinative, adversative, or disjunctive) is always involved, and that there is no need to assume hierarchical layering in the case of restrictive sequences. A second distinction concerns the question of whether the linking mode is overt or not, i.e. RC sequences can be syndetic or asyndetic. A third distinction is whether two consecutive RCs are computed in a stepwise manner (variant a), whether they first form a compound which is then applied to the anchor (variant b), or whether they are unrelated in the sense that the second RC modifies its antecedent alone (variant c). These possibilities may co-exist. Variant (c) is represented by examples like (32). Each RC describes *Hanna* in a different spatio-temporal stage. Importantly, the order of the RCs could be changed without altering the meaning or acceptability of the whole sentence, as illustrated in (36), a variant of (32).

- (36) **Hanna, die** im Arbeitszimmer meines Vaters steht, **die** in der
 Hanna who in.the study of.my father stands who in the
 Küche die Strümpfe anzieht, **die** vor der Badewanne das
 kitchen the stockings puts.on who in.front.of the bathtub the
 Frottiertuch hält ...
 terry.towel holds ...
 ‘Hanna, who stands in my father’s study, who puts on her stockings in
 the kitchen, who holds the terry towel in front of the bath tub ...’

Variant (b) is represented by (37). Here, the second (syndetically connected) RC *und deren Rock...* ‘and whose skirt...’ belongs to the same situation as the first RC *die Fahrrad fährt* ‘who is riding a bike’. Only the content of both RCs together constitutes the speaker’s visual memory.

- (37) Ein weiteres ist **Hanna, die** Fahrrad fährt **und deren** VC
 another is Hanna who bike rides and whose
 Rock im Fahrtwind weht.
 skirt in.the turbulence blows
 ‘Another is Hanna riding her bike with her skirt blowing in the wind.’

Sequences with a temporal progression from one RC to the other demonstrate the existence of variant (a). Consider the following example:

- (38) Aber es war anders als bisher; sie hielt sich mit VC
 But it was different as before she held REFL with
 ihren Urteilen zurück, machte Natascha, Andrej und Pierre nicht
 her opinions back made Natascha Andrej and Pierre not
 zum Teil ihrer Welt, wie sie das mit Luise und Emilia getan
 to.the part of.her world as she that with Luise and Emilia did
 hatte, sondern betrat ihre Welt, wie man staunend eine
 had but entered their world as one in.astonishment a
 ferne Reise tut oder ein Schloss betritt, in das man eingelassen
 far journey does or a castle enters in which one let.in
 ist, in dem man verweilen darf, mit dem man vertraut
 is in which one stay is.allowed.to with which one familiar
 wird, ohne doch die Scheu je völlig zu verlieren.
 becomes without but the awe ever completely to lose
 ‘But it was different this time; she withheld her own opinions; she
 didn’t make Natasha, Andrei, and Pierre part of her world, as she had
 Louise and Emilia, but entered their world the way one sets out on a
 long and dazzling journey, or enters a castle which one is allowed to
 visit, even stay in until one feels at home, but without ever really shed-
 ding one’s inhibitions.’

The acts of entering the castle and of staying there – introduced by the first and the second RC respectively – precede the process of familiarization with it – introduced by the last RC *mit dem man vertraut wird* ‘with which one becomes familiar’. No event could be skipped (variant (c)) or treated as happening simultaneously (variant (b)). The table below summarizes all possibilities for multiple RCs.

Multiple RCs	
Status of involved RCs	restrictive/non-restrictive ¹⁵
Realization of linking mode	asyndetic/syndetic
Type of conjunction	coordinative/adversative/disjunctive
Type of composition	[[NP RC1] RC2] = stepwise [NP [RC1 RC2]] = simultaneous [NP...RC2] = unrelated (list reading)

Table 8: Possible instantiations of multiple RCs

¹⁵ If both restrictive and non-restrictive RCs are involved, there are ordering restrictions. Non-restrictive RCs cannot precede restrictive ones (ex. from Kempson 2003: 312): *An interviewer you disliked, who I was on good terms with, is now in Beijing* vs. **An interviewer, who I was on good terms with, you disliked, is now in Beijing*. Note that it improves the last sentence if the non-restrictive RC *who I was on good terms with* is brought close to a parenthetical (via intonational means and phrases like *by the way*).

3 Semantic and prosodic aspects

This section discusses the question of how to distinguish restrictive and non-restrictive RCs. There is some uncertainty regarding this issue – recent prosodic studies, for instance, have not found much difference between the two types of RCs in spontaneous speech (see references below). Anticipating the results for both corpora, there is no doubt that (non-)restrictivity is rooted in grammar even though there are some truly ambiguous examples. In general semantic and prosodic features mark the distinction.

3.1 Interpretive differences between restrictive and non-restrictive RCs

While there is some semantic and pragmatic work related to (non-)restrictive modification – especially in studies focusing on adjectives and adverbials (e.g. Morzycki 2008; Umbach 2006) or on RCs (e.g. Frosch 1995) – precise definitions are hard to achieve. An obvious assumption is that an anchor noun is modified restrictively when its reference is narrowed down by the modifying element, i.e. the denotation of anchor plus modifier is a subset of the denotation of the bare anchor (e.g. Lehmann 1984). The referential view on (non-)restrictivity is in accordance with an information-structural approach to the phenomenon: if restrictive modifiers eliminate entities with conflicting properties, it seems reasonable to consider them inherently contrastive (Bach 1974; Riester 2012). A definition based on contrastivity usually works fine with definite NPs. The restrictive RC in (39), for instance, sets up an opposition between those versions that are written by the speaker and those that are not:

- (39) So gibt es neben **der Version, die** ich VC
 so there.is it besides the version that I
 geschrieben habe, viele andere.
 written have many others
 ‘There are many other versions besides the one that I have written.’

The passage below (40) contains both restrictive and non-restrictive RCs. The first two stand in contrast with each other and are, as expected, restrictive. They pick out one fence that is in good order and one that is shabby, respectively. As opposed to this, the last (non-restrictive) RC *hinter der ich Wunderbares [...]* ‘behind which I marvelousness [...]’ conveys content that cannot be contrasted with anything in the given situation.

- (40) Ich kannte jedes Haus, jeden Garten und jeden VC
 I knew every house every garden and every
 Zaun, **den, der** jedes Jahr frisch gestrichen wurde, **den,**
 fence the who every year newly painted was that
dessen Holz so grau und morsch geworden war, dass ich
 whose wood so grey and unsound become was that I

es mit der Hand zerdrücken konnte, die eisernen Zäune, an
 it with the hand crush could the iron fences on
 deren Stäben ich als Kind mit dem Stock klingend
 whose bars I as child with the stick soundin
 entlanggerannt bin, und **die hohe Backsteinmauer, hinter der**
 ran.along was and the high brick.wall behind which
 ich Wunderbares und Schreckliches phantasiert hatte, bis
 I marvelousness and tremendousness fantasized had until
 ich hochklettern konnte und die langweiligen Reihen
 I climb.up could and the boring rows
 verwehrter Blumen-, Beeren- und Gemüsebeete sah.
 unkempt flower berry and vegetable.beds saw
 ‘I knew every house, every garden and every fence; the one that was
 painted every year, the one whose wood had become so grey and un-
 sound that I could crush it with my hand, the iron fences on whose bars
 I ran along as a child striking against with a stick and the high brick
 wall behind which I had fantasized marvelousness and tremendousness
 until I was able to climb it and saw the boring rows of unkempt flower,
 berry and vegetable beds.’

Indefinite and plural NPs, however, normally do not force the hearer to take alternatives into consideration. In such cases, the definition sketched above would rather predict non-restrictive readings. This is an undesirable consequence, as can be illustrated with the following example:

- (41) Zu sehen, wie aus diesem Glauben Paragraphen VC
 to see how out.of this faith paragraphs
 als feierliche Wächter der guten Ordnung geschaffen
 as solemn wardens of.the good order created
 und zu **Gesetzen** gefügt wurden, **die** schön sein
 and to laws assembled were who beautiful be
 und mit ihrer Schönheit den Beweis für ihre Wahrheit
 and with their beauty the proof for their truth
 antreten wollten, hat mich beglückt.
 provide wanted had me delighted
 ‘To see how paragraphs were created out of this faith as solemn
 wardens of the good order and assembled to laws that wanted to be
 beautiful and, with their beauty, prove their truth delighted me.’

It seems implausible to suggest that the RC in (41) excludes alternatives like *laws that do not strive for beauty and truth* because these are prima facie qualities of every law. Nevertheless, the RC behaves in crucial respects like a restrictive modifier. Most importantly, it appears to belong to the argument position of the matrix predicate *hat mich beglückt* ‘delighted me’. The specific quality of the laws (conveyed by the RC) is a necessary part of the speaker’s happiness. A non-restrictive modifier, which resembles parenthetical constructions, should

not scope under attitude operators (cf. Sæbø 2011, who elaborates on this with nominal appositives).

Such data strengthen the view that (non-)restrictivity extends on multiple layers, which sometimes leads to the impression that the phenomenon is of a fuzzy nature. However, if a referential (semantic) and a conceptual (discourse-pragmatic) side are distinguished (Fabricius-Hansen 2009), the problem disappears. Both sides may, but do not have to, go together. Consider the following example:

- (42) Ich hatte sie weinen sehen, **Hanna, die** auch weinte, VC
 I had her cry see Hanna who also cried
 war mir näher als **Hanna, die** nur stark war.
 was me closer than Hanna who only strong was
 ‘I had seen her cry; Hanna who also cried was closer to me than Hanna who only was strong.’

The anchor noun *Hanna* in (42) is a proper name, i.e. it is inherently fully specified. The two RCs hence cannot have a restrictive function from a referential point of view. On a different layer, however, they have a restrictive flavor. The speaker of (42) distinguishes two occurrences of Hanna (depending on her mood) via the RCs in his own conceptual representation.

Lexical markers that can decide on (non-)restrictivity often facilitate the analysis. Unfortunately, the most robust ones are not very frequent in our corpora. Complex determiners of the *d-jenig/d-selb* ‘the one’ type are known as a suitable diagnostic in German because non-restrictive RCs never take them as antecedents (Sternefeld 2008: 378). The *Vorleser Corpus* contains only a few of them (e.g. (43)), while the *Lindenstraße Corpus* lacks them altogether.

- (43) Sie schreibt über sich und ihr pubertäres, altkluges VC
 she writes about herself and her pubertal precocious
 und, wenn es sein muss, durchtriebenes Verhalten mit
 and if it to.be must cunning behavior with
derselben Nüchternheit, mit der sie alles andere
 the.same coolness with which she everything else
 beschreibt.
 describes
 ‘She writes about herself and her pubertal, precocious and, if it has to be, cunning behavior with the same coolness with which she describes everything else.’

Negative quantifiers (e.g. (44) & (45)) cannot be anchors for non-restrictive RCs either. This ban presumably exists independently of a specific language.

- (44) Sehen Sie sich die Angeklagten an – Sie VC
 look you yourself the accused at you
 werden **keinen** finden, **der** wirklich meint, er
 will no.one find who really believes he
 habe damals morden dürfen.
 had then murder be.allowed.to
 ‘Have a look at the accused – you will find no one who really believes
 he had been allowed to murder back then.’
- (45) Aber da war **nichts**, **was** mich ausgefüllt und VC
 but there was nothing that me filled.out and
 abgelenkt hätte; der Arzt ließ noch nicht zu, dass
 diverted had the doctor let yet not PTCL that
 ich die Schule besuchte, der Bücher war ich nach Monaten
 I the school attended the books was I after months
 des Lesens überdrüssig, und die Freunde schauten
 of.the reading weary and the friends dropped
 zwar vorbei, aber [...] admittedly by but
 ‘But there was nothing that could have filled out and diverted me; the
 doctor did not yet let me visit school [again], I was weary of books af-
 ter months of reading and my friends dropped by, admittedly, but [...]’

Possessive NPs, personal pronouns, and proper names identify non-restrictive RCs positively. They all specify their referents without further addition (at least in their standard use), i.e. any modifier applied to them must be referentially superfluous:

- (46) **Meine** Schwester, **die** Germanistik studierte, VC
 my sister who German.philology studied
 berichtete beim Essen von dem Streit, ob
 reported at.the dinner of the controversy whether
 Herr von Goethe und Frau von Stein eine Liebesbeziehung
 Herr von Goethe and Frau von Stein a romantic.relationship
 hatten, und ich verteidigte es zur Verblüffung
 had and I championed it to.the bafflement
 der Familie mit Nachdruck.
 of.the family with emphasis
 ‘My sister, who studied German philology, talked at dinner about the
 controversy whether or not Herr von Goethe and Frau von Stein had a
 romantic relationship, and I championed it with emphasis to the baf-
 flement of my family.’

- (47) Vertraut wurde er bald auch mit **Sophie, die** VC
 familiar became he soon too with Sophie who
 wenige Straßen weiter wohnte und mit der ich daher
 few blocks away lived and with who I therefore
 den Weg zum Schwimmbad gemeinsam hatte.
 the way to.the swimming.pool together had
 ‘He also got along with Sophie, who lived a few blocks behind our
 house, which meant that we went to and from the swimming pool to-
 gether.’

One further lexical diagnostic mentioned in the literature makes use of preposition-determiner enclitics in German. It is stated that they are incompatible with restrictive modification (Hartmann 1978; Schwarz 2009). Consider the following example:

- (48) Sie wusste nicht, was sie hätte anders machen VC
 she knew not what she would different do
 sollen, anders machen können, und wollte
 should, different do could and wanted
 daher **vom Vorsitzenden, der** alles zu wissen
 therefore from.the chairman who everything to know
 schien, hören, was er gemacht hätte.
 seemed hear what he done would
 ‘She wanted to know what she should have done in her particular situa-
 tion, not that there are things that are not done; she wanted the chair-
 man, who seems to know everything, to tell her what he would have
 done.’

There is only one chairman in the utterance context of (48). The content of the RC functions as a side comment and can therefore be taken as a prototypical example of the non-restrictive type. The RC may be left out without rendering the resulting sentence ungrammatical or pragmatically odd. However, there are also counterexamples to the claim that cliticized antecedents block restrictive modification. In (49), the presence of the RC is crucial for the interpretation of the whole sentence because the previous context provides no information indicating one particular court proceeding. In contrast to (48), the deletion of the RC in (49) would result in ungrammaticality.

- (49) Als junger Student war ich dann **beim Prozess,** VC
 as young student was I then at.the trial
bei dem sie verurteilt wurde.
 at which she convicted was
 ‘When I was a young student, I was at the trial that convicted her.’

Finally, so-called high adverbs (e.g. *frankly*, *probably*, *luckily*: see Cinque 1999; Ernst 2002) and discourse particles are known as tools for evaluating (non-)restrictivity. Only non-restrictive RCs license these elements, according to the general view:

- (50) Ist es die Sehnsucht nach vergangenem Glück – und VC
 is it the yearning for past happiness and
 glücklich war ich in **den nächsten Wochen, in denen**
 happy was I in the following weeks in which
 ich **wirklich** wie blöd gearbeitet und die Klasse geschafft
 I really like lunatic worked and the class passed
 habe und wir uns geliebt haben, als zähle sonst nichts auf
 have and we us loved had as count else nothing in
 der Welt.
 the world

‘Is it yearning for past happiness—for I was happy in the weeks that followed, in which I really did work like a lunatic and passed the class, and we made love as if nothing else in the world mattered.’

The adverb *wirklich* ‘indeed’ solely fulfills a discourse-regulating function. It could be left out without altering the meaning of (50). Note that adverbs are sometimes ambiguous between a low (manner) and a high (sentential) interpretation. Consider (51) below:

- (51) Ich sehe rechter Hand das Haus und fahre weiter, VC
 I see right hand the house and drive on
 zuerst nur darüber verwirrt, dass **ein Haus, das offensichtlich**
 first only about confused that a house that obviously
 in einen städtischen Straßenzug gehört, auf freiem
 in an urban street.of.houses belong in an.open
 Feld steht.
 field stands

‘I see the house on the right and keep going, confused at first only by the fact that such an obviously urban building is standing there in the middle of the countryside.’

Contrary to the first impression, *offensichtlich* ‘obviously’ cannot have the status of a high (speaker-oriented) adverb in (51). The content of the RC is the reason for the speaker’s surprise, i.e. the RC seems to be restrictive (cf. the discussion of (41)). *offensichtlich* gets the manner reading and can be paraphrased as ‘in a clear perceptible way’ rather than as ‘it is obvious (for me the speaker) that’.

Note that the literature regards *übrigens* ‘by the way’ as the most robust and natural indicator of non-restrictive RCs (e.g. Frosch 1995: 8). The adverb is often used to ensure that a certain example does not give rise to ambiguities. This tradition has some drawbacks, in our opinion. It is far from obvious that *übrigens* is compatible with important functions of most non-restrictive RCs. In general, *übrigens* seems to indicate cumbersome sentence planning and irrelevance of information. This does not apply to many of our data. In (52), for instance, the non-restrictive RC *die nicht las* ‘who could not read’ is indispensable for understanding how strange the woman’s behavior is. The insertion of *übrigens* would render the utterance unacceptable.

- (52) Hatte **sie, die** nicht las, die lokale Zeitung, in VC
 had she who not read the local newspaper in
 der das Foto erschienen war, damals abonniert?
 which the photo appeared was then subscribed
 'Had she, who could not read, subscribed to the local paper in which
 the photo appeared?'

Up to this point, all examples used in this section have been classifiable through recourse to grammatical considerations with some degree of reliability. But we also encountered data where one must rely on world knowledge to make a decision. Cases in point typically involve sentences like the ones below:

- (53) **Das Fieber, das** die Wahrnehmung schwächt und, VC
 the fever that the perception weakens and
 die Phantasie schärft, macht das Krankenzimmer zu
 the imagination sharpens makes the sickroom to
 einem neuen, zugleich vertrauten und fremden Raum;
 a new both familiar and unfamiliar room;
 'The fever that weakens your perception as it sharpens your imagination turns the sickroom into someplace new, both familiar and strange;'
- (54) Es war ein kalter Herbsttag mit wolkenlosem, VC
 it was a cold autumn.day with cloudless,
 dunstigem Himmel und **gelber Sonne, die** nicht
 hazy sky and yellow sun, that not
 mehr wärmt und in die das Auge
 anymore warming and in which the eye
 schauen kann, ohne dass es weh tut.
 look can, without that it hurts
 'It was a cold autumn day with a cloudless, hazy sky and a yellow sun that no longer gave off any heat, the kind you can look at directly without hurting your eyes.'

The question as to the status of these RCs hinges on whether one considers them to express generic statements or not. World knowledge tells us that fever goes together with the effects conveyed by the RC in (53), and we know that there is only one sun in our system (54). Both RCs are hence of the non-restrictive type. Where world knowledge is non-decisive, however, true ambiguity may arise:

- (55) **Der Nachbar, der** über Mittag nach Hause kam, VC
 the neighbor, who about noon at home came,
 streute Vogelfutter auf seinen Balkon, und die
 scattered birdseed on his balcony and the
 Tauben kamen und gurrten.
 doves came and cooed
 'The neighbour who came home at lunchtime scattered birdseed on his balcony, and the doves came and cooed.'

The RC in (55) can be classified either as restrictive or as non-restrictive. Note that similar observations are sometimes taken as evidence for the claim that the (non-)restrictive distinction is not rooted in grammar as such (e.g. von Stechow 1980). However, truly ambiguous cases are rather rare in our corpora and may be seen as an exceptional lack of grammatical encoding. This view is corroborated by a prosodic analysis, summed up in the next subsection.

3.2 Prosody of restrictive and non-restrictive RCs

The main aim of this subsection is to investigate possible prototypical prosodic features of restrictive and of non-restrictive RCs in both corpora. We concentrate on the way the RC is integrated into the main clause. The literature on the subject is slightly contradictory. Syntacticians often claim that non-restrictive RCs are separated more clearly from the main clause than restrictive RCs; see Lehmann (1984) and Brandt (1990), among others. This should be reflected in tonal boundaries and in duration facts. The prediction is that both tonal boundaries and duration are larger in non-restrictive RCs than in restrictive ones. A problem with this is that the experimental literature does not provide support for this prediction. Schaffranietz (1999), Birkner (2008), and Kaland & van Heuven (2010) did not find much difference between the two types of RCs in experimental and corpus studies. Schubö et al. (2014) were able to show that the relevance for communication and the awareness of the two types of RCs had an effect on the use of prosodic cues to disambiguate between non-restrictive and restrictive RCs. When the speakers were not aware of the distinction between restrictive and non-restrictive relative clauses, they did not produce any disambiguating prosodic correlates. For this reason, it is important to examine natural corpora, like *Lindenstraße*, and to examine whether professional speakers make the distinction in prosody.

Let us start with the *Vorleser Corpus*. Summing up the results for the sentences analyzed in detail and consisting of a representative set of 35 non-restrictive and 33 restrictive RCs, a non-restrictive RC is more often separated from the main clause by a break or a boundary tone, especially if the main clause continues after the RC, whereas a restrictive RC is not. Moreover, the break or boundary tone is larger in the non-restrictive RC. Altogether we could count 22 real breaks (on the time dimension) in the non-restrictive cases, and only 11 in the restrictive cases. For these counts, we do not distinguish between breaks before and breaks after the RC. Nor do we count the breaks caused by the fact that the RC is final in its sentence.

In the first example, shown in (56), with the pitch track in figure 1, which illustrates a continuative non-restrictive RC (cf. Holler 2005), some of the characteristics of this type of RC in this corpus are clearly visible.

- (56) Am selben Tag holte meine Mutter **den Arzt**, VC
 on.the same day fetched my mother the doctor
der Gelbsucht diagnostizierte.
 who hepatitis diagnosed
 ‘That same day my mother called in the doctor, who diagnosed hepatitis.’

The F0 register properties show a certain amount of inclusion of the RC into the intonation phrase formed by the entire sentence. This is the normal case in this corpus. In figure 1, the RC’s register is compressed as compared to the register of the main clause, even though both clauses have the same contour, characterized by an abrupt fall on the nuclear accents, *den Arzt* ‘the doctor’ in the main clause and *Gelbsucht* ‘hepatitis’ in the embedded clause. Moreover there is a clear break – a short period of silence – between the two clauses: the main clause ends with a falling tone nearly reaching the bottom of the speaker’s range, and there is a small break separating the two clauses. It should be observed that a break before a RC is rare, and may be attributed to the continuative property of the present example.

The only prosodic constituent with a rising contour is *holte meine Mutter* ‘my mother called in’ which is a prosodic phrase consisting of the verb and the adjacent argument, here the subject of the main clause. The prosodic phrasing of the sentences below the level of the intonation phrase is not addressed in detail here, since this would get us into too much detail. It should suffice to observe that the formation of prosodic phrases follows the principles of prosodic phrasing formulated in the relevant literature (Truckenbrodt 2007; Féry 2011). In figure 1, the constituents *am selben Tag* ‘on the same day’, *holte meine Mutter* ‘my mother called in’ and *den Arzt* ‘the doctor’ each form a prosodic phrase, as can be gathered from the downstep relation between the highest tone on each of them. On the RC, there is a partial reset, or at least no downstep: the high tone on the RC is slightly higher than the one on *Arzt* ‘doctor’. This is a sufficient but not necessary correlate of a new intonation phrase.

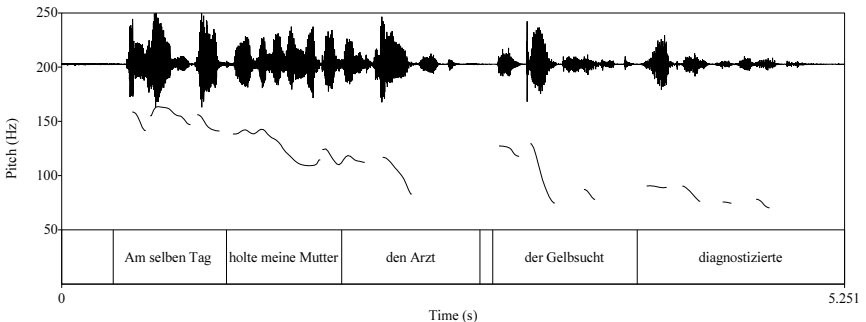


Figure 1: Pitch track of a continuative RC: *Am selben Tag holte meine Mutter den Arzt, der Gelbsucht diagnostizierte*. (‘That same day my mother called in the doctor, who diagnosed hepatitis.’)

The second pitch track illustrates both a non-restrictive and a restrictive RC (repeated from (52) above):

- (57) Hatte **sie**, **die** nicht las, **die lokale Zeitung**, **in der** VC
 had she who not read the local newspaper in which
 das Foto erschienen war, damals abonniert?
 the photo appeared was then subscribed
 ‘Had she, who could not read, subscribed to the local paper in which
 the photo appeared?’

The non-restrictive RC *die nicht las* ‘who could not read’ is separated from the following second part of the main clause *die lokale Zeitung* ‘the local paper’ by a breath break. There is no break separating it from the first part of the main clause, which consists of the first words of the sentence *hatte sie* ‘had she’. However, these sentence-initial function words are provided with a clear boundary tone LH%, repeated at the end of the non-restrictive RC. It should be noticed that the pronoun *sie* ‘she’ is not contrastive in this sentence, implying that the tonal movement on this word is due to a tonal boundary. In sum, the non-restrictive RC is clearly set off both from what precedes and from what follows, albeit by different prosodic means. Moreover the prosodic phrase *die lokale Zeitung* ‘the local paper’, which starts the second part of the main clause, is again reset relative to the preceding RC. By contrast, the restrictive RC *in der das Foto erschienen war* ‘in which the photo appeared’, which is also inserted between two parts of the main clause, is separated from the end of the main clause *damals abonniert* ‘then subscribed’ by a breath break. However, neither the preceding portion of the main clause nor the restrictive RC itself has a boundary tone, and there is downstep throughout, until the rising boundary tone at the very end of the sentence. The result is an increased cohesion of the restrictive RC with the main clause. By contrast, the cohesion of the non-restrictive RC with the main clause is much looser.

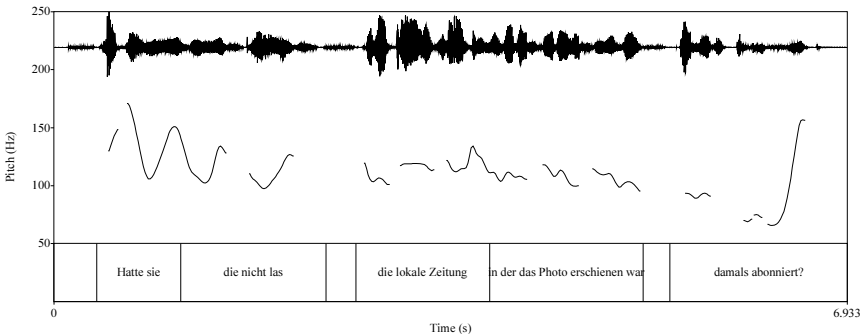


Figure 2: Pitch track of a non-restrictive RC: *Hatte sie, die nicht las, die lokale Zeitung, in der das Foto erschienen war, damals abonniert?* ('Had she, who could not read, subscribed to the local paper in which the photo appeared?')

There are a few exceptions to the generalization that a non-restrictive RC is separated by a break or a boundary tone from its antecedent, whereas a restrictive RC is not. Some instances of restrictive RCs that show prosodic separation can be categorized as contrastive. They have an accented determiner as their antecedent, as in *Es wurden DIE zurückgeschickt, die bei der Arbeit in der Fabrik nicht mehr eingesetzt werden konnten* 'It was THOSE who could no longer perform useful work in the factory that were sent back'. In such a sentence, the women who could no longer perform useful work in the factory are identified by the restrictive RC and are contrasted with those who still could. The only instance of a non-restrictive RC that shows prosodic integration takes a proper name as its antecedent and the entire RC can be considered as given. It is provided below:

- (58) Wie sollte **Hanna, die** nicht Englisch sprach, VC
 how could Hanna who not English spoke
 in Amerika leben?
 in America live
 'How could Hanna, who spoke no English, live in America?'

We also examined 23 extraposed RCs of the *Vorleser Corpus*, 10 restrictive and 13 non-restrictive. We refrain from describing them in any detail, as they do not differ much from what was described for the non-extraposed RCs.

Turning next to the *Lindenstraße Corpus*, the task of identifying properties applying to non-restrictive and restrictive RCs in general is much harder (cf. the problems mentioned in the introduction). We analyzed 9 non-restrictive RCs, 20 restrictive ones, and 8 extrapositions. We first describe one representative non-restrictive RC. (59) describes a scene and is typical for this corpus.

- (59) Ja, das ist dann eigentlich **die Endszene, wo** LC
 yes, this is then in-fact the final.scene where
 sie alle schon besoffen sind und ...
 they all already drunk are and ...
 'Yes, it is in fact the final scene, in which all of them are already drunk and ...'

The RC follows the main clause, which ends with a falling contour, signaling the end of a proposition. The following RC is lower in pitch: it is altogether in a compressed pitch range relative to the main clause. Each clause has a final nucleus. As shown above with (56), this is interpreted as signaling the end of an intonation phrase. The following RC forms a second intonation phrase.

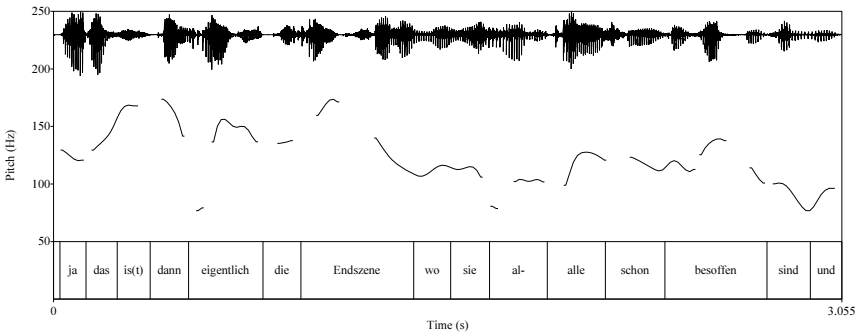


Figure 3: Pitch track of a non-restrictive RC: *Ja, das ist dann eigentlich die Endszene, wo sie alle schon besoffen sind und ...* ('Yes, it is in fact the final scene, in which all of them are already drunk and ...')

Consider next a restrictive RC. In (60), the RC is adjacent to its antecedent, the subject of the sentence. It is the only part of the sentence which is not included in the downstep contour.

- (60) aber **das Ei**, was er zerdrückt, das zerdrückt er LC
 but the egg what he crushes that crushes he
 dann demonstrativ in der Hand, und dann ...
 then demonstratively in the hand and then
 'The egg that he crushes, he crushes it demonstratively in his hand,
 and then ...'

There is no break before or after the RC, and there is also no falling tone on the part of the main clause preceding the RC or on the RC itself. Instead, both parts have a rising tone, and a smaller prosodic break.

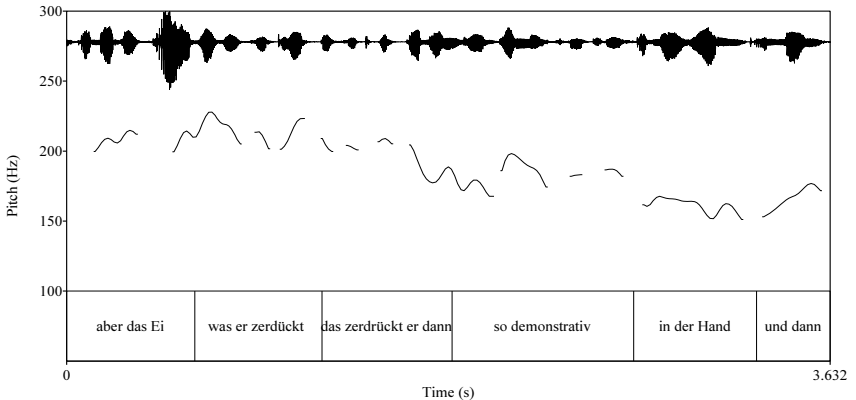


Figure 4: Pitch track of a restrictive RC: *aber das Ei, was er zerdrückt, das zerdrückt er dann demonstrativ in der Hand, und dann ...* ('The egg that he crushes, he crushes it demonstratively in his hand, and then ...')

The eight extraposed sentences are half restrictive and half non-restrictive. Two in each group are realized with a compressed register, and thus as typical after-thoughts.

To sum up the results of this section, prototypical features of restrictive and non-restrictive RCs, as described in Schubö et al. (2014), are present in the two corpora. Non-restrictive RCs are prosodically separate from the matrix clause more often than restrictive RCs.

4 Minor structures

This section deals with phenomena that are somehow peripheral to RCs. This is why we call them ‘minor structures.’ They are unequally distributed across the different corpora, i.e. they exhibit register-specific properties. One case in point is what may be called a verb-second RC (Gärtner 2001).¹⁶ It occurs in the *Lin-denstraße Corpus*:

- (61) der hat doch **'nen Mitbewohner, der** ist schwul LC
 he has but a roommate who/he is gay
 ‘But he has a roommate, who/he is gay.’

Contrary to ordinary RCs in German, the copular verb *ist* ‘is’ immediately follows the pronoun of the second clause *der ist schwul* ‘who/he is gay’. Since verb-second word order is a characteristic of German root clauses (cf. Truckenbrodt 2006), it might be argued that (61) is paratactically attached to the matrix clause. However, the prosodic analysis points in a different direction: both clauses of (61) end with a falling nuclear accent. The first intonation phrase does not quite reach the bottom of the speaker’s register but rather ends at mid-level. We assume that this strategy is used for a tighter cohesion between the two clauses, i.e. the verb-second clause of (61) is intonationally integrated into the first clause.

¹⁶ The term *verb-second RC* is used descriptively here. Examples like (61) are not RCs in the strict sense. What looks like a German RC pronoun at first glance turns out not to be one. This becomes clear when one considers examples with pronouns that are not homophonous with weak demonstratives (from Gärtner 2001): **Es gibt Länder, wo das Bier kostet ein Vermögen* vs. *Es gibt Länder, da kostet das Bier ein Vermögen* ‘There are countries where/there the beer costs a fortune’. In German, RC pronouns modifying a location differ in form from demonstrative pronouns with the same function (*wo* vs. *da*, respectively). Crucially, only the demonstrative *da* is acceptable in connection with verb-second word order, as is shown by the contrast between the two examples above. Nevertheless, we stick to the term *verb-second RC* because it has become familiar and ubiquitous.

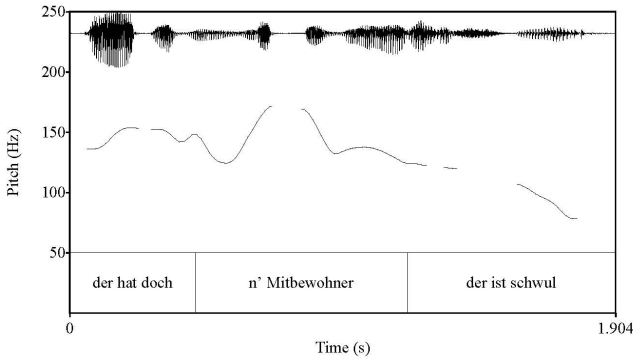


Figure 5: Pitch track of a verb-second RC: *der hat doch einen Mitbewohner, der ist schwul.* ('But he has a roommate, who/he is gay.')

The exact status of integrated verb-second clauses is difficult to determine. Initially, they were regarded as being restrictive. This assumption was motivated by examples like the following (from Gärtner 2001):

- (62) Das Blatt hat eine Seite, die ist ganz schwarz.
 the sheet has one side which/it is completely black
 'The sheet has one side which/it is completely black.'

The whole sentence would be odd under a non-restrictive reading because a sheet of paper always has two sides. However, the example of the *Lindenstraße Corpus* behaves differently from (62). The clause *der ist schwul* 'who/he is gay' belongs to the non-restrictive type. There are only two persons sharing the flat, and the first pronoun *der* 'he' refers to one of them, so there is only one possible referent left for the anchor noun *'nen Mitbewohner* 'a roommate'. The observation that verb-second RCs can have not only restrictive functions is in accordance with more recent studies (Ebert et al. 2007).

Resumptive pronouns provide an example of a form that is specific to the literary language of the *Vorleser Corpus*:

- (63) Sie fanden das Verfahren, das Urteil und auch VC
 they found the trial the judgment and too
sich, die sie zur Verkündung des Urteils
 REFL who they to.the announcement of.the verdict
 gekommen waren, von Hanna verhöhnt.
 came were from Hanna ridiculed
 'They felt that Hanna was ridiculing the trial, the verdict, and themselves, they who had come to hear the verdict read out.'

The sentence becomes unacceptable without the resumptive pronoun *sie* 'they'. This is unexpected because only first and second person pronominal anchors (*ich, du* 'I, you') demand the presence of resumptives in German, according to Ito & Mester (2000). One way to account for the obligatoriness of the resumptive strategy is to assume that (63) lacks a suitable anchor. Due to its reflexive

nature, the pronoun (*sich*) cannot be modified by the RC without the additional presence of *sie*.¹⁷ Another possibility is that the RC in (63) is extraposed from the sentence-initial subject pronoun, i.e. *sie* ‘they’ would be modified. Under this view, the resumptive pronoun could help to keep track of a long-distance dependency.

As a last point in this section, elements that introduce RCs are addressed. As has often been observed, there is inter- and intra-language diversity of the left periphery in RCs (e.g. Brandner 2012). Standard German clearly prefers *d*-pronouns as introductory elements. Unsurprisingly, the overall amount of *d*-pronouns used in the literary style of the *Vorleser Corpus* reaches almost 81%. 57% of the RCs are introduced by a bare *d*-pronoun. Another 24% begin with a *d*-pronoun preceded by a preposition.

Introductory element	Example	Quantity	%
<i>d</i> -	Die Frau, die sich meiner annahm, tat es fast grob. the woman who REFL mine took.care did it almost rudely 'The woman who helped me did it almost rudely.'	285	56.8
Preposition + <i>d</i> -	Der Hauseingang, durch den die Frau mich in den Hof the entryway through which the woman me in the courtyard zum Wasserhahn geführt hatte, war der Nebeneingang. to.the tap led had was the side.entrance 'The entryway through which the woman had led me to the tap in the courtyard was the side entrance.'	118	23.5
<i>was</i>	Aber das Handeln vollzieht nicht einfach, was davor But the behavior enacts not merely what before.then gedacht und entschieden wurde. thought and decided has.been 'But behavior does not merely enact whatever has already been thought through and decided.'	82	16.3
<i>wo</i>	[...]und wo im Geländer die Stäbe fehlten, waren Schnüre [...]and where in.the banister the bars missed were strings gespannt. stretched '[...] and bits of strings had been stretched across the gaps in the banisters.'	12	2.4

¹⁷ An anonymous reviewer wondered why a reflexive pronoun is unsuited as anchor for non-restrictive RCs. Since reflexives are a complex and controversial topic, we can only give a very tentative answer. We would suggest that the conditions non-restrictive RCs place on their antecedents are decisive. Reflexive pronouns do not have the same syntactic and semantic status as non-reflexive ones. According to the ‘intransitivity hypothesis,’ reflexives have no argument status at all (Sells et al. 1987), and according to Büring (2005: 43) they possibly are non-referring expressions. Non-restrictive RCs, however, generally attach to anchor nouns that are inherently referential (see Sells 1985 for some notable exceptions). Crucially, it is not enough that a suitable antecedent could be derived from the broader context. Consider the following contrast: #*Es stimmt nicht, dass auf der Party keine Braut war, die sich nur unauffällig verhalten hat* vs. *Es stimmt nicht, dass auf der Party keine Braut war. Die hat sich nur unauffällig verhalten*. ‘It is not true that there was no bride at the party who just maintained a low profile/she just maintained a low profile’. Because the double negatives cancel each other out (*nicht ... keine Braut = eine Braut*), a discourse referent should be available, and the pronoun of the paratactic sequence can in fact make use of it. The pronoun of the non-restrictive RC, however, has no access to this discourse referent. This suggests that non-restrictive RCs pose a formal condition on their antecedents.

Introductory element	Example	Quantity	%
<i>womit</i>	Ich habe keine Erinnerung daran, womit ich gerade I have no memory at.it with.what I at.the.moment beschäftigt war, als ich aufblickte und sie sah. doing was when I looked.up and she saw 'I can't remember what it was I was doing when I looked up and saw her.'	2	0.4
<i>wovon</i>	Nicht wegen der Anklage, der Schwere des Vorwurfs und not because.of the charge the gravity of.the allegation and der Stärke des Verdachts, wovon ich noch gar nichts the force of.the evidence of.which I yet PTCL nothing Genaueres wusste, sondern weil sie in der Zelle raus aus real knew but because she in the cell out of meiner Welt, raus aus meinem Leben war. my world out of my life was 'Not because of the charges, the gravity of the allegations, or the force of the evidence, of which I had no real knowledge yet, but because in the cell she was out of my world, out of my life.'	1	0.2
<i>wessen</i>	Aber ich meinte, und alle Besucher meinten, sie vor uns but I believed and all spectators believed she before us zu haben, die Uniform, die Frau, die in ihr für die SS to have the uniform the woman who in it for the SS arbeitete, die alles das tat, wessen Hanna angeklagt war. worked who all that did of.which Hanna accused was 'But I believed, and the spectators all believed, that before us we were seeing that uniform, and the woman who had worked for the SS in it, and had done all the crimes Hanna was accused of doing.'	1	0.2
Total		502	100

Table 9: Introductory elements for RCs in the *Vorleser Corpus*

As can be seen in the table above, 82 RCs begin with *was* 'what' and hence do not belong to the *d*-series. Almost half of them occur together with free relatives, which predominantly take *w*-elements in Standard German. 30.5% of the RCs introduced by *was* have their anchor realized with a definite article, and another 15.8% with certain indefinites such as *nichts* 'nothing', *etwas* 'something', or *alles* 'everything'. RCs that modify a whole proposition can only be formed with *w*-elements in German. There are just a few of them in the *Vorleser Corpus*. The table below provides examples of all types of *was* RCs.

Anchor	Example	Quantity	%
None (free relative)	Meine Brille war ein billiges Kassenmodell und mein my glasses was a cheap over.the.counter.pair and my Haar ein zauser Mop, ich konnte machen, was ich wollte. hair a tangled mop I could do what I wanted 'My glasses were a cheap over-the-counter pair and my hair a tangled mop, no matter what I did.'	38	46.3
Definite	Sie schaute nicht verärgert, nicht verwundert, nicht she looked not annoyed not surprised not spöttisch – nichts von dem , was ich befürchtet hatte. mocking none of that what I feared had 'She didn't look annoyed, or surprised, or mocking – none of the things I had feared.'	25	30.5

Anchor	Example	Quantity	%
Indefinite	Aber da war nichts , was mich ausgefüllt und abgelenkt but there was nothing what me occupied and distracted hätte; had 'But I had nothing else to occupy or distract me;'	13	15.8
Preposition	Sie sah mich an, als habe sie alles verstanden oder als she looked me at as.if had she all understood or as.if komme es nicht darauf an, was man versteht und mattered it not at.it PTCL what you understands and was nicht. what not 'She looked at me as though she had understood it all, or as if it didn't matter whether anything was understandable or not.'	3	3.7
Proposition	Meine jüngere Schwester trampete manchmal, was my younger sister hitched sometimes what meine Eltern nicht billigten. my parents not approved 'My younger sister sometimes hitched a ride, but my parents disapproved.'	3	3.7
Total		82	100

Table 10: Relatives introduced by *was* in the *Vorleser Corpus*

Turning to the 12 occurrences of RCs introduced by *wo* 'where', it must be observed that this word is generally used for the specification of a location:

- (64) Dort verbrachte ich die Nachmittage **an einer** V
there spent I the afternoons at a
abgelegenen Stelle, wo mich niemand suchte.
remote place where me no.one searched
'I spent the afternoons at a remote place, where no one searched for
me.'

There is only one instance of a *wo* RC in the *Vorleser Corpus* that has a temporal instead of a local meaning:

- (65) Sie mochte nicht einmal bis **Ostern** denken, VC
she wanted not even as.far.as Easter think
wo ich mit ihr in den Ferien mit dem
where I with her in the vacation with the
Fahrrad wegfahren wollte.
bicycle drive.away wanted
'She did not even want to think as far as Easter, where I wanted to go
away with her on a bicycle trip during the vacations.'

This supports the view that even in Standard German *wo* may be interpreted with a local as well as with a temporal meaning.¹⁸ We can therefore conclude that all introductory elements of the *Vorleser Corpus* lie within the range of

¹⁸ Compare the entry for *wo* in the German standard dictionary *Duden* (to be found online at http://www.duden.de/rechtschreibung/wo_Fragewort_Relativpronomen).

variability that is usually estimated for the left periphery of RCs in Standard German. By contrast, the *Lindenstraße Corpus* has some notable deviations, to which we will turn next. Consider the following overview, which summarizes all introductory elements for RCs we found in the *Lindenstraße Corpus*:

Introductory Element	Example	Quantity	%
<i>d-</i>	Das waren also so Teile, die auch aus älteren, these were also such parts which too from older Folgen glaub ich, waren. episodes believe I were 'These were scenes that were also from older episodes, I believe.'	24	30.4
Preposition + <i>d-</i>	Kennst du die Folge, in der Käthe dem türkischen know you the episode in which Käthe the Turkish Doktor an die Wäsche will? doctor at the underwear wants 'Do you know the episode in which Käthe makes a pass at the Turkish doctor?'	2	2.5
<i>was</i>	Dann dachte ich, das wäre vielleicht etwas, was then thought I this would.be maybe something what hiermit zu tun hätte. with.this to do had 'Then I thought this might be something related to this.'	11	13.9
<i>wo</i>	Und denn gibt's halt denn noch mal so 'nen Schnitt, and then there.is PTCL then again PTCL such a cut wo denn der Papa denn kommt und sagt [...]. where then the father then arrives and says [...] 'And then there is an additional cut when the father arrives and says [...].'	32	39.2
<i>womit</i>	[...] als er gesagt hat: „Ich bin nicht easy.“ Womit [...] when he said had I am not easy with.what er vollkommen recht hat. he absolutely right is '[...] when he said: "I am not relaxed." And he is absolutely right about that.'	1	1.3
<i>wie</i>	Bei mir war die Szene, wie er aufbricht grade mit with me was the scene how he leaves just.now with seiner Taucherbrille. his diving.goggles 'I had the scene where he leaves with his diving goggles on.'	5	6.3
<i>dass</i>	Und denn ist die Szene, dass er in der Küche steht. and then is the scene that he in the kitchen stands 'And then there is the scene where he is standing in the kitchen.'	5	6.3
Total		80	100

Table 11: Introductory elements for RCs in the *Lindenstraße Corpus*

As can be seen, *d*-pronouns are not predominantly used to introduce RCs in this corpus. The most frequent element is *wo* (39.2%) instead. The *d*-series, which is typical for Standard German, accounts for only about a third of all relatives produced in spontaneous speech. This is considerably less than the 81% in the *Vorleser Corpus*. The use of a preposition combined with a *d*-pronoun is nearly

absent in the *Lindenstraße Corpus*, whereas this is rather common in the literary text (23.5%, cf. table 9).

There does not seem to be a clear restriction on the contexts in which *wo* is used in the *Lindenstraße Corpus*. There is only one instance where the typical local meaning is unambiguously present:

- (66) *wo* der Schwiegervater sozusagen ihn da findet LC
 where the father.in.law so.to.say him there finds
im Stall, wo er total betrunken schmutzige
 in.the stable where he completely drunk dirty
 Lieder singt.
 songs sings
 ‘where the father-in-law finds him in the stable, where he, being completely drunk, is singing dirty songs.’

All other RCs introduced by *wo* have – either directly or, in case of free RCs, deducible from the context – *Szene* ‘scene’ as their anchor.¹⁹ Because of its wide distribution, one may be tempted to regard *wo* as the non-standard equivalent of the *d*-pronouns. In contrast to them, *wo* is morphologically unmarked, i.e. it does not provide any information on case, number or gender. However, notice that *Szene* has a spurious status, with a large spectrum of interpretations, typical for colloquial German. Consider the sentence in (67), in which *Szene* is modified by a clause introduced by the complementizer *dass* ‘that’:

- (67) **die Szene, dass** er in der Küche steht LC
 the scene that he in the kitchen stands
 ‘the scene in which/where he is standing in the kitchen’

While there are nouns like *Behauptung* ‘claim’ that select *dass* complement clauses in Standard German, *Szene* does not belong to this group. The remarkable variety of elements that many speakers of the *Lindenstraße Corpus* apply to *Szene* is further demonstrated by examples with the manner adverb *wie* ‘how’ as in (68):

- (68) Bei mir war **die Szene, wie** er aufbricht grade LC
 with me was the scene how he leaves just.now
 mit seiner Taucherbrille.
 with his diving.goggles
 ‘I had the scene where he leaves with his diving goggles on.’

All in all, the data of the *Lindenstraße Corpus* are too fragmentary and ambiguous to allow a more detailed analysis of the respective introductory elements.

¹⁹ The frequent use of this word in the *Lindenstraße Corpus* has already been explained in the introduction.

5 Conclusion

This corpus study compared RCs of a colloquial language register (represented by the *Lindenstraße Corpus*) and a literary language register (represented by the *Vorleser Corpus*) in German. Regarding the grammatical function of the relative pronoun (subject, object) and its interplay with the grammatical function of the antecedent, the findings are rather similar to those of previous studies.

An important quantitative difference between the two corpora lies in the morphological form of elements that introduce RCs. 81% belong to the Standard German *d*-series in the *Vorleser Corpus*. In the *Lindenstraße Corpus*, *w*-forms, which are marginal in Standard German, are predominant. The result (although it must be treated with caution as it is based on a small data set) is interesting with regard to the lively discussion on the grammatical status of relative pronouns (see e.g. Wiltschko 1998). There is variation not only between standard and dialectal registers but also between closely related languages (e.g. *s*-forms as relative introducers in the Scandinavian languages (cf. Brandner 2012)).

As for prosody, it can be concluded that non-restrictive RCs are generally separated by a break or a boundary tone from their antecedent, whereas restrictive RCs are less often so. The result is important in itself since previous analyses of corpora have questioned the hypothesis that (non-)restrictiveness is reflected in prosody. The corpora do not support these doubts, although it must also be noted that a quantitative analysis has not yet been performed, and that the prosody of the *Lindenstraße Corpus* is very unstable.

The study also contributes to the discussion on the status of multiple RCs (stacking). The existing literature disagrees on whether consecutive restrictive RCs have a different structure from non-restrictive ones. The data from the *Vorleser Corpus* suggests that both types should be analyzed as asyndetic coordination.

References

- Arnold, Doug (2007): Non-restrictive relatives are not orphans. In: *Journal of Linguistics* 43.2, 272–309.
- Bach, Emmon (1974): *Syntactic theory*. New York: Holt.
- Birkner, Karin (2008): *Relativ(satz)konstruktionen im gesprochenen Deutsch. Syntaktische, prosodische, semantische und pragmatische Aspekte*. Berlin: de Gruyter.
- Brandner, Ellen (2012): *Relative 'wo': Only a complementizer?* Talk in the DFG Research Unit 'Relative Clauses', Goethe-University Frankfurt.
- Brandt, Margareta (1990): *Weiterführende Nebensätze*. Stockholm: Almqvist & Wiksell.
- Büring, Daniel (2005): *Binding theory*. Cambridge: Cambridge University Press.
- Cinque, Guglielmo (1999): *Adverbs and functional heads*. Oxford: Oxford University Press.
- Ebert, Christian, Cornelia Endriss & Hans-Martin Gärtner (2007): An information structural account of German integrated verb second clauses. In: Frank Richter & Martin Sailer (eds.), *Special issue on semantic compositionality of the Journal of Research on Language and Computation* 5.4, 415–434.

- Ernst, Thomas (2002): *The syntax of adjuncts*. Cambridge: Cambridge University Press.
- Fabricius-Hansen, Cathrine (2009): Überlegungen zur pränominalen Nicht-Restriktivität. In: *Linguistische Berichte Sonderheft* 16, 89–112.
- Féry, Caroline (2011): German sentence accents and embedded prosodic phrases. In: *Lingua* 121.13, 1906–1922.
- Frosch, Helmut (1995): Appositive und restriktive Relativsätze. In: *Sprachtheorie und germanistische Linguistik* 2, 7–19.
- Gärtner, Hans-Martin (2001): Are there V2 relative clauses in German? In: *Journal of Comparative Germanic Linguistics* 3.2, 97–141.
- Hamburger, Henry & Stephen Crain (1982): Relative acquisition. In: Stan Kuczaj (ed.), *Language development (vol. II)*. Hillsdale, NJ: Lawrence Erlbaum, 245–274.
- Hartmann, Dietrich (1978): Verschmelzungen als Varianten des bestimmten Artikels? In: Dietrich Hartmann, Hansjürgen Linke & Otto Ludwig (eds.), *Sprache in Gegenwart und Geschichte. Festschrift für Heinrich Matthias Heinrichs zum 65. Geburtstag*. Köln: Böhlau, 68–81.
- Haspelmath, Martin (2007): Coordination. In: Timothy Shopen (ed.), *Language typology and syntactic description (vol. II): Complex constructions*. Cambridge: Cambridge University Press, 1–51.
- Hawkins, John A. (1994): *A performance theory of order and constituency*. Cambridge: Cambridge University Press.
- (2004): *Efficiency and complexity in grammars*. Oxford: Oxford University Press.
- Holler, Anke (2005): *Weiterführende Relativsätze. Empirische und theoretische Aspekte*. Berlin: Akademie Verlag.
- Ito, Junko & Armin Mester (2000): “Ich, der ich sechzig bin”: An agreement puzzle. In: Sandy Chung, Jim McCloskey & Nathan Sanders (eds.), *The Jorge Hankamer WebFest*. Online: [<http://babel.ucsc.edu/Jorge/>].
- Jackendoff, Ray (1977): *X-bar syntax*. Cambridge, MA: MIT Press.
- Jasinskaja, Ekaterina (2007): *Pragmatics and prosody of implicit discourse relations: The case of restatement*. PhD dissertation, University of Tübingen.
- Kaland, Constantijn & Vincent J. van Heuven (2010): The structure-prosody interface of restrictive and appositive relative clauses in Dutch and German. In: *Speech Prosody* 2010, 1–4.
- Kas, Bence & Ágnes Lukács (2012): Processing relative clauses by Hungarian typically developing children. In: *Language and Cognitive Processes* 27.4, 500–538.
- Keenan, Edward L. (1975): Variation in universal grammar. In: Ralph W. Fasold & Roger W. Shuy (eds.), *Analysing variation in language*. Washington: Georgetown University Press, 136–148.
- Keenan, Edward L. & Bernard Comrie (1977): Noun phrase accessibility and universal grammar. In: *Linguistic Inquiry* 8.1, 63–99.
- Keenan, Edward L. & Sarah Hawkins (1987): The psychological validity of the accessibility hierarchy. In: Edward L. Keenan (ed.), *Universal grammar: Fifteen essays*. London: Croom Helm, 60–85.
- Kempson, Ruth (2003): Nonrestrictive relatives and growth of logical form. In: Gina Garding & Mimura Tsujimura (eds.), *WCCFL 22: Proceedings of the 22nd West Coast conference on formal linguistics*. Somerville, MA: Cascadilla Press, 301–314.
- Lehmann, Christian (1984): *Der Relativsatz: Typologie seiner Strukturen, Theorie seiner Funktionen, Kompendium seiner Grammatik*. Tübingen: Narr.
- McCawley, James D. (1998): *The syntactic phenomena of English (2nd edition)*. Chicago: The University of Chicago Press.

- Morzycki, Marcin (2008): Nonrestrictive modifiers in nonparenthetical positions. In: Louise McNally & Christopher Kennedy (eds.), *Adverbs and adjectives: Syntax, semantics and discourse*. Oxford: Oxford University Press, 101–122.
- Riemsdijk, Henk van (2006): Free relatives. In: Martin Everaert & Henk van Riemsdijk (eds.), *The Blackwell companion to syntax (vol. II)*. Oxford: Blackwell, 338–382.
- Riester, Arndt (2012): *To restrict is to focus*. Talk presented at the workshop ‘Semantic and pragmatic properties of (non)restrictivity’. Stuttgart, March 19th–20th.
- Sæbø, Kjell Johan (2011): Appositives in modal contexts. In: Ingo Reich, Eva Horch & Dennis Pauly (eds.), *Sinn und Bedeutung 15. Proceedings of the 2010 annual conference of the Gesellschaft für Semantik*. Saarbrücken: Universaar, 79–100.
- Sauerland, Uli & Edward Gibson (1998): *Case matching in relative clause attachment*. Paper presented at the 11th annual CUNY sentence processing conference. Rutgers University, New Brunswick.
- Schachtel, Stefanie (1992): Zur Distribution des attributiven Relativsatzes im Deutschen. In: *Linguistische Berichte* 142, 437–450.
- Schaffranietz, Brigitte (1999): *Relativsätze in aufgabenorientierten Dialogen: funktionale Aspekte ihrer Prosodie und Pragmatik in Sprachproduktion und Sprachperzeption*. PhD dissertation, Universität Bielefeld.
- Schubö, Fabian et al. (2014): *Experimental investigations on the prosodic realization of restrictive and appositive relative clauses in German*. Submitted ms, Goethe-University Frankfurt.
- Schwarz, Florian (2009): *Two types of definites in natural language*. PhD dissertation, UMass Amherst.
- Sells, Peter (1985): *Restrictive and non-restrictive modification*. Technical report CSLI-85-28, Stanford University.
- Sells, Peter, Anni Zaenen & Draga Zec (1987): Reflexivization variation: Relations between syntax, semantics, and lexical structure. In: Masayo Lida, Stephen Wechsler & Draga Zec (eds.), *Working papers in grammatical theory and discourse structure: Interactions of morphology, syntax, and discourse*. Stanford: CSLI Publications, 169–238.
- Sheldon, Amy (1974): The role of parallel function in the acquisition of relative clauses in English. In: *Journal of Verbal Learning and Verbal Behavior* 3, 271–281.
- Stechow, Arnim von (1980): Modification of noun phrases. A challenge for compositional semantics. In: *Theoretical Linguistics* 7, 57–110.
- Sternefeld, Wolfgang (2008): *Syntax. Eine morphologisch motivierte generative Beschreibung des Deutschen (Band I)*. Tübingen: Stauffenburg.
- Stockwell, Robert P., Paul Schachter & Barbara Partee (1973): *The major syntactic structures of English*. New York: Holt.
- Strunk, Jan (2007): *Extraposition mythbusting*. Talk at the Stanford syntax workshop. March 13th, 2007. Online [\[http://www.linguistics.rub.de/~strunk/ExtrapositionMythBusting.pdf\]](http://www.linguistics.rub.de/~strunk/ExtrapositionMythBusting.pdf).
- Stump, Gregory T. (1976): On the interpretation of two-headed stacked relative clauses. In: *Kansas Working Papers in Linguistics (vol. 1)*, 1–16.
- Truckenbrodt, Hubert (2006): On the semantic motivation of syntactic verb movement to C in German. In: *Theoretical Linguistics* 32.3, 257–306.
- (2007): The syntax-phonology interface. In: Paul de Lacy (ed.), *The Cambridge handbook of phonology*. Cambridge: Cambridge University Press, 435–456.
- Umbach, Carla (2006): Non-restrictive modification and backgrounding. In: *Proceedings of the ninth symposium on logic and language*. Online [\[http://www.nytud.hu/lola9/proceedings/umbach.pdf\]](http://www.nytud.hu/lola9/proceedings/umbach.pdf).
- Vries, Mark de (2002): *The syntax of relativization*. PhD dissertation, University of Amsterdam.

- Wiltschko, Martina (1998): On the syntax and semantics of (relative) pronouns and determiners. In: *Journal of Comparative Germanic Linguistics* 2.2: 143–181.
- Ziv, Yael & Peter Cole (1974): Relative extraposition and the scope of definite descriptions in Hebrew and English. In: Michael W. La Galy, Robert A. Fox & Anthony Bruck (eds.), *Papers from the tenth regional meeting of the Chicago linguistic society, April 19–21*. Chicago: Chicago Linguistic Society, 772–786.

Frankfurt am Main

Tim Hirschberg, Carolin Reinert,
Anna Roth & Caroline Féry

Zentrum für Allgemeine Sprachwissenschaft, D-10117 Berlin

E-Mail: hirschberg@zas.gwz-berlin.de

Goethe-Universität Frankfurt, Institut für Linguistik, D-60629 Frankfurt am Main

E-Mail: caro.reinert@web.de, a.roth.unifrankfurt@gmail.com, caroline.fery@gmail.com