Right Dislocation and Afterthought in German – Investigations on Multiple Levels

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This list only covers abbreviations that are not commonly established. Abbreviations relating to gender and case, for example, will not be explained in this index.

AF	Außenfeld
$\overline{\text{AF}}$	non-argument function in LFG
ADJ	adjunct in LFG
AM	autosegmental-metrical
AT	afterthought
ATa	AT with "also" as cue phrase
ATb	AT without cue phrase
ATm	AT with "meine ich" as cue phrase
BG	background
C	consonant
C	comment
Cb	backward-looking centre
Cf	forward-looking centre
CF	complement function
CG	common ground
COMPL	complement in LFG
CP	Complementizer Phrase
Cp	preferred centre
CRC	collaborative research centre
c-structure	constituent structure in LFG
CT	Centering Theory
CT	comment-topic
DF	discourse function in LFG
DIMA	Deutsche Intonation - Modellierung und Annotation
DP	Determiner Phrase
DT	discourse topic
EP	extraposition
F	focus
f0	fundamental frequency

FL	final lengthening
FOC	focus function in LFG
FP	functional projection
f-structure	functional structure in LFG
FT	free topic
GG	Generative Grammar
GToBI	German Tone and Break Indices
H	high
HL	falling sequence of tones (high-low)
HT	hanging topic
Hz	Hertz
ip	intermediate Phrase
IP (prosody)	Intonation Phrase
IP (syntax)	Inflectional Phrase
K16	Kalbertodt (2016)
KB15	Kalbertodt & Baumann (2015)
KB17a	Kalbertodt & Baumann (2017a)
KB17b	Kalbertodt & Baumann (2017b)
KPS15	Kalbertodt, Primus, Schumacher (2015)
L	low
LD	left dislocation
LFG	Lexical Functional Grammar
LH	rising sequence of tones (low-high)
LSK	linke Satzklammer
MF	Mittelfeld
ms	milliseconds
NF	Nachfeld
NP	Noun Phrase
OBJ	grammatical object in LFG
OBJ_θ	grammatical genetive object in LFG
OBL_θ	prepositional object (oblique) in LFG
O_{dir}	direct object
O_{in}	indirect object
PF	phonological form

PP	Prepositional Phrase
PRED	predicate in LFG
Q	questionnaire
QUD	Question Under Discussion
RC	relative clause
RD	right dislocation
RDproto	prototypical RD
RDstyle	stylised RD
RSK	rechte Satzklammer
S	sentence
sec	second
similar-to-NF	constructions similar to the Nachfeld
SPEC	specifier in LFG
ST	sentence topic
st	semitones
SUBJ	grammatical subject in LFG
Subj	grammatical subject
syl	syllable
t	trace in GG
T	topic
TC	topic-comment
TOP	topic function in LFG
V	vowel
V1	verb occupying sentence initial position
V2	verb is second constituent within sentence
VF	Vorfeld
V-last	verb occupying sentence final position
VP	Verbal Phrase
XP	catch term for all syntactic phrases

1 Introduction

When investigating the right sentence periphery in German, two constructions are encountered that appear to be rather similar: right dislocation and afterthought.

(1) Right dislocation and afterthought

a. Ich mag ihn, den Kuchen. (right dislocation)

b. Ich mag ihn. Den Kuchen. (afterthought)

Irrespective of this superficial similarity, right dislocation and afterthought can be distinguished at multiple levels of linguistic description. They differ with respect to their information structural features, their degree of syntactic integratedness, their prosodic realisation, and their punctuation in written language. As a consequence, this thesis focusses on right dislocation and afterthought, and on the distinctive features that characterise them. In order to emphasise why this is a relevant issue, we will begin with a brief introduction to the description of German syntax.

In German, there are three fixed positions for the verb, referred to as V1, where the verb is the first constituent of a sentence, V2, in which the verb is the second constituent, and V-last, where the verb is the last constituent of a sentence. V1 is usually employed in polar questions and imperatives, V2 is used in wh-questions and declarative main clauses, and V-last is the structure used in subordinate clauses (and also polar questions). Examples are given in (2), where the verb is underlined; (2a) displays V1-structure, example (2b) shows V2-order, and example (2c) displays V-last.

(2) Different verb positions in German

a. Steht mir das Kleid?
   'Does this dress look good on me?'

b. Das Kleid steht dir.
   'This dress looks good on you.'

c. Ich finde, dass dir das Kleid steht.
   'I think this dress looks good on you.'

On the basis of this observation, the traditional topological model of German syntax[1] decribes German as employing a so-called *Satzklammer* ('sentential bracket'), which surrounds the *Mittelfeld*. The sentential bracket forms a left part (*linke Satzklammer*) and a right part (*rechte Satzklammer*); the left bracket does not only permit finite verb forms but also complementizers, as e.g. 'dass' ('that').

In addition to these positions, a field in front of the left sentence bracket is postulated, the *Vorfeld*, which can only host one constituent. Further, a field after the right sentence bracket is assumed, the so-called *Nachfeld*. A description of the sentences in (2) that follows the topological model, is given in Table 1. Since example (2c) consists of two clauses, the analysis of this sentence is divided into two rows, one analysing the superordinate clause ("Ich finde, dass…"), the other describing the subordinate clause ("…dass dir das Kleid steht") in linear order.

Table 1: Applying the topological model to the sentences in (2).

Vorfeld	*linke Satzklammer*	*Mittelfeld*	*rechte Satzklammer*	*Nachfeld*
	Steht	mir das Kleid?		
Das Kleid	steht	dir.		
Ich	finde,			dass ... steht.
Ich finde, ...	dass	dir das Kleid	steht.	

The Nachfeld differs from the Vorfeld in two respects: first, it is not syntactically obligatory but only facultative (cf. e.g. ELSNER 2013:33); second, it may contain more than one constituent (cf. e.g. VINCKEL 2006:19), as exemplified in (3) and (4). In (3a), the sentence contains only one constituent, i.e. EIN HUND ('a dog'). In sentences (3b) and (3c), this constituent is extended, i.e. the dog is described in more detail, as being big and brown and also as having sharp teeth. However, all the additional description does not alter the fact that the verb is preceded by only one (nevertheless complex) constituent. Therefore, the first three sentences in (3) are well-formed. Only when a second constituent enters the Vorfeld, as in (3d), the sentence becomes ungrammatical (indicated by the asterisk).

[1] A brief description of this model will be given in chapter 3.3.2. Interested readers find a detailed introduction e.g. in Wöllstein ([2]2014).

(3) Occupancy of the Vorfeld

a. Ein Hund hat mich gestern angebellt.
   'A dog barked at me yesterday.'
b. Ein großer brauner Hund hat mich gestern angebellt.
   'A big brown dog barked at me yesterday.'
c. Ein großer brauner Hund mit scharfen Zähnen hat mich gestern angebellt.
   'A big brown dog with sharp teeth barked at me yesterday.'
d. *Ein Hund mich hat gestern angebellt.
   *'A dog me barked at yesterday.'

(4) Occupancy of the Nachfeld

a. Ich habe ein Buch gelesen von King.
   'I read a book by King.'
b. Ich habe ein Buch gelesen von King im Park.
   'I read a book by King at the park.'

In contrast to (3), the sentences in (4) are grammatical, irrespective of the number of constituents in the Nachfeld (indicated by different kinds of underlining). However, it seems that some constituents of the Nachfeld are more closely connected to the sentence than others, e.g. the constituent 'by King' as compared to the constituent 'at the park'.

In the traditional account to German syntax, the Vorfeld marks the left edge of a sentence, the right sentential bracket its right edge. A phenomenon that is not restricted to German are so-called *detachment* or *dislocation* constructions. Such constructions exhibit constituents at either the left or the right sentence periphery, i.e. before the Vorfeld or after the right sentential bracket (following the topological model). These constituents are coreferential to a resumptive pronoun within the 'core' (also 'matrix') sentence, i.e. to an element in the Vorfeld or the Mittelfeld.[2]

Besides the fact that the Vorfeld and the Nachfeld differ with respect to being obligatory or facultative, respectively, there is a further asymmetry: the left edge of sentences is rather well investigated, while a characterisation of the right edge has

[2] This terminology originated in a framework assuming syntactic movement. Since these terms are established and commonly used by researchers of this topic, I will use them in this work; however, their use is not bound to understanding dislocation constructions as involving movement. Syntactic analyses will be the topic of chapters 2.2 and 3.3.

long been neglected. A possible explanation for this lack of research is proposed by Zifonun (2015:25), who presumes that the reason for the late investigation of the right sentence periphery is due to the idea that German sentences have to end with the right sentential bracket. This argument is facilitated by Dalmas (1993:205) who explicitly states that she investigates elements outside the sentence.[3] As a result, constructions employing the Nachfeld have long been regarded as simple errors in speech performance, displaying a lack of planning ahead (cf. e.g. WEISS 1975:92). The first person who approached this topic in German systematically and did not merely view it as an error was Hans Altmann with his pivotal work *Formen der 'Herausstellung'* (1981). Since this point in time the attitude towards the right sentence periphery has slowly changed (e.g. Auer 1991, Selting 1994), but has gained more attention only in the past 15 years. More and more insights have recently been accumulated, indicating the need for further investigation.

At the left sentence periphery three different constructions have been identified: left dislocation (LD), hanging topic (HT), and free topic (FT). More detailed descriptions and analyses of German left peripheral constructions are provided, among others, in Jacobs (2001) and Dewald (2014). The constructions just mentioned differ with respect to their degree of syntactic integration.

(5) Constructions at the left sentence periphery

a. Die Maria, die/*sie hab ich gesehen. (LD)
   'Mary, I have seen her.'
b. Die Maria, sie hab ich gesehen. (HT)
   'Mary, I have seen her.'
c. Die Maria, ich hab sie/die gesehen. (HT)
   'Mary, I have seen her.'
d. Was Maria betrifft, ich hab sie gesehen. (FT)
   'Concerning Mary, I have seen her.'

[3] "Im folgenden Beitrag werde ich mich mit dem rechten Satzrand beschäftigen, genauer gesagt: mit den Elementen bzw. Gruppen, die nach der Letztstellung stehen (d.h. hinter der Grenze!)." (DALMAS 1993:205)

LD shows the tightest connection to its matrix sentence since it is characterised by the highest amount of constraints: only D-pronouns[4] are allowed for LD, and further, this pronoun has to be directly adjacent to the dislocated phrase (see (5a)). In contrast, HT also permits personal pronouns, and the resumptive pronoun of HT is not restricted with respect to its position within the core sentence (cf. (5b, c)). Lastly, FT is only loosely connected to the succeeding sentence, and employs frame-setting expressions (see (5d)).

A commonality to left peripheral structures is that the Nachfeld as a structural position cannot be understood as a single construction by itself, since there is no 1:1 mapping of form and function (cf. ELSNER 2013:32). Rather, there are many different constructions that may appear in the Nachfeld, resulting in the fact that the Nachfeld is commonly regarded as being 'polyfunctional' (cf. e.g. VINCKEL 2006:210); i.e. its function depends on the respective construction that is realised in it.

However, the categorisation of right peripheral structures themselves is apparently not as straightforward as the categorisation at the left edge. There is a huge amount of varying terms, resulting in a confusing terminology, since often the same term is used for different constructions, or a new term is introduced for a construction that has previously been described by another term.[5] In order to avoid such confusion, I will follow Elsner's (2013) distinction of constructions.

Elsner (2013:275ff) distinguishes six types of constructions that can appear at the right sentence periphery. In a first step, she differentiates between true constructions of the Nachfeld and constructions that are merely *nachfeld-ähnlich* ('similar to the Nachfeld'; in the following similar-to-NF). The difference between structures of the Nachfeld and similar-to-NF is the degree of syntactic integration: Nachfeld-structures are true constituents of the sentence whereas similar-to-NF do not constitute a part of the sentence to which they refer. Within each class, Elsner further identifies three constructions: *Ausklammerung* ('exclusion'), *"echte" Rechtsversetzung* ('true right dislocation'; RD), and *Extraposition* ('extraposition') are structures of the Nachfeld, whereas the similar-to-NF structures involve

[4] In this thesis, the term D-pronouns refers to the German demonstrative pronouns DER, DIE, DAS ('that') and DIESER, DIESES, DIESE ('that').

[5] For a detailed discussion of the terminology concerning constructions at the right sentence periphery, cf. e.g. Elsner (2013).

Reparatur-Nachtrag (‘repair addendum’), *Nachtrag* (‘addendum’) and *Einschübe* (‘parenthesis’).

Ausklammerung, in Elsner’s (2013) sense, means phrasal elements that appear in the Nachfeld but have their canonical position in the Mittelfeld (cf. example (6a) for the canonical order and (6a’) for Ausklammerung). Also in RD, a constituent that is canonically produced in the Mittelfeld is instead realised in the Nachfeld; however, in contrast to Ausklammerung, a resumptive pronoun occupies this constituent’s position inside the Mittelfeld (see (6b) for canonical order and (6b’) for an example of RD). Finally, the term extraposition refers to sentential elements in the Nachfeld; in contrast to the phrasal elements of Ausklammerung, the sentential elements of extraposition are unmarked in the Nachfeld but marked or even ungrammatical if realised in the Mittelfeld instead (cf. examples (6c) and (6c’), respectively). For an enhanced traceability, Nachfeld constituents in example (6) are underlined.[6]

(6) Constructions of the Nachfeld

a. Ich habe ein Geschenk für Maria gekauft.
   ‘I bought a present for Mary.’

a'. Ich habe ein Geschenk gekauft <u>für Maria</u>. (Ausklammerung)

b. Ich habe der Maria ein Geschenk gekauft.
   ‘I bought Mary a present.’

b'. Ich habe ihr ein Geschenk gekauft, <u>der Maria</u>. (RD)
   ‘I bought her a present, Mary.’

c. Ich habe gesagt, <u>dass es regnen wird</u>. (Extraposition)
   ‘I said that it’s going to rain.’

c'. *Ich habe dass es regnen wird gesagt.
   ‘I said that it’s going to rain.’

Examples for constructions that turn out to be merely similar-to-NF are given in (7). The Reparatur-Nachtrag (also referred to as *afterthought*; AT), according to

[6] An example for the terminological confusion regarding constructions at the right sentence periphery is provided by Frey (2015), who uses the term *Extraposition* to refer to phrasal elements in the Nachfeld (Ausklammerung in Elsner (2013)). A further example is Vinckel’s (2006) use of the term *Rechtsverschiebung* (‘right displacement’) to refer to the construction of Ausklammerung. This term is both semantically and phonetically extremely similar to the term of Rechtsversetzung (‘right dislocation’), commonly used for constructions employing a resumptive pronoun.

Elsner (2013:63), is an example for the fluent transition of the Nachfeld to similar-to-NF, as it is neither a true addendum nor a true constituent of the Nachfeld. In contrast to AT, an addendum forms an independent proposition (cf. ibid.:70). Finally, parenthesis may occur in a position after the right sentential bracket (cf. (7c)), although it is not bound to this position but may also occur inside the Mittelfeld; to be more precise, parenthesis is not a true part of the Mittelfeld but rather disrupts it (cf. (7c')).

(7) Similar-to-NF constructions

a. Ich habe ihr ein Geschenk gekauft. (Also) der Maria. (AT)
'I bought her a present. (Well) Mary.'

b. Ich habe ihr ein Geschenk gekauft, und zwar ein teures. (Addendum)
'I bought her a present, namely an expensive one.'

c. Ich habe ihr ein Geschenk gekauft – ich war eh gerade in der Stadt – und dann war ich essen. (Parenthesis)
'I bought her a present – I was in town anyway – and then I had lunch.'

c'. Ich habe ihr – ich war eh gerade in der Stadt – ein Geschenk gekauft.
'I bought her – I was in town anyway – a present.' (Parenthesis)

The reason why Elsner (2013) refers to the RD in example (6b') as a '*true*' RD is the similarity of this construction to the AT displayed in (7a). Due to their surface similarity, RD and AT have often been mixed in previous research and subsumed under the term RD, for instance in Weiss (1975), Altmann (1981) and Auer (1991). However, other researchers observed that RD and AT behave differently with respect to morpho-syntactic constraints and prosody, and hence proposed to distinguish these constructions (cf. e.g. Lambrecht (1981) for French, and Fretheim (1995) for Norwegian).

Recently, Averintseva-Klisch (2009) has proposed for German that RD and AT are distinct constructions at the right sentence periphery. However, Elsner (2013) criticises that, besides the fact that AT appears to be more versatile than RD, there are not many options to distinguish RD and AT except for their distinct prosodic realisations.[7] Indeed, categorisation of RD and AT often involves prosody, e.g. in

[7] "Viele der von Averintseva-Klisch vorgestellten Eigenschaften von Rechtsversetzung und Reparatur-Nachträgen überschneiden sich, sodass Reparatur-Nachträge lediglich ein wenig vielseitiger

Selting (1994)[8] or, more recently, in Frey and Truckenbrodt (2015). Another point of criticism was brought forward by Vinckel (2006:45) who noted that the lack of empirical investigation (as most of the previous research was based on introspection alone) would not allow for a distinct picture of the features of RD.

In this thesis, I aim at providing this distinct picture of RD and AT, by contrasting these two constructions on several levels of linguistic description. In order to contribute to a more nuanced understanding of RD and AT, I will provide empirical investigations, both qualitative and quantitative in nature, employing analyses of experimentally acquired data as well as corpus analyses.

The speech corpus employed in this work stems from the database Fokus-DB, which was set up by Horst Lohnstein and Hildegard Stommel, and contains spontaneous speech material comprising both left and right peripheral structures as well as instances of verum focus. On the basis of this corpus, I will propose to define RD and AT on the basis of the functions they take in discourse rather than on the basis of their prosodic realisations (chapter 2.1). It will become evident that RD, if defining it by information structure and discourse function, must be further subdivided into two contrasting types: a prototypical type, merely marking a discourse-old referent as the sentence topic, and a stylised type, presenting a new referent to the discourse. The function of AT, by contrast, is corrective, as AT repairs an unfelicitous reference made earlier in the discourse. I will further show that these functional differences are reflected in a number of linguistic parameters, such as their morpho-syntactic constraints (chapters 2.2 and 2.3), their prosodic features (chapters 2.4 and 2.5), and even their punctuation in written texts (chapter 2.6).

Chapter 3 takes up open questions in RD- and AT-research and aims at providing empirical data in order to solve these issues. In the beginning of this chapter (section

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sind als Rechtsversetzungen, oberflächlich aber genauso aussehen können. […] Neben der prosodischen Selbstständigkeit bleiben also nicht viele Orientierungshilfen." (ELSNER 2013:62)

Free translation: "Many features of RD and AT that have been introduced by Averintseva-Klisch overlap so that AT is simply more versatile than RD but can appear identical ath the surface. […] Besides the prosodic independence there is not much left to distinguish these two constructions."

[8] "Da "echte" RV und RV-Nachtrag morpho-syntaktisch identisch sein können, differenziert u. U. nur die Prosodie zwischen diesen beiden Konstruktionen […]." (SELTING 1994:307)

Free translation: "Since "true" RD and AT can be morpho-syntactically identical, only prosody may distinguish these two constructions under certain circumstances […]."

3.1) the different experiment designs will be outlined, and the choice of measures and statistical models will be explained and justified.

Afterwards, I will suggest to operationalise the information structure of RDs and AT, in order to provide a tool for a more objective categorisation process that will not be biased by prosody (chapter 3.2).

In addition, I will provide syntactic analyses of both RD and AT within the framework of Lexical-Functional Grammar. The advantage of this analysis of RD is that it is able to also account for instances of gender mismatch in RD (chapter 3.3).

Chapter 3.4 addresses the question whether AT is free with respect to case assignment. This is done using a questionnaire study.

Chapter 3.5 deals with the question whether RD and AT are equally affected by the mechanism of domain-final lengthening. In order to provide reliable data, an interactive reading experiment is carried out.

Chapter 3.6 investigates whether RD and AT can truly be distinguished on the basis of their prosodic realisations. For this purpose, a corpus study that operates on the data gathered in chapter 3.5 is conducted.

Chapter 4 concludes this thesis with a summary of the results and ideas for future research.

2 Theoretical Background

In the present chapter, I will give a summary of the theoretical background concerning the different linguistic levels at which right dislocation (RD) and afterthought (AT) can be distinguished.

I will start with an introduction to information (and discourse) structure, since I argue in this thesis that RD and AT are best defined by means of their discourse function and the context they are used in. Previous accounts to RD often started with a syntactic account that also considered the prosodic marking of RD; only in a second step the discourse function of RD was inferred. I will argue that this approach leads to a circular line of argumentation since (a) the underlying syntax is not immediately available to researchers and hence not suitable as a categorisation device, and (b) the prosodic marking is considerably more flexible than it has been acknowledged by RD-research up to this point. Accordingly, I will define RD and AT in this thesis on the basis of information structure and then proceed with the analysis of distinctive features that become manifest on the other levels of linguistic description. I assume that the differences regarding morphosyntax and prosody arise from the underlying differences in information structure and the varying discourse functions of RD and AT. However, the differences in the punctuation of written RD and AT originate only indirectly in information structure but more immediately in the syntactic properties. The analyses in chapters 2.1 to 2.5 operate on spoken spontaneous data, while chapter 2.6 operates on written data.

In chapter 2.1 I will explain the basic notions of information structure and discuss the information structural features of RD and AT. Therefore, I will consider previous research on this topic and also include qualitative analyses of selected spontaneous examples. I will argue that the function of RD is not to mark the discourse topic of the subsequent segment, since the sentence topic of an RD and the overall discourse topic do not necessarily coincide. Rather, RD can be understood as a device that emphasises the importance of the comment to the speaker realising the RD.

Chapter 2.2 reviews the syntactic features of RD and AT and discusses former accounts to analyse RD and AT syntactically. All previous analyses of RD are located in the account of Generative Grammar, but none of them is fully capable of pre-

dicting RDs in the way they appear in spontaneous speech. Therefore I will suggest to analyse RD within the framework of Lexical-Functional Grammar.

In chapter 1.1 I will go into more detail regarding the morphological marking of case in AT. I will discuss whether AT really employs a Default-Nominative when produced with the cue phrase '*I mean*' or whether instances of this kind are rather re-analysed as being an argument to the verb. The latter would result in a preference for accusative case marking instead. This section aims at motivating the survey carried out in chapter 3.4.

Chapter 2.4 starts with an introduction to the basic notions of prosody. I will discuss the formerly assumed differences between RD and AT and show that the prosodic realisation of both constructions is not as invariant as previously stated. I will argue that it appears unlikely that there are specific parameters that necessarily need to be adjusted in order to reliably keep RD and AT apart. Rather, I hypothesise that there is a set of possible parameters speakers can choose from when contrasting RD with AT. Chapter 2.4 thus motivates the corpus study conducted in section 3.6.

Chapter 2.5 deals with the phenomenon of final lengthening in RD and AT. In contrast to the previous account I will argue that elements of both constructions are produced in the domain of final lengthening; consequently, phrase-final lengthening should affect both RD and AT. This chapter can hence be understood as a motivation for the production study presented in chapter 3.5.

Finally, section 2.6 considers written RD and AT. I will explain the function of punctuation marks in German and further show how RD and AT are distinguished in written texts by means of punctuation. Moreover, I will discuss whether this marking conforms to the typical use of punctuation marks. I will also report on two previous studies which found that written RD and AT are correctly identified by naïve readers and that this identification is based on an interaction of punctuation mark and the underlying information structure.

2.1 Information structure

In the introduction we have seen that right dislocation and afterthought (hereafter RD and AT, respectively) often look very similar at the surface structure of an utterance: both show a pronoun in the matrix or, in the case of AT, the host sentence that is coreferential with a full NP which is produced after the verb of the utterance. While distinguishing RD and AT from extraposition is rather straightforward, as already illustrated above, the categorisation of utterances into RD or AT is not an easy task. Former attempts of categorisation were either based on prosody or on syntax, leading to undesirable results: first, researchers had troubles in finding a consensus as to the function of RD in the discourse; second, and even worse, some works show a circular line of argumentation since the basis for categorisation has already been an interpretation of patterns under investigation. Especially the definition of RD and AT on the basis of syntax alone is questionable, since the underlying syntax of utterances that appear to be that similar on first glance is not immediately available to researchers. A distinctive feature of RD and AT that is more immediately available to researchers and therefore best suited for categorisation is the information structure of the utterance or the discourse, respectively.

The term *information structure* usually means the packaging of information, i.e. the organisation of the information that shall be conveyed in a discourse. When speakers converse, they share a certain common ground (CG[1]), i.e. a set of propositions and entities; in other words, speakers share the same knowledge regarding certain aspects and referents in the world. The aim of a discourse is usually to update the common ground (cf. ROCHEMONT 2016:42), i.e. to add information to certain referents or events. A wide-spread metaphor for this updating process is that of 'file changing', employed for example by Irene Heim (1982), among many others. The idea is that for each referent, event, etc. in the world there is a card in our mental library. Now, a discourse opens a new file and each referring expression either creates a new card, i.e. an entity to which the referring expression refers, or adds an already existing card to that file, i.e. it activates an entity that is already stored in

[1] Manfred Krifka (2007) and Micheal Rochemont (2016) further distinguish between CG content, in which the shared knowledge is stored and updated, and CG management, which is concerned with the current communicative goals of the discourse (cf. KRIFKA 2007:15f, and ROCHEMONT 2016:42).

the interlocutors' CG. Each utterance has the potential of file changing, i.e. to update or retrieve cards or to lay them aside (cf. HEIM 1982:294), by either giving information about a referent, introducing a referent to the discourse, or not mentioning a referent any further.

In order to convey the intentions of a speaker, i.e. whether he wants to retrieve, restore or update a card, he can employ three distinct but nonetheless related mechanisms of information packaging: focus-background structure, the given-new distinction, and topic-comment structure (cf. e.g. MUSAN 2010). Before turning to the information structural differences that constitute RD and AT (section 2.1.2), these basic concepts will be discussed in more detail (section 2.1.1). In doing so, I will focus on those accounts that are most important for the distinction of RD and AT.

2.1.1 Basic concepts of information structure

Focus "[…] indicates the presence of alternatives that are relevant for the interpretation of linguistic expressions" (KRIFKA 2007:18). The notion of focus has extensively been discussed in the framework of *alternative semantics* (e.g. ROOTH 1992, among many others) but, still, there is often no common definition of focus (cf. BÜRING 2010:178). Focus can be understood as the part of an utterance that is exceptionally newsworthy and informative. Ladd (1980) distinguishes three different focus structures: broad, narrow and contrastive focus[2]. Everything that is not focussed, belongs to the background of an utterance. Example (8) illustrates the different kinds of focus structure. F marks the focus domain and BG marks constituents in the background.

(8) Focus structures

a.	Background:	Did Mary buy a car? – Yes, [Mary bought a car.]$_{BG}$
b.	Broad focus:	What happened? – [Mary bought a car.]$_{F}$
c.	Narrow focus:	What did Mary buy? – [Mary bought]$_{BG}$ [a car.]$_{F}$
d.	Contrastive focus:	Did Peter buy a car? – [Mary]$_{F}$ [bought a car.]$_{BG}$

In the example above, all focussed constituents contain new information (as indicated by the questions), while all background constituents have been mentioned

[2] Krifka (2007:33) evaluates this terminology as imprecise and offers instead to speak of closed versus open focus.

before and are hence given. However, it is important to note that – although they may coincide – focus marking and givenness are two separate dimensions. This is exemplified in (9), where '*apples*' is given information but still part of the focus domain:

(9) Difference between focus and givenness
Mary picked apples yesterday. She then prepared dinner. She served a roast, potatoes and gravy. The gravy [was made from the apples]$_F$.

However, *givenness*, or assumed familiarity, is not a binary[3] but rather a graded[4] dimension, i.e. an entity cannot be just either new or given to a discourse. Prince (1981) identified three major categories: new, inferable and evoked entities. These categories can be further divided into seven subcategories: brand-new, brand-new anchored, unused, inferable contained, inferable, situationally evoked, and textually evoked. Brand-new entities enter the discourse without any connection, e.g. 'a dog', which is in contrast to brand-new anchored entities that are more bound to the discourse by their description, e.g. 'a dog in my neighbourhood'. Unused entities (Knowledge Givenness in Ariel 1985) are not unfamiliar to the addressee but new to the discourse, and hence belong to the class of new entities. Examples for unused entities are, among others, '*pepper*' in a recipe, or '*the Easter bunny*'. Inferable entities can be inferred on the basis of earlier mentioned discourse entities, as e.g. '*referee*' can be inferred if a football match has previously been mentioned. In addition, inferable entities can be contained, i.e. they are not conceptually inferable but inferable solely on the basis of the referring expression, like '*one of these sweets*'. Finally, evoked entities can either be textually or situationally evoked, i.e. explicitly mentioned before or available in the speech situation, e.g. a dog that is walking by.
Related to the notion of givenness is the cognitive status of an entity, which is indicated by the referring expression used. In the following, I will concentrate on the

[3] But see Schwarzschild (1999) for a distinction of given versus not given.

[4] Ariel (1985) distinguishes between *Knowledge Givenness* (i.e. shared knowledge), *Physical Givenness* (i.e. the physically accessible entities in the speech situation), and *Linguistic Givenness* (i.e. explicitly mentioned entities). Both Physical and Linguistic Givenness are understood as being part of the short-term memory, whereas Knowledge Givenness is part of the long-term memory (cf. ibid.:100).

work of Gundel, Hedberg and Zacharski (1993), as their categories have often been used in previous decriptions of RD and AT referents. However, also Ariel (1988, 1994) and Givón (1983a:10), among others, noted a correlation between the phonetic content of an expression and the cognitive status of the entity to which the expression refers. That is, the less phonetic content a referring expression has, the more restrictive is the cognitive status of its entity (cf. GUNDEL ET AL. 1993:285), e.g. zero or unstressed pronouns indicate the most restrictive status of being 'in focus'.[5] According to Gundel and colleagues (1993:275), there are six cognitive statuses. Starting with the least restrictive one, these statuses are: type identifiable, referential, uniquely identifiable, familiar, activated, and in focus. Both 'type identifiable' and 'referential' entities are expressed by indefinite noun phrases, whereas entities being 'uniquely identifiable', 'familiar', 'activated' or 'in focus' are marked by definite expressions. 'Familiar' entities are described as being in the long-term memory of the interlocutors, whereas 'activated' referents are also present in the short-term memory. Referents in the short-term memory have either been retrieved from the long-term memory or are available in the immediate linguistic or extra-linguistic context (cf. ibid.:278), which is comparable to Prince's categories of being textually and situationally evoked. Referents that are 'in focus' are described as not only being in the short-term memory of the interlocutors but as also being at the centre of attention. Such referents are "likely to be continued as topics of subsequent utterances" (ibid.:279).

As we have seen, there are some parallels between Prince's assumed familiarity scale and the relation of referring expressions and cognitive status proposed by Gundel and colleagues. Gillian Brown (1983:70) observed that given information is usually expressed with anaphoric expressions, i.e. pronouns, while inferable entities are referred to by full NPs (ibid.:73). This observation is in accordance with the cognitive statuses identified by Gundel and colleagues: given information can be either 'activated' or 'in focus', both licensing the use of pronouns; inferable in-

[5] It is important to point out that the cognitive status of 'in focus' is not equal to being focussed in the sense of focus domains. While focussed constituents often represent new information, constituents that are 'in focus' have been cognitively activated before, i.e. they constitute given information. Accordingly, the status 'in focus' rather captures the notion of focus of attention.

formation can be either ‘uniquely identifiable’ or ‘familiar’, both of which license the use of a definite NP.[6]

The third dimension of information structure is that of *topic* and *comment*. The term ‘topic’ is frequently applied to both the micro structure of a discourse, i.e. the sentence, and to the macro structure of a discourse, i.e. discourse paragraphs (cf. e.g. ROBERTS 2011). We will begin with the micro level and the notion of the sentence topic and proceed with the macro level and the notion of the discourse topic.

According to Reinhart (1981:54), the *topic of a sentence* is the entity the sentence is about, i.e. the entity about which the sentence makes an assertion.[7] She pointed out that, although topicality and old/given information often coincide, “[…] topics must be defined independently of this notion [of old information]” (ibid.:78). Besides given information, she identifies further aspects that often lead to the perception of an entity as being the topic of a sentence. First, there is a strong tendency to interpret grammatical subjects as topics, although also non-subjects can function as sentence-topics (cf. ibid.:62); second, there are fixed topic positions within a sentence and also certain syntactic constructions, as for example left dislocation, that unambiguously mark an entity as the sentence-topic (cf. ibid.:63). Her last observation is that only referential NPs can serve as sentence-topic. This means that unspecific indefinite NPs cannot be interpreted as the sentence-topic, although being the grammatical subject of this sentence.

However, these indicators of ‘aboutness’ are not as straightforward as suggested, leaving much room for discussion about which constituent actually represents the sentence topic. The sequence given in (10) illustrates the uncertainties in determining what the second sentence is ‘about’ (underlining marks possible topics).

(10) Issues with the ‘aboutness’ topic
Peter hat eine Überraschung für Marie: Einen Blumenstrauß hat er ihr besorgt.
‘Peter’s got a surprise for Mary: a bouquet, that’s what he bought her.’

[6] A more recent approach to givenness is formulated in Rochemont (2016) who defines givenness as a function of coreference or entailment.

[7] Other approaches to defining/identifying sentence topics are provided in van Dijk (1976) and Givón (1983a), among others.

It is arguable in the second sentence, which part constitutes the topic: following Reinhart, 'Blumenstrauß' ('bouquet') is a possible candidate, since it occupies an unusual position in the sentence, suggesting topicality; yet, it is the grammatical (direct) object. Accordingly, the pronoun ER (referring to 'Peter') is another strong candidate for being the sentence topic, as it constitutes the grammatical subject and is already given by the first sentence.

Criticism against the notion of topic in the sense of aboutness is brought forward by Joachim Jacobs (2001). Jacobs criticises that 'aboutness' is a mere intuitive concept (cf. ibid.:650) and points out that there are four dimensions regarding topicality: informational *separation*, *predication*, *addressation*, and *frame-setting* (cf. ibid.:643f). Informational separation means that the semantic processing involves two steps, as the topic is mentioned and then the assertion is made. The need for a semantic processing in two steps is reflected in the prosody which assigns accents to both the subject and the predicate (cf. ibid.:645). This principle is illustrated in (11), where capital letters indicate accent placement; sentence a) is an example for informational separation whereas sentences b) and c) are not.

(11) Informational separation (cf. JACOBS 2001)

a. MAry SNORes.
b. *MAry snores.
c. *Mary SNORes.

The second dimension, predication, specifies an entity as occupying a position within a verb's *semantic* valency (cf. ibid.:647). This dimension is of special importance, since it highly contrasts with Reinhart's (1981) concept of topicality which is closely related to the *grammatical* valency of a verb. Reinhart's understanding of the topic being mostly, but not always, the grammatical subject might lead to difficulties in the identification process of the sentential topic, when her notions of topicality do not coincide (see example (10)). By including the semantic rather than the grammatical valency of a verb, Jacobs' (2001) approach offers a broader definition of the term topic, while simultaneously facilitating the identification process. Example (12) illustrates this difference between Reinhart's (1981) and Jacobs' (2001) approaches, bold face indicating which constituent would be identified as being the sentential topic, capital letters indicating accents.

(12) Difference between grammatical and semantic valency

a. **PEter** did the dishes. (Reinhart + Jacobs)
b. In the KITchen, **PEter** did the dishes. (Reinhart)
c. In the **KITchen**, PEter did the dishes. (Jacobs)

Following Jacobs' definition of (semantic) predication, even adverbials of spatial or temporal position may be identified as constituting the sentential topic, as they are part of a verb's semantic valency, specifying the situation variable (cf. JACOBS 2001:649). When acknowledging that adverbials might take the function of the topic even instances of left dislocation, which is considered to be a topic-marking construction, like 'In the kitchen, Peter did the dishes there' are sufficiently explained and motivated. This aspect alone is a major advantage compared to the account of Reinhart (1981).

Jacobs' (2001) third dimension of topicality is addressation. Addressation can be understood as identifying a certain mental card in the file (cf. JACOBS 2001:651; see also Heim's (1982) metaphor above), i.e. that only *specific* referents can serve as sentential topics. Reversely, no nonspecific, quantified or negative phrases can function as the sentential topic (cf. ibid:652). Accordingly, the dimension of addressation explains why topic-marking constructions as cleft sentences or left dislocations do not use nonspecific, quantified or negative phrases (see (13)).

(13) Examples of (im-)possible left dislocations

a. Her mother, she baked a cake.
b. *Any mother, she baked a cake.
c. *No mother, she baked a cake.
d. *Every mother, she baked a cake.

The fourth dimension of topicality, according to Jacobs (2001), is frame-setting. Frame-setting constituents specify a domain of reality to which the proposition is restricted (cf. ibid.:656), e.g. 'financially, Mary's doing well'. The FINANCIALLY in the beginning of the sentence restricts the proposition to the financial domain. It leaves open the possibility that Mary is not doing well with regard to her health, for example.

These four dimensions of topicality usually do not appear alone: when investigating three types of German topic construction, namely left dislocation, I-topicalisation and free topic, Jacobs observes that they require "[…] at least two of the four dimensions of TC [topic-comment] and [do] not prohibit one of these dimensions […]" (ibid.:671). A further observation is that left dislocation, I-topicalisation and free topic can be distinguished from another by the specific combination pattern of dimensions that they require (cf. ibid.), which is reported in Table 2 given below. In this Table, '+' indicates that a dimension is necessarily required, whereas a combination of both ('±') indicates that this dimension is neither explicitly required nor prohibited.[8] The superscript 'c' in predication for I-topicalisation is used by Jacobs to indicate that predication here works slightly different (i.e. in a strictly contrastive manner) than for left dislocation (cf. ibid:667).

Table 2: Required dimensions of three German topic constructions (adapted from JABOBS 2001:671)

	Separation	Predication	Addressation	Frame-setting
Left Dislocation	+	+	+	±
I-topicalisation	+	$+^{c}$	±	±
Free Topic	+	±	+	±

Jacobs (2001:672) concludes that unitary theories, i.e. theories operating only on one of these dimensions, cannot fully account for the notion of topicality. For this reason, I will follow Jacobs' (2001) account on topicality in this thesis.

The counterpart to the topic in the sentence is the *comment*, i.e. the assertion about the topic. A sentence like (14a) can hence be interpreted as '*Paul'* being the topic (T) and KISSED MARY as being the comment (C), whereas (14b) is interpreted as '*Mary*' being the topic and WAS KISSED BY PAUL as being the comment. In German, each sentence can contain only one topic (cf. e.g. KRIFKA 2007:42).[9]

[8] Please note that there would, in principle, be the possibility of a '−' which indicates that a dimension is strictly prohibited. However, in his analysis of topic constructions at the left sentence periphery, Jacobs (2001) did not encounter a construction that explicitly prohibits one of his topic dimensions.

[9] But confer Jacobs (2001:650), among others, on multiple topics in, e.g., Hungarian.

(14) Topic-comment structure of sentences

a. [Paul]$_{T}$ [kissed Mary.]$_{C}$
b. [Mary]$_{T}$ [was kissed by Paul.]$_{C}$

The sentences in (14) show the unmarked order of topic-comment[10] ($_{TC}$); however, speakers can employ different orders of topic and comment, as a function of the topic's predictability in the discourse (cf. GIVÓN 1983b:361). It is possible for speakers to produce only the comment, in cases where the topic is highly predictable (or, in Gundel's et al. (1993) terms, 'in focus'), by dropping the pronoun (also referred to as 'zero anaphor', e.g. in Marsten-Wilson et al. (1982)); additionally, speakers may produce the comment before the topic, or may produce only the topic, in cases in which the topic is not predictable from the context (cf. GIVÓN 1983b:361). Ranking these possibilities by the topic's predictability results in the following order that was originally described in Givón (ibid.): comment > comment-topic > topic-comment > topic.[11] Examples for each of these structures are given in (15). Both (15c) and (15d) show examples of the order topic-comment. While (15c) illustrates the unmarked word order, the left dislocation in (15d) constitutes a marked construction of an unmarked TC-order.

(15) Possible orders of topic and comment

a. Peter went shopping yesterday. (Ø) Came home late. ($_{C}$)[12]
b. Peter went shopping yesterday. He came home late, Peter. ($_{CT}$)
c. Peter came home late yesterday. ($_{TC}$)
d. Peter, he came home late yesterday. ($_{TC}$)
e. Someone came home late yesterday. Peter. ($_{T}$)[13]

(15b) and (15e) should by now look familiar: (15e) could be interpreted as AT, while (15b) constitutes an RD. RD is commonly accepted as being a device that

[10] The sentence in (14b), though, is considered as syntactically marked.

[11] Hoeks and colleagues (2002:101) identify three different types of topic structures: topic-comment, identificational structures (e.g. cleft sentences), and presentational structures (i.e. all-new-sentences). They further observe that the topic structure is an important factor for the online processing of sentences (cf. ibid.:99).

[12] Givón (1983b:361) also refers to this as 'zero topic'.

[13] Givón (1983b:361) also refers to this as 'zero comment'.

marks comment-topic structure (cf. e.g. GUNDEL 1988:225). This might appear odd at first glance, since the pronoun in the matrix sentence already picks up the topic of the previous sentence. However, as the full NP follows the core sentence, a more precise description of the topic is added which explicitly mentions the topic after the comment. Accordingly, RD is interpreted as comment-topic order. A further hint for comment-topic order of RD is provided by the topicality dimensions introduced by Jacobs (2001). Examination of RD instances reveals that RD does not prohibit any the dimensions but instead requires the dimensions predication and addressation: each referent taken up on in a dislocated phrase needs to be part of the verb's semantic valency (predication) and further has to address a specific card within a mental representation. Examples for predication are presented in (16), where underlining indicates both coreferential proform and dislocated phrase. (16a) shows that adverbials of temporal or, as in this case, spatial position might be dislocated, as they are part of the verb's semantic valency (cf. ibid:649). However, (16b) provides evidence that this dimension is necessarily required, as sentence modifiers that are not part of a verb's semantic valency but rather have the verb in their scope, cannot be dislocated towards the right (for left dislocation see ibid:660f.).

(16) Examples for predication in RD

a. Längst ist er <u>hier</u> zuhause, <u>in Deutschland</u>. (771, Fokus-DB)
   He's home <u>here</u> for a long time, <u>in Germany</u>.
b. *So wird Peter gewinnen, mit links.
   *<u>That</u>'s how Peter will win, <u>easily</u>.

In the same vein, examples for addressation are given in (17), where c) gives evidence that quantified, negative, or nonspecific phrases cannot be dislocated towards the right. (17a,b), to the contrary, give examples of addressation with one higher cognitive status (a: familiar) and one lower cognitive status (b: referential).

(17) Examples for addressation in RD

a. Also <u>sie</u> war schon traurig, <u>die Laura</u>. (324, Fokus-DB)
   Well, she was indeed sad, Laura.
b. <u>Die</u> haben ja so Erbesenhirne, <u>so Krokodile</u>. (367, Fokus-DB)
   <u>They</u>'ve got such pea brains, <u>such crocodiles</u>.

c. *Sie kann gut kochen, jede/keine/irgendeine Mutter.
*She's a good cook, every/no/any mother.

Regarding the other two dimensions of topicality, informational separation and frame-setting, RD does neither require nor prohibit them. Within the Fokus-DB, we find some instances of RD which – contrary to common assumptions – do show informational separation, as indicated by two separate intonation phrases and accents (cf. example (18b)).[14] In the following examples, proforms and dislocated phrases are underlined, capital letters indicate fully-fledged accents, and '|' displays a prosodic boundary. Also frame-setting, although not required, is not prohibited for RD (confer example (19)).

(18) Examles for informational separation

a. erZÄHL sie doch die geschichte! (311, Fokus-DB)
narRATE it already the story!
b. das IST es also | das BECKen. (259, Fokus-DB)
so that IS it | the POOL.

(19) Example for frame-setting

Ich bin da eben gechillt drinne, was Beruf und Zukunft angeht. (534, Fokus-DB)
'I'm super relaxed about it, concerning job and future'

To conclude, since RD is ±separation, +predication, +addressation, and ±frame-setting, it qualifies as a topic-marking device, showing the order of comment-topic. Now, before we turn to the information structural features that set off RD and AT, it is important to discuss the notion of discourse topic as well as to outline the overall structure of a discourse.

As was already mentioned above, sentence topics (henceforth ST) define what a sentence is about. However, when the discourse proceeds, several sentences are combined and elaborate on a higher-level topic, often referred to as the discourse topic (hereafter DT). Although the DT is commonly described as the entity or event

[14] At this point, a brief mentioning of the intonational patterns must suffice. For a detailed analysis see chapter 2.4.

a discourse (segment) is about, there has been quite some discussion as to how to identify a DT.

Teun van Dijk (1976) noted that ST and DT are structurally and theoretically different notions. An ST is viewed as a linear link between new and given information, whereas a DT is understood as the hierarchical organisation of all information of all sentences within a paragraph (cf. ibid.:59; also LAUTAMATTI 1978:71).

The idea that a discourse cannot be viewed as proceeding linearly, is also adopted in Asher and Vieu (2005). They state that a discourse is instead structured hierarchically, via an alternation of narrating and elaborating sequences (cf. ibid.:591). While the relation NARRATION coordinates parts of a discourse, the relation ELABORATION is subordinating in nature (cf. ibid.:593). An example is given in (20), which is adopted from Asher and Vieu (2005:592).

(20) Alternation of elaboration and narration

a. John had a great evening last night.
b. He had a great meal.
    a'. He ate salmon.
    b'. He devoured lots of cheese.
c. He then won a dancing competition.

Sentence (a) introduces '*John*' as the topic of the sentence, and all subsequent sentences refer to '*John*', too. Sentence (b) then further elaborates on one aspect that made it a great night for John: the meal he had was great. Sentences (a') and (b'), in turn, further explain why the meal was great: there was salmon and also lots of cheese. These sentences are coordinated. Sentence (c), finally, does not further elaborate on the meal but on the great evening. It is therefore coordinated with sentence (b).[15]

We have seen that the ST in all sentences is '*John*'. This could lead to the impression tat '*John'* is also the DT of this discourse (segment). However, the comments of the sentences do not truly give new information about '*John*' but rather about his '*great evening*'. If we try to answer the question 'what about John?', the sequence appears a bit odd. Rather, it seems to be a more appropriate answer to the question

[15] The rhetoric relations of coordination and subordination must not be confused with the syntactic conjunctions of coordination and subordination (cf. EHRICH 2009:81).

'Did John have a nice evening?'.[16] This means that the DT is, actually, explicitly mentioned by the initial sentence. Please note that this pattern is rather the exception than the rule. The same is true for the fact that in (20), all sentences share the same ST. Already Givón (1983a:8) states that a "[...] thematic paragraph is *by definition* about the same theme [...]" but that, nevertheless, "[...] topics/participants may change within the discourse without *necessarily* changing either action continuity or theme continuity" (ibid.).[17] Compare example (21), where the DT is not explicitly mentioned.

(21) ST versus DT
Paula woke up at five o'clock that morning. Today she had to start her new job as a teacher. She excitedly took a shower and had some breakfast. The train would leave at 6:15 and she did not want to be late on her first day. She was too nervous to read a book on the train. Just at half past seven, the train arrived at the central station. The school where she had found the job was only a ten minutes walk from the station.

The DT of this sequence may be described as 'Paula starting her new job at a school'. Although '*Paula*' is the ST of most clauses (seven out of ten), there are also other sentence topics within this paragraph, namely '*train*' and '*school*'. However, these changes in sentence topics do not alter the higher-level DT. In addition, this example shows that the DT is an "epiphenomenal notion" (KEHLER 2004:238) that can only be constructed on the basis of the surrounding context.
Although there is quite some debate as to whether a general notion of DT is possible or not (cf. KEHLER 2004 versus ASHER 2004), I will adopt the basic distinction that the ST identifies the (local) referent the sentence is about, whereas the DT identifies the (global) event a discourse is about. Already this coarse-grained distinction enables us to compare the information structural features of RD and AT.

[16] The concept that the DT is the implicit or explicit answer to an explicit or implicit question is formulated within the framework of Question Under Discussion (formerly called the quaestio-model; cf. KLEIN & VON STUTTERHEIM 1987, VAN KUPPEVELT 1991, 1995; more recent work is provided by RIESTER ET AL. 2018, among others.) We will return to Question under Discussion in chapter 3.2.

[17] The term 'thematic paragraph' corresponds to a discourse unit/segment, the term 'action continuity' means the temporal sequentiality, and 'theme continuity' corresponds to the notion of DT.

2.1.2 Information structural differences between RD and AT

Now that we are acquainted with the basic concepts of information structure and the organisation of discourse, we shall have a look as to how RD and AT differ with respect to their information structure. Concerning AT, there is a consensus across different (typologically distinct) languages that its discourse function is to repair an ambiguous reference. Accordingly, AT is used when the referring expression is not specific enough for the listener to identify the correct referent. This function is attested for Japanese (cf. KUNO 1978)[18], French (cf. LAMBRECHT 1981), English (cf. ZIV 1994; UHMANN 1997b; and AVERINTSEVA-KLISCH 2008), Norwegian (cf. FRETHEIM 1995), Russian (cf. AVERINTSEVA-KLISCH 2008) and German (cf. AVERINTSEVA-KLISCH 2008, 2009; DEWALD 2014; WERTH 2017). Although AT is encountered in every language investigated so far, it cannot be viewed as constituting a conventionalised construction, due to its status of being a (self-initialised) self-repair.

Regarding the information structural features of AT, Werth (2017:201) pointed out that the corrective NP has to always be definite, i.e. the referent is at least 'uniquely identifiable'. In addition, when resolving an unclear (and possibly ambiguous) reference, the AT-element has to provide more specific information about the referent than the proform (cf. ibid.). Interestingly, this is not only true if the proform in the defective utterance is a zero anaphora or an unstressed pronoun. Also in cases where a referring expression with more phonetic content is used, e.g. proper names or full NPs with a definite determiner, AT is a possible device to further specify the intended reference (cf. ibid.). Examples are given in (22), where the first sentence is taken from Werth (ibid.), and the second sentence stems from the Fokus-DB[19] (item 523).

For (22a), we can assume that the interlocutors know at least two men with the first name 'Klaus', which makes a more specific reference necessary. Adding the last name of the intended referent repairs the ambiguous reference.

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[18] Please note that according to Kuno (1978) Japanese does only have AT but not RD. This is owed to the fact that the realisation of topical pronouns in colloquial speech is considered pedantic. Further, all instances of right peripheral structures add information to the previous discourse, and hence conform to the notion of AT (cf. KUNO 1978:61-63).

[19] The items of the Fokus-DB have been pre-categorised on the basis of information structure, to avoid a circular line of argumentation. In a first step, items have been classified as AT in case they showed a repair of an unfelicitous reference. Every right-peripheral structure that did not display the function of repair was evaluated as RD. However, in this chapter the items of the Fokus-DB will be further inspected.

(22) ATs further specifying a reference

a. klaus war zwar au okay; klaus müller aber.
   'Klaus was admittedly also good; Klaus Müller, but'
b. Der Joker hat in allen Folgen bisher gestochen, Stefan Raab.
   'The joker took the trick so far in each episode, Stefan Raab.'

In (22b), a reporter comments on a fence match and frequently switches between the two opponents, of which one is used as a joker by a third participant who himself now does not need to fence. Now, despite '*the joker*' being referred to by a definite expression and accordingly being 'uniquely identifiable', the lexeme JOKER does not suffice to identify one of the opponents. Accordingly, the proper name of the intended referent is added which is an expression with a higher cognitive status, namely 'familiar'. Thus, the AT-element adds more specific information than provided by the host-sentence-internal reference in both examples.

The referent of an AT has usually been mentioned before in the discourse. It is therefore textually evoked. Nevertheless, this referent is often not in the centre of attention, at the time a referring expression is uttered that implies the cognitive state of being 'in focus' (i.e. an unstressed pronoun). Hence, the speaker has to clarify to which referent he refers, in order to signal to the listener that the centre of attention has changed. This behaviour is exemplified in (23), where the current DT is that sleep is most important (indicated by bold face). The sequence in (23) is produced in the context that (fledgling) mothers gain a new ability: to fall asleep only in a few seconds. When the speaker elaborates on this DT, she permanently switches the ST, sometimes referring to mothers, sometimes referring to children. Sentential topic shifts are indicated by italics. The ambiguous referring expression and the corrective AT are underlined.

(23) Referential ambiguity in AT

Schlafen ist super. Ich kenne viele Mütter$_1$, *die*$_1$ ihren$_1$ ganzen Tagesablauf mit den Kindern$_2$ nur darauf anlegen, dass *die Kinder*$_2$ abends um acht dann auch wirklich im Bett sind. Also die$_2$ müssen richtig fertig sein. Durch den Garten gerannt… Und dann schlafen, damit *sie*$_?$ zehn Stunden Ruhe haben. Die Eltern. (306, Fokus-DB)

'**To sleep is awesome**. I know many mothers$_1$ *who*$_1$ plan their$_1$ daily routine with the kids$_2$ that way that *the children*$_2$ go to bed at eight in the evening. They$_2$ have

to be really exhausted. Have run through the garden... And then sleep, so that *they*ʔ've got ten hours rest. The parents.'

With respect to the dimensions of givenness, topic and focus, it can be stated that the AT referent is given ('activated' but not 'in focus' at the moment in which the pronoun in the host sentence is uttered), and constitutes the ST. The AT-phrase itself is produced in narrow or contrastive focus, due to its repair function.

While these features of AT are commonly agreed on, the function and especially the information structural features of RD are, by contrast, a more disputed issue. Already in the early works on dislocations it was acknowledged that RD serves as a device to establish a comment-topic structure[20]. Furthermore, researchers agree on the fact that, opposing AT, RD is not an anomaly of spoken language but instead a fully conventionalised construction[21] (cf. LAMBRECHT 1994:203).

However, as to the information structural aspects of RD, the opinions are divided: one camp claims that RD-referents cannot be new, neither as the DT nor as a referent (cf. GUNDEL 1977, 1988; LAMBRECHT 1981, 1994, 2001). Rather, the leading opinion is that the referent of an RD constitutes known information (cf. UHMANN 1997b), with high pragmatic salience of the ST referent (cf. LAMBRECHT 1994). With respect to the exact cognitive status of RD, there is some confusion: Fretheim (1995) claims that RD-referents do not have to be 'in focus' but at least 'activated'; Lambrecht (1981) and Gundel (1977), to the contrary, agree that an RD-referent can yet be indefinite, if (and only if) it is a generic-indefinite. At this point it is important to call attention to the fact that it is unclear whether these authors are talking about the same unit: Fretheim (1995) most probably refers to the proform of the RD-referent in the core sentence, whereas Gundel (1977) and Lambrecht (1981) refer to the dislocated Noun Phrase (NP) instead. If we keep these two elements apart, it becomes clear that both observations are correct. Example (24)

[20] See, for example, Gundel (1977) for English, Altmann (1981) for German, Lambrecht (1981) for French, Gundel (1988) for English and 29 other languages, and Fretheim (1995) for Norwegian.

[21] Maria Vilkuna (1989) and Thorstein Fretheim (1995) both assume that the conventionalised RD originated from ATs. Researchers who share the view that RDs are pre-planned and fully conventionalised constructions are, among others, Ziv (1994) and Dewald (2014).

contains actual RD-realisations attested in the Fokus-DB (a-c) as well as two constructed counter examples (d-e)).[22]

(24) Different cognitive statuses in RD

a. Das bringt einen nur durcheinander, diese Joker. (338, Fokus-DB)
   'That is just confusing, these jokers.'
b. Sie ist leerer geworden, die Wohnung. (356, Fokus-DB)
   'It got more empty, the flat.'
c. Die haben ja so Erbsenhirne, so Krokodile. (367, Fokus-DB)
   'They've got such peabrains, such crocodiles.'
d. ?Er hat die ganze Nacht gebellt, ein Hund meiner Nachbarn.
   'It barked all night, a dog of my neighbours.'
e. *Er hat die ganze Nacht gebellt, ein Hund.
   'It barked all night, a dog.'

In (24a), the proform in the core sentence (DAS) is a demonstrative pronoun, indicating the cognitive status 'activated'. The dislocation DIESE JOKER is a full NP with a demonstrative determiner, displaying the status 'familiar'. (24b) shows an unstressed pronoun as proform (SIE) and a full NP with a definite determiner (DIE WOHNUNG); accordingly, the proform is 'in focus', while the NP is 'uniquely identifiable'. Finally, in (24c) a demonstrative pronoun is used in the core sentence (DIE), followed by an indefinite NP (SO KROKODILE); the proform can be considered to be 'activated', whereas the NP is merely 'referential'. However, being 'referential' does not suffice for being a well-formed RD, as demonstrated in (24d): also in this example, the NP can be considered as being 'referential', due to its further description as belonging to the speaker's neighbours. The reason why (24c) is a well-formed example of RD whereas (24d) is not, is that the referring expression is generic-indefinite in the former, but specific-indefinite in the latter case. Further evidence for Gundel's (1977) claim that RD can be indefinite only under certain conditions is provided by (24e) which appears to be rather ill-formed: in this sentence, the RD-referent is expressed by a simple indefinite NP, which makes it 'type

[22] Please recall that demonstrative pronouns have the cognitive status 'activated', while unstressed pronouns are assumed to be 'in focus'. Full NPs, by contrast, can at best be 'familiar' (cf. GUNDEL ET AL. 1993:275ff).

identifiable'. To conclude, the dislocated material in an RD can be 'referential' (if a generic reading is available), 'uniquely identifiable', or 'familiar', whereas the proform in the matrix clause is either 'in focus' or at least 'activated'. This observation clearly speaks in favour of the claim that the referent of an RD cannot be new to the discourse.[23]

The other, much smaller, camp assumes that RD is not only a topic-marking device at the local level but also at the global level of discourse. In other words: RD does not only mark the ST but also the DT of the following discourse segment (cf. Averintseva-Klisch 2009). In doing so, RD may either maintain an old DT or establish a new one (cf. Werth 2017; Averintseva-Klisch 2009). This quite contrary claim is mainly brought forward by Maria Averintseva-Klisch (2009) who investigated RD in written speech, i.e. in novels, in contrast to all other previous work. Since novels differ from spoken language with respect to the extent to which they are preplanned, and also to the use of stylistics devices, it is questionable whether written RD are the best basis for the identification of its discourse function.[24] In the following, I will argue that the function of RD is best defined on the basis of spontaneous spoken language.

Albeit not necessarily, establishing a new DT sometimes also involves introducing a new referent to the discourse. Hence, Averintseva-Klisch (2009) argues that there are three 'subtypes' of RD: one maintaining an old DT; one establishing a discourse-old referent as the new DT; and one introducing a new referent to the discourse while simultaneously establishing it as DT. The following examples for the three possible contexts of an RD, given in (25)-(27), are adopted from Averintseva-Klisch (2009) and shall emphasise her line of argumentation.

(25) RD as maintaining of an old DT

Und als der König seine Frau verloren hatte, bedauerte ihn die **Dutitre**: "Ach ja, für Ihnen is et ooch nich so leicht, wer nimmt schon nen ollen Witwer mit sieben kleine Kindern?"

Sie war ein Original, **die Madame Dutitre**. **Sie** verstand nie, […]

[23] Further support for this claim is found in the observation that RD-referents are usually situationally evoked (ZIV 1994), either textually or situationally given (DEWALD 2014), or even inferable (LAMBRECHT 1981).

[24] Especially if considering that RD was long neglected by research as it was understood as only being a phenomenon of colloquial speech (cf. e.g. Weiss 1975:92).

‘And after the king has lost his wife, [Madame] **Dutitre** commiserated him: “Oh yeah, you won’t have it easy, who is going to take an old widower with seven little children?”
She was an original, **Madame Dutitre**. **She** never understood…’

(Siegfried Fischer-Fabian, Berlin-Evergreen; quoted in AVERINTSEVA-KLISCH 2009:164; translation and highlighting JK)

Example (25) is interpreted by Averintseva-Klisch as maintaining an old DT (DUTITRE in the first paragraph). However, since Averintseva-Klisch does not give more context to this example, it is unclear why ‘*Dutitre*’ is understood as this paragraph’s DT instead of, for example, ‘*the King*’.

(26) RD as establishing a discourse-old referent as new DT
Wer weiß, wie beschwerlich der Heimweg für ihn und den Jungen geworden wäre, wenn ihnen das Glück nicht den **Karpfen Cyprinus** zur Hilfe geschickt hätte!
Ahnungslos kam **er** dahergeschwommen, **der Karpfen Cyprinus**. **Er** war schon ein alter Herr, […]
‘Who knows how hard the way back home would have been for him and the boy, if fate wouldn’t have sent them **the carp Cyprinus**.
Clueless, **he** was swimming by, **the carp Cyprinus**. **He** was already an old man..’

(Otfried Preußler, Der kleine Wassermann; quoted in AVERINTSEVA-KLISCH 2009:160; translation and highlighting JK)

In (26), the referent ‘*Karpfen Cyprinus*’ (‘*carp Cyprinus*’) is introduced with the first sentence. The next sentence, which starts a new paragraph, is an RD, promoting the discourse-old referent to being the DT. Indeed, each sentence within the following paragraph has ‘*Cyprinus*’ as its ST, speaking in favour of the assumption that it is also the DT. Please note that Averintseva-Klisch deems the second case, i.e. the promotion of a discourse-old referent to be the new DT, as the ‘classical case’ of RD (cf. Averintseva-Klisch 2009:160), which stands in high contrast to all former assumptions.

(27) RD as simultaneously introducing a new referent and establishing it as DT
Ob **sie** so sein müssen, **die Berliner**, das fragte sich das restliche Deutschland seit jenem Tag, da man **ihre** Stadt zur Hauptstadt des Reiches gemacht hatte.

'If **they** had to be this way, **the people from Berlin**, was the question the rest of Germany asked itself since the day **their** city was made the capital of the realm.'

(Siegfried Fischer-Fabian, Berlin-Evergreen; quoted in AVERINTSEVA-KLISCH 2009:161; translation and highlighting JK)

Finally, (27) is an example of an RD at the very beginning of a text and not just at the beginning of a new paragraph (compare (25) and (26)). As the discourse is only being started, all referents are discourse-new.

Since Averintseva-Klisch (2009:160) deems such instances as in (26) the 'classical case' of RD, there is only little consensus regarding the discourse function of RD: Ziv (1994) argues that RD serves as a discourse organising mechanism instructing the addressee to search for situationally evoked entities; Uhmann (1997b) views RD as a device for the emptying of the *Mittelfeld* (cf. section 1) and argues that known information is right-dislocated in turn-taking relevant positions. Turn-taking relevant positions are prone to overlap, so putting already known information to the right edge of an utterance minimises the risk of information loss. According to Lambrecht (2001) and Dewald (2014), RD signals the continuation of the current DT, and Averintseva-Klisch (2008, 2009) assumes that it marks the DT of the following discourse segment; her view has been adopted by Werth (2017).[25]

One counterargument to Averintseva-Klisch's claim has already been mentioned: since turn-taking usually happens at the end of a discourse unit, it appears rather unlikely that RD should mark the DT of the subsequent unit; this is even more unlikely in case the whole discourse ends with an RD. However, Averintseva-Klisch (2009:72) argues that the use of an RD eliminates the option that another discourse referent is established as DT for the following unit. In cases where the discourse ends with an RD, this constraint (in the following referred to as the *DT-constraint*) would still hold. She concludes that ending a discourse with an RD in this respect does not constitute a counterargument to her assumption.

Regardless, examining the items attested in the Fokus-DB with respect to the DT-constraint provides some counter evidence: almost 10 % of the items of the database do not conform to Averintseva-Klisch's claim. Some of these items will be

[25] A completely different account to the function of RD is provided in Astruc-Aguilera and Nolan (2007): the authors claim that in Catalan, RD serves as a device that organises the accent-placement of an utterance. Also Altmann (1981) formulates a diverging assumption: in his view, RD is used to resolve an unclear/ambiguous reference. As we have seen before, this function is usually attributed to AT, implying that Altmann blended these two distinct constructions in his work.

discussed in more detail in the following (see (28), where the DT is indicated by bold face and the RD, i.e. the ST, is indicated by underlining).

(28) Exceptions from the DT-constraint

a. **Frank Meyer** ist nämlich den ganzen Morgen schon in der Lenarena, wie sie jetzt heißt, die Arena in Düsseldorf. **Ø** hat schon irgendwie an Strumpfhosen rumgebügelt. **Ø** hat schon Masken – in der Maske nachgeguckt, und ich bin gespannt, ob **er** sich jetzt an die Perücken rantraut. (567, Fokus-DB)
'**Frank Meyer** has been all morning to the Lenarena, how it is called now, the arena in Düsseldorf. **Ø** already ironed some tights. **Ø** Had a look at the make-up room, and I'm curious if **he**'s now daring to try on the wigs.'

b. Weil, was Maite nicht weiß, die hat mir mal echt **n schlechten Abend** beschert, die Maite. Nämlich Maite: Freunde von mir sind aus Dortmund gekommen, wollten mich zu besuchen. Und die sind aber nicht gekommen, um mir eins auszugeben, wie ich mir das gedacht habe als Teenager, sondern, nein, die wollten in den Mühlheimer Hafen und zwar da schön durchs Gitter gucken, Kellys beobachten. (796, Fokus-DB)
'Because, what Maite doesn't know, she once brought me a **really bad evening**, Maite. Namely, Maite: friends of mine came from Dortmund to visit me. But they didn't come to buy me a beer, as I had imagined as a teenager, no, instead they wanted to go to the harbour of Mühlheim and look through the bars, observe Kellys.'

In (28a), the DT is clearly the reporter Frank Meyer who is currently in an arena. Due to an event that is going to take place with the main act Lena, the name of the arena has humorously been changed. This information is added as an insertion while describing what the reporter has been doing all morning. The RD, consequently, refers to a previously mentioned discourse entity but does not establish this entity as the DT (of the subsequent discourse). Instead, the RD can be best understood as an ELABORATION of the referent '*Lenarena'*, before the succeeding sentences continue with the NARRATION of what the reporter has already done.
Also in (28b) the RD does not establish the DT of the following discourse segment. Instead, the next segment elaborates further on the details of the '*bad evening*',

which is part of the RD's comment.[26] Again it becomes evident that the ST of an RD does not necessarily coincide with the DT of a discourse unit. Accordingly, I disagree with Averintseva-Klisch's (2009) assumption that the function of RD is to mark the DT of the subsequent discourse segment.[27]

In my opinion, the function of RD is to emphasise the importance of the comment for the speaker, in that it changes the order of the focus-background structure. Recall the examples given in (24), repeated in (29), displaying the focus structure of each utterance.

(29) Focus-background structure of RD

a. Das [bringt einen nur durcheinander]$_{F}$, [diese Joker]$_{BG}$. (338, Fokus-DB)
   'This is just confusing, these jokers.'
b. Sie [ist leerer geworden]$_{F}$, [die Wohnung]$_{BG}$. (356, Fokus-DB)
   'It got more empty, the flat.'
c. Die [haben ja so Erbsenhirne]$_{F}$, [so Krokodile]$_{BG}$. (367, Fokus-DB)
   'They've got such peabrains, such crocodiles.'

In each of the sentences, the unmarked answer to a context question would be the order of background-focus, e.g. 'Was tun diese Joker? – [Die]$_{BG}$ [bringen einen nur durcheinander]$_{F}$'. In changing the order of topic and comment, the focussed constituent is moved into a sentence position that is not as prone to overlap as the constituent's default position. This behaviour indicates that the speaker wants to assure that the (in his opinion) most informative part of the utterance does not get lost.[28]

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[26] Please note that '*Maite*' can be the object to dislocation, since this entity is salient in the previous discourse by being textually evoked.

[27] However, I do not deny the fact the RD often occurs within the course of a DT and that, hence, the ST is simultaneously also the DT of the following paragraph. I regard this as merely coincidental, since the examples provided unmistakably show that RDs not necessarily pick up on the DT. Instead, RD only organises the sentence-internal order of comment and topic, i.e. RD in any case marks the sentence-topic.

[28] A further possibility for German RD is in line with Astruc-Aguilera's and Nolan's (2007) claim for Catalan: in changing the order of background and focus, the nuclear accent is produced several syllables before the edge tone of the intonation phrase (in chapter 2.4, prosody will be discussed in more detail). This proper division of accent and edge tone might be a reason to use RD. A personal observation is that RD is frequently used when parents interact with children. Since infant-directed speech differs in many respects from adult-directed speech (cf. e.g. WARREN-LEUBECKER & BOHANNON 1984, FERNALD ET AL. 1989, and TRAINOR ET AL. 2000), RD could be employed as a device to facilitate the interpretation of prosody as accent and edge tone do not further overlap. However, this tentative assumption lacks empirical evidence and hence needs further investigation.

(30) RD as highlighting the comment

A: Wo warst du zuletzt? **B:** Ich war an einer der Stories, die richtig extrem waren**. Ich war in einem *Shaolin*-Tempel. A:** Ok. **B**: Das war allerdings hier in Deutschland. **A**: Das sind diese *Kung-Fu-Mönche*. Ja. **B**: Ja. Das war allerdings hier in Deutschland äh bei Kaiserslautern. **A**: Da gibts nen *Shaolin* äh Tempel? **B**: Da gibt's so ne Bastion von *denen*, wo äh *Kampfmönche* ausgebildet werden. Und ich sollte da einfach mal mitmachen. Nen Tag mal miterleben. **A**: Ok. **B**: Und ich hab immer noch blaue Flecken, also *die* waren nicht zimperlich. **A**: *Die* sind gnadenlos, *die Mönche*. **B**: Gnadenlos. **A**: Das- se- *Die* sieht man manchmal in Fernsehshown auftreten… (330, Fokus-DB)

'**A**: Where have you been lately? **B**: I had one of those stories that are really extreme. **I've been to a *Shaolin* temple. A**: Okay. **B**: But that was here in Germany. **A**: That's these *Kung-Fu-monks*. Yes. **B**: Yes. But that was here in Germany, near eh Kaiserslautern. **A**: There's a *Shaolin* eh temple? **B**: There is a bastion of *them* where *combat monks* are trained. And I was supposed to train with *them*. To experience one day. **A**: Okay. **B**: And I still got bruises, well, *they* haven't been squeamish. **A**: *They* are merciless, *these monks*. **B**: Merciless. **A**: That- they- Sometimes you see *them* performing in TV-shows.'

Example (30) illustrates this function of highlighting the comment: the interlocutors are talking about the last journey of speaker B (the DT), who visited a Shaolin temple and even trained with the monks. When speaker B tells speaker A that he still got bruises, speaker A reacts with an utterance whose aim it is to convey his attitude towards the ST. In example (30), the DT is marked by bold face, the RD by underlining and, additionally, each (lexical and referential) mention of the RD's referent is indicated by italics.

This interpretation is in line with Gundel (1988:229), who identified two principles for the organisation of topic and comment: *Given Before New* and *First Things First*. The Given-Before-New principle states that given information should be mentioned before new information; this principle usually results in the topic-comment order. The First-Things-First principle, on the other hand, demands to provide the most important information first.

"When the topic has already been established in the previous discourse, comment is more important than topic and the two principles conflict. […] Resolution in favor of *First Things First* results in right dislocation, it-clefts or constructions in which an expression referring to the topic is adjoined to the right of a sentence with a coindexed gap."

(GUNDEL 1988:229)

To shortly summarise at this point, the function of AT is to resolve an unclear/ambiguous reference in the preceding discourse, whereas RD emphasises the importance of the comment by inverting the topic-comment structure. To be more explicit: RD has, in my opinion, no implications for the DT, but is merely a local topic-marking device.[29]

Returning to Averintseva-Klisch's (2009) interpretation of RD's discourse function, I suspect that her conclusion is biased by the medium she chose for examination. RD is commonly described as a phenomenon of spoken language: e.g. Cheryl Brown (1983) could not run an analysis of RD when investigating topic-marking devices in written language, because she could not find any data. Therefore I suggest that the function of RD is best defined on the basis of spontaneous spoken data (as has been done above). However, when examining spontaneous data, there are instances of RD that are comparable to those discussed by Averintseva-Klisch (2009). Examples are given in (31).

(31) Examples of RD at the beginning of a discourse

a. Wir haben *sie* eben gerade gehört: *die Stimme des Wok-Sportes*. **Sie** gehört **einem Mann**, **der** alles über diesen Sport weiß. Und **der** heißt Ron Ringguth. (753, Fokus-DB)
   'We just heard *it*, *the voice of the wok-sport*. **It** belongs to **a man who** knows everything about this sport. And **his** name is Ron Ringguth.'

b. So soll *er* aussehen, *der Wolf aus Ostwestfalen*. Vor knapp einem halben Jahr wurde **er** schon in Nordhessen gesichtet... (300, Fokus-DB)
   'That's what *he*'s supposed to look like, *the wolf of East Westphalia*. Almost half a year ago, **it** was already sighted in North Hesse…'

[29] This claim is in line with Marschall (2015:208) who states that constructions employing the *Nachfeld* are used in order to more accurately drive focus (and hence information) structure. This use would lead to an enhanced comprehensibility.

Both instances crucially differ from the examples discussed above: an RD is produced in the very first sentence of the discourse, introducing a completely new referent to the discourse and simultaneously establishing it as the DT (indicated by bold face in the subsequent sentences). Gundel (1988:229f) argued that a construction placing new topics after the comment would be inconsistent with either principle, and concluded that such constructions do not occur in any language. Yet, there are clear examples proving the opposite.

However, although being completely new to the discourse, the topic-referent is marked as being accessible, by using definite referring expressions. On the other hand, the cataphoric use of an unstressed pronoun demonstrates that this is not true. On this basis, I regard such structures as a stylised application of RD which violates Gundel's (1988) principles on purpose. The function of this stylised RD (henceforth RDstyle) is, in my opinion, to build suspense in the listener before presenting a new referent and ST. Nevertheless, RDstyle does not necessarily mark the DT of the discourse segment either, as displayed in example (32), where the ST is underlined and the DT is indicated by bold face. In this example, the '*executive editor*' is established only as ST but not as DT. Although he is not explicitly mentioned in the previous context, some information is provided by the speaker that prepares his introduction to the discourse. In mentioning the magazine VIEW, the speaker makes the upcoming referent inferable to listeners with the suitable common ground.

(32) Function of RDstyle

A: Wir suchen das **Galileo-Big-Picture Hollywoods**. Den Moment der Kinogeschichte gebannt auf einem **einmaligen Foto**. Aber nicht nur wir beschäftigen uns mit der Glitzerwelt der Traumfabrik. Auch die *VIEW* widmet der Oscarpreisverleihung dieses Jahr wieder **aufregende Fotostrecken**. Ich freue mich deshalb sehr, dass er hier bei mir ist, der Chefredakteur Hans-Peter Junker. **B:** Hallo Herr Abdala. **A:** Herr Junker, in Hollywood entscheidet die Academy.. Was ist Ihr **Preisträger** in der Kategorie **bestes Bild**? **B:** Also **das** hier ist ein Symbol sowohl für Hollywood und für die Vergänglichkeit des Ruhms. (627, Fokus-DB)

'**A:** We are looking for **Hollywood's Galileo-Big-Picture**. The moment of cinema history captured in a **unique photograph**. But we are not the only ones who are concerned with tinseltown's sparkling world. Also the VIEW [German magazine]

dedicates **exciting photo series** to the Academy Awards Ceremony this year. I'm therefore pleased to have him with me, the executive editor Hans-Peter Junker. **B:** Hello Mister Abdala. **A:** Mister Junker, in Hollywood, the Academy decides.. What is your **winner** within the category of **best picture**? **B:** Well, **this** here is a symbol both of Hollywood and fame's impermanence.'

I regard the type of RD whose function it is to emphasise the importance of the sentence topic and that operates on given referents as the prototypical use of this construction (henceforth RDproto). There are several findings that support this interpretation: first, Givón (1983) and Cheryl Brown (1983) (among many others) independently found that RD is a rather continuous topic-marking device due to the anaphoric use of the pronoun. Second, Coniglio and Schlachter (2015) found in a diachronic study on the occupation of the German *Nachfeld* that it is admittedly possible that new information occupies the *Nachfeld*. However, more often this syntactic position is occupied by old/given information, instead (cf. ibid.:159). In addition, Elsner (2015:358f) observed that children, in the course of language acquisition, follow the principle of 'either place old information at the end or leave it out'. This results in the fact that children (at a certain stage in the process of language acquisition) produce many NPs within the *Nachfeld*. Lastly, RDproto is – at least in tendency – produced more frequently than RDstyle, as the Fokus-DB contains 91 instances of the former and 78 instances of the latter.[30]

We have seen so far that AT, RDproto and RDstyle differ with regard to the three dimensions of information structure. Table 3 summarises these differences as well as the functional differences between the two subtypes of RD and AT.

[30] Please note at this point that there are no grounds to assume that RDproto and RDstyle represent different constructions rather than subtypes of the same construction. If we again apply the topicality dimensions introduced by Jacobs (2001) to both types of RD, it becomes evident that both do not prohibit *separation* as well as *frame-setting*, and that they further both require the dimensions *predication* and *addressation*. Since RDproto and RDstyle do not differ with respect to the pattern of required dimensions – contrary to Jacobs' result for left dislocation, I-topicalisation and free topic – there is no reason to conclude that RDproto and RDstyle constitute different constructions.

Table 3: Information structural and functional differences between RDproto, RDstyle and AT.

	Information structure		*Function*
RDproto	**focus-marking**	background information	emphasising importance of comment
	givenness	discourse-old referent; textually evoked	
	topic-marking	maintained sentence-topic	
RDstyle	**focus-marking**	narrow focus	presenting new referent
	givenness	discourse-new referent; unused or situationally evoked	
	topic-marking	new sentence-topic	
AT	**focus-marking**	narrow or contrastive focus	resolving unclear reference
	givenness	discourse-old referent; textually evoked	
	topic-marking	shift of sentence-topic	

Interestingly, the difference between RDproto and RDstyle is also reflected in written speech. In her work, Averintseva-Klisch (2009) investigated RD in written texts; assuming on the basis of the examples she quotes in her thesis, the investigated instances of RD appeared in the narration text, i.e. in non-direct speech. She found that RD is used for topic shift, i.e. to present a (new) DT. Contrastingly, I myself (2016) investigated RD in passages of direct speech. I found that RD in direct speech is used in contexts in which the topic-referent is already given and has been used as ST before (sometimes coinciding with the DT). On the basis of these findings I conclude that the two types of RD are used with the identical functions they undertake in spoken discourse. This is probably the reason for apparently being complementarily distributed in written speech: the presentational type of RD is used in the narration text, whereas the prototypical type of RD is used in direct speech in order to mimic spontaneous speech, thus making dialogues more authentic.

In the light of the findings summarised in Table 3, the assumption appears legit that the three types of right-peripheral constructions will differ with respect to prosody

(cf. section 2.4), since they code different information structural states.[31] In order to be able to appropriately account for prosodic differences, it is thus necessary to reliably keep the two types of RD apart. Therefore it would be desirable to have a reliable categorisation tool that is intuitive and quick in its use.

In order to minimise the risk of blending the two subtypes of RD[32], I proposed in Kalbertodt (2016) to operationalise the framework of Centering Theory (CT) that was originally developed by Grosz, Joshi and Weinstein (1995). CT appeared to be a promising account, as it captured the difference between RD and AT quite reliably: nine out of ten RD-items showed the continue relation, while seven out of ten AT-items showed the relation rough shift (a detailed description of CT is provided in chapter 3.2). However, there were three shortcomings in the analysis: first, CT was applied to written data; second, I was not aware of the difference between RDproto and RDstyle back then; and third, the analysis operated only on sparse data, i.e. on ten instances of RD and AT each.

Chapter 3.2 aims at eliminating these flaws in the following way: I have already argued before (see above) that the function of RD is best defined on the basis of spontaneous spoken data, since RD constitutes a device that is primarily used in colloquial speech. This argument still holds when evaluating whether an annotation scheme is an appropriate tool for categorisation. Further, I have just shown that there are two subtypes of RD that undertake different functions in discourse. Accordingly, when evaluating annotation schemes, the dataset should also incorporate instances of RDstyle.

To eliminate, or at least diminish, all former flaws, the evaluation of annotation schemes in chapter 3.2 will operate on the data of the Fokus-DB: this database of spoken spontaneous speech distinguishes between RDproto, RDstyle, and AT, and contains 28 to 80 more utterances per construction than the former study[33]. Another

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[31] Note, however, that it is unlikely that RDproto and RDstyle differ with respect to syntactic or morphological constraints. Accordingly, RDstyle and RDproto will in the following be distinguished only in section 2.4.

[32] This blending is likely to have happened in Altmann (1981), since he – in contrast to other research on RD – regards the function of RD to be reference resolution, and also mentions two possible intonation patterns.

[33] In the case of RDproto and RDstyle the data base contains 91 and 78 utterances, respectively, enabling an appropriate evaluation of the applicability of a certain scheme as categorisation tool. It could, however, be argued that 38 instances in the case of AT is still too few data to achieve a reliable result. Please note that this low number of utteraces is due to the nature of AT in constituting a repairing device rather than being a pre-planned construction.

improvement of the analysis from Kalbertodt (2016) will be that different approaches will be considered in addition to the Centering-account (GROSZ ET AL. 1995), which judges the coherence of succeeding sentences: the *RefLex*-scheme (RIESTER & BAUMANN 2017), which annotates both the referential and the lexical givenness of referring expressions; the *RefTop*-scheme (CANGEMI ET AL. (in prep.)) that merges referential givenness and topichood; as well as the *Question-Under-Discussion* account (following RIESTER ET AL. 2018) that identifies the both ST and DT with regard to explicit or implicit questions. These schemes will be discussed in more detail in chapter 3.2.

2.2 Syntax

This chapter will review the syntactic constraints of RD and AT (section 2.2.1) as well as the syntactic analyses of AT (section 2.2.2) and a selection of syntactic analyses of RD (section 2.2.3) that have previously been provided within the framework of *Generative Grammar*. I will argue that RD is not appropriately captured by those accounts and suggest to analyse RD in the framework of *Lexical-Functional-Grammar* instead (2.2.4).

2.2.1 Syntactic constraints of RD and AT

RD and AT share the feature that they are unrestricted with respect to the type of phrase that is dislocated, even though a DP is in general most common (cf. LAMBRECHT 2001, DEWALD 2014). The Fokus-DB confirms this finding, as DPs constitute 80.2 % of the data in RDproto, 84.6 % in RDstyle[1], and 57.9 % of the data in AT. Table 4 gives examples for each type of phrase in both RD and AT.

At this point it is important to discuss the use of NPs in RD. Werth (2017:198) observed that RD is obligatorily used with a determiner, irrespective of the dialectal background of the speaker, whereas the use of determiners in AT depends on the region the speaker grew up. On the basis of his observation the example for a dislocated NP in Table 4 should be classified as AT instead. However, when defining RD and AT purely on the basis of information structure, this example has to be categorised as RD, since the interlocutors have been talking about Kennedy before, and there is hence no reason to assume that an unfelicitous reference is being repaired. This implies that – although extremely rare (only one instance in RDstyle (i.e. 1.3 %), and six items in RDproto (i.e. 6.6 %)) – RDs do not necessarily need a determiner.

This finding is supported by Meinunger (2015) who states that nouns that are not accompanied by a determiner may not be very frequent but are nevertheless possible to be used in an RD (cf. ibid.:108). He argues that the strong preference to use nouns with a determiner in RD, irrespective of dialectal background, is due to the unique characteristic feature of German that it demands a determiner when the noun is specified by an adjective (cf. ibid.:99). Hence, the combination of a person's

[1] As the syntactic features of RDstyle are not expected to diverge from the ones of RDproto, RDstyle will be disregarded in this section.

name and a determiner is part of the German grammar, while other Germanic languages, such as English, Dutch and Scandinavian languages, lack the possibility of combining name and determiner (cf. ibid.:113). This pattern is illustrated in (33), where (b) and (d) constitute the translation of (a) and (c), respectively.

(33) Mandatory combination of name and determiner in German

a. Die arme Maria hat sich das Bein gebrochen.
b. *The poor Mary has broken her leg.
c. *Arme Maria hat sich das Bein gebrochen.
d. Poor Mary has broken her leg.

If an RD is produced without a determiner, the utterance is ambiguous as the person's name could also indicate a vocative reading (cf. ibid.:100,112), and this ambiguity is also present in other Germanic languages (cf. ibid.:113). However, since German knows the possibility to combine person's names and determiners, it can avoid this ambiguity by using RD-nouns with a determiner, as NPs with a determiner may not be interpreted as a vocative use (cf. ibid.:114).

(34) Ambiguity of RD operating on an NP

a. Der_1 spinnt doch, Dirk_2! (vocative reading)
b. He_1 is bonkers, Dirk_2! (vocative reading)
c. Der_1 spinnt doch, der Dirk_1! (RD)
d. *He_1 is bonkers, the Dirk_1! (RD)
e. He_1 is bonkers, Dirk_1! (RD)

Compare (34) above: both (a) and (b) can be interpreted as telling Dirk that a third (male) person is bonkers. By contrast, this interpretation is ruled out in (c), where the determiner unambiguously indicates the coreferntial relation between pronoun and name. In English, the use of a determiner is prohibited (cf. (d)); therefore, the RD in (e) is at the surface identical to (b) which intends to address the interlocutor whose name is Dirk.

Inspecting those instances within the Fokus-DB that dislocate an NP instead of a DP reveals that the referent in all items constitutes unused information: Doctor

Eckhard von Hirschhausen (a medical practitioner and comedian), John F. Kennedy, Jürgen Klinsmann (a soccer coach), Rudi Assauer (a soccer manager) and crocodiles. Accordingly, in none of these cases the dislocation of an NP constitutes a serious risk of being interpreted as an addressation instead. Therefore, dislocating the NP is appropriate.

Table 4: Examples of the different phrase types of dislocation.

	RD	*AT*
Nominal Phrase (NP)	Nee, er war treu sein Leben lang, Kennedy. (381, Fokus-DB) 'No, he was faithful all his life, Kennedy.'	Also Sie unterstellen, dass sie das macht. Frau Lötzsch. (536, Fokus-DB) 'So you allege that she does it. Mrs Lötzsch.'
Determiner Phrase (DP)	Auf der linken Außenbahn, da ist er bärenstark, der Thomas. (521, Fokus-DB) 'At the left outside lane, he is pretty strong, Thomas.'	Also das wär natürlich der Oberknaller, wenn er hier zu lange gewartet hätte. Der Thomas. (499, Fokus-DB) 'Well, this would be the ultimate sockdolager, if he had waited here too long. Thomas.'
Prepositional Phrase (PP)	Und da hab ich keinen Bock drauf, auf Stress. (255, Fokus-DB) 'And I'm not up for it, for stress.'	Und die werden einfach nichts dafür tun, für die Umwelt. (395, Fokus-DB) 'And they're not going to do anything for it, for the environment.'
Verbal Phrase (VP)	Also das würd ich keinem anempfehlen, das so zu machen. (526, Fokus-DB) 'Well, I would not recommend that to anyone, doing it this way.'	Warum wolltest du's? Aufgeben? (700, Fokus-DB) 'Why did you want it? To give up?'
Complementizer Phrase (CP)	Ja, das werden wir gleich sehen, ob ich der Beste bin. (774, Fokus-DB) 'Well, we'll see it soon, whether I'm the best one.'	Äh das will ich natürlich vermeiden. Also dass ich Letzter werde. (702, Fokus-DB) 'Err, of course I want to avoid this. Well, that I end up being the last one.'

In addition to the fact that neither RD nor AT is restricted as to the kind of syntactic phrase that is dislocated, the proform is in both constructions not restricted to a certain position within the matrix sentence (cf. e.g. DEWALD 2014). This pattern contrasts with left dislocation (LD) and hanging topic (HT) where the position of the proform in the matrix sentence gives information on the type of construction (cf. DEWALD 2014:71[2]). The same is true for the type of pronoun: while LD can only use D-pronouns, HT can also make use of personal pronouns (cf. ibid.); by contrast, both RD and AT can make use of personal pronouns as well as of D-pronouns[3]. Both properties are exemplified in (35).

(35) Free position of proform in RD and AT

a. Ich kann **ihn/den** nicht leiden, den Benjamin. (RD)
   'I can't stand him, Benjamin.'
b. **Er/Der** ist einfach fürchterlich, der Benjamin. (RD)
   'He's just awful, Benjamin.'
c. Ich kann **ihn/den** nicht leiden. Den Benjamin (meine ich). (AT)
   'I can't stand him. Benjamin (I mean).'
d. **Er/Der** ist einfach fürchterlich. Der Benjamin (meine ich). (AT)
   'He's just awful. Benjamin (I mean).'
e. Der Benjamin, ich kann **den/ihn** nicht leiden. (HT)
   'Benjamin, I can't stand him.'
f. Der Benjamin, **er** ist einfach fürchterlich. (HT)
   'Benjamin, he's just awful.'
g. Der Benjamin, **der** ist einfach fürchterlich. (LD)
   'Benjamin, he's just awful.'

Apart from these similarities, RD is in general syntactically more constrained than AT. In contrast to AT, multiple RDs are prohibited (example (36); cf. AVERINTSE-VA-KLISCH 2009:52), and also no clause may intervene between the matrix sentence

[2] "[…] scheint für LV-Strukturen die ausschließliche Verwendung des d-Pronomens in der Vorfeldposition eine tatsächliche Beschränkung und damit die einzig mögliche Realisierung für LV-Strukturen zu sein." (DEWALD 2014:71).

[3] The term D-pronoun is in this thesis used to refer to both the demonstrative pronouns DIESER, DIESES, DIESE ('that/this') and to the demonstrative pronouns DER, DIE, DAS ('that/this'; cf. the use of D-pronouns in DEWALD 2014). Accordingly, the term D-pronoun contrasts with the notion of personal pronouns.

and the right dislocated element, i.e. RD has to be adjacent to its matrix structure (see example (37); cf. LAMBRECHT 2001:1068 for an apparently universal pattern, and AVERINSTEVA-KLISCH 2008:220, DEWALD 2014:88 and WERTH 2017:195 for German).

(36) Multiple RD and AT

a. *He$_1$ gave them$_2$ to his sister, Peter$_1$ the keys$_2$. (RD)
b. He$_1$ gave them$_2$ to his sister. Peter$_1$. The keys$_2$. (AT)

(37) Adjacency in RD and AT

a. *I can't stand him, you know, Peter. (RD)
b. *I have seen him yesterday, while being shopping, Peter. (RD)
c. I can't stand him, you know. (I mean) Peter. (AT)
d. I have seen him yesterday, while being shopping. (I mean) Peter. (AT)

As visible in (37c, d), the adjacency constraint also covers the use of set phrases like 'I mean', which is only possible for AT.[4] That RD conforms to the adjacency constraint while AT does not, is also observable in the Fokus-DB, although especially the use of cue phrases appears to be extremely rare: three out of 38 ATs (i.e. 7.9 %) show an additional clausal constituent (e.g. a clause, a sentence or a tag question) before the corrective. By contrast, in none of the (in total) 169 instances of RD a syntactic disruption is observed. Further, none of the RD-items is used with a set phrase (e.g. 'also' or 'meine ich'), whereas one instance is found for AT. Example (38) shows the AT employing a set phrase, (39) displays instances of additional clausal material. In these examples proform and corrective expression are marked by bold face, while the additional clauses and set phrases are underlined.

(38) AT with set phrase

Äh **das** will ich natürlich vermeiden. Also **dass ich Letzter werde**. (702, Fokus-DB)

'Err, of course I want to avoid **this**. Well, **that I end up being the last one**.'

[4] Nakatani and Hirschberg (1994) noted that cue phrases like 'I mean' are explicit corrective phrases (ibid.:1604) and therefore common in repairs (ibid.:1606). Their observation further strengthens the assumption that AT is used as a repairing device.

(39) ATs with intervening clausal material

a. **Die** können gar nicht genug dazu beitragen. Ich würde das noch sogar äh erhöhen. **Die Banker**. (405, Fokus-DB)
   '**They** can't do enough for it. I, personally, would even, err, increase it. **The bankers**.'
b. Außerdem ist **das** fast ne Aufwertung, oder? **Der Pullunder**? (403, Fokus-DB)
   'Moreover, **it**'s almost an upgrade, isn't it? **The slipover**?'

One last difference between RD and AT that is discussed in the literature is that while AT and its proform merely need to agree in number[5], the proform and the RD-expression have to agree in number, case, and gender (cf. e.g. AVERINTSEVA-KLISCH 2008, DEWALD 2014). This would imply that cases as in (40) would be automatically interpreted as AT.

(40) Agreement of case, gender and number

Ich	hab	es	gesehen	den	Wagen.
I	have	it.N	seen	the.M	car

'I have seen it, the car.'

It is commonly assumed that the agreement in number of proform and RD-/AT-element is automatically achieved due to the coreference relation that holds between these two expressions (cf. e.g. DEWALD 2014:111). However, there are voices that object to the assumption that RD needs to agree with its proform with respect to gender. Vilkuna (1989) found for Finnish that RD only needs agreement of number and case, while Werth (2017) found the same for German; already in his handbook article, Lambrecht (2001) only mentioned an agreement of case and number for RD. The Fokus-DB once again provides relevant examples, with 12 instances of RDproto (out of 79, i.e. 15.2 %) and 5 instances of RDstyle (out of 67, i.e. 7.5 %), showing non-agreeing gender in matrix sentence and dislocated phrase.[6] Compare

[5] The topic of case agreement in AT will be taken up in more detail in section 1.1.

[6] This diverging number of RD instances is due to the fact that only items dislocating NPs or DPs were considered, since it is not possible to determine gender mismatch for more complex phrases like PPs, VPs or even CPs.

(41), in which (a) constitutes an example of a stylised RD, since the referent has not been previously mentioned, and (b) constitutes an instance of RDproto.

(41) RD without gender agreement

a. **A**: Wir haben uns schon mal gesehen. Wie gesagt bei dieser Veranstaltung mit Bio. **B**: Ja. So war's. **A**: Dann hab ich gesagt, kommt doch gleich am nächsten Tag in die Sendung, aber ihr wolltet das noch perfektionieren. Und das ist äh euch gelungen. **B**: Danke. **A**: Ja? Sieht ja schwer beeindruckend aus. Vielleicht mal ganz kurz: was, was ist das, **die Medien- äh Hochschule**? Äh, welches Berufsziel hat man da? **B**: Äh, Journalist. (329, Fokus-DB)

   '**A**: We have met before. In this show with Bio [Alfred Biolek]. **B**: Yes. That's right. **A**: Then I said, why don't you come to my show right the other day, but you still wanted to perfect this. And you succeeded. **B**: Thanks. **A**: Yes? Looks extremely impressive. Maybe just real short: what is this, **the media err academy**? Err, at which career goal do you aim there?'**B**: Err, Journalist.'

b. **A**: Ja, aber **Pizzateig** braucht doch kein Mensch, oder? Man kauft ne Fertig**pizza**, rein ins Rohr. Ja? Wer unbedingt will, okay, **Ø** noch vorher aus der Verpackung rausnehmen. Aber ansonsten. Schmeckt **das** denn, **so'n Pizzateig**? (474, Fokus-DB)

   'A: Yes, but no one needs **pizza dough**, do they? You buy a frozen **pizza**, put **it** in the oven. Right? Who desperately wants to, okay, take **it** out of the wrapping. But apart from that. Does **it** even taste good, **such a pizza dough**?'

Most interestingly, the agreement of gender is predominantly facultative in cases where a generic reading[7] is available (8 out of 12 instances of RDproto; 3 out of 5

[7] Note, however, that the expression "so ein" ('such a') is 'referential' in Gundel and colleagues' (1993) terminology rather than 'type identifiable', which would have been expected for a generic reference. Yet, the expression SO'N PIZZATEIG ('such a pizza dough') does not refer to a specific referent but to a specific class of referents. Compare the following example:

So ein Löwe hat scharfe Zähne. ('Such a lion has got sharp teeth.')

Clearly, this sentence does not refer to a specific individuum but to the class of lions in general. The sentence therefore displays a generic reading.

items of RDstyle). Yet, these examples prove that RD only needs to agree in case and number with its matrix-sentence internal proform.

Based on these observations it is commonly agreed that ATs do not form a syntactic unit with their 'matrix sentences' but are rather bound to them only by means of discourse pragmatics. This kind of analysis was proposed for Norwegian by Fretheim (1995:45f), and for English, Russian and German by Averintseva-Klisch (2008:218; for German also DEWALD 2014). As AT is syntactically not connected to the sentence it repairs and the term matrix sentence is hence misleading, I will use the term *host clause* in the following. The term host (or anchor) clause is typically used in research on parenthesis and refers to the clause to which a parenthetical is added (cf. DÖRING 2007). Since parentheses do not syntactically belong to the clause they modify either, it appears only logical to borrow the terminology. Although previous research agrees on RD being syntactically integrated into the matrix clause[8] (cf. e.g. ALTMANN 1981), there is only little consensus as to its exact syntactical analysis. Since there are many different, not undisputed, approaches to RD, I will begin in the following with the review of the syntactic analyses of AT.

2.2.2 Syntactic analyses of AT

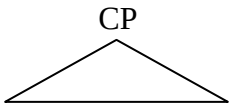
Averintseva-Klisch (2009)

Averintseva-Klisch (2009) proposed to analyse ATs as syntactic orphans, i.e. as a syntactic unit that is not connected to the sentence it modifies. Orphans are bound to their hosts only at the discourse level[9]; hence, there are no syntactic dependencies between the host and AT. This approach explains why AT is (relatively) free with respect to case and gender marking, and why AT does not conform to island constraints (i.e. why additional clauses may stand between host and AT). It can also explain why there are multiple possible positions in a sentence where AT may appear (ibid.:61f). Example (42) displays a syntactic tree for AT as proposed by Averintseva-Klisch (ibid.:63).

[8] Only Frey and Truckenbrodt (2015) deviate from this assumption, as will be explained in more detail below (section 2.2.3).

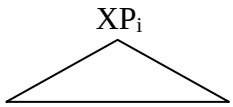
[9] I.e. the full interpretation of syntactic orphans is only achieved when they are contextualised (cf. HAEGEMAN 2009/2011:345).

(42) Orphan-analysis of AT



Er$_i$ hat mir geschrieben.

'He wrote me.'



(Ich meine) der Peter.

'Peter (I mean).'

Averintseva-Klisch (ibid.:64) concludes that the orphan-analysis is the most appropriate way to interpret AT[10], since repairs could not be understood as grammatical phenomenon but rather as a mechanism of speech processing.

Dewald (2014)

The analysis by Dewald (2014) contrasts in two respects with the analysis proposed by Averintseva-Klisch's (2009). First, Dewald (2014:112) argues that the fact that AT often agrees in case with the coreferential proform (although it does not need to) is best explained by means of a syntactic 'repair loop' in the sense of Uhmann (1996)[11]; this approach contradicts Averintseva-Klisch (2009) who views repairs as not belonging to grammar. Second, Dewald (2014:164ff) proposes to analyse AT as part of a biclausal structure, i.e. the host and the AT are both generated as the same sentence, being realised as immediate subsequent units. In the host, the complete sentence is produced, only entailing the proform, whereas in the second sentence merely the AT-XP is realised (cf. example (43) and also DEWALD 2014:169).

(43) Biclausal structure in AT

[$_{CP1}$ den kenne ich] [$_{CP2}$ [den Peter]$_i$ ~~kenne ich t_i~~]

'Him I know. Peter ~~I know~~.'

In her argumentation, both sentences are generated but PF produces an IP-ellipsis of the second sentence, i.e. AT only happens at spell-out. Further, the agreement of

[10] Please note that this analysis has also been proposed for HT but not LD (cf. SHAER 2009/2011), which mirrors Averintseva-Klisch's (2009) approach for the right sentence periphery at the left periphery.

[11] The mechanism 'repair loop' will be dealt with in more detail in chapter 1.1.

proform and lexical phrase would follow from the argument structure that is identical for both sentences (cf. DEWALD ibid.:170).
However, there are arguments which speak against such an analysis of AT. First, this approach does not account for instances of gender- (or case) mismatch (cf. (41b)). A biclausal structure would predict ATs in the form of (44a'), but not the one observed in the spontaneous speech corpus ((44a)):

(44) Counter evidence for a biclausal analysis of AT

a. Außerdem ist das fast ne Aufwertung, oder? Der Pullunder.
   'Moreover, this is almost an upgrade, isn't it? The slipover.'

a'. [$_{CP1}$ außerdem ist das fast ne Aufwertung, oder] [$_{CP2}$ *[das Pullunder]$_i$ ~~ist schon fast ne Auwertung t_i, oder~~]

In the example above, (44a') is not well-formed since the determiner and the noun do not agree in gender, as DAS is neuter and PULLUNDER is masculine.
Another counterargument to the account of a biclausal structure is provided by the fact that AT may also use lexical phrases other than DP, e.g. CPs (cf. Table 4). If we want to correctly predict such instances, we would have to assume that PF is able to pronominalise the CP on its own during spell-out, as displayed in (45).

(45) Spell-out for AT with CP

a. [$_{CP1}$ [dass ich Letzter werde] will ich vermeiden] [$_{CP2}$ [dass ich Letzter werde] will ich vermeiden]

b. [$_{CP1}$ das will ich vermeiden] [$_{CP2}$ [dass ich Letzter werde] will ich vermeiden]

c. [$_{CP1}$ das will ich vermeiden] [$_{CP2}$ [dass ich Letzter werde] ~~will ich vermeiden~~]
   'I want to avoid this, that I'll end up being the last one.'

As can be seen in (45a), the whole sentence is already consisting of two CPs, one of which is subordinate to the verb of the main clause. Although pronominalisation of this subordinate CP does not alter the fact that this constituent is an argument of the verb, it still results in a different syntax (cf. (45b)), as the subordinate clause is deleted. Lastly, PF elides the superordinate clause during spell-out.

Summary

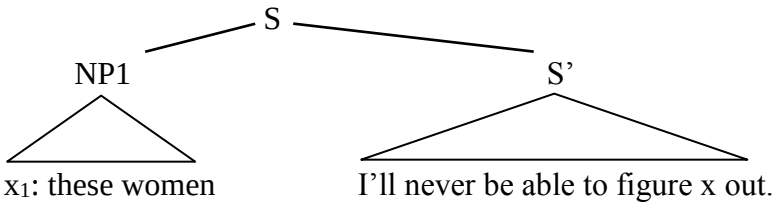
Regarding the syntactic analysis of AT, I have shown that the biclausal-account neither properly predicts instances of AT that use other lexical phrases than DP, nor instances of gender mismatch or instances in which a personal pronoun is used instead of a D-pronoun. I agree with Averintseva-Klisch (2009) that AT is best analysed as syntactically independent unit, i.e. as a syntactic orphan.

2.2.3 Syntactic analyses of RD

Gundel (1977)

Gundel (1977) proposes on the basis of the similarities between LD and RD that the two constructions should share the underlying syntax. She argues that assuming movement (or extraction) for both structures which works differently depending on the type of periphery misses important generalisations (cf. ibid.:119). Hence, she proposes that LD is base generated in the logical structure of a sentence ("logical structure hypothesis"; cf. ibid.:55), i.e. LD-phrases are base generated in their surface structure position. The logical structure hypothesis assumes that an underlying logical structure as in (46) will generate an LD in three steps: first, a stress placement rule assigns the nucleus to the rightmost non-variable element in the sentence (OUT; cf. ibid.:54); in the second step the features of NP1 are copied to the placeholder in S'. Finally, the placeholder is pronominalised according to the features copied in step two.

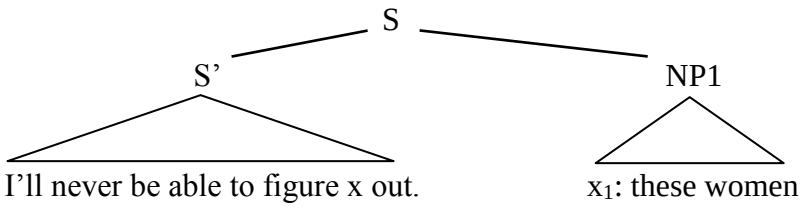
(46) Logical structure of LD (Gundel 1977:55)



Gundel (ibid.) further argues that an RD is generated by moving NP1 to the right of S'. Since the stress placement rule already assigned the nucleus of the utterance to OUT, and movement of the RD-element is only afterwards applied, her analysis

would explain why the RD-NP does not bear stress. Besides, the upward-boundedness constraint would ensure that NP1 would not be moved over the boundary of the matrix sentence[12] (cf. ibid.:125f).

(47) Gundel's analysis of RD (reconstructed from Gundel 1977:119-123)



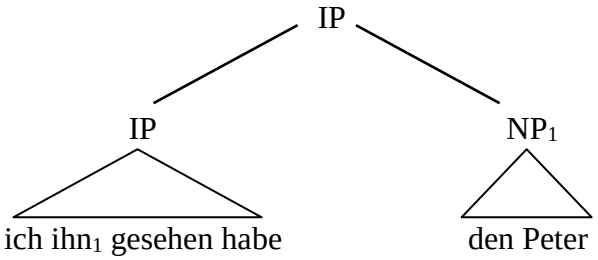
Moving NP1 out of its base position (illustrated in (46)) results in the structure displayed in (47). To summarise, Gundel (1977) analyses RD as a derivation of LD, which is base generated in its surface structure position.

Averintseva-Klisch (2009)

In contrast to Gundel (1977), Averintseva-Klisch (2009:54) argues that RD cannot be derived from LD, since the two constructions hold different discourse functions. She argues that RD marks the discourse topic for the following segment, i.e. the entity the discourse 'is about' (cf. 2.1), whereas LD merely marks the sentence topic.

(48) RD as adjunct to IP

dass



Averintseva-Klisch (ibid.:47f) analyses RD as an adjunct to IP, as illustrated in (48). However, although she states that an analysis involving movement seems to be most

[12] This constraint is especially important in cases of complex sentences. The concept of upward-boundedness explains why (a) is a well-formed example for RD, whereas (b) is not. In (b), the RD-NP is moved too far.

a. I met him recently, Peter, when I went to the zoo.

b. *I met him recently, when I went to the zoo, Peter.

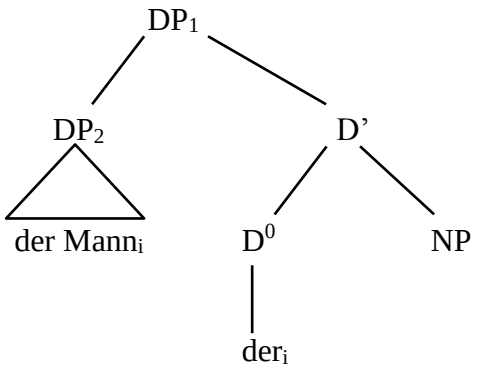
likely, she does not further specify whether RD is base generated in this position or whether it is moved there (cf. ibid.:60).[13]

Dewald (2014)

Dewald (2014), by contrast, rules out both the account of (syntactic) base generation at the right sentence periphery and the account of (syntactic) movement. Rather, she assumes that PF moves the dislocated phrase to its surface position (cf. ibid.:175ff).

Dewald argues that RD as well as LD are base generated in form of a 'Big-DP'[14] within the matrix clause (illustrated in (49)), i.e. a DP that has an additional DP in its specifier position. Since the lexical phrase as well as its proform are generated together, this would explain the agreement of case and gender between RD and proform (ibid.:176f).

(49) 'Big-DP'



Dewald (ibid.:186f) further argues that, due to its status as being the current discourse topic, the RD-NP necessarily has to be deaccented. Therefore, the NP has to be moved into a sentence position in which it is in any case deaccented, i.e. it has

[13] However, Frey (2015) showed on the basis of the construction 'extraposition' (the construction Frey refers to in his article rather corresponds to *Ausklammerung* than to extraposition with respect to the terminology introduced in chapter 1) that German does not allow syntactic movement towards the right. Accordingly, Averintseva-Klisch's (2009) assumption that RD is a result of rightward movement does not seem to be correct.

[14] This concept is borrowed from Grewendorf (2009:64), who argues that German LD is a result of syntactic movement. Contrary to his approach, Dewald (2014:184) argues that LD is base-generated in the matrix clause and moved towards the left periphery only by means of PF.

to be moved into post-nuclear position (cf. section 2.4)[15]. However, this movement is not syntactic but purely a mechanism of PF (exemplified in (50), where capital letters indicate the nuclear accent). This way, the adjacency of matrix clause and RD-phrase is also accounted for by PF, since syntactic IPs are processed subsequently; if the RD would be realised farther away, it could not be interpreted as being part of the matrix sentence (cf. DEWALD 2014:191).

(50) PF-movement as suggested by Dewald (2014)

a. Overt realisation: …weil ich ihn LIEbe, den Kuchen.
   '…because I LOVE it, this cake.'
b. Underlying syntax: …weil ich [$_{\text{BigDP}}$ [den Kuchen] ihn] liebe
c. PF-movement: …weil ich [$_{\text{BigDP}}$ [~~den Kuchen~~] ihn] LIEbe [den Kuchen]

In assuming a Big-DP, Dewald's (2014:186) approach is also able to account for the alternation of personal pronoun and D-pronoun in the matrix clause, since DP_1 can be either occupied by the first or the latter[16].

Frey & Truckenbrodt (2015)

A very different approach to the syntactic analysis of RD is provided in Frey and Truckenbrodt (2015). They interpret RD as syntactically disintegrated, i.e. as not belonging to the host.

In their article, the difference between RD and AT is defined on the basis of prosody, i.e. that RD does not bear stress whereas AT does (cf. ibid.:93). They argue that RD and AT behave differently from actual dislocated parts of the sentence, i.e. extraposition (EP), in that EP does not prohibit stress on the dislocated constituent and does not demand the nuclear stress to fall within the matrix sentence (cf. ibid.:96f). Further, they argue that all clause-internal constituents may be object to narrow focus, while this is not true for both RD and AT (cf. ibid.:98f). As a consequence, they propose a biclausal deletion analysis for both constructions. In case of RD also the second CP is deleted, leading to a lack of stress for RD; in AT,

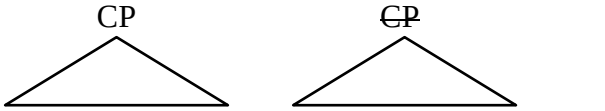
[15] Although it is not unusual that given information is also deaccented in prenuclear position, it does not need to. The possibility that also given NPs may receive an accent in prenuclear position motivates the movement towards the right (cf. Dewald 2014:186-188).

[16] Please note that this is an expansion of Grewendorf's (2009) original account, as he only refers to D-pronouns as being part of a Big-DP (cf. ibid.:64f).

to the contrary, the CP itself is not deleted, resulting in a nuclear stress on the AT-phrase (cf. ibid.:101). This difference is illustrated in (51), which is adopted from Frey and Truckenbrodt (ibid.).

(51) Biclausal sentence deletion for RD and AT

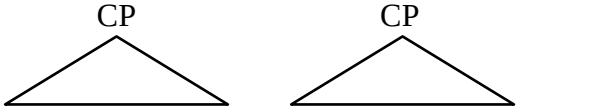
a. RD:



Er hat sie geSEHen ~~er hat~~ die Maria ~~gesehen~~

'He has SEEN her ~~he has seen~~ Maria'

b. AT:



Er hat sie geSEHen ~~er hat~~ die MaRIa ~~gesehen~~

'He has SEEN her ~~he has seen~~ MaRIa'

However, I have shown before that RD and AT are best defined on the basis of information structure (cf. 2.1), i.e. by their status of being given information (previous mention) and also the topic of the sentence. The argument by Frey and Truckenbrodt (2015:98f) that clause-internal constituents usually may be focused is indeed true; but given the fact that an RD is only possible if the referent is highly salient in the discourse (by either being situationally available or explicitly mentioned), it is quite obvious that it constitutes given information – which is usually not focussed. Compare examples (52a) and (52b): both are not well-formed with respect to the assignment of narrow focus (focus is indicated here by receiving an accent).

(52) Narrow focus

a. Wen hat Marias$_i$ Vater gesehen? – *Er hat sie$_i$ gesehen, die MaRIa$_i$.[17]
   'Whom did Maria$_i$'s father see? – *He saw her$_i$, MaRIa$_i$.'
b. Peter war gestern einkaufen. *ER brauchte Bananen.
   'Peter went to the supermarket yesterday. *HE needed bananas.'

[17] This example is borrowed from Frey and Truckenbrodt (2015:98).

(52b) is not well-formed because '*Peter*' has been mentioned and established as topic in the first sentence. Marking the coreferential pronoun in the second sentence with a narrow focus is usually not well-formed[18]. Since RD is mainly used in contexts in which its referent has already been established as the sentence topic (ST) before, the RD-DP may not be marked by narrow focus. In (52a), the question implies that the answer is not already known by the asker. The answer would accordingly constitute new information. Producing an RD in this situation would hence violate the requirement for RD-referents to constitute known information. However, it could be argued that '*Maria*' is aforementioned in the question. Yet, this mention happens as part of the actual referent '*Vater*'. It is questionable whether such an 'implicit' mention suffices to render an RD possible, see (53).

(53) RD on 'implicitly' mentioned entities

a. Ich habe Marias Vater getroffen. ?Sie ist krank, die Maria.
   'I met Maria's father. ?She is sick, Maria.'

The second major argument in Frey and Truckenbrodt (2015:96f) for assuming that RD is syntactically disintegrated, is that RD and AT behave differently from EP, which is known to form an actual constituent of the sentence. They argue that EP receives the nuclear accent if produced in wide-focus contexts. However, the chosen examples (reported here in (54)) are, in my opinion, not well-suited as evidence: in (54a), the extraposed element is part of the complex DP EIN BUCH VON CHOMSKY, in (54b), a full CP is extraposed[19]. In both cases, these elements would also receive the nuclear accent if produced in their original sentence position, see (55).

(54) Examples for EP (cf. Frey &Truckenbrodt 2015:96; translation JK)

a. Maria hat ein Buch *t* gelesen von CHOMsky.
   'Maria has read a book by Chomsky.'
b. Peter hat *t* gesagt, dass es REGnen wird.
   'Peter said that it is going to rain.'

[18] Narrow focus marking would only be possible if contrasting Peter with, e.g., his girlfriend, who needed something different from the store. Nevertheless, given the context in (52b), the second sentence is not an appropriate continuation.

[19] Please note that sentential arguments are impossible in the Mittelfeld (cf. Berman 2003:140), as indicated by the asterisk in (55b). However, if assuming that this position would be grammatical, REGNEN would receive the nucler accent.

(55) Canonical word order

a. Maria hat ein Buch von CHOMsky gelesen.
   'Maria has read a book by Chomsky.'
b. *Peter hat, dass es REGnen wird, gesagt.
   'Peter said that it is going to rain.'

However, often constituents are extraposed that do not receive the nuclear accent under wide focus, as exemplified in (56). If lack of a nuclear accent before the EP is considered a clue for being syntactically disintergrated, then there could not be a uniform syntactic account to EP. Consequently, employing the prosodic realisation of a construction to draw conclusions about its syntax is not the correct procedure.

(56) Canonical sentences and their unaccented EPs

a. Die Kinder spielen den ganzen Tag am GAMEboy rum.
   'The kids are playing the whole day with their gameboy.'
b. Die Kinder spielen am GAMEboy rum den ganzen Tag.
   'The kids are playing with their gameboy the whole day.'
c. Die Katze hat gestern vor dem TOR gesessen.
   'Tha cat was sitting yesterday in front of the gate.'
d. Die Katze hat vor dem TOR gesessen gestern.
   'The cat was sitting in front of the gate yesterday.'
e. Ich habe mit einem Käse die MAUS gefangen.
   'I caught with a cheese the mouse.'
f. Ich habe die MAUS gefangen mit einem Käse.
   'I caught the mouse with a cheese.'

(57) Island sensitivity of RD and AT

a. That she is sick, Mary, I heard yesterday. (RD)
b. *That she is sick, I heard yesterday, Mary. (RD)
c. That she is sick, I heard yesterday. (I mean) Mary. (AT)

In addition, Averintseva-Klisch (2009) has shown that RD has to be considered part of the matrix clause since it is sensitive to syntactic islands whereas AT is not (cf. (57)).

Summary and Discussion

Frey and Truckenbrodt (2015) analyse RD as not syntactically integrated into the matrix clause. I clearly do not consent with their interpretation for two reasons: first, they define RD and AT on the basis of prosody rather than on the basis of information structure; second, RD conforms to island constraints, which is an unambigious indicator for syntactic integratedness.

Table 5 summarises the (morpho-)syntactic properties of RD and AT that have been discussed in the course of this chapter.

Table 5: (Morpho-)syntactic properties of RD and AT.

	RD	*AT*
type of proform	D-pronoun, personal pronoun	D-pronoun, personal pronoun
type of syntactic phrase	unrestricted	unrestricted
necessarily adjacent to matrix / host clause	yes	no
agreement	number, case	number, (case?)
integratedness	true syntactic connection	discourse pragmatic binding only

Averintseva-Klisch (2009) ruled out that RD could syntactically be analysed as a mirror image of LD, since RD and LD do not share the same discourse function. As I already stated above (section 2.1), I do not agree with Averintseva-Klisch with respect to the discourse function of RD. More specifically, I do not think that RD marks the discourse topic of the subsequent unit but rather just the sentence topic. Accordingly, RD and LD, in my view, hold the same function in denoting the sentence topic. As a consequence, RD can be analysed as a mirror image of LD.

However, the approaches by Gundel (1977) and Dewald (2014) that interpret RD in this way share one major shortcoming: they do not capture the possibility of gender-mismatch in RD. In Gundel (1977) the pronominalisation in step three is based on the features copied in step two; since the DP already contains the gender information, it should not be possible to use a pronoun with a deviating gender. The same is true for Dewald's (2014) approach, since lexical phrase and proform are generated together in the Big-DP.

2.2.4 Summary

In this chapter we have seen that RD and AT show different degrees of syntactic integration. AT is free with respect to its position inside and outside the sentence it repairs and does, accordingly, not conform to island constraints. Further, AT only has to show agreement in number with the sentence internal proform.[20] As a consequence, AT is understood as syntactically not belonging to the sentence it repairs. Therefore, I follow Averintseva-Klisch's (2009) analysis in interpreting AT as syntactic orphan. The biclausal analysis suggested in Dewald (2014) is not appealing, as it does not account for instances of case or gender mismatch between AT and proform.

RD, on the other hand, conforms to island constraints and is therefore directly adjacent to its matrix clause. In addition, RD needs to agree with its proform not only in number but also in case. There are many different syntactic accounts regarding RD; however, the ones described in this chapter are all positioned within the framework of *Generative Grammar*. Gundel (1977) employs the theory of *Government & Binding*, whereas Dewald (2014) operates within the *Minimalistic Program*. Although these accounts differ with respect to assuming movement or base generation, they have in common that none of them is capable of explaining the possibility of gender mismatch in RD. It appears that the framework of *Generative Grammar* is not suited to capture the syntax of RD. Already Wasow and Arnold (2005) formulated criticism at the framework of Generative Grammar, stating that research within this framework is overrelying on introspective intuittions of well-formedness (ibid.:1481) and often neglecting experimental findings (ibid.:1495). For this reason, all accounts that have been presented in the course of this chapter have been evaluated with respect to their ability to explain actual spontaneous data. As none of the accounts explains spontaneous data satisfactorily, I propose to analyse RD in the framework of *Lexical-Functional Grammar* instead. I will provide an analysis in chapter 3.3, resting on the analysis of LD suggested in Berman (2003).

[20] However, there is some discussion as to the agreement of case in AT. This issue will be dealt with in more detail in the following chapter (1.1).

2.3 Morphology – Case agreement

We have seen so far that there is a consensus as to the presence of intervening clauses between core sentence and dislocation, and to the use of set phrases[1] in RD and AT. However, the issue of agreement between proform and dislocated phrase is less obvious: according to López (cf. 2016:405), D-type dislocations[2] necessarily agree in gender, number, person and case with the coreferential proform, whereas H-type dislocations do not show case agreement. Previous research on German concurs on this obligatory case and gender agreement for RD[3], but has diverging assumptions regarding AT. While Lambrecht (1981, 2001) does not discuss this topic, Dewald (cf. 2014:111) observes that case agreement is obligatory for AT, but gender agreement is not necessary. Example (58) shows an AT where the pronoun SIE is feminine (F) and the NP DAS MILCHMÄDCHEN is neuter (N):

(58) AT (free adaptation of Dewald (2014:111))
Ich habe sie schon ewig nicht mehr gesehen. Das Milchmädchen.
ich habe sie schon ewig nicht mehr gesehen das
I have her.F already eternally not anymore seen the.N
milchmädchen
milkmaid.N
'I haven't seen her for a long while. The milkmaid.'

By contrast, Averintseva-Klisch (2009:25) notes that the acceptability of (58) is due to the gender-sex-difference in the semantics of MILCHMÄDCHEN, as the word MÄDCHEN is of the neuter gender but refers to a female person. Hence, Dewald's example cannot necessarily be seen as evidence for the possibility of gender disagreement in AT. Examination of the database Fokus-DB, however, indicates that

[1] I will refer to these set phrases ('also', 'meine ich') in the following also as *cue phrases*, following the terminology of repair research.

[2] López distinguishes two classes of dislocation: one that is "[…] syntactically linked to a position in the core structure (D-type) […]" (2016:402) and one that is "[…] connected only in the process of interpretation (H-type)" (ibid.). As we have seen earlier, RD belongs to the former, AT to the latter class.

[3] The only exception to gender agreement pose type-referential DPs with a generic reading (cf. section 2.2.1).

Dewald's (2014) example was simply unfelicitous, since we find 6 out of 26[4] ATs (i.e. 23.1 %) with diverging gender in proform and corrective phrase. One of these ATs is given exemplarily in (59), where the pronoun has the neuter gender while the DP has the masculine gender. For a better understanding of this utterance note that the interlocutors are talking about a perineum massage during pregnancy and a device that has been constructed in order to facilitate the massage when it is carried out by the woman herself.

(59) AT (402, Fokus-DB)
[…] dass <u>das</u> doch ziemlich fest eingequetscht wird. <u>Der Damm</u>.
dass das doch ziemlich fest eingequetscht wird der damm
that it.N indeed fairly tightly squeezed is the.M perineum.M
'[…] that <u>it</u> is indeed fairly tightly squeezed. <u>The perineum</u>.'

Averintseva-Klisch (2009:25) advocates an even more extreme position and argues on the basis of the example given in (60) that AT is not only free with regard to gender agreement but that it also does not necessarily need case agreement.

(60) AT (free adaptation of Averintseva-Klisch (2009:25); gloss and translation JK)
a. Ich sah <u>ihn</u> gestern im Tiergarten. Ich meine <u>den Otto</u>. / ??Also <u>der Otto</u>.
ich sah ihn gestern im tiergarten ich meine den otto /
I saw him.ACC yesterday in.the zoo I mean the.ACC otto /
also der otto
well the.NOM otto
'I saw him yesterday at the zoo. I mean Otto. / Well, Otto.'

b. <u>Er</u> traf Peter gestern im Tiergarten. Ich meine <u>der Otto</u> / <u>den Otto</u>.
er traf peter gestern im tiergarten ich meine der otto /
he.NOM met peter yesterday in.the zoo I mean the.NOM otto /
den otto
the.ACC otto
'He met Peter yesterday at the zoo. I mean Otto.'

[4] These 26 items only include utterances with either a DP or an NP being repaired, since gender (mis)match cannot be evaluated for repaired PP, VP or CP.

The sentences in (60) differ with respect to the case of the pronoun in the host sentence (accusative in (a), nominative in (b)) and also with respect to the acceptability/well-formedness of the case mismatch. Note that the case mismatch in (60b) where the cue phrase 'ich meine' stands with the accusative 'den Otto' is rather well-formed as compared to the case mismatch in (60a) where the set phrase 'also' stands with the nominative ('der Otto'). This difference in the acceptability or well-formedness, respectively, is indicated by the question marks that are already given in Averintseva-Klisch (2009:25). Hence the question emerges as to why the case mismatch in (60b) is more acceptable than the one in (60a). One possible explanation is that both speaker and listener re-analyse the intransitive set phrase 'ich meine' as the homophonous transitive verb 'meinen'.

As illustrated in (61), both set phrases 'also' and 'ich meine' do not demand a specific case but can stand with all four cases of German. The intransitive cue phrase 'ich meine' without case preference is a homonym of the German transitive verb 'meinen' that obligatorily demands the accusative.[5] Assuming a re-analysis of the cue phrase 'ich meine' towards the transitive verb 'ich meine' could explain the preference for the case mismatch in (60b) as opposed to (60a).

(61) Use of 'also' and 'ich meine' in combination with different cases

a. Er war gestern einkaufen. Also/Ich meine, der Frank.

er	war	gestern	einkaufen	also / ich	meine	der	frank
he.NOM	was	yesterday	buy	well / I	mean	the.NOM	frank

'He was doing the groceries yesterday. Well / I mean, Frank.'

b. Ich hab sein Auto gesehen. Also/Ich meine, Franks.

ich	habe	sein	auto	gesehen	also / ich	meine	franks
I	have	POSS	car	seen	well / I	mean	frank.GEN

'I've seen his car. Well / I mean, Frank's.'

c. Ich hab ihm einen Ballon gegeben. Also/Ich meine, dem Frank.

ich	hab	ihm	einen	ballon	gegeben	also / ich	meine	dem	frank
I	have	him.DAT	a	balloon	given	well / I	mean	the.DAT	frank

'I've given him a balloon. Well / I mean, Frank.'

[5] Evidence that 'ich meine' can be both an intransitive cue phrase (or illocutionary marker) and a transitive verb is provided by the fact that the first allows for a comma before the DP (cf. (61)) whereas a comma is strictly prohibited in the latter, as the DP is a true argument of the verb.

d. Ich hab ihn gesehen. Also/Ich meine, den Frank.

Ich	hab	ihn	gesehen	also / ich	meine	den	frank
I	have	him.ACC	seen	well / I	mean	the.ACC	frank

'I've seen him. Well / I mean, Frank.'

Although Averintseva-Klisch (2009:25) acknowledges this asymmetry in acceptability/well-formedness, she neglects a possible re-interpretation through speaker and listener. Instead, she assumes that AT is characterised by a default-nominative marking (cf. ibid.:26), a view that is shared by Werth (2017:193).

Assuming a default-nominative marking would certainly explain instances of case mismatch in AT to some degree. However, a counterargument for this assumption is already provided by her own example (see (60a)): the case mismatch between the accusative pronoun and the nominative AT-DP is marked as possibly ill-formed (indicated by '??'). Please recall that this marking is already given in Averinsteva-Klisch (2009:25).

However, if we follow Averintseva-Klisch in assuming a default-nominative in AT, case mismatch should rather be the norm than an exception. In addition, case agreement in instances with accusative pronouns would be ruled out by a default-nominative; the same is true for a case mismatch in nominative pronouns (see example (60b)). Accordingly, we would expect to find the pattern illustrated in (62a) in corpora of spontaneous speech. However, since AT on genitive or dative referents is rather uncommon, the expected pattern would reduce to the one given in (62b).

(62) Assumed order of case (dis-)agreement in AT

a. NOM-NOM > ACC-NOM / GEN-NOM / DAT-NOM > (ACC-ACC > NOM-ACC)
b. NOM-NOM > ACC-NOM > (ACC-ACC > NOM-ACC)

Examining the Fokus-DB shows that all instances of AT show case agreement of proform and DP. This pattern clearly speaks against the assumption of a default-nominative marking. In the corpus examined by Werth (2017), however, there are instances of case mismatch; hence he endorses the assumption of a default-nominative marking in AT (cf. ibid.:193).

Turning back to the question whether the cue phrase ‘ich meine’ is possibly re-analysed by both the speaker and the listener, the Fokus-DB cannot be adduced as a source of evidence: merely one of the ATs within the database is used with a set phrase (‘also’ = ‘well’), and this set phrase is used in the context of a CP.

Since there is not sufficient data to provide satisfying answers, the two questions remain: (i) is AT less restricted in terms of case agreement than RD, and (ii) if so, why do there seem to be differences in the acceptability of case disagreement, as observed in (60)?

Dewald (2014:112) offers a promising analysis of AT that is able to answer the first question. She argues that AT is syntactically not obliged to agree in case with the proform, but that it still favours an agreeing case marking due to the repair function it holds: being a repair mechanism for ambiguous references, AT works exactly like other types of repairs in spontaneous speech. Uhmann (1996) formulated the concept of ‘repair loops’ (‘Reparaturschleifen’, illustrated in (63)). This concept states that, in order to produce a well-formed repair, the functional head of the phrase in which the error occurred has to be repeated.

(63) Illustration of the ‘repair loop’ by Uhmann (1996)

Ich bin in den Zug gestiegen. In den Bus. / ??Den Bus. / *Bus.

ich bin in den zug gestiegen. in den bus. / ??den bus. / *bus.

I am on the train step.in on the bus the bus bus

‘I got on the train. On the bus. / ??The bus. / *Bus.’

Since repairs are syntactically not connected to the sentence they repair, the repetition of the functional phrase, in (63) the PP, helps the listener to establish a pragmatic connection between defective sentence and repair. An additional agreement of case reinforces this pragmatic connection even more. As AT is also syntactically disconnected to the defective utterance, the concept of repair loops can explain the preference for agreeing case marking, although case agreement may not be a morpho-syntactic necessity of AT.

This brings us to the second question: if AT in general allows for disagreeing case, then why is the violation of case agreement in (60b) more acceptable than the violation in (60a)? Does it depend on the case that is used in the core sentence, i.e. does the nominative allow for case disagreement while the accusative does not? Or

do ATs that are produced with the cue phrase ‘ich meine’ undergo a re-interpretation concerning the case marking of the corrective phrase; in other words: is the set phrase ‘ich meine’ re-analysed as a transitive verb that legitimises the accusative in (60b)? Chapter 3.4 will present a questionnaire study that addresses this question.

2.4 Prosody – suprasegmental differences

The underlying differences in information structure do not only elicit the morpho-syntactic constraints discussed above, but further result in differing prosodic realisations of RD and AT. In order to discuss these differences appropriately, it is necessary to start with a definition of prosody.

2.4.1 Introduction to prosody

The catch phrase 'prosody' is often used in a broader sense, subsuming both intonational and core prosodic aspects of the speech signal (e.g. in MÄNNEL 2009:3f). In the narrow sense, the term *prosody* refers to RHYTHM, i.e. the alternation of stressed and unstressed syllables, PAUSE, i.e. interruptions in speech, and TEMPO, i.e. the relative speed of speech (cf. e.g. BENWARE 1986:116), sometimes also referred to as SPEECH RATE. *Intonation*, on the other hand, means changes in pitch, i.e. modulations of the fundamental frequency (*f0*), that are produced over an utterance (cf. BENWARE 1986:111, also POMPINO-MARSCHALL 1995:234). In this thesis, I will use the term 'prosody' in the broad sense, referring to both changes in f0 and prosodic cues in the speech signal.

Prosody is described in Grice and colleagues (2005:55) as having two basic functions: first, chunking the speech signal into comprehensible units (through prosodic boundaries) and, second, highlighting the most important parts within these units (through accents).[1] With these functions, prosody "[…] shows a crucial role in sentence comprehension […]" (MÄNNEL 2009:18; similar formulation in WUNDERLICH 1988:25)[2] and is an important force in language acquisition (cf. MÄNNEL 2009:141f).

With respect to the question what exactly drives prosody, there is an approach called the *syntactic proposal* (also referred to as the *transformational account*). Within the

[1] Within these basic functions, prosody undertakes pragmatic functions as discourse structuring, emphasis, and rhetorics on the one hand and semantic functions as the marking of the sentence mode (declarative vs interrogative) or of the focus domain on the other hand (cf. WUNDERLICH 1988:2; for sentence mode cf. also GOLDBECK & SENDLMEIER 1988:306; for focus marking cf. also UHMANN 1988). Jacobs (1988:90) agrees on the function of focus marking, but further adds the functions of theme-rheme and topic-comment structuring (ibid.:115f).

[2] Nespor and Vogel (2007:270) come to the conclusion "[…] that it is prosodic structure, not syntactic structure, that provides the clues to the first stage in the analysis of incoming speech. This is not to say that syntax is not relevant at the first stage of processing in speech perception, but rather it is only indirectly relevant, mediated through the prosodic structure of a given utterance."

framework of the syntactic proposal it is assumed that the intonation of a sentence is derived from its syntax, and that syntactic and prosodic boundaries map with a one-to-one ratio[3] (among many others e.g. BIERWISCH 1966, KIPARSKY 1966, STEEDMAN 1990, and TRUCKENBRODT 2005). However, it has been shown that this assumption is too simple, as the prosody of utterances "[…] cannot generally be predicted from their syntactic structure […]" (MÄNNEL 2009:8)[4], but instead allows for other influential factors such as speaker intention (e.g. VON ESSEN 1956:26-28), discourse cohesion (DEHÉ 2007:282) and information structure (e.g. FÉRY & KÜGLER 2008:700; KÜGLER & FÉRY 2016:284) as well. Based on this empirical evidence, I follow the latter account (also referred to as the *prosodic proposal*) in this thesis, not neglecting that syntax does indeed play an important role for the prosodic realisation of utterances, but nevertheless admitting the effects of information structure and discourse cohesion, among others.

Let us now turn to the description of prosody or, more specifically, intonation. Zifonun and colleagues (1997) emphasised that there is no natural equivalent between the results of acoustic measurements and a listener's perception, and that researchers hence depend on the auditive perspective when investigating prosody (cf. ZIFONUN et al. 1997:190). Rather influencing work on this auditive perspective was provided by the so-called *British School*. Within the framework of the British School an utterance consists of at least one *tone unit* (or *tone group* in HALLIDAY (1967) and BENWARE (1986)), which is further divided into a *pre-head*, a *head*, a *nucleus* and a *tail*. The nucleus (also: *tonic* in HALLIDAY 1967 or *Schwerpunkt* in VON ESSEN 1956) constitutes the only obligatory element of that tone unit since it bears the most important accent of this utterance (cf. CRYSTAL 1969:207). The pre-head contains all unstressed syllables before the head, which contains all syllables from the first accent-bearing one up to the syllable immediately preceding the nucleus. All stressed or unstressed syllables following the nucleus belong to the tail of a tone unit (ibid.:207f). These basic concepts can still be found in the framework

[3] As for example formulated in Steedman (1990:477): "[…] surface structure is identical to intonational structure, and prosodic phrase boundaries invariably coincide with syntactic ones."

[4] Similar formulations are found for example in Selkirk (1984:285; "In other words, the syntactic structure of a sentence cannot be said to *determine* its intonational phrasing. […] Thus the relation between syntactic structure and all aspects of intonational structure can be depicted as one-to-many mapping."), in Nespor and Vogel (2007:37; "[…] direct reference to syntactic constituents does not make the correct predictions about the domain of phonological rules."), and in Selkirk (2011:478; "[…] it [the phonological structure of a sentence] cannot be accounted for by theory of syntax alone.").

of *autosegmental-metrical phonology* (hereafter AM phonology; cf. LADD 2008). This framework assumes separate tiers of phonological segments that are autonomous (hence auto-segmental) and code for different features (cf. GOLDSMITH 1990:27f;8f), e.g. one tier for metrics (i.e. unstressed vs stressed syllables) and an additional tier for tones. Although the tiers themselves are autonomous, they are linked with each other via association lines that display, for example, on which syllable a tone is produced (cf. ibid.:10).[5]

AM phonology identifies several different constituents that are hierarchically ranked and build an utterance: at the lowest level, there is the syllable, which builds the next level in the hierarchy, namely the prosodic foot. Prosodic feet form prosodic words and prosodic words, in turn, build intermediate phrases (hereafter ips) that are marked by initial and final prosodic boundaries. These ips form intonational phrases (IPs in the following) that are also marked by prosodic boundaries. Lastly, IPs connect to an utterance (cf. SHATTUCK-HUFNAGEL & TURK 1996:205-220 for more details on the prosodic hierarchy[6]). In AM phonology, the ip corresponds to the tone unit in the British School framework. The ip consists of at least one accent, the nucleus (or nuclear accent), which is the most important[7] and also the rightmost accent within the ip (cf. e.g. PETERS 2009:98 and WUNDERLICH's *nuclear stress rule*[8] 1988:16 for German[9]; also Gordon 2011:155). Following Bolinger (1989:364), "[t]he accent is designed […] to highlight some *part* of the utterance as particularly significant. If other parts are significant, more accents are added". These additional accents can appear either before or after the nucleus and are therefore called *pre-nuclear* and *post-nuclear* accents (cf. e.g. PETERS 2009:98); the former corresponding to the head-section, the latter to the tail-section in the British School.

But what exactly is an accent and which parameters define it? In the German literature on this topic, the term "accent" is used to describe prominences at both

[5] In this thesis, the topic of AM phonology is strongly limited in space. Interested readers find a detailed introduction to AM phonology in Goldsmith (1990).

[6] A slightly deviating prosodic hierarchy is described in Nespor and Vogel (2007:11).

[7] Sometimes the nucleus is also described as the perceptually strongest, i.e. most prominent, accent within the utterance (e.g. Gordon 2011:155).

[8] This nuclear stress rule is adopted from Chomsky and Halle (1968:90) who describe the prosody of English.

[9] Please note that Peters (2009) and Wunderlich (1988:18) do not differentiate between IP and ip, hence their IPs correspond to the tone units in the British School.

word and phrase level. Wunderlich (1988:5) and Pompino-Marschall (1995:233) use "Wortakzent"[10] to refer to prominences at the word level, whereas the term "Satzakzent" refers to prominences at the phrase level. Zifonun et al. (1997:202) use the term "Akzent" for prominences at the word level, and the term "Gewichtungsakzent" for prominences at the phrase level; this terminology is quite obviously prone to misunderstandings. In the English tradition, on the contrary, it is common to use the terms *stress* and *accent* to keep the two notions apart: the term *stress* usually refers to prominences at the word level, while the term *accent* is used for prominences at the phrase level. Gordon (2011:141) describes stress as an "[…] increased prominence associated with a certain syllable […]", and further points out that "[…] prominence is constructed bottom-up in such a way that phrase-level prominence patterns are overlaid on top of word-level stress […]" (ibid.:155)[11]. While Gordon (2011:155) explains that accents are marked by tonal movement (i.e. pitch accents), Isačenko and Schädlich (1966:30) identify not only changes in pitch, but also in loudness, duration, tempo or voice quality (cf. also POMPINO-MARSCHALL 1995:233) as markers of an accent.

So far, the functions of prosody (chunking and highlighting) were introduced as well as the most important concepts in intonational research. Before turning to the prosodic differences that set off AT from RD, it is important to point out that intonation in AM phonology is viewed as a sequence of high (H) and low (L) tones (cf. e.g. WUNDERLICH 1988:1; see also PETERS 2009:95) which either can appear as mono-tonal or combine to bi-tonal[12] accent or boundary tones (i.e. LH- or HL-sequences). Accent tones (also 'prominence-lending pitch movements'; cf. LADD 2008:13) fulfil the function of highlighting, whereas boundary tones (also 'non-prominence-lending pitch movements'; cf. ibid.) take the function of chunking, by delimiting intermediate and intonation phrases (cf. e.g. WUNDERLICH 1988:18 and UHMANN 1988:75). The difference between delimiting ips and IPs lies, in some

[10] In Isačenko and Schädlich (1966:30) it is unclear whether they use "Wortakzent" in the sense of word or phrase level prominence.

[11] Please note that accents do not necessarily need to coincide with the lexically stressed syllable, e.g. when expressing a contrast in pronunciation, as exemplified by van Heuven's (1994:78) "I said DIgest, not SUGgest".

[12] The Dutch system ToDI (*Transcription of Dutch Intonation*), for example, even allows for tritonal accents (e.g. LHL, cf. GUSSENHOVEN 2005:128) whereas the English ToBI (*Tones and Break Indices*) and the German GToBI system (*German Tones and Break Indices*) only allow for mono- and bitonal accents (for ToBI cf. SILVERMAN ET AL. (1992), BECKMAN & PIERREHUMBERT (1986:256); for GToBI cf. GRICE ET AL. (2005:65)).

circumstances, within the boundary tone itself: for ips it is only possible to end with a monotonal boundary tone, whereas IPs can end with either mono- or bitonal boundary tones (cf. e.g. GRICE ET AL. 1996). As already discussed above, it is commonly claimed that each ip (and hence each IP) contains at least the nuclear accent. Jörg Peters (2009), most interestingly, mentions a specific type of ip that does not need to contain a nucleus: the *clitic ip*. These clitic ips are tied to 'independent' ips, which correspond to the ones discussed earlier in this chapter, and hence do not exhibit an own nuclear accent (cf. ibid.:125). Clitic ips either copy the last two tones of the preceding ip, or undertake only the last tone of the previous ip and add a final boundary tone (cf. ibid.:125f).

2.4.2 The prosody of RD and AT

After reviewing the basic concepts within intonational research, let us now turn to the prosodic realisations of RD and AT. In the last five decades, RD has been investigated in many different, also typologically distinct, languages. Most interestingly, its prosodic realisation appears to be quite homogeneus across languages. For RD, it has been stated that the accent is always realised on the verb or the predicate of the sentence but never on the dislocated NP or the coreferential pronoun.[13] Further, RD forms a single contour without a pause together with its matrix sentence, i.e. RD is produced as a single phrase.[14] Finally, the RD is produced with rather flat pitch in contrast to its matrix sentence.[15] An example for this observed pattern is given in (64a), where capital letters indicate the position of the nuclear accent and the GToBI-labels display the tonal realisation.

Nevertheless, there are still some deviations from these findings: with respect to phrasing, e.g. Fretheim (1995:36) found for Norwegian that RDs, although they do not necessarily have to, can form an own ip ('IP' in his terminology), but that they

[13] Evidence is found in Pütz (1975:60) for German, Gundel (1977:53,121) for English, Lambrecht (1981:76) for French, Gundel (1988:230) for English and 29 other languages, Ziv (1994:639) for English, Lambrecht (1994:203) for German, Fretheim (1995:50) for Norwegian, Astruc-Aguilera and Nolan (2007) for English and Catalan, and Averintseva-Klisch (2009:19f) and Dewald (2014:99f) for German. Please note that this list is certainly not exhaustive.

[14] For this observation, consult (among many others) e.g. Lambrecht (1981:76) for French, Ziv (1994:639) for English, Fretheim (1995:37) for Norwegian, Averintseva-Klisch (2008:219,232) for German, French and Russian, and Dewald (2014:101) for German.

[15] With respect to pitch, cf. e.g. Lambrecht (1981:85f) for French, Dewald (2014:100) for German, and Lambrecht (2001:1071) for a cross-linguistic perspective.

still are never realised as separate IP ('IU', i.e. intonation unit, in his expression; cf. (64b), where small caps indicate a postnuclear prominence).

(64) Possible prosodic realisations of RD

a. [[der ist GEIL der film]$_{ip}$]$_{IP}$ (285, Fokus-DB)

L+H* L-%

'It's awesome, that movie!'

b. [[und da hab ich keinen BOCK drauf]$_{ip}$ auf STRESS]$_{IP}$ (255, Fokus-DB)

L+H* L- L(*) L-%

'And I'm not up for that, for stress.'

A similar observation was made by Astruc-Aguilera and Nolan (2007) for both English and Catalan. They found for English that RDs were predominantly realised as an independent phrase[16], and for Catalan that RDs always formed an own phrase, although they were deaccented in both languages (cf. ibid.:91). They further observed, in contrast to the more general findings described above, that RDs in English ended in a final rise in two third of the cases; for Catalan, however, they reproduced the above findings, i.e. a flat pitch contour (cf. ibid.). Lastly, Altmann (1981:55) found for German RD that it is set off from the matrix phrase by a pause and that it usually bears an accent, although this accent is not as prominent as the nucleus of the main sentence[17]. He further describes that the intonation contour of the matrix sentence is repeated on the dislocated XP (cf. ibid.). However, as already discussed above (chapters 2.1 and 2.2), Altmann (1981) most probably mixed the two constructions RD and AT, leading to a conflated description of their prosodic realisations; hence, I will disregard his observations in the following, as it is impossible to evaluate which parts of the description refer to the prosodic realisation of RD and which to the realisation of AT.

[16] Astruc-Aguilera and Nolan (2007) use the terms 'intonation phrase' (IP), 'phrase' and 'independent unit' that comprises both the notion of ip and IP. This terminology makes it difficult to evaluate whether RDs in their study form real independent IPs or separate ips that combine with the phrase of the matrix sentence to a complex IP.

[17] Altmann (1981:40) uses the term 'Nebenakzent' which, in the German tradition, constitutes the counterpart to the 'Hauptakzent'. Since the 'Hauptakzent' corresponds to the nucleus, the 'Nebenakzent' can be understood here as postnuclear prominence.

Turning to AT, there are more homogenous findings as opposed to RD research: AT has previously been described as bearing a nuclear accent[18] and constituting a separate phrase. To be more precise, AT forms an independent IP, as the phrase is typically set off from the host sentence by a pause.[19] With regard to pitch, ATs usually show a fully-fledged pitch inventory, as discussed in Dewald (2014:104f). Another possibility of prosodically marking AT in German is an enhanced speech rate (DEWALD 2014:97). Example (65) displays two items of the Fokus-DB (a: item 702; b: item 278); capital letters indicate the position of the nuclear accent, small caps indicate pre- and postnuclear prominences. Further, '<p>' indicates a pause between the two IPs.

(65) Possible prosodic realisations of AT

a. [[das WILL ich natürlich verMEIden]$_{ip}$]$_{IP}$ [[also dass ICH letzter werde]$_{ip}$]$_{IP}$
L+H* !H* L-% L+H* L-%
'Of course, I want to avoid this. Well, that I end up being the last one.'

b. [[und der STAAT ist es LOS]$_{ip}$]$_{IP}$ <p> [[DAS zu unterSTÜTzen]$_{ip}$]$_{IP}$
L*+H H+L* L-% L* L(*) L-%
'And the government gets rid of it. Of supporting this.'

Table 6: Distinctive features of RD and AT as indicated by previous research.

	RD	*AT*
Phrasing	1 IP (either 1 or 2 ips)	2 IPs (+ pause)
Accentuation	deaccented or postnuclear prominence, e.g. phrase accent	nuclear accent
Pitch	postfocal compression[20] / final drop	full pitch inventory
Speech rate	——	enhanced

[18] For the accentuation of AT, cf. e.g. Lambrecht (1981:76) for French, Ziv (1994:639) for English, Fretheim (1995:50) for Norwegian, and Averintseva-Klisch (2008:219; 2009:19f) and Dewald (2014:101) for German.

[19] That ATs form separate IPs which are preceded by pauses was, among others, observed by Lambrecht (1981:76) for French, Ziv (1994:639) for English, Fretheim (1995:39) for Norwegian, and Averintseva-Klisch (2008:219; 2009:19f), and Dewald (2014:101) for German. That pauses typically indicate IPs can be looked up e.g. in Selkirk (1984:289) or Shattuck-Hufnagel and Turk (1996:209f).

[20] Kalbertodt & Baumann (2015,2017a), Kalbertodt (2016) and Kalbertodt, Primus & Schumacher (2015) refer to these changes as 'pitch range reduction'.

Summarising the above observations, RD and AT differ with respect to phrasing, accentuation of the dislocated element as well as the modulation of pitch, i.e. pitch span (cf. Table 6). In the following, I will discuss how these differences in the prosodic realisation can be motivated in terms of information structure, syntax and pragmatics. While doing so, I will consider both subtypes of RD, RDproto and RDstyle, which have already been introduced in section 2.1.

RDproto

In terms of information structure, the referent in RDproto is typically textually given in the sense of Prince (1981), and also 'in focus' in the sense of Gundel and colleagues (1993). Given information in German is commonly deaccented (cf. e.g. CRUTTENDEN 2006:313,331; FÉRY & KÜGLER 2008:691; BAUMANN 2008:38,53), but in postnuclear position it can also bear, e.g. for rhythmic reasons, a phrase accent. A phrase accent is, according to Grice and colleagues (2000:180), an edge tone (i.e. a boundary tone) with a secondary association to a tone-bearing unit, e.g. the penultimate or final syllable of an utterance (cf. examples (64b) and (65b) above; cf. also GRICE & BAUMANN 2002:280f). Hence postnuclear prominences mainly coincide with phrase accents.

With respect to syntax, RD is partly syntactically integrated but simultaneously disintegrated due to the double occupancy of the same syntactic role by both pronoun and dislocated NP (cf. section 1); hence syntax demands a 1-IP-realisation but still allows for a 2-ip-realisation within this IP (cf. example (64)).

Lastly, RD – due to its comment-topic structure – is produced postfocally, and postfocal material shows a final drop in pitch "[…] between the last narrowly accented syllable and the first unaccented constituent [...]" (FÉRY & KÜGLER 2008:693), and also postfocal compression (cf. e.g. KÜGLER & FÉRY 2016). Postfocal compression does not affect the phrasing or accentuation of postfocally produced speech material, but is a purely tonal compression of the pitch register on this material (cf. ibid.:260). This means that "[…] pitch accents are still realized" (ibid.:283), although these pitch accents are not comparable to fully fledged ones (cf. ibid.).

RDstyle

In RDstyle, its referent is discourse-new although it is pretended to be already familiar to the listener. Discourse-new information in German is typically marked by a high accent (cf. e.g. BAUMANN 2008:53), which would lead to a non-compressed pitch on the RD-NP. Moreover, as the pragmatic function of RDstyle is to present a new topic and to build suspense in the listener before doing so, the syntactic integration is overridden in favour of the syntactic disintegration. This would lead to a 2-IP-realisation, upgrading the new information to a fully-fledged high nuclear accent. Accordingly, RDstyle is expected to show a 2-IP realisation with an own nuclear accent and full pitch inventory on the NP, in contrast to its prototypical counterpart.

AT

In AT, to the contrary, the referent is already given but currently not 'in focus' (cf. section 2.1). Due to another, competing, given referent an ambiguity arises when the pronoun is produced, which most frequently results in a topic shift[21]. This implicit or explicit contrast leads to a nuclear accent on the referent for which the speaker's full pitch inventory is available.

Since the function of AT is the repair of an unfelicitous reference, also empirical work on the prosodic marking of repairs appears to be relevant. It has been shown for Dutch that phonological repairs are marked as frequently and also with the same acoustic cues as lexical repairs (cf. CARTER & PLUG 2014:69); hence it appears plausible that also pragmatic repairs could share these cues. Repairs are prosodically marked by higher pitch and greater intensity (cf. CARTER & PLUG 2014:72 and PLUG 2014:335) as well as a "higher articulation rate" (PLUG 2014:335; cf. also UHMANN 1997b:209) than the reparandum[22]. However, it is also possible, although quite rare, that a repair is instead marked by the contrary pattern, namely a drop in maximal f0, intensity and speech rate (cf. PLUG 2014:335). Hence, the pitch span of AT might either be higher or lower than that of the host sentence.

[21] Please note that it is also possible that a speaker might have the impression that a certain reference is ambiguous to the listener, although the speaker continues a topic for some utterances. Such a situation is illustrated in the following made up example: "Did you hear that thing about Mary? Her best friend Nicole played a trick on her. She couldn't stop laughing for minutes. Mary, not Nicole."

[22] Also for parenthesis, speech rate has been found to be higher as compared to the anchor (or host) clause (cf. e.g. DÖRING 2007:305).

Finally, AT is syntactically independent from the host sentence, which is very likely to result in a 2-IP-marking. With respect to the presence of a pause between AT and host sentence, already Dewald (2014:104) mentioned that this is tightly connected to the time point when the speaker realises the ambiguity; accordingly, AT might or might not be accompanied by a pause in spontaneous speech.

Taken together, these considerations illustrate that the prosodic realisation of RD and AT – though permitting some variation, e.g. with respect to the phrasing of RDproto – should be quite homogeneous (cf. Table 7).

Table 7: Distinctive features of RDproto, RDstyle and AT.

	RDproto	*RDstyle*	*AT*
Phrasing	1 IP (1 **or** 2 ips)	2 IPs	2 IPs (+ pause)
Accentuation	deaccented **or** phrase accent	nuclear accent	nuclear accent
Pitch	compressed pitch / final drop	full inventory	full inventory **or** lower span
Speech rate	——	——	faster **or** slower

However, all quoted work on German, which paints a smooth and invariable picture of the prosodic realisation of RD and AT, is either of introspective nature or at least non-quantifying (e.g. Dewald 2014), some of them mixing RDproto and RDstyle[23]. Quantifying analyses on German RD and AT that were either based on experimentally gained data or corpus counts are provided in Kalbertodt (2016; abbrev. K16), Kalbertodt and Baumann (2015, 2017a, 2017b; abbrev. KB15, KB17a and KB17b) and Kalbertodt, Primus and Schumacher (2015; abbrev. KPS15). K16 investigated whether written instances of RD and AT in young adult fiction were correctly identified by naïve readers. Her test items included both situationally and textually given RDs on the one hand, and both declarative and interrogative ATs on the other hand. A limitation of this study is the size of the corpus since only ten RD and AT-items each were read out by merely eight participants. KB15, KB17a and KB17b investigated RD and AT items of the data base Fokus-DB. The advantages

[23] Averintseva-Klisch (2009), for instance, quite obviously mixes RDproto and RDstyle, as she deduces the pragmatic function of RD from written items in the narrating text that are clearly used for presenting a new discourse topic, rather than from RD-items in (fictitious) dialogues that mimic real speech (cf. section 2.1).

of these studies are that the investigated corpus is rather large and that it contains spontaneous instead of read speech. KPS15 investigated whether the correct identification by naïve readers of RD and AT in written texts is triggered by either information structure or punctuation. They tested in total eight items of RD and AT each, but only four of these items in matching conditions (RD with topic continuation + comma; AT with topic shift + full stop). However, the topic shift in AT-items was signalled by an ambiguous pronoun that employed a cataphoric relation. Since the use of cataphora is restricted to RDstyle whereas AT is characterised by the use of an anaphoric expression (see 2.1.2), the question arises whether the intended AT-items truly display an AT intonation and not the prosodic marking of RDstyle. For this reason, KPS15 will be disregarded in the following.

Although the other contributions distinguished between RDproto and RDstyle, only KB17a and KB17b also investigated RDstyle with respect to its prosodic realisation, while the other works excluded RDstyle from the investigation. KB17b's findings for RDstyle coincide with the theoretical assumptions stated above, as RDstyle constituted separate IPs in 96 % of items, with strong nuclear accents in 75 % of items. Besides, KB17a observes RDstyle to be rather unreduced, with a decrease in pitch of only −0.8 semitones (st). This minor change in pitch can be regarded as RDstyle being at least perceptually unreduced, following Isačenko and Schädlich (1966:28), who observed a value of 1 st as threshold for perceiving a tonal difference.

Nevertheless, although the results for RDstyle nicely match the theoretical assumptions, the results of the prosodic realisations of RDproto and AT made by the studies mentioned above diverge in some aspects, as indicated by Table 8 and Table 9. As the here presented studies aimed at different purposes, the results are limited to the most relevant ones: KB16 investigated both textually and situationally given RDs; in Table 8, the results are restricted to textually given RDs.[24] Further, KB17a and KB17b share the same column since KB17a investigated only the modulation of pitch and KB17b investigated only phrasing and accentuation.

The same restrictions are true for Table 9, where the results are, again, limited to the most relevant ones. KB16 investigated both interrogative and declarative ATs; here, the results are restricted to declarative ATs. In addition, KB17a and KB17b

[24] Note that situationally given RDs have been identified in chapter 2.1 as constituting instances of RDstyle.

share the same column since KB17a investigated only the modulation of pitch and KB17b investigated only phrasing and accentuation.

Table 8: Comparison of previous results on the prosodic realisation of RDproto.

	K16	*KB15*	*KB17/17b*
Phrasing	74 % 1-IP-marking	86 % 1-IP-marking	83 % 1-IP-marking
Accentuation	40 % deaccented or postnuclear prom.	47 % deaccented or postnuclear prom.	69 % deaccented or weak prominence
Pitch	reduced span (−3.6 st)	reduced span (−3.4 st)	reduced span (−3.5 st)

Table 9: Comparison of previous results on the prosodic realisation of AT.

	K16	*KB15*	*KB17/17b*
Phrasing	100 % 2-IP-marking	75 % 2-IP-marking	73 % 2-IP-marking
Accentuation	100 % nuclear accents	96 % nuclear accents	89 % strong prominences
Pitch	reduced span (−1.5 st)	reduced span (−4.3 st)	reduced span (−4.1 st)

Regarding pitch span, all studies found a numerical difference between RD and AT, and in K16 the results showed the predicted pattern, namely that RD is more strongly reduced than AT[25]. However, KB15 and KB17a found in their corpus studies that spontaneously uttered ATs were more strongly reduced than RDs.

With respect to phrasing, ATs were throughout realised as predicted, although spontaneous data shows more variability. RDs, in contrast, confirm the predicted 1-IP-pattern only in the spontaneous data, permitting some variation; in the read data, however, this pattern is observable only in tendency.

The most striking deviation from the predictions, though, can be observed with regard to the accentuation of RDs: while ATs are almost always produced with a nuclear accent, prototypical RDs show the expected deaccentuation or postnuclear prominence only in the minority of cases (K16, KB15). Only KB17b reports that

[25] This study examined data obtained from a reading experiment.

RD was predominantly produced as expected. What are the reasons for these observations, especially since KB15 and KB17b investigated the same corpus?

The main difference between KB15 and KB17b lies in the annotation system that was used: the annotation in KB15 was done using the GToBI annotation system (German Tones and Break Indices; cf. e.g. GRICE & BAUMANN 2002), whereas KB17b followed the more recently developed DIMA account (Deutsche Intonation, Modellierung und Annotation; cf. e.g. KÜGLER ET AL. 2015). In KB15, the first author assumed that in the traditional GToBI-account each ip demands a nuclear accent, since it is part of AM phonology and Grice and Baumann (2002) and Grice and colleagues (2005) do not explicitly mention the assignment of nuclei in an ip or IP, respectively[26]; hence, all instances of RDproto that included an ip-break were assigned a nuclear accent. This quasi automatic assignment of nuclei lead to the low number of deaccentuation and phrase accents (cf. also the KPS15-data). DIMA, in contrast, differentiates between the tonal value of an accent (or prominence, respectively) and its perceptual strength (cf. KÜGLER ET AL. 2015:1), using different tiers for the annotation. Hence, the annotation using DIMA is AM-conform on the one hand, but still accounts for perceptual differences between the nuclei of two (or more) succeeding phrases on the other. Accordingly, the DIMA annotation system was evaluated as more suitable than GToBI for the analysis of prosodic differences between RD and AT.[27]

Nevertheless, KB17a's and KB17b's analysis is still defective in two respects: first, the data in the Fokus-DB did not account for all features of RDproto, AT and RDstyle. Hence, some instances of situationally evoked RD-referents have incorrectly been classified as either RDproto or AT. We have seen in section 2.1.2 that only RDstyle may show situationally evoked entities, since these result in a cataphoric relation between coreferential pronoun and dislocation. As a consequence, all instances of RDproto and AT that referred to a situationally evoked entity had to be re-categorised as RDstyle. This adjustment led to a total number of 91 items of RDproto (99 items in KB17a,b), to 38 instances of AT (53 items in KB17a,b)

[26] However, during the literature research on this topic it turned out that in GToBI an ip does not have to contain an accent, as described in Grice and colleagues (1996:1717). Instead, accent-less ips are interpreted similarly to the clitic ips referred to by Peters (2009).

[27] Criticism concerning the one-nucleus-per-ip-rule in RD-research was earlier brought forward by Astruc-Aguilera and Nolan (2007).

and to 78 instances of RDstyle (56 items in KB17a,b).[28] The second issue concerning the analysis of KB17a and KB17b relates to the sentence mode, as both declarative and interrogative RDs and ATs have been pooled. Let us, hence, have again a look at the spontaneous data of the Fokus-DB, this time limiting it to declarative sentences only. The data now contains 78 items of RDproto, 71 items of RDstyle and 30 AT-items, which are presented in Table 10.

Table 10: Variation in the realisation of RDproto, RDstyle[29] and AT as observed in the data base Fokus-DB, including only declaratives.

		RDproto	*RDstyle*	*AT*
phrasing	*1 ip*	39	9	2
	2 ips = 1 IP	20	6	6
	2 IPs	19	56	22
	pause	8	28	11
perceived prominence	*deaccented*	18	5	0
	weak accent	33	18	4
	strong accent	27	48	26
pitch modulation	*pitch span reduced*	50	39	23
	pitch span same[30]	13	14	4
	pitch span enhanced	13	17	3

Beginning with RDstyle, the table shows that in spontaneous speech the expectations regarding phrasing and accentuation are matched: RDstyle is predominantly realised as two separate IPs (in 78.9 % of the data) and are in tendency produced rather with a strong than with a weak accent (in 67.6 % of the data). However, the modulation of pitch deviates from the assumptions stated above: the expectation was that RDstyle, due to the referents' status of being new information, would be realised with a full or even enhanced pitch inventory instead of a compressed one.

[28] Additionally, one item that has previously been regarded as an example of RDproto turned out to be an extraposition instead, lacking a coreferent pronoun in the core sentence, and was therefore removed from the data base.

[29] Due to creaky voice, the modulation of pitch was not calculable in two items of RDproto and one item of RDstyle.

[30] Pitch span modulations up to +/−1 st were, in line with Isačenko and Schädlich (1966:28), regarded as perceptually the same as the span in the matrix and host sentence, respectively.

This expectation is met only by the minority of the data (43.7 %); instead, the pitch span is reduced in majority of items.

A possible explanation for this pattern lies in the comment-topic structure of RD and prosody's function of discourse structuring that was mentioned earlier in this chapter. A commonly accepted phenomenon in a discourse is that of *supradeclination* (cf. e.g. WICHMANN 2000:121; also PETERS 2009:127). The term supradeclination describes a systematic lowering of pitch in the course of a discourse paragraph, i.e. each succeeding utterance within a discourse paragraph shows a smaller pitch span than the previous utterance (cf. WICHMANN 2000:121). Only when a new discourse paragraph is opened, i.e. typically with a new discourse topic, the pitch span is reset to its full range (cf. ibid.:24,46). Accordingly, the presence of a pitch reset signals a conceptual break, whereas the absence of a pitch reset signals cohesion (cf. ibid.:85). In combination with the comment-topic structure of RDs, these observations imply that not only prototypical RDs but also stylised RDs might be produced with a decreased pitch span on the NP, in order to enhance the cohesion of a text.[31] A wider pitch span, although in line with the marking of new information, could be interpreted by the listener as pitch reset – especially since RDstyle is typically produced as a separate IP – and hence result in an incorrect interpretation of what was said. However, it seems to be the case that speakers can choose whether they mark the new referent according to its information status or in order to enhance cohesion. Certainly, more investigations are needed to properly explain this apparently complex behaviour.

Also in the realisation of ATs, some deviations from the assumptions are observable. What matches the expectations is that ATs are not even once deaccented and that they predominantly bear strong (nuclear) accents (in 86.7 % of the data). Also, more than one third (36.7 %) was realised with a pause between host sentence and AT-phrase. Further, ATs are mainly realised as separate IP (in 73.3 % of the data), although also sometimes realised only as a single IP (20 %). This deviation might be explained by the point in time when the speaker recognises the unfelicitous reference: the earlier the speaker recognises the ambiguity of the pronoun, the earlier can he/she initiate the repair, possibly resulting in an ip-break instead of an IP of its own; contrastingly, the later the speaker recognises the ambiguity, the later

[31] In addition, due to the inherent comment-topic structure the RD-NP of RDstyle is also positioned after the focused constituent, which leaves the possibility of postfocal compression.

he/she can initiate the repair, which is likely to result in either a pause or even other sentences between the host sentence and the AT.

However, the most striking deviation from the expectations again relates to pitch range: in three quarters of the data (76.7 %) the pitch span is reduced instead of staying the same or being increased. There are three possible explanations for this pattern: first, Carter and Plug (2014:72) as well as Plug (2014:335) state that a repair is usually marked by higher pitch than the reparandum. The modulation of pitch span was here calculated by comparing the span of the AT-element to the span of the entire host sentence; accordingly, it is still possible that the AT is produced with higher pitch than the ambiguous pronoun (especially if we consider that pronouns are typically unaccented). Nonetheless, I will desist here from further calculations and analyses and rather leave them to future work. A second possible explanation is also offered by Plug (2014), who states that repairs might be marked by a lowered pitch instead (cf. ibid.:335). However, Plug also admits that this kind of marking is very rare, and it does not appear plausible that repairs on the utterance, or rather, the referential level should – by default – behave differently than lexical and phonological repairs. Accordingly, the third possible explanation seems to be most appealing, i.e. that AT (which is not syntactically bound to its host sentence) is also affected by the mechanism of supradeclination. As already outlined above, a tonal reset indicates a topic shift, while the absence of a reset indicates cohesion. AT repairs the current sentence topic, i.e. strictly speaking, the AT itself does not pose a new sentence topic. In case the speaker shifted the topic, he already did so with the host sentence; hence, the pitch span of the host sentence should already show a tonal reset. The AT-element, in contrast, is best produced with a lowered span to enhance the pragmatic binding in terms of discourse cohesion. This means that – although the AT-element contrasts with a competing referent – the need for a pragmatic binding overrides the need to mark contrast.

Lastly, with regard to RDproto, Table 10 shows that the realisations in the spontaneous data in tendency match the expectations formulated earlier in this chapter: three quarters of the data (75.6 %) are realised as single IP together with the matrix sentences, and the RD-NP is either deaccented (23.1 %) or only received a weak prominence (42.3 %). Also, almost two thirds of the material was produced with a narrower pitch span than the matrix sentence (64.1 %).

Given the high amount of variability in the data, especially with respect to accentuation in RDproto and pitch modulation in RDstyle, the question emerges whether a prototypical prosodic realisation of RD does exist at all. Could it not rather be the case that there is a set of available cues speakers can choose from in order to prosodically mark RD? Baumann and colleagues (2007), for instance, showed in a study on focus marking in German that there is a crucial degree of inter-speaker variability and speaker-specificity with respect to the actual use of available segmental and suprasegmental cues. This could possibly be the case in the prosodic marking of RD, as well. Further, what do speakers do when they contrast RD and AT? Are there specific cues that need to be adjusted, as e.g. the presence of a pause or the absence of an accent, to enable a listener to reliably distinguish AT from RD? Or is the contrastive marking of RD and AT rather speaker-dependent?

Although Table 10 offers an interesting insight into the prosodic marking of RD and AT in spontaneous speech, it is fairly uninformative with respect to the question of speaker-specificity since it does not give any information about individual speaker preferences. This is owed to the fact that the Fokus-DB only very rarely contains more than one RD per speaker, let alone even one item per construction (per speaker).

In order to answer the question how (prototypical) RD and AT are prosodically distinguished, chapter 3.6 presents a corpus study on recorded data of a reading study. The corpus study investigates whether there are certain cues that need to be adjusted to reliably keep RD and AT apart or whether there is a set of parameters speakers can choose from. On that account, all of the above presented available parameters, i.e. phrasing, presence of pause, perceived prominence, pitch modulation and speech rate, are examined.

2.5 Prosodically induced segmental differences

So far, research on the distinction of RD and AT has concentrated on morphological and syntactic constraints, on the differences regarding their discourse functions and on their prosodic realisations in terms of suprasegmental adjustments. Concerning the underlying segmental realisations, i.e. the phonetics, only Dewald (2014) briefly mentioned a possible distinctive feature of RD and AT: the amount of phrase-final lengthening.

Phonetic parameters such as loudness, duration and pitch are known to be affected by mechanisms of *prosodic strengthening*. Prosodic strengthening comprises both *accentuation*, i.e. highlighting words that are important to comprehend sentence meaning, and *edge marking*, i.e. chunking the utterance into smaller units which also makes the comprehension easier for the listener. While accentuation affects the loudness, duration and pitch excursion of the lexically stressed syllable (cf. chapter 2.4), edge marking can further be subdivided into domain-initial strengthening and phrase-final lengthening (sometimes also 'domain-', 'utterance-final' or 'preboundary lengthening'). *Domain-initial strengthening* occurs in many languages (e.g. English, Korean, Taiwanese and French (cf. KEATING et al. 2003; also CHO 2005 for English), Dutch (CHO & MCQUEEN 2005), German (KUZLA & ERNESTUS 2011) and Turkish (BARNES 2001)) and its domain depends on the language itself. The domain for West-Germanic languages, e.g., is the very first consonant of a prosodic unit (cf. CHO & MCQUEEN (2005) for English, and KUZLA & ERNESTUS (2011) for German); in Turkish, by contrast, the domain also extends to the following vowel, so that the entire first syllable within a prosodic phrase is object to domain-initial strengthening (cf. BARNES 2001). Affected segments are prolonged in their duration and further enhance phonetic features that do not contribute to phonemic (cf. KUZLA & ERNESTUS 2011) or prosodic contrasts (BARNES 2001).

Likewise, *phrase-final lengthening* is attested for many languages, such as Swedish (HORNE et al. 1995), American English (BYRD 2000), Australian English (YUEN & DEMUTH 2011), Japanese (UEYAMA 1996) and Vienna German (MÜCKE & HERMES 2007), among many others. It is assumed to be a universal mechanism as it is defined as a general slowing down of the articulators (hence speech) due to the loss of subglottal pressure when a prosodic boundary is reached. As to the domain of final lengthening (FL in the following), there is evidence that both the vowel and the consonant (i.e. the rhyme) of the very last syllable within a prosodic unit are

affected (e.g. BYRD 2000). However, already in 1998 Shattuck-Hufnagel and Turk found for English that not only the last syllable is prolonged but also the penultimate syllable. Further they state that the mechanism of FL is more complex than widely assumed (TURK & SHATTUCK-HUFNAGEL 2007), since syllables earlier in the word that carry the main stress also attract FL effects, whereas other – non-stressed – syllables in the word appear to be skipped. Indeed, other researchers made similar observations: e.g. Yuen and Demuth (2011) observed for Australian English that both accented words and long vowels are more strongly affectted by FL than unaccented words and short vowels, respectively; Mücke and Hermes (2007) found for Viennese that long vowels are more strongly affected than short vowels; and Koponen and Lacerda (2003) reported for Swedish that the effect of FL is stronger in infant-directed speech than in adult-directed speech, if the sentence-final word is accented. What all these investigations have in common is that they found several degrees of FL that depend on the strength of the boundary, in that "[…] progressively stronger boundaries result in increasing amounts of lengthening […]" (BYRD 2000:3), i.e. whether the word is in ip-final or IP-final position affects the extent to which it is elongated (cf. also WIGHTMAN ET AL. (1992:1716)).[1]

Now, how can FL affect the realisations of RD and AT? Dewald assumes that RDs have a longer duration than ATs, since RDs are positioned in the domain of phrase-final lengthening whereas ATs are usually added in a 'hasty' manner (cf. DEWALD 2014:101). Considering the sentence structures of RDs and ATs, we find that in both constructions the relevant constituents appear in sentence-final position, although ATs can also appear sentence-medially, e.g. when they are added before the defective sentence is finished. Nevertheless, closer consideration reveals that RD as well as AT constituents are always produced in phrase-final position, as exemplified in (66) and (67).

(66) Possible RDs and their intonational phrasing

a. Ich hab sie gesehen, deine Mutter.
   ((Ich hab sie gesehen deine Mutter)$_{ip}$)$_{IP}$
   'I've seen her, your mom.'

[1] Interestingly, Byrd (2000) only found FL effects when comparing non-boundary against boundary items but not when comparing major (i.e. IP) against minor (i.e. ip) phrase boundaries. In sharp contrast, Krivokapić and Byrd (2012) found more differences between varying phrasal strengths, suggesting that there are possibly more levels in the prosodic hierarchy above the IP.

b. Ich hab sie gesehen, deine Mutter, als sie einkaufen war.
((Ich hab sie gesehen deine Mutter)$_{ip}$ (als sie einkaufen war)$_{ip}$)$_{IP}$
'I've seen her, your mom, when she went shopping.'

(67) Possible ATs and their intonational phrasing

a. Ich hab sie gesehen. Also deine Mutter.
((Ich hab sie gesehen)$_{ip}$)$_{IP}$ ((Also deine Mutter)$_{ip}$)$_{IP}$
'I've seen her. Well, your mom.'

b. Ich hab sie gesehen, als sie einkaufen war. Also deine Mutter.
((Ich hab sie gesehen)$_{ip}$ (als sie einkaufen war)$_{ip}$)$_{IP}$ ((Also deine Mutter)$_{ip}$)$_{IP}$
'I've seen her when she went shopping. Well, your mom.'

c. Ich hab sie – also deine Mutter – gesehen, als sie einkaufen war.
((Ich hab sie)$_{ip}$)$_{IP}$ ((also deine Mutter)$_{ip}$)$_{IP}$ ((gesehen)$_{ip}$ (als sie einkaufen war)$_{ip}$)$_{IP}$
'I've seen her – well, your mom – when she went shopping.'

Since RD is at least ip-final while AT is always IP-final, both are expected to be influenced by phrase-final lengthening effects. Even more so, in accordance with the notion of progressive lengthening depending on the type of boundary, ATs should actually be more strongly affected by FL if compared to an RD that stands before a relative clause (RC). This would result in a preliminary 'lengthening hierarchy' as in (68).

(68) Assumed durational differences
$RD_{RC} < RD = AT$

Additionally, taking into account the assumption that ATs bear a nuclear accent and that accented syllables are usually enhanced in their duration as well (cf. 2.4), ATs are expected to be longer than RDs:

(69) Revised assumed durational effects
$RD_{RC} < RD < AT$

Chapter 3.5 will aim at solving the question for FL effects in RD and AT by carrying out an interactive reading experiment. However, studies by Baumann et al. (2017a, b) found that eliciting ip-boundaries instead of IP-boundaries in a controlled experiment is rather difficult. Furthermore, the diverging results regarding the progressiveness of FL (see above) in previous investigations urge us to refrain from investigating ip-final RDs in this work. Therefore, chapter 3.5 will only investigate (i) whether both constructions show effects of FL and (ii) whether these effects are greater for AT than for RD.

2.6 Punctuation

"I[nterpunktion] meint zunächst die Abteilung oder Trennung von Sätzen, Satzteilen, Wortgruppen und Wörtern durch Punkte. […] Heute bedeutet I[nterpunktion] allgemein eine Zeichensetzung innerhalb von Texten, um – unterhalb der Grob-Gliederung [sic!] durch Abschnitte, Paragraphen und Zwischenüberschriften – die Sinneinheiten zu verdeutlichen und zu gliedern".[1] [BARTSCH 1998:515]

In written speech, an important means for structuring utterances and conveying information is lost, namely intonation. It is often argued that punctuation undertakes the function of prosody in written discourse – at least in terms of phrasing. One of the first attempts to grasp a concept behind regularities in punctuation has been that of *prosodic* or *rhetoric punctuation* (cf. BARTSCH 1998:515). In his work "Teutonia" (1828), Friedrich Jakob Schmitthenner correlated the punctuation mark inventory of German with the duration of rhetoric pauses. In his analysis, the full stop coded for a full pause, the comma for a quarter pause, the semicolon for half a pause and the colon for three quarters of a pause, while the hyphen indicated silence with the duration of two pauses (cf. SCHMITTHENNER 1828:299). It is widely assumed that this *prosodic punctuation system* marked the very beginning of German punctuation and that it slowly evolved over time and eventually transitioned into the *syntactic punctuation* system that is employed today (cf. BESCH 1981:190, 197; HÖCHLI 1981:253f.; BERGER 1982:10; BARTSCH 1998:517; JUNGHANS 2008:178). The syntactic account assumes that the use of different punctuation marks is based on the syntax of a sentence. Bredel (2011) argues for German that each punctuation mark holds a particular function that can be inferred from its form (2011:15-30). Following her considerations, the full stop is used to mark the end of a parsing unit (cf. BREDEL 2011:78; see also BREDEL 2009:130), i.e. when the reader encounters a full stop, no further syntactic connection is possible. Rather, only a connection at the discourse level is possible (cf. BREDEL & PRIMUS 2007:114). Other punctuation marks are equally rigid in their function and, hence, are limited in their use, such as

[1] Free translation: "Punctuation means primarily to divide sentences, sentence parts, word groups and words by means of full stops. […] Today, punctuation means in general the punctuation within texts – beneath the rough arrangement by means of sections, paragraphs and sub-headings –, in order to clarify and structure the units of meaning. (BARTSCH 1998:515)

e.g. the apostrophe.[2] A more flexible punctuation mark with respect to its use and function is the comma.[3] While the traditional German dictionary, the *Duden*, (BERGER 1982:25-135) provides an exhaustive amount of 186 different rules to account for each possible use of the comma, Primus (1993) identified three syntax-based constraints. These constraints combine to a simple rule[4] that explains (almost) all cases listed in the *Duden*: the comma is licensed in cases in which two clauses A and B are dominated by a higher node (constraint (a)). In addition, A and B either have to be coordinated clauses without a proper coordinative conjunction (like 'and'; constraint (c)), or A and B are separated by a syntactic or semantic boundary (constraint (b)).[5] Due to this last constraint, Primus' comma rule also accounts for instances like infinitive and detachment structures that do not constitute entire clauses.

Interestingly and in contrast to the line of Besch (1981) and colleagues, already in 1735 (almost one century before Schmitthenner) Hieronymus Freyer formulated a comma rule that strongly resembles Primus' (1993) rule and that is, accordingly, syntactically motivated: "The comma is used if either mere words [Primus' (c): coordinated elements without a proper conjunction] or simple constructions [Primus' (b): e.g. infinitives] have to be distinguished from each other"[6] (FREYER 1735:185; translation: JK). Günther (2000) investigated the punctuation regularities in Luther's Bible within different editions, covering a time range of more than 400

[2] For an in-depth description, confer Bredel (2011:42f).

[3] For Bredel and Primus, both the comma and the full stop – together with the colon and the semicolon – belong to a group of punctuation marks they call 'Subvokalisationszeichen' (2007:107). This class of punctuation marks is said to be inevitably needed for the cognitive processing of syntactic structures, as they controlled the linguistic processes that can be observed in both loud and silent reading. Although silent reading and implicit prosody pose an interesting topic themselves, I will desist from further explanation. Interested readers find more on this topic in Steinhauer & Friederici (2001), Ashby & Clifton (2005), Stolterfoht et al. (2007), Breen & Clifton (2011), McCurdy et al. (2013), and Kentner & Vasishth (2016), among others.

[4] "(1) Ein Komma zwischen einem einfachen oder komplexen Ausdruck A und einem einfachen oder komplexen Ausdruck B ist regulär gdw. (a) und (b) oder (a) und (c) gelten:

(a) Es gibt einen Satzknoten, der A und B dominiert.

(b) Zwischen A und B interveniert eine syntaktische oder semantische Satzgrenze.

(c) A und B sind koordiniert, und die Koordination ist nicht durch eine echte koordinierende Konjunktion gekennzeichnet." (PRIMUS 1993:246)

[5] Other ways of formulating these basic constraints can be found e.g. in Bredel & Primus (2007:91-102), Bredel (2009:129), Primus (2010:35f), Kirchhoff & Primus (2014) and Kirchhoff (2016).

[6] "Das comma wird gebrauchet, wenn entweder blosse Wörter oder schlechte [= schlichte] constructiones von einander zu unterscheiden sind." (FREYER 1735:185).

years. He found that punctuation followed syntactic rules and constraints even in the first print from 1522 (cf. ibid.:284) – although not as strictly as it does today. A similar result was reported in Kirchhoff and Primus (2014), where the use of the virgule (the precursor of the comma) in early German was investigated, using the St Matthews Gospel in two editions of Luther's Bible (1545 and 1984).[7] These findings confirm that already the early punctuation system of German was based on syntactic regularities, and they further implicate that there is no one-to-one-relation between punctuation and prosody. Rather, both systems are "independent means for signalling syntactic relations […]. As they relate to the same syntax, there are of course parallels – but punctuation does not depict intonation"[8] (GÜNTHER 2000:285, translation: JK; similar argumentation in BREDEL & PRIMUS 2007, KIRCHHOFF & PRIMUS 2014, KALBERTODT ET AL. 2015, HUESMANN & KIRCHHOFF 2016, and KIRCHHOFF 2016).[9]

In her work on punctuation, Bredel seizes on this syntactic motivation and concludes in line with Primus (1993) that the function of the comma is to create a subordination block (BREDEL 2009, 2011). One possible interpretation of the comma is what Bredel calls a 'partial subordination block' that identifies difficulties in structure building, i.e. an element that does not fit into the syntactic structure. This is the case in dislocation structures (BREDEL 2011:68;76f). Already in 1989 Behrens pointed out that dislocation structures are usually accompanied by the comma. She argued that the comma marks a doubling of a certain syntactic function within a sentence (BEHRENS 1989:133) and that it, thus, indicates the ambivalent status of belonging and simultaneous non-integration which constitutes dislocated elements. Now, what do these syntactically motivated punctuation rules imply for RD and AT? When we have a look at written dialogues, especially in young-adult fiction, we find dislocation structures at both sentence peripheries, as illustrated in (70) and (71), where the DPs and pronouns in question are underlined. Interestingly, following the current literature on this topic, each of these peripheral phenomena

[7] Their comparison also included an English edition of Luther's Bible (2001) (cf. KIRCHHOFF & PRIMUS (2014)).

[8] "[Interpunktion und Intonation sind] voneinander unabhängige Mittel zur Signalisierung syntaktischer Verhältnisse […]. Da sie sich auf eine im Wesentlichen gleiche Syntax beziehen, gibt es natürlich Parallelen – aber die Interpunktion bildet die Intonation nicht ab." (GÜNTHER 2000:285)

[9] Evidence for this assumption is provided by an event related potential (ERP) study on Dutch (KERKHOFS et al. 2008). See also the discussion in Steinhauer (2003) and Hirotani et al. (2006).

can be further distinguished: the left detached phrase in (70a) is closely connected to its matrix sentence, as indicated by the case agreement between pronoun and coreferential DP (Luna-NOM, die-NOM). In contrast, the DP in (70b) does not display case agreement (die Olympe-NOM, der-DAT), indicating that the DP is more loosely connected to the matrix sentence. Consequently, these two structures can be categorized as Left Dislocation (LD; cf. (70a)) and Hanging Topic (HT; cf. (70b)).

(70) Left sentence periphery

a. LD (ROWLING 2007:433)

Luna, die ist zäh, viel zäher, als man glauben würde.

'Luna, she is tough, way tougher than one would think.'

b. HT (ROWLING 2003:498)

Und ich kann euch sagen, die Olympe, der macht's nichts aus, wenn's hart auf hart kommt.

und	ich	kann	euch	sagen	die	olympe	der	macht's	
and	I	can	you	tell	the.F.NOM	olympe	she.DAT	does-it	
nichts	aus	wenn's	hart	auf	hart	kommt			
nothing	out	when-it	hard	on	hard	comes			

'And I can tell you, Olympe, she doesn't mind when the crunch comes.'

(71) Right sentence periphery

a. RD (ROWLING 1998:328)

Er ist ein merkwürdiger Mensch, dieser Dumbledore.

'He is a peculiar person, Dumbledore.'

b. AT (ROWLING 2003:658)

„Er wollte mit mir ausgehen, weißt du", sagte sie leise. „Vor ein paar Wochen. Roger."

'He wanted to go out with me, you know", she said quietly. "A couple of weeks ago. Roger."

The same holds for (71a) and (71b): if we consider the adjacency constraint mentioned before (cf. 2.2), we may conclude that (71a) is more closely connected to its matrix sentence than (71b) (even if we leave aside the intervening *verbum dicendi*

in (71b)). (71a) is directly adjacent to its core sentence whereas in (71b) an additional clause sets off the DP against the host sentence. Hence, we find (71a) to be an RD and (71b) to be an AT.

So far, we found that left and right peripheral constructions occur in written discourses and that they, interestingly, can even be further divided into sub-categories, RD and AT among others. But how do these written structures work? Do they take the same functions as in spoken utterances, and do they appear in similar contexts? To solve these questions, let us have a closer look at the surrounding discourse, especially the topic structure. Example (72) shows what we previously identified as AT, examples (73) and (74) display instances of RD.[10] Bold face indicates topic shifts, while RD and AT as well as their coreferential pronouns are underlined.[11]

(72) AT (ROWLING 1999b:402)

„[…] Sirius Black$_1$ ist unschuldig! **Peter Pettigrew**$_2$ hat seinen$_2$ eigenen Tod nur vorgetäuscht! Wir haben ihn$_2$ heute Nacht gesehen! Sie dürfen nicht zulassen, dass die Dementoren diese Sache mit **Sirius**$_1$ anstellen, er$_1$ ist –"

Doch Fudge schüttelte sanft lächelnd den Kopf.

„Harry, Harry, du bist völlig durcheinander, du hast Fürchterliches durchlitten, leg dich jetzt wieder hin, wir haben alles im Griff..."

„Haben Sie nicht!", schrie Harry, „Sie haben den falschen Mann$_1$!"

„Minister, bitte hören Sie", sagte Hermine, sie trat rasch an Harrys Seite und sah Fudge flehend an. „Ich hab **ihn**$_?$ auch gesehen, es$_?$ war Rons Ratte, er$_?$ ist ein Animagus, Pettigrew$_2$, meine ich, und –"

In (72), we observe two referents that compete to be the sentence topic (ST) and this competition is reflected in three shifts of ST. At the time the fictitious speaker produces the pronoun, the fictitious listener cannot directly infer from the text, which referent is being talked about. Accordingly, a clarification of the referent, i.e. the sentence topic (ST), becomes necessary. It can therefore be concluded that written ATs occur in the same context as in spoken dialogues and take the same

[10] The subsequent analysis is meant to be exemplary and to provide only a short insight. For a more detailed exploration with more examples, see Kalbertodt (2011).

[11] I will desist from translating examples (72)-(74) due to limitations in space. I believe that the crucial point about these examples becomes clear when following the indices.

function, namely resolving an ambiguous reference and thus repairing information structure.

(73) RDproto (ROWLING 2000:556)
„Na ja“, sagte Sirius bedächtig, „ich würde es Mad-Eye Moody$_1$ durchaus zutrauen, dass er$_1$ sämtliche Lehrerbüros durchsucht hat, als er$_1$ nach Hogwarts kam. Er$_1$ nimmt die Verteidigung gegen die dunklen Künste schon sehr ernst, der gute Moody$_1$.

In (73), to the contrary, we find a different pattern: in this paragraph, only one referent is being established as continuous ST, there is no competition with other referents. When the RD constituent is produced, the ST is completely unambiguous. Here, the context is exactly the same as in spoken RDproto.

(74) RDstyle (ROWLING 2007:40)
Aber Harry verlor die Geduld. Er stand auf, ging auf seinen Onkel zu und deutete nun selbst auf den Fernseher.
„Diese Unfälle sind keine Unfälle – die Zusammenstöße und Explosionen und Zugentgleisungen und was sonst noch passiert ist, seit wir das letzte Mal die Nachrichten gesehen haben. Menschen verschwinden und sterben, und **er**$_1$ steckt dahinter – Voldemort$_1$.

Interestingly, (74) shows a third type of context: at the time the RD is produced, its referent has neither been established as ST before, nor has it been introduced to the discourse at all. This example of an RD presents the referent and simultaneously establishes it as ST. Recalling chapter 2.1, (74) can be classified as an RDstyle, i.e. we find both types of RD in written dialogues. Like written ATs, the two different kinds of RD occur in the same contexts as in spoken language and also take the same functions, i.e. enhancing the importance of the comment in the case of RDproto, and presenting a new referent in the case of RDstyle.
Now that we have seen that RD and AT do not only exist in written language but also take the same functions as in spoken language, the question arises whether RD and AT differ with respect to punctuation, and – if so – how these differences match

the syntactic account for German punctuation introduced earlier in this chapter.[12] When considering the syntax of RD and AT, the syntactic punctuation account would hypothesise that RD is assigned a comma (sisterhood of syntactic nodes and syntactic boundary between clause A and B; Primus' (1993) a- and b-constraints) while AT is set off with a full stop, reflecting the missing syntactic connection (orphan-analysis, cf. 2.2.2).

An examination of the seven *Harry-Potter* novels (ROWLING 1998-2007) and the German novel *Tintenherz* (FUNKE 2003) returned a total of 106 RDs (94 instances of RDproto and 12 instances of RDstyle) and 37 ATs, which were identified and categorised with respect to their information structure as well as to their (morpho)syntactical constraints. Of the 106 RDs the overwhelming majority of 93.4 % was marked with a comma, while 6.5 % occurred with either a hyphen (3.8 %), an exclamation mark, a colon or an intervening *verbum dicendi* (each 0.9 %). The exceptions from the norm of the comma can be explained with the respective narrative function. As a matter of fact, all 'unexpected' punctuation marks (hyphen, exclamation mark, colon and *verbum dicendi*) appeared within the sub-corpus of RDstyle. In following Bredel's account to punctuation, these exceptions come as no surprise: one feature shared by the hyphen, exclamation mark, colon and the *verbum dicendi* is that all of them have an impact on the syntactic parsing. The hyphen, as Bredel (2011:44) puts it, does not change the syntactic parsing, but rather ends it and tells the reader that a textual re-start is happening. In other words: the hyphen indicates a change of thoughts (or topics), while operating on the text rather than the word tier (cf. BREDEL 2009:132, BREDEL & PRIMUS 2007:105). The exclamation mark is characterised as "punkthaltiges Zeichen" (BREDEL 2009:128), i.e. a punctuation mark that covers the role of the full stop in delimiting a parsing unit. However, the exclamation mark codes a more local closure of a construction (cf. BREDEL 2011:51) and further takes the function of evaluation (cf. BREDEL 2009:128, BREDEL 2011:49). The colon is more complex, though: it does not operate within the syntax, i.e. although the structure that comes after the colon is syntactically independent (cf. BREDEL & PRIMUS 2007:116), the colon does not form a proper syntactic connection (cf. BREDEL 2009:131, BREDEL & PRIMUS 2007:117). Instead, it rather continues a constituent mentioned in the preceding clause on the

[12] I will refrain from a contemplation of RD and AT in the view of the rhetoric punctuation framework since it is commonly agreed that today's punctuation is governed by syntax (see above).

level of discourse semantics (cf. BREDEL & PRIMUS 2007:118) and thus helps the reader processing a thematic progression (cf. BREDEL 2009:131). The colon prepares a change within the discourse on thematic grounds and explicitly marks "Herausstellungen", such as extraposition (cf. BREDEL 2011:89, BREDEL 2009:131). Finally, the *verbum dicendi* interrupts the syntactic parsing in order to elaborate on a different textual tier, namely the narrative tier that informs the reader about the character currently talking and the way this person is talking (quickly, emotionally affected, etc.).

Taken together, the hyphen as well as the exclamation mark, the colon and the *verbum dicendi* primarily operate on the discourse semantic level as both the hyphen and the colon mark a change of topic, and the exclamation mark and the *verbum dicendi* evaluate the utterances. Recall that RDstyle introduces a new referent to the discourse while simultaneously establishing it as ST, i.e. they usually change the ST. Therefore, all of the punctuation marks other than the comma are appropriate when it comes to the indication of RDstyle. Still, as even 41.7 % of RDstyle are marked with a comma, the overall means of setting off RD against its matrix sentence in written dialogue is the comma.

The punctuation of ATs, in contrast, appears to be quite random: admittedly, we do observe instances with full stops (10.8 %), but also cases with question marks (40.5 %), intervening *verba dicendi* (24.3 %), commas (13.5 %), and hyphens (10.8 %). Please recall that, according to Bredel (2011:78), the function of the full stop is to delimit a parsing unit. The main function of the question mark, to the contrary, is a communicative one, namely to instruct the reader to take on the role of the knowing interlocutor (BREDEL 2011:54, BREDEL 2009:128). Nevertheless, the question mark also holds the function of signalling the end of a unit – as does the full stop. We have already seen above that also *verba dicendi* and the hyphen interrupt the syntactic parsing process. Therefore, we can pool the cases of full stops, question marks, *verba dicendi* and hyphens together and call them *sentence delimiting punctuation marks*. After pooling these sentence delimiting marks, we find that they constitute 86.4 % of ATs in our corpus. This is rather unsurprising,

since all of these marks block the possibility of a syntactic connection[13] and consequently display the missing syntactic connection between host sentence and corrective phrase.

Now why is it that 13.5 % of AT-items were found to be punctuated with a comma instead? Let us have an exemplary look at (72) again, which is here repeated as (75). This discourse unit is coined with haste. Especially Hermione's utterance is produced rather quickly (as is her overall movement) and we see that not a single full stop is used in her utterance. Thus, the comma here takes the function of displaying the haste of the situation rather than the syntactic structure. A total loss of the syntactic structure, and hence of the construction, is eluded in that the cue phrase 'I mean' is added (underlined in the example). Accordingly, the reader still knows how to interpret and process the NP 'Pettigrew'.

(75) AT (ROWLING 1999b:402)

"[…] Sirius Black ist unschuldig! Peter Pettigrew hat seinen eigenen Tod nur vorgetäuscht! Wir haben ihn heute Nacht gesehen! Sie dürfen nicht zulassen, dass die Dementoren diese Sache mit Sirius anstellen, er ist –"

Doch Fudge schüttelte sanft lächelnd den Kopf.

„Harry, Harry, du bist völlig durcheinander, du hast Fürchterliches durchlitten, leg dich jetzt wieder hin, wir haben alles im Griff..."

„Haben Sie nicht!", schrie Harry, „Sie haben den falschen Mann!"

„Minister, bitte hören Sie", sagte Hermine, sie trat rasch an Harrys Seite und sah Fudge flehend an. „Ich hab ihn auch gesehen, es war Rons Ratte, er ist ein Animagus, Pettigrew, meine ich, und –"

We have seen in this example that the comma in ATs can be explained by means of narrative requests, such as to display hurry. In my opinion, it is therefore safe to conclude that ATs are usually punctuated with a sentence delimiting mark (full stop, question mark, hyphen, *verbum dicendi*), which is in line with Bredel's (2011) punctuation theory on German. As a core result of the short analysis provided here, we find that written AT and RD differ systematically in terms of punctuation, in that

[13] Confer Bredel & Primus (2007:113f) and Bredel (2009:130) for full stop, Bredel (2011:51) for the question mark, and Bredel (2011:44) for the hyphen.

the former is usually accompanied by a sentence delimiting punctuation mark while the latter primarily appears with a comma.

Although RD and AT appear in written language and authors use them in the same contexts and with the same functions as do interlocutors in spoken discourse, the question emerges whether naïve readers recognize these structures when confronted with them. A previous study by Kalbertodt (2016) addressed this question in a reading experiment with eight monolingual German native speakers. Critical items in this experiment have been ten RDs and ATs each taken from the novel series *Harry-Potter* (ROWLING 1998-2007) and the German novel *Tintenherz* (FUNKE 2003). The prosodic realisation of items, especially their phrasing and accentuation patterns, was taken as a measure for correct recognition. In order to simulate the original reading situation, items in this study were not controlled for factors such as (discourse) length, the amount of accessible referents, punctuation, and possibly intervening clauses in the case of ATs. Overall, 76 % of RD-items were produced as a single intonation phrase (IP; see 2.4), whereas all AT-items were produced as two separate IPs (KALBERTODT 2016:297f), indicating that subjects recognised these structures correctly. Nevertheless, the trigger of this identification remains unclear due to the fact that the critical items have not been controlled for: six AT-items contained interrupting *verba dicendi* (KALBERTODT 2016:301), so that participants did not have a choice but to produce the ATs as two separate IPs. In addition, RD- and AT-items did not only differ with respect to the context (i.e. information structure) but also regarding punctuation, in that RDs were consistently presented with commas while ATs were predominantly marked with sentence delimiting punctuation marks, like question marks (50 %) and full stops (10 %).[14] As the two test conditions differed systematically in more than one respect, it remains unclear which parameter triggered the correct identification. Both discourse structure and puctuation[15] are likely to affect the recognition process.

In order to answer the question which parameter triggers the correct recognition of RD and AT in written speech, Kalbertodt, Primus and Schumacher (2015) ran an additional reading experiment that strictly controlled for possible influencing parameters. Test items were manipulated with respect to the (mis-)match between

[14] Only 10 % of AT-items did not occur with a full stop but rather a comma. Cf. Kalbertodt (2016:312-316).

[15] Please keep in mind that the true trigger in this case would be the underlying syntax, as punctuation is a means of displaying it in written speech.

discourse structure and punctuation, leading to four conditions: matching RD (RD-context with comma), non-matching RD (RD-context with full stop), matching AT (AT-context with full stop), and non-matching AT (AT-context with comma). Again, the prosodic realisation of test items was taken as a measure for the correct recognition of the intended construction. Correlates of prosody were pitch range, phrasing (i.e. strength of boundary), and accentuation. To evaluate the sole effects of punctuation on prosody, filler items consisting of two main clauses entered the experiment as a baseline measure.

The main result of this study was that the full stop is a rather strong cue for syntax and overrides the underlying information structure of a discourse. As a consequence, both RD- and AT-items were produced as independent intonation phrases when accompanied by a full stop. However, in case the constructions were accompanied by a comma instead, which constitutes a comparably weak cue for the syntactic embeddedness, the underlying information structure led to differences in the prosodic integration of RD and AT. AT-items still formed independent intonation phrases whereas RD-items were prosodically integrated into the intonation phrase of the matrix clause.

There is, nevertheless, a serious flaw in the design of AT-stimuli: in order to ensure that the pronoun would be uninterpretable by the listener, the pronoun did not refer to an antecedent but rather to a postcedent; i.e. the pronoun established a cataphoric relation instead of an anaphoric one. We have seen in chapter 2.1.2 that cataphoric relation characterises RDstyle but not RDproto or AT; hence, the experiment by Kalbertodt, Primus and Schumacher (2015) did not compare RD to AT but rather RDproto to RDstyle. In addition, since the full stop was chosen in order to contrast AT with RD, the full stop condition cannot be regarded as the match but rather as the mismatch condition. This is due to the fact that RDstyle never occurs with a full stop but rather with a comma (although not consistently; see above). In conclusion, this study rather compared RDproto and RDstyle when accompanied with a comma and will not be elaborated in the following comparison of RD and AT.

3 Empirical Data

So far, the former literature on right dislocation (RD) and afterthought (AT) was discussed with respect to each linguistic level on which these two constructions differ. It has been shown that many of the investigations introduced above not only lack empirical testing, but that the stated generalisations do not seem to capture RD and AT appropriately. Counter evidence to some generalisations was provided by spontaneous speech, i.e. with respect to the function of RD, the syntactic analysis of RD, and to the prosodic realisation of RD and AT, to mention only a few. Hence, the overly smooth picture that was formerly drawn in the work on German RD and AT (e.g. AVERINTSEVA-KLISCH 2009, DEWALD 2014), already formed some cracks. In this chapter, I will present my own research that shall contribute to a more fine-grained understanding of RD and AT in general and of their distinctive features in particular. As illustrated in the previous chapter, the distinction of RD and AT is manifest at all linguistic levels of description. Accordingly, there are many possibilities for further testing, including various investigation techniques, parameters, and methods for statistical analysis. Chapter 3.1 presents the techniques that were chosen for examination, and further introduces the parameters that were measured in the various experiments together with the statistical methods that were employed. In order to avoid a circular line of argumentation in this work, RD and AT were pre-defined on the grounds of information structure, i.e. referential givenness and topichood. Chapter 3.2 responds to the question whether information structure can be operationalised to reliably distinguish RD from AT. For this purpose, the RefTop scheme is applied to a database of spontaneous spoken data. It is then evaluated with regard to the reliability of the outcome. Finally, it is discussed whether RefTop constitutes a suitable tool for categorisation that can be used in future research to minimise the risk of confounding RD and AT.

In chapter 3.3, I analyse RD with regard to its syntax in the framework of *Lexical-Functional Grammar*. I have shown before that none of the previous analyses of RD, which are all located in the account of *Generative Grammar*, is fully capable of predicting RDs in the way they appear in spontaneous speech. Therefore I will give a brief introduction to the framework of *Lexical-Functional Grammar* and provide an analysis of RD that is based on Berman's (2003) understanding of German syntax. Further, I will suggest an orphan analysis of AT within Lexical-

Functional Grammar and show that the constructions RD and AT can be reliably distinguished from one another.

Chapters 3.4 to 3.6 present the exploration of the other linguistic levels that were previously discussed (chapters 1.1 to 2.5). Chapter 3.4 presents a survey on case agreement in ATs. I will show on the one hand that AT does not use a default-nominative marking, and on the other hand that the cue phrase '*I mean*' is often re-analysed as a transitive verb instead, taking the AT-referent as its argument. Accordingly, ATs that are accompanied by the set phrase '*I mean*' are likely to display an accusative marking, irrespective of the pronoun's case in the host sentence.

Section 3.5 reports on a reading experiment that investigated the effects of phrase-final lengthening in RD and AT. I will show that, although AT displays an accelerated speech rate, RD and AT are equally affected by domain-final lengthening. This pattern indicates that the demands of the discourse function, i.e. to repair the defective reference as soon as possible, do not cancel out the more global effect of phrase-final lengthening.

Finally, 3.6 presents a corpus study which investigates the prosodic marking of RD and AT. It becomes evident that RD and AT cannot be distinguished on the basis of a single parameter. Instead, various parameters enable speakers to contrast RD with AT. Speakers can further choose which of these parameters they employ, as long as they conform to the premise of being robust in the distinct prosodic marking of RD and AT.

3.1 Methods, Parameters, and Analysis

As we have seen, there are many different levels of description on which RD and AT are contrasted. If we want to investigate these levels in depth, we must choose appropriate measures in order to gain reliable data and test our hypotheses. In addition, we do not only need suitable measures but also the appropriate statistics to analyse the given data correctly. In this chapter I will introduce and justify (i) the methods that were employed for investigation, (ii) the measured parameters and (iii) the respective statistical analysis that was used for hypothesis testing.

3.1.1 Methods

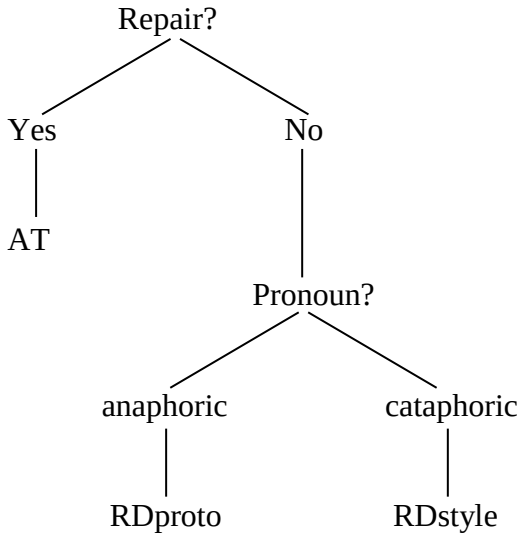
For this work, several different levels of speech were investigated, ranging from the analysis of information structure through morphosyntax to phonetics. It is needless to say that there is not a single method that fits all needs. Hence, the methods for investigation were chosen with respect to the underlying research questions and the particular speech material. The description of methods follows the order of examined linguistic levels.

Information Structure

With respect to the investigation of information structure, the database Fokus-DB was taken as a source of (semi-)spontaneous speech recordings containing dislocation constructions. Since the material stems from various radio and TV formats, the audio files were transcribed for documentation and to allow for further investigations. The material examined here consists of 91 prototypical RDs (RDproto), 78 stylised RDs (RDstyle), and 38 ATs. All constructions were pre-classified by means of information structural cues and differences as explained in 2.1 and illustrated in (76): instances of AT were, in a first step, identified by their repair function. Any right-peripheral construction that did not involve the repair of an ambiguous reference was pre-classified as RD. In a second step, RDstyle was identified by a cataphoric use of the coreferential pronoun whereas RDproto was identified by an anaphoric use of the coreferential pronoun.[1]

[1] Please note that it would in principle be possible to begin with the classification of the proform as being either cataphoric or anaphoric, thus identifying RDstyle in the first step. In the second step, it

(76) Decision tree for categorising right-peripheral structures



On the basis of this pre-definition, the RefTop annotation scheme was then applied to the items in order to evaluate whether it reliably captures the differences between AT, RDproto and RDstyle. As a measure of the scheme's reliability, or rather its suitability, the respective labels or label combinations within a functional category were counted and checked for consistency. As the number of items was not equal across constructions, no inferential statistics were used for the evaluation. Rather, descriptive statistics and relative values were employed.

Case Agreement

Regarding morphosyntax, it was investigated whether the choice of case in AT is truly free, and whether a re-interpretation of the syntactic structure takes place. To be more explicit, the question was whether ATs occurring with a cue phrase favour the realisation of a certain case over the realisation of the same case that has been realised in the host sentence. For this purpose, a survey was conducted in which participants had to judge the well-formedness[2] of test items. In order to avoid additional cues that might affect the participants' judgements (such as intonation), it was decided to not run an acoustic perception study but a written one, i.e. a questionnaire. A questionnaire is sufficient as a source of information as it only gives cues that already allow for a well-formedness judgment, such as information

is then determined whether the antecedent of the anaphoric proform is immediately retrievable from the previous context (identifying an RDproto), or not (identifying an AT).

[2] Participants had to rate the well-formedness rather than the appropriateness of items because the peripheral structure of the test items itself could negatively affect the appropriateness ratings.

structure, syntax (mediated by punctuation) and morphosyntax (case marking, set phrase).

To trigger the respective construction (RD or AT), mini-dialogues were constructed that consisted of an A-part containing a question, and a B-part containing the answer. In A, a set of referents was introduced to the participants, to which B referred back.[3] The sentence that was to be judged was the B-sentence within each dialogue.

The well-formedness was rated on a 4-point Likert-scale, which ranked from *sehr gut* (= 'very good') through *eher gut* (= 'rather good') and *eher schlecht* (= 'rather bad') to *sehr schlecht* (= 'very bad'). The reason to use a 4-point scale instead of a 5-point scale was to avoid that critical items would be judged as *mediocre* throughout the experiment.

The dependent variable of this survey hence provided categorical data with four non-related levels, since 'very bad' cannot be interpreted as twice as bad as 'rather bad'. The type of outcome will be important in section 3.1.3, where the statistical analyses are described.

Phrase-final Lengthening

With respect to Dewald's (2014) claim that RD falls into the domain of final lengthening whereas AT does not, a production experiment was carried out to investigate the effects of final lengthening in both constructions. As has been discussed above (chapter 2.5), it is more than likely that – opposing Dewald's argumentation – ATs are even more lengthened than RDs, since they are not only affected by phrase-final lengthening but also by accentuation.

Ten disyllabic nonce words that exhibit a trochaic pattern in a simple CV.CV-structure were chosen as target words. To be able to reliably measure the amount of lengthening, a voiceless plosive constituted the onset of the second syllable, e.g. *Bahpe* (/ba:pə/). Target words appeared in four different conditions that were used in order to get convincing data: a baseline condition in which the target word was produced unaccented in phrase-medial position; a baseline condition in which the target was produced unaccented in phrase-final position within a canonical sentence; an RD where the target word was produced unaccented in phrase-final

[3] For examples and detailed description of test items and hypotheses see chapter 3.4.

position; and an AT with the target in IP-final position and produced with an accent.[4] In addition, two filler conditions were added in which the target word was accented and stood once in sentence-medial and once in sentence-final position. Each target sentence constituted the answer to a question within a mini-dialogue; the function of the question was to elicit the correct accent pattern and also to license RD and AT, respectively. The context question was presented both visually and acoustically. However, the available cues for participants to correctly identify RD and AT were limited to information structure (context question) and punctuation (and hence syntax) of the written answer. Since the duration of syllables as well as speech rate was measured, the dependent variable provided continuous data.

Speaker-specificity

Regarding the question whether RD and AT entail an intrinsic invariable intonation pattern, a corpus study on the experimentally gained data of chapter 3.5 was conducted. To test whether speakers differ in terms of the parameters they employ in distinguishing RD from AT, the prosodic realisation of RD and AT was reviewed with respect to the following parameters: prosodic prominence, prosodic boundaries, pitch range, presence of pause, and speech rate. The corpus analysis returns count data; however, due to exclusions of test items that rendered the data set unbalanced, no inferential statstics are run.

3.1.2 Parameters

In the production experiments that were run, several phonetic and phonological parameters were examined. In terms of phonetics, these parameters were SYLLABLE DURATION, PITCH RANGE, and SPEECH RATE; regarding phonology, the parameters were PERCEIVED PROMINENCE and BOUNDARY STRENGTH. In the following, the reasons for the choice of parameters will be expounded as well as the processes of measuring and the guidelines of annotation. All labelling and measuring was done using Praat (BOERSMA & WEENINK 2015).

Regarding the amount of final lengthening in RD and AT, the measures were that of syllable and word duration. As opposed to languages that do not have phonemic contrasts in vowel length such as Turkish, where the entire word is affected by

[4] For examples of test items see 3.5.

lengthening mechanisms (cf. BARNES 2001), the domain of phrase-final lengthening in German and other West-Germanic languages is assumed to be only the final syllable (cf. e.g. BARNES 2001; but see chapter 3.5 for a more detailed discussion). Therefore, the duration of the second syllable of target words was measured in milliseconds (ms), i.e. starting at the syllable onset (voiceless obstruent in the target words; compare Figure 1) and ending at the end of the syllable nucleus (reduced vowel). Since there could also be a cumulative effect of accentuation and final lengthening (cf. TURK & SHATTUCK-HUFNAGEL 2007), the duration of the first syllable was measured in ms as well, again starting with the obstruent and ending at the end of the unreduced vowel. However, there is the possibility that the effects of accentuation (lengthening of the first syllable) and final lengthening (AT less elongated than RD) would cancel each other out. To account for this possibility, the overall word duration in ms was measured, combining the measures of the first and the second syllable. In order to further account for the possibility of an accelerated articulation, the speech rate of RD and AT phrases was measured in syllables per second. This measure will be described in more detail below.

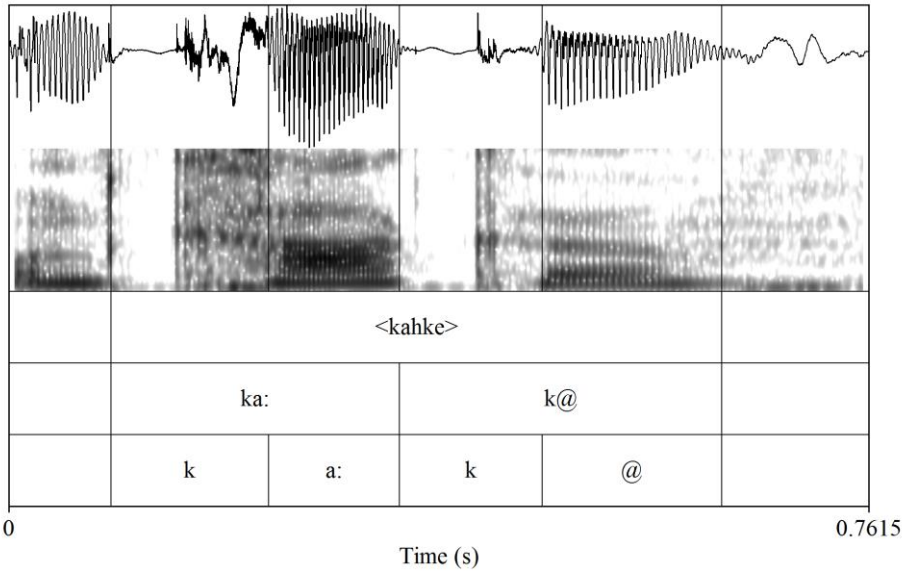


Figure 1: Segmentation and syllabification of the target word *Kahke*.

Regarding the prosodic realisation of RD and AT, all possible parameters that are known to be affected by either discourse or syntactic structure had to be taken into account. This resulted in various factors that are employed in the mechanism of

phrasing[5], as well as the perceived prominence of the target word, and the speech rate and pitch range in which critical phrases were produced. We will first have a look at the continuous parameters and will then turn to the categorical ones.

The current literature on RD and AT assumes that these constructions differ in terms of pitch range (reduced range for RD, unreduced range for AT) and that AT is produced with an accelerated speech rate. Previous work on punctuation suggests that there might also be differences in the duration of pauses, depending on the punctuation mark (longer pauses for full stop than for comma; cf. e.g. Truckenbrodt 2007 on read relative clauses in German). This finding might be of importance since all test items were presented visually, involving a systematically varying punctuation.

Concerning the reduction of pitch range, this phenomenon was described among others by Lambrecht (2001) as a "[…] clear intonation drop from the prosodically prominent clause-final focus constituent to the ANTITOP [6] phrase following it […]" (LAMBRECHT 2001:1071) and a flat contour until the end of the dislocated phrase is reached (DEWALD 2014:100; cf. the notion of post-focal compression in section 2.4). Figure 2 illustrates this prosodic pattern as a stylisation (black line) on actual data (red speckles).

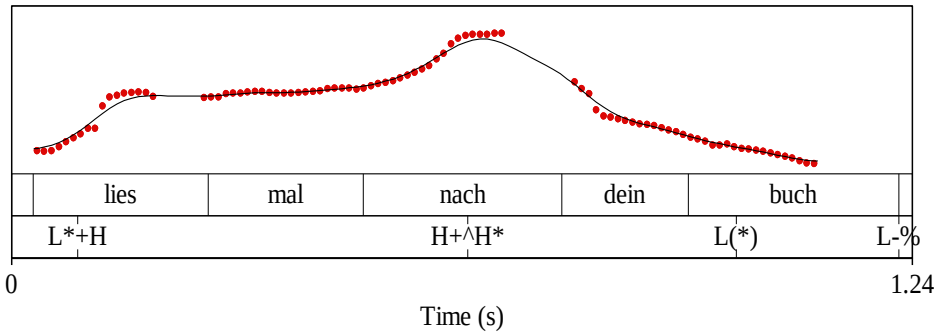


Figure 2: Pitch contour of the elliptical RD "deinBuch" (279, Fokus-DB). The red speckles show the raw data, the black line gives a stylisation of the contour. The example further provides word level[7] and GToBI annotations.

[5] Factors that contribute to prosodic phrasing are boundary strength, presence (and duration) of a pause and the shape of boundary tone.

[6] Lambrecht uses the term ANTITOP to refer to elements at the right sentence periphery. It contrasts with TOP-constituents at the left sentence periphery and is further characterised by not being able to bear accents.

[7] Free translation: Read (it) again, your book!

In order to provide a better understanding of this pattern, rather than just this crude description, the concrete amount of reduction has been measured here in semitones (hereafter *st*). Traditionally, the fundamental frequency of a person, the so-called *f0*, is expressed in terms of Hertz (*Hz*), i.e. the number of periods per second (cf. e.g. REETZ & JONGMAN 2009:116). The Hertz scale is a linear scale that operates on absolute values and is best used for the description of physical features.

Our perception, however, is "[…] structured in perceiving relations between values rather than absolute values […]" (REETZ & JONGMAN 2009:243), and although even small differences between 105 Hz and 110 Hz as well as between 405 Hz and 410 Hz can be perceived, these are not perceived equally. The human ear perceives a doubling of frequency as an increase by an octave (i.e. 12 st), resulting in 200 Hz being perceived as one octave higher than 100 Hz and 400 Hz being perceived as one octave higher than 200 Hz. Hence, small differences in absolute frequency values are better perceived in an overall lower pitch range than in a higher one. In other words: the higher the overall pitch, the more modulation of the f0 is needed in order to express the same change in terms of st. This observation may seem trivial but becomes crucial when comparing male with female speakers: Neppert ([4]1999:125f) stated that a male voice usually ranges within approximately 100 Hz to 150 Hz, while a female voice usually ranges within 190 Hz to 250 Hz. A recent study on pitch range and variation in Slavic and in Germanic languages found that the f0 of German males ranges from 80 Hz to 176 Hz, whereas the f0 of German females ranges from about 146 Hz to 299 Hz (cf. ANDREEVA ET AL. 2014:1308). Now, imagine that female speakers would lower their pitch by around 75 Hz (from 300 Hz to 225 Hz) when producing RD, and male speakers would lower their pitch by roughly 45 Hz (from 180 Hz to 135 Hz). Examination of the absolute frequency values would here result in a false conclusion, namely that men would not modulate the pitch as strongly as women when marking RD. However, it is actually *perceived* as equally strong, as both male and female speakers reduce the pitch height by approximately 5 st.

In order to determine the psycho-acoustic pitch range of utterances, within each syntactic phrase – i.e. here matrix clause and dislocated element – the f0-minimum and -maximum was measured as tonal targets of accents or boundaries (disregarding micro-prosodic effects; cf. Figure 3). To obtain the distance between the

minimum and the maximum value, i.e. the tonal range in st, the absolute frequency values were inserted into the following formula (cf. REETZ & JONGMAN 2009:243):

$$12 \cdot \log_2 \left(\frac{\text{frequency maximum [Hz]}}{\text{frequency minimum [Hz]}} \right) \text{[st]}.$$

As we have already seen above, an octave consists of 12 st and represents a doubling of frequency. Hence, calculation of pitch range is performed using the logarithm with base 2 and multiplying it with 12.

To further investigate the amount of reduction or expansion of pitch range, the range value of the matrix/host clause is subtracted from the range value of the dislocated element; thus, negative values display a reduction of pitch range while positive values indicate an expansion.[8]

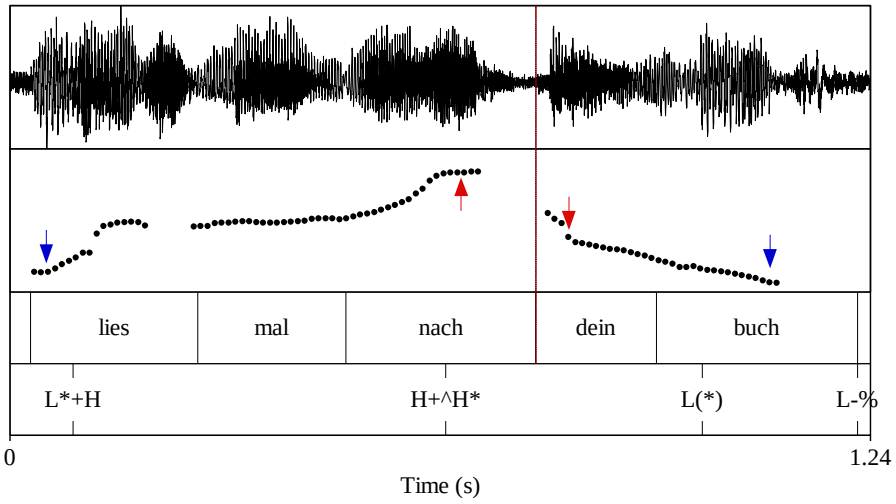


Figure 3: Visualisation of the pitch range measurement for the RD "deinBuch" (279, Fokus-DB). Blue arrows indicate tonal minima, red arrows indicate tonal maxima. The brown line displays the position of the syntactic boundary.

In order to account for effects of a 'hasty' production, speech rate was measured. This parameter is usually expressed in syllables per second (cf. e.g. 'speaking rate' in LEVITAN & HIRSCHBERG 2011). Accordingly, the duration of each syntactic

[8] I am aware that pitch measures in unaccented material pose a problem, since the absence of a (tone) accent results in the absence of tonal targets. A more suitable way of investigating the tonal contours of RD and AT would be an analysis following the framework of generalized additive (mixed) modelling (GAMM; cf. e.g. WINTER & WIELING 2016 and SÓSKUTHY 2017). Unfortunately, this approach will not be used in this thesis due to a lack of space.

phrase was measured (excluding pauses), and the number of syllables was determined. The number of syllables was then divided by the duration. To check whether the speech rate changed towards the second syntactic phrase, the speech rate value of the matrix/host clause was subtracted from the value of the dislocated phrase. As with pitch range, positive values indicate an increase in speech rate, i.e. an acceleration, whereas negative values display a decrease of speech rate, i.e. a deceleration.

Since the experimental material was designed in a way that RD and AT systematically differ with regard to the punctuation mark (RD with comma, AT with full stop), it is important to note that Truckenbrodt (2007) observed longer pauses for full stops than for commas. Accordingly, RD and AT might be distinguished by the duration of pause between two IPs. Pause duration is here defined as segmental silence (see Figure 4). Accordingly, pauses may include breathing. In determining the actual duration of a pause, IP-initial plosives in the second IP posed difficulties: German initial plosives are known to be devoiced (e.g. FISCHER-JØRGENSEN 1976, JESSEN 1998), and as such no negative voice-onset-time (VOT) could be taken as an indicator for the end of a pause. In addition, domain-initial strengthening in German results in a lengthening of the closure phase in phrase-initial plosives, and the amount of lengthening depends on the size of phrase (cf. KUZLA & ERNESTUS 2011). Thus, IP-initial boundaries in German usually result in a closure phase duration of ca. 100 ms (cf. ibid.). Consequently, when IPs in the experiment started with a plosive, 100 ms were subtracted from the duration measured for the segmental silence in order to take the undetectable closure phase of devoiced plosives into account.

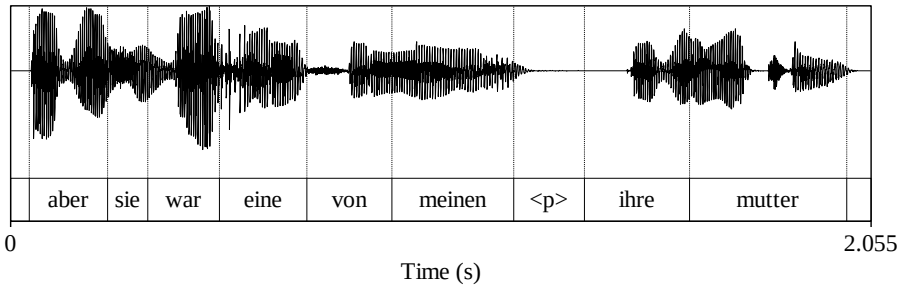


Figure 4: Exemplification of the pause duration measurement. The "<p>" marks the interval that was evaluated as pause. Here, the pause duration was manually shortened by 100 ms to account for effects of domain-initial strengthening of the word-initial glottal stop in <ihre> (/ʔiːʁə/).

The categorical parameters boundary strength and perceived prominence were determined on the basis of auditory inspection, following the DIMA annotation scheme ('Deutsche Intonation – Modellierung und Annotation'; KÜGLER ET AL. 2015, KÜGLER & BAUMANN 2017). An advantage of the DIMA scheme, which is anchored within the framework of autosegmental-metrical phonology, is that it avoids the notion of nuclear accents and allows for an independent annotation of prominences and tones (cf. chapter 2.4).

As for boundary strength, the syntactic boundary was judged for the presence or absence of a prosodic boundary, respectively. Three categories were available: no prosodic break, weak break, and strong break.

The parameter of perceived prominence was only annotated for the extraposed phrase, since RD and AT are assumed to differ especially with respect to the accentuation of the dislocated element. The available categories for perceived prominence were: no prominence (or unaccented), weak prominence, strong prominence, and emphatic prominence.[9]

The test items were annotated by two trained German native speakers. Cases of disagreement were resolved by discussion.

3.1.3 Statistical Analysis

All inferential statistics were performed in R (R CORE TEAM 2017), utilising the MASS-package (VENABLES & RIPLEY 2002) for categorical dependent variables and the lme4-package (BATES ET AL. 2015) for continuous dependent variables.

Categorical Output

For categorical output, such as boundary strength, perceived prominence, presence of pause, and also the Likert-scale, the statistical method of loglinear modelling was chosen. This method can be characterised as a generalised chi-square test as it operates on contingency tables and expected values. However, it is superior to a simple chi-square test in that it allows for more than two input variables (cf. FIELD ET AL. 2012:829). The procedure of loglinear modelling is different to more common methods, e.g. linear models, as it begins with the saturated model[10], and

[9] For a definition of prominence degrees see, for example, Kügler & Baumann (2017:8f).

[10] The saturated model is the model that contains all possible effects and interactions, and thus fits the data perfectly (cf. FIELD ET AL. 2012:925).

then removes interactions and factors from the model stepwise (also called *backward elimination*, cf. ibid.:836). Hence, this statistical method examines which factors can be removed from the saturated model without influencing the model's ability to explain the data. To do so, each model is compared to its precursor to calculate its fit. Since in this procedure the aim is to find the model that does not fit the data anymore, a p-value bigger than 0.05 is desired, for it reflects the 'goodness of fit' of a model. If removing an interaction or a factor results in a p-value lower than 0.05, this indicates that the new model significantly differs from the data. In other words: this certain factor has an influence on the dependent variable as the model without this factor cannot explain the data sufficiently. Consequently, the last non-significant model explains the data best, as it does not significantly deviate from the data but still contains all relevant variables (cf. FIELD ET AL. 2012:840ff). The effect size of the impacting variable is reported within the chi-square test statistic of the last model (the one that deviates from the data). It can be further estimated by calculating odds ratios, i.e. the likelihood of a certain response in a predefined combination of parameters.

Traditionally, a mosaic plot is used for the visualisation of significant factors within a loglinear model (cf. ibid.:849). However, this type of visualisation is used rather seldom in research and its only advantage compared to bar plots is that it indicates which values are statistically significant. Therefore, I will refrain from its use in this thesis and rather use bar plots instead.

Continuous Output

Continuous output variables, such as pitch and duration measures, were statistically analysed using linear mixed effects modelling. Linear models assume (as the name suggests) a linear relationship between the independent variable(s), i.e. the fixed effects, and the dependent variable. In linguistics, this assumption is often too simple, for speakers might show idiosyncrasies or employ different mechanisms to achieve the same goal (cf. chapter 3.6). To cope with this kind of speaker-specific noise, it is advisable to further assume that each speaker behaves differently. The linear model is thus extended by so-called random effects[11], which can further be divided into random intercepts (each speaker starts at a different value) and random

[11] Please note that loglinear model, in contrast, cannot account for random noise, because the contingency table does only allow for fixed effects.

slopes (the steepness of the line is different for each speaker). Because the model now contains both fixed and random effects, this method is called the linear *mixed effects* modelling.

In linear mixed effects modelling, we begin with the simplest model, namely the null model. Only random effects enter the null model, it does not contain any fixed effect. In a second step, models are calculated that contain only one additional fixed effect. Each of these models is then compared to the null model via a likelihood ratio test. The test statistics tells us whether a factor influences the dependent variable or not (p-value < 0.05). Step by step, more complicated models are built that contain two (or more) variables, and also the interactional terms of these variables. Comparison of the models is done until there is no more improvement of models, i.e. a more complex model cannot explain the given data better than a simpler one (cf. WINTER 2013).

3.2 Operationalising Information Structure

Briefly recapitulating chapter 2.1, it can be summarised that there are two types of RD that have to be distinguished from AT, i.e. RDproto and RDstyle. Comparison of RDproto, RDstyle and AT has shown that these constructions are functionally different. The root of these functional differences lies in the underlying information structure of their particular discourse contexts. RDproto, by inverting the usual order of topic-comment (TC), highlights the importance of the comment for the speaker. Since inversion of the TC-order is only possible in cases where the topic is predictable from the previous discourse (cf. chapter 2.1), RDproto can only be used in contexts in which the referent constituting the sentence topic (ST) is textually evoked. In addition, the ST of an RDproto often coincides with the current discourse topic (DT). However, RD is understood in this thesis as a *local* topic-marking device, i.e. the only invariable respect of RD is that it marks the ST. In (77), an example of RDproto is displayed with bold face indicating the current DT and underlining marking the RD.

(77) Discourse with DT-continuation and RDproto
Holland isch ja die **Mannschaft**, sagn wa mal, international, **die** in **ihrer**, sagn wa mal, in **ihrer** Spielweise, sagn wa mal, am nachhaltigsten sind. Also **die** schon seit Ewigkeiten immer einfach immer das gleiche System spielen. Das können **sie** sehr, sehr gut. Isch manchmal vielleicht auch n Nachteil aber **sie** können auch schon klasse Fußball spielen, **die Holländer**. Und **Ø** sind Nummer zwei der Welt. **Sie** waren 2010 im Finale. Also ich denke, das spricht für **die Holländer**. (762, Fokus-DB)
'**The Netherlands** is a **team**, let's say, internationally, **who** are in **their**, let's say, in **their** way of playing, let's say, most sustainable. **They** have always been playing the same system for ages. This, **they** can do very, very well. Sometimes, this can be a disadvantage but **they** are yet playing great soccer, **the Dutch**. And **Ø** have been number two in the world ranking. **They** have been to the final in 2010. So I think, this speaks in favour of **the Dutch**.'

The stylised form of RD, RDstyle, undertakes the function of presenting a new referent to the discourse, often simultaneously establishing this referent as DT. Yet, also RDstyle is understood as *local* topic-marking device. It is predominantly used

in the very beginning of a discourse or discourse unit. In employing a cataphoric relation, which is typical for situationally evoked entities, and definite referring expressions, RDstyle builds suspense in the listener and pretends that the referent would be already accessible to the addressee (see (78)).

(78) Discourse beginning with RDstyle
Und genau hier leben sie, **die Alpakas**, auf 4700 Meter Höhe. Wenn **sie** weiter unten leben würden, dann würde es **ihnen** nicht so gut gehen, denn dann könnten **sie** Gefahr laufen, aufgrund der dicken Wolle und der wärmeren Temperaturen an Hitzeschlag zu sterben. (302, Fokus-DB)
'And this is exactly where they live, **the alpacas**, in a height of 4,700 metres. If **they** were living any further below, **they** wouldn't be well, since **they** would be in danger to die because of a heatstroke, due to the thick wool and the higher temperatures.'

Lastly, AT can be understood as a repair mechanism that fixes a defective reference by adding more specific information. AT is produced in cases where an unstressed pronoun is used but does not suffice for the identification of the referent intended by the speaker. AT involves shift(s) at the local level of ST, hence the speaker assumes that the listener has lost track. This is even more the case if the speaker talks about two referents with the same gender, cf. example (79). In this example, indices are used to refer to the two competing referents; in addition, italics indicate a shift of ST, and ambiguous pronoun and AT are marked by underlining. This discourse is a comment on a race in which the opponents have to stack and climb boxes.
Accordingly, the information structural differences between these three constructions can be summarised as follows: RDproto-referents are discourse-old and often *continue* the ST; RDstyle-referents are discourse-new and *establish* a new ST; and AT-referents are discourse-old but involve a *shift* of ST.

(79) Discourse with shifts of ST and AT
Felix$_1$ jetzt mit der sechsten Kiste. *Thomas*$_2$ sitzt auf der zehnten. Noch eine Minute. Siebte Kiste jetzt bei *Sturm*$_1$. Jetzt kommt er$_1$. Wann, wann reagiert *der Chirurg*$_2$? Ja, der$_2$ is ja kalt wie ne Hundeschnauze da links. Ah, er$_2$ sitzt auf der elf, seh ich grade. Ja ja, er$_2$ sitzt auf der elf. Da is äh die zehn zu sehen, aber er$_2$ sitzt auf der

elf. *Sturm*$_1$ mit einem wahnsinns Finish jetzt. Kommt er$_1$ da noch mal ran? Noch 34 Sekunden. Also das wär natürlich der Oberknaller, wenn er$_?$ hier zu lange gewartet hätte. *Der Thomas*$_2$. Man stelle sich mal vor, der$_2$ rutscht jetzt ab. *Sturm*$_1$ hat die zehn. (499, Fokus-DB)

'Felix$_1$ with the sixth box now. *Thomas*$_2$ is sitting on the tenth. One minute to go. Seventh box now for *Sturm*$_1$. Now he$_1$'s coming. When, when will the *surgeon*$_2$ react? He$_2$'s as cold as marble, the one to the left. Oh, he$_2$'s sitting on eleven, I just see. Yes, yes, he$_2$'s sitting on eleven. You can see the ten but he$_2$'s sitting on eleven. *Sturm*$_1$ now with a crazy finish. Will he$_1$ come close? 34 seconds left. Well, this would just be a sockdolager, if he$_?$ had waited here too long. *Thomas*$_2$. Just imagine he$_2$ would fall now. *Sturm*$_1$'s got the ten.'

In this chapter I aim at operationalising the differences in information structure in order to make a reliable categorisation of right-peripheral structures possible. Since predictions regarding the DT cannot be stated, as already discussed in section 2.1, the information structural analysis of AT and the subtypes of RD will be limited to the ST in the following. As I have shown in 2.1, especially the two types of RD have resulted in some confusion regarding the discourse function of RD as well as its prosodic realisation. In order to avoid a blending of RDproto and RDstyle in the future, it would be desirable to have a tool at hand that helps categorising structures at the right sentence periphery.

In Kalbertodt (2016) I proposed to use the framework of *Centering Theory* (CT in the following; GROSZ ET AL. 1995) for this purpose. However, this former analysis can be understood as providing merely tentative findings, as the study did not take into account RDstyle and was based on a rather small data set consisting of written instances of RD and AT. In this chapter, I will overcome these shortcomings by analysing spontaneous spoken data attested in the Fokus-DB. This database contains 78 instances of RDstyle, 91 instances of RDproto and 38 instances of AT, thus facilitating a better evaluation of the suitability of CT. To avoid a circular line of argumentation, the items within the Fokus-DB have been categorised in two steps, based on information structural aspects (cf. chapter 3.1.1). First, all items entailing an unclear reference and a repair thereof have been classified as AT, as the function of AT is commonly agreed on. Accordingly, every right-peripheral structure that did not contain a repair was categorised RD. In the second step, all instances of RD

that used pronouns in a cataphoric way were categorised as RDstyle, whereas instances of RD that used anaphoric pronouns were categorised as RDproto.

The account of CT, however, is not the only possibility for categorising right-peripheral structures, as there are multiple tools for annotating and analysing information structure. To mention just a few, there are the Question-under-Discussion system (QUD in the following; e.g. RIESTER ET AL. 2018), as well as RefLex (RIESTER & BAUMANN 2017) and RefTop (CANGEMI ET AL. (in prep.)).

In the account of QUD, sentence-focus is defined as the answer to a QUD, which can be either explicitly or implicitly mentioned in the discourse. It is further assumed that, if a QUD is successfully identified, it can also account for both information and discourse structure (cf. RIESTER 2016:6). QUDs are hierarchically structured, and each answer to a subordinate QUD has to also be an answer to the superordinate QUD. The choice of a QUD is not arbitrary since it is heavily constrained (cf. RIESTER 2016, RIESTER ET AL. 2018). However, the account of QUD does not appear to be promising, since the sentence focus is regarded as the answer to a QUD. We have seen in 2.1 that RDproto does not only mark the ST but that its referent is also background information. Although referents of RDstyle and AT are indeed focus constituents, QUD will not capture all of the three constructions investigated here. In addition, it appears unlikely that instances of the same construction will give answers to the same question, as the production of an RD is highly context-dependent; since the context is different for any instance of both types of RD, also the QUDs will differ in their formulations. The same is true for AT: although it could be assumed that each AT can be interpreted as giving an answer to the more general question 'who did it?', it is more likely that the formulation of the QUD is more precise (e.g. 'if who had waited too long?' in example (79) above). This is an additional reason why the QUD-framework does not constitute an appropriate means for categorising constructions at the right sentence periphery.

Consequently, only the annotation schemes of CT, RefLex, and RefTop remain. As applying all schemes is beyond the scope of this thesis, I will further narrow down the selection of possible annotation systems. In the following, the remaining approaches will, therefore, be evaluated with regard to being able to formulate unique hypotheses regarding the categorisation.

In the framework of CT (GROSZ ET AL. 1995), the relation between sentences is investigated, as an indicator of a text's cohesion. There are four possible relations

that can hold between sentences, and these relations are *continue*, *retain*, *smooth shift*, and *rough shift* (cf. WALKER ET AL. 1990). To correctly assign one of these relations, two concepts are needed: a so-called preferred centre (Cp; cf. BRENNAN ET AL. 1987), i.e. a referent that will most likely be taken up in the next sentence; and a backward-looking centre (Cb), i.e. one referent that was already part of the previous sentence. Depending on the relation between the Cp and the Cb of a sentence, and also between the Cb of this sentence and the Cb of the previous sentence (Cb_{-1}), one of the four relations can be identified (see Table 11).

Table 11: Relations between sentences according to CT.

	$Cb = Cb_{-1}$	$Cb \neq Cb_{-1}$
$Cb = Cp$	Continue	Smooth shift
$Cb \neq Cp$	Retain	Rough shift

Since referents of RDproto are already given in the discourse and frequently also established as ST, the Cb of the RD matrix-clause should be the same as the one in the previous sentence. Accordingly, RDproto can either show the relation *continue* or the relation *retain*. AT, to the contrary, is often used in contexts in which the ST is frequently changed, and marks the ST of the following sentence(s). Consequently, the Cb of the host sentence and the Cb of the previous sentence should be different, while the Cb is at the same time more than likely to also be the Cp. This constellation would most probably result in a *smooth shift*. However, recalling chapter 2.1, the referent of an AT does not necessarily constitute the following sentence's ST. Therefore, also the relation of *rough shift* would be an alternative, however rare it might be. Finally, RDstyle is used in contexts in which the referent has previously not been mentioned. Hence, the Cb of the matrix-clause and the Cb of the previous sentence should be different; however, as the use of RDstyle does not necessarily determine the ST of the subsequent sentences, both *smooth* and *rough shift* appear to be likely transition relations. Further, RDstyle may constitute the very beginning of the discourse, i.e. it is produced in the very first sentence. The framework of CT can, in general, not account for first sentences, which would result in many instances of RDstyle that cannot be defined.

In conclusion, also CT does not seem to be suitable for the categorisation of right-peripheral structures, as a significant overlap of transition relations for RDstyle and

AT is to be expected as well as undefinable instances in the case of RDstyle. The reason why CT appeared to be a promising device in Kalbertodt (2016) but is ruled out in this work is the fact that Kalbertodt (2016) was not aware of the subtype RDstyle. Taking RDstyle into account results in overlap; without RDstyle, the transition relations of RDproto and AT would have been expected to be complementary distributed. However, as this is not true, the account of CT will not be pursued in the following.

The RefLex-scheme by Riester and Baumann (2017) annotates referring expressions with regard to their information status, i.e. their givenness. The account differentiates two independent tiers of a referring expression: the referential tier and the lexical tier (hence the name). If an expression is given on either tier, this is likely to impact the prosodic marking of this expression, meaning that the referring expression will probably be deaccented (cf. BAUMANN & RIESTER 2010). It is important to note at this point that only the referring expression in the matrix or host clause, respectively, will be considered in the annotation process, not the right-peripheral NP. This is because, on the one hand, dislocating the NP is only possible if the topic-referent is predictable from the preceding context (cf. section 2.1); on the other hand, only the referring expression's status of being insufficient for an unmistakable reference causes the production of an AT. Since the referring expression is usually an unstressed pronoun, only (some of) the labels of the referential tier (given in Table 12; cf. RIESTER & BAUMANN 2017) are of interest here, as pronouns do not contain lexical meaning.

An attempt to formulate specific hypotheses regarding the labels that are presumably going to be assigned to instances of RDproto, RDstyle and AT, respectively, proves difficult. Referents of RDproto will usually be *r-given*, as the referent has been mentioned earlier; RDstyle, by contrast, will most probably receive the labels *r-unused* or *r-cataphor*, as referents of RDstyle can be either unused or situationally evoked (cf. Table 3). What complicates the matter, is the fact that the referent of an AT can be both *r-given* and *r-given-displaced*, since these two labels differ from each other only with respect to the number of units in between two mentions of an entity.[1]

[1] Confer, for example, the AT in (79): the second mention of the expression STURM is more than five units away from the first mention and would be hence assigned the label *r-given-displaced*. However, no AT is produced in that sentence. The referent of the AT-host, to the contrary, is only four units apart from its last mention and would hence receive the label *r-given*.

Table 12: Labels of the referential tier within RefLex.

r-environment	referent is visually/auditorily available in the surrounding (= situationally evoked)
r-given	referent has been mentioned before (= textually evoked)
r-given-displaced	referent has been mentioned more than 5 units (clauses or intonation phrases) ago
r-cataphor	referent is established later on in the discourse (postcedent)
r-unused	a globally unique referent is introduced to the discourse

Accordingly, there is an expectable overlap between the constructions RDproto and AT. As a consequence, the RefLex-scheme appears *a priori* to be unsuitable as a categorisation device and will therefore not be pursued in the following, either.

The recently developed RefTop-scheme by Cangemi and colleagues (in prep) annotates the referential givenness of a discourse-entity as well as its topical givenness. For the referential givenness of an entity, it is considered whether or not this entity has previously been mentioned, i.e. whether it is textually evoked; for the topical givenness of this entity, two questions are examined: first, is the ST the same as in the previous sentence (OLD topic; comparable to the Cb in CT)? Second, if so, is the ST referred to by the entity under examination (SAME or OTHER, respectively)? These two layers of information structure are then combined to the five labels displayed in Table 13. The reason for having only five instead of six labels lies in the fact that a new referent can, by default, not indicate the same ST as in the previous sentence, hence ruling out a label like NOS.

Considering that the referent of RDproto is usually given in the discourse, only the lower row of the table provides possible labels. Further, RD marks the ST, often maintaining the previous ST (cf. chapter 2.1.2). Accordingly, the label OOS seems appropriate.

Table 13: Labels of the RefTop-scheme.

		TOPIC		
REFERENT		*New*	*Old*	
			Same	*Other*
	New	NN-	---	NOO
	Old	ON-	OOS	OOO

As RDstyle introduces a new referent to the discourse, establishing a new ST, only the label NN- is to be expected. Lastly, the AT-referent has been previously mentioned and is commonly re-introduced as ST; accordingly, the label ON- should be assigned. The other labels of NOO and OOO are not expected to be assigned since both kinds of RD as well as AT mark the ST (cf. Table 3). In conclusion, RefTop appears to be a suitable device for the categorisation of right-peripheral structures, because the labels can *a priori* only be associated with one category at a time, i.e. no overlap of labels is to be expected.

In the following section (3.2.1), I will describe the apparently most promising account, i.e. RefTop, in more detail and apply it to the data of the Fokus-DB. The scheme will be evaluated on the basis of its reliability. This chapter ends with a conclusion whether RefTop is a suitable tool for an objective categorisation of AT and RD-subtypes and a brief outlook to future research (section 3.2.2).

3.2.1 Applying the RefTop-scheme

Preliminaries

The RefTop-scheme was developed by Cangemi and colleagues (in prep) within the CRC 1252 "Prominence in Language"[2] and is by this point, unfortunately, unpublished (but see the brief mentioning in KRÜGER 2018:116). RefTop annotates a referring expression's information status (new/old information) as well as its topichood, and thus combines referential and topical givenness. It was designed to be both easy and fast in handling, and also straightforward in its interpretation; therefore, its two dimensions form concatenated labels (see Table 14).

Table 14: Labels of the RefTop-scheme.

		TOPIC		
REFERENT		*New*	*Old*	
			Same	*Other*
	New	NN-	---	NOO
	Old	ON-	OOS	OOO

[2] To be more precise, RefTop originated in the course of project A02 "Individual behaviour in the encoding and decoding of prosodic prominence".

The first dimension (REFERENT) evaluates whether the referent is old or new to the discourse; the second dimension (TOPIC) determines whether there is a continuation or a shift of sentence-topics between two consecutive sentences (*New* and *Old* in the second upper row). The scheme further determines whether the referring expression under examination denotes this ST (*Same*) or not (*Other*). In other words: it is determined whether the referring expression coincides with the ST (*Same*) or whether its referent is part of the comment (*Other*).
In (80), the appropriate use of these labels is exemplified. The example already takes into account that discourse is not a linear sequence of assertions but hierarchically structured by the discourse relations NARRATION and ELABORATION (as seen in chapter 2.1.1).

(80) Use of RefTop-labels accounting for discourse hierarchy

a. A man went shopping.
   NN-
b. He took bananas
   OOS NOO
c. and Ø stood in line behind a woman.
   OOS NOO NOO
   c'. She had ice cream.
   ON- NOO
d. After the woman had paid,
   OOO
e. he was next.
   OOS

In the first sentence, the beginning of the discourse, the referring expression A MAN is used. This expression introduces a new referent and simultaneously marks it as the ST; hence, it receives the label NN-. In the second sentence, the referent '*man*' is taken up again by the pronoun HE and is therefore an old referent; as the ST is maintained from sentence (a) to sentence (b), and the referring expression denotes the ST, it receives the label OOS. The referring expression BANANAS introduced a new referent to the discourse. However, since the ST is not denoted by this expression, BANANAS receives the label NOO. Also in sentence (c), the referent '*man*'

(indicated by the pro-drop (Ø)) constitutes the ST; since the ST is again maintained, the referring expression is labelled OOS. Further, the referents '*line'* and '*woman'* are introduced. Since they are new referents but none of them denotes the current ST, both expressions receive the label NOO. In sentence (c'), an old referent is upgraded to being the ST, so the pronoun SHE gets the label ON- (for 'old referent' and 'new topic'). The referring expression ICE CREAM is labelled NOO, as it denotes a new referent that does not coincide with the current ST. Now, the last sentence (clauses (d) and (e)) is a bit tricky because it is a sentence with a subordinate part. The analysis begins with the superordinate clause (e): the pronoun HE does not further elaborate on '*the woman*' but instead continues the narration about '*the man*'. Accordingly, '*the woman*' in the subordinate clause (d) loses its status as the ST. Rather, the referring expression THE WOMAN is now determined as an old referent with an old ST (i.e. the one in the superordinate clause) which does not coincide with this expression, hence it is labelled OOO. Clauses (d) and (e) are, as indicated by the use of the unstressed pronoun HE in sentence (e)[3], coordinated with sentence (c), whereas sentence (c'), which elaborates on '*the woman*' in specifying what she was buying, has to be interpreted as being hierarchically subordinate to sentence (c) and is therefore indented. As sentences (c) and (e) are coordinated, the ST '*the man*' is being maintained and, accordingly, the pronoun HE receives the label OOS.

In order to appropriately display the discourse structure of a text, it is therefore important to take into account that elaborating sequences tend to subordinate discourse segments when applying the RefTop-scheme.

Hypotheses

On the basis of the observations made in chapter 2.1, I formulate the following hypotheses for the application of RefTop:

H1) Since referents of RDproto are predominantly both referentially and topically given, the label OOS is expected.

H2) Since AT-referents are usually referentially given but topically new, the label ON- is expected to be assigned.

[3] The pronoun is cognitively 'in focus', following Gundel and colleagues (1993), and is hence best interpreted as continuation of the ST. An additional argument for this interpretation is provided by the observation that topic shifts are often signalled by demonstratives instead (cf. SCHUMACHER ET AL. 2015:11), which is not the case here.

H3) Since referents of RDstyle are typically both referentially and topically new to the discourse, the label NN- is expected.

H4) Since the referents of both types of RD as well as of AT denote the ST, the labels OOO and NOO are not expected to be assigned to any instance of right-peripheral structures.

Results

The results of applying the RefTop-scheme to the items of the Fokus-DB are given in Table 15. In RDproto the most common label is OOS (66 out of 91 items; i.e. 72.5 %), the second most common label is ON- (23 items, i.e. 25.3 %), the label NN- was assigned twice (i.e. in 2.2 % of the data). The labels OOO and NOO are not assigned at all.

Table 15: Amount of instances per RefTop-label, divided by the type of right-peripheral construction.

	RDproto	*RDstyle*	*AT*
NN-	2	73	9
NOO	0	0	0
ON-	23	4	29
OOO	0	0	0
OOS	66	1	0

RDstyle shows a clear preference of the label NN- (73 instances within 78 items, i.e. 93.6 %); also the label ON- has been assigned (to 4 items, i.e 5.1 %) as well as the label ON- (although only once, i.e. 1.3 % of the data). Neither the label NOO nor the label OOO have been assigned.

In ATs there is a preference for the label ON- (29 of 38 items, i.e. 76.3 %); however, also the label NN- was assigned in 9 cases (i.e. 23.7 %). Lastly, the labels OOS, NOO and OOO have not been assigned at all.

Discussion and conclusion

In general, when applying RefTop to the Fokus-DB we find systematic differences between RDproto, RDstyle and AT. Most instances of RDproto received the label OOS which indicates the continuation of an old referent as the ST; RDstyle was

predominantly labelled NN-, indicating that a new discourse-referent is established as ST; and finally, most instances of AT were assigned the label ON- which indicates a topic shift towards an already mentioned referent.

The pattern observed for RDstyle confirms the above formulated hypothesis (H3), in that the majority of items (93.6 %) received the expected label NN-. However, the data for the other two constructions confirms their respective hypothesis merely in tendency, clearly displaying more variation: 72.5 % of RDproto received the predicted label OOS (H1), while 76.3 % of the AT data received the predicted label ON- (H2). As a direct consequence, there is a considerable amount of overlap between RDproto and AT with regard to the label ON-, and between RDstyle and AT with regard to the label NN-. Nevertheless, hypothesis H4 was confirmed since no item within the data base was labelled NOO or OOO. Thus, each of the 207 items investigated denoted the ST. In the following, we will go into more detail regarding the predictions of H1 and H2 and shed some light on especially problematic labels for RDproto and AT, respectively.

Please recall that H1 predicted that RDproto would be labelled OOS since it maintains the previous ST while simultaneously marking the current ST. We have seen before that there are many instances of ON- (25.3 % of RDproto), indicating a shift of STs. In all these instances the topic-referent is highly salient in the previous discourse. There are five recurring patterns that explain why ON- was the only possible label: *back-referring* due to unpredicted circumstances, *explicit mention of a DT*, *mimicking*, *failed coreference relation*, and simply *bad timing*.

In the case of unpredicted back-referring the speaker feels the need to refer back to the referent that has explicitly been mentioned before, as something unpredicted happened. Since in the moment of the utterance the referent is still available in the immediate situation of utterance, this renders the production of an RD possible.

(81) shows an example for 'back-referring': this discourse is about a lighter that is able to make videos. The interlocutors elaborate on this lighter and how to connect it to the laptop in order to have a look at what they have filmed before. When the movie finally starts, it becomes evident that the camera inside the lighter has a different angle than previously assumed. Speaker A hence feels the need to comment on the reason why the recording is tilted. Bold face indicates the recurring ST, italics mark expressions that relate to the ability and action of filming, respectively. Since the lexeme CAMERA was used before and also its referent is highly salient in

the discourse, the production of an RD is possible. The RD and the pronoun are underlined.

(81) Unpredicted back-referring

A: Das ist ein ja ein **Feuerzeug**. Mit **dem** man auch *filmen* kann. **B**: Genau. **A**: Ja? *Das* ham wir grade gemacht hier in der Werbepause. **Da** sind so auch so kleine *Kameras* eingebracht. **B**: M-hm. **A**: **Das** schließt man dann einfach nur an. **B**: Genau. **A**: Ans Laptop. Und dann, dann macht man was? Mal gucken grade hier. Dann muss man so. Ich steck'**s** noch mal rein oder? **B**: Ja. **A**: Dann müsste der Computer **das** erkennen. Achtung. Ja. Funktioniert! So. Und dann gucken wir mal, ham wir grade ein bisschen *gefilmt*. So hier. Ach guck mal! Das bin ich. Da hört man die Band spielen. Spitzenqualität find ich. Soundqualität. Ich hab **sie** n bisschen schief gehalten, **die Kamera**. **Die** filmt, also wusst ich nicht, dass **sie** so rum filmt. (319, Fokus-DB)

'**A**: That's a **lighter**. With **which** you can also *film*. **B**: Exactly. **A**: We just did *that* in the commercial break. There are such small *cameras* attached. **B**: M-hm. **A**: **It** is just connected. **B**: Exactly. **A:** To the laptop. And then you do what? Let's see. You have to… I'll connect **it** again, right? **B**: Yes. **A**: And then the computer should recognise **it**. Attention. Yes. Works! Alright. Let's see. We just *filmed* a bit. Okay here. Look at that! That's me. You hear the band playing. Top quality, I think. Sound quality. I hold **it** somewhat lopsided, **the camera**. **It** films, well, I didn't know that **it** films that way.'

In the case of the explicit mention of a DT, the discourse is about one implicit DT; however, within this discourse, there are several STs that contribute to the DT. The RD does not take up on one of these former ST but refers to the DT instead (cf. (82) which is about speaker A and his relation to Maite). As the referent is textually evoked but constitutes a new ST, the only possible label is that of ON-. In (82), italics indicate all previous mentions of the referent that is later taken up on by the RD, which is marked by underlining.

(82) Explicit mention of implicit DT

A: Und dann ham *wir* ja den kleinen Boxkampf gehabt vorher noch. **B**: Das heißt, das heißt, *sie* ist nett eigentlich? Ne Nette? **A**: *Maite* ist ne sehr Nette. Herz auf der

Zunge und ehrliche Haut und das gefiel mir sehr gut. Und auch, dass *sie*, wie gesagt, sehr ehrgeizig war, gefiel mir auch, weil ich finde, wenn man so was macht, dann muss man da auch mit dem nötigen Ernst und Ehrgeiz rangehen. Weil sonst macht so'n Format ja auch keinen Spaß. **B**: So was hatte *Maite* nie an, oder? **A**: Nein. **B**: Was bleibt von dem gemeinsamen Tanz früher? Ihr habt ja so viel Zeit hier verbracht, du und Maite. (799, Fokus-DB)

'**A**: And then *we* had this little boxing match before. **B**: This means, this means *she*'s nice, actually? A nice one? **A**: *Maite* is a very nice one. Heart on *her* sleeve and an honest soul and I really much liked that. And I also liked that *she*, as just mentioned, was really ambitious, because I think if you do something like this [dance competition] then you have to encounter it with the appropriate severity and ambition. Otherwise, such a format is no fun. **B**: *Maite* never wore something like this [a tutu], did *she*? **A**: No. **B**: What sticks in memory of the joint dance? You spend so much time here, you and Maite.'

In mimicking, the speaker changes the narration perspective in order to mimic the previous referent's behaviour and speaking style.[4] Compare example (83) that is about the history of Franz Beckenbauer (a famous German soccer player) and whom he got to know. Bold face indicates the recurring ST, underlining marks the RD.

(83) Mimicking

Er [Franz Beckenbauer] traf natürlich als erstes auf Pelé. Einen der Weltstars, die natürlich auch bei Cosmos New York unter Vertrag waren. Dann machte **er** die Bekanntschaft von Andy Warhol. Ø ein verrückter Hund, der Andy. Der hat **Franz** als erstes gemalt und zwar (...) (375, Fokus-DB)

'First of all, **he** met, of course, Pelé. One of the world stars also under contract to Cosmos New York, of course. Then **he** met Andy Warhol. Ø a crazy guy, Andy. He painted **Franz** first, namely (…)'

In case of the failed coreference relation the speaker fails to establish a 100 % co-reference relation between two referents. Compare example (84): the interlocutors talk about specific kinds of shoes and speaker A wants to know their name. The RD

[4] Although used as a stylistic device, this example cannt be understood as an instance of RDstyle since the RD does not present a new referent to the discourse but operates on an already mentioned referent.

does not take '*shoes*' but rather '*name*' as the topic-referent. Although, of course, the name is related to the shoes, the two referring expressions do not denote the same entity. Hence, RefTop cannot label the dislocated referent as OOS, although clearly intended by the speaker.

(84) Failed coreference relation

A: Das muss ich noch wissen! **B**: M-hm. **A**: Das sind, in diesem Roman werden sehr spezielle **Schuhe** erwähnt, **die** aber natürlich mit den Filzlappen **B**: Ja. **A**: der tibetanischen Mönche mithalten. **B**: Ja. **A**: Was sind das für **Schuhe**? **B**: Das sind *Berluti*-**Schuhe**. Das sind die besten **Schuhe** der Welt. **A**: Den hab ich nie gehört, *diesen Namen*. Sind das solche **Schuhe**? (344, Fokus-DB)

'**A**: There's one thing I just need to know! **B**: M-hm. **A**: There are, in this novel very special **shoes** are mentioned **that**, of course, match up to the felt-rags **B**: Yes. **A**: of the Tibetan monks. **B**: Yes. **A**: What kind of **shoes** are those? **B**: These are *Berluti*-**shoes**, they're the best **shoes** in the world. **A**: I never heard that, *this name*. Are those such **shoes**?'

Lastly, in the case of bad timing the dislocated referent has been previously mentioned and established as recurring ST. However, as all interlocutors talk across each other the speaker fails to utter the RD before the ST is changed (cf. example (85) in which bold face marks the recurring ST and the RD is underlined).

(85) Bad timing

A: Ganz knapp, bevor du den **Namen [des Gastes]** sagst, kommt ja immer Sven. **B**: Genau! **A**: Und dann muss das Publikum total ausrasten. **B**: Ja. Nach **A**: Und dann stellt der das Glas hin. Also das müssen wir jetzt noch mal machen. **C**: Nachdem. **D**: Nee, danach. **C**: Danach. **D**: Danach. **C**: Erst wird **der Gast** angekündigt. **D**: Der **Ga-**, genau. **A**: Erst wird **der Gast** angekündigt? **E**: Ja. **D**: Ja klar, und dann kommt Sven. **E**: Eigentlich ist **das** ein Cue, **der Gast**, ne? (288, Fokus-DB)

'**A**: Immediately before you say the **name [of the guest]**, Sven always enters. **B**: Exactly! **A**: And then the audience has to snap. **B**: Yes. After **A**: And then he puts down the glass. So we gotta do that again. **C**: Afterwards. **D**: No, afterwards. **C**: Afterwards. **D**: Afterwards. **C**: First, the **guest** is announced. **D**: The **gue-**, exactly.

A: The **guest** is announced first? **E**: Yes. **D**: Of course, and then Sven enters. **E**: **<u>It</u>** is actually a cue, **<u>the guest</u>**, right?'

The above explanations indicate that all instances of RDproto that were assigned the label ON- can still be regarded as RDproto and do not have to be re-classified as ATs, since the dislocated constituent does not undertake a repair function. However, as these instances constitute a quarter of the RDproto data, they cannot be regarded as merely unfelicitous discourse performance, either. This pattern rather suggests that the referents of RDproto do not necessarily need to maintain the previous ST. However, a proper distinction from both RDstyle and AT is yet ensured: in all these instances the RD employs an anaphoric relation of coreferential pronoun and dislocated phrase, and it also does not repair an unclear reference. Table 16 constitutes a revised version of Table 3 given in chapter 2.1, summarising the relevant findings with regard to information structure. Additions to the original table are highlighted by underlining.

Table 16: Information structural and functional differences between RDproto, RDstyle and AT.

	Information structure		*Function*
RDproto	**focus-marking**	background information	emphasising importance of comment
	givenness	discourse-old referent; textually evoked; anaphoric relation	
	topic-marking	continuation or shift of sentence-topic	
RDstyle	**focus-marking**	narrow focus	presenting new referent
	givenness	discourse-new referent; unused or situationally evoked; cataphoric relation	
	topic-marking	new sentence-topic	
AT	**focus-marking**	narrow or contrastive focus	resolving unclear reference
	givenness	discourse-old referent; textually evoked	
	topic-marking	shift of sentence-topic	

A further issue in the RDproto data is the fact that two items have been labelled as NN-. In both items, the topic-referent is merely inferable from the previous discourse entities but not explicitly mentioned before. Since these referents are not accessible in the immediate conversation surrounding, they cannot be regarded as situationally evoked entities, which would have resulted in being categorised as RDstyle. To the contrary, inferable information, according to Riester and Baumann (2017:8), establishes a so-called bridging or associative anaphor. The referent to such an anaphor typically depends on a previously introduced scenario (cf. ibid.). An example for a bridging relation is given in (86), where speaker A establishes the scenario of polluted nature. Although the hypernym LITTER is not explicitly mentioned, it is inferable from the lexemes PLASTIC BAGS and CUPS. In this example, bold face indicates elements contributing to the scenario, while RD and coreferential pronoun are underlined.

(86) Inferable referent in RDproto

A: Die ganze Natur ist **verschandelt**. **S**: M-hm. **A**: Da kommt so'n kleiner Strauch, so'n schöner Baum schmückt sich mit schönem Grün und was hat der in dem Grün hängen? **Plastiktüten**. Da sollen sie mit nem, mit nem Plastikbeutel gehen, dann ham sie ja solche Stöcke, dann pieken sie **das** auf. **B**: Ja. **A**: Und von den Bäumen müssen sie die **Plastiktüten** runterholen und die ganzen **Becher**. Ich frag mich überhaupt, wer macht das, diesen Müll? (343, Fokus-DB)

'**A**: The whole nature is **polluted**. **S**: M-hm. **A**: A tiny bush grows, such a pretty tree decks itself with pretty verdure and what is hanging in this verdure? **Plastic bags**. They should go with a, with a refuse bag, then they have such sticks, then they skewer **it**. **B**: Yes. **A**: And they have to fetch the **plastic bags** and all the **cups** off the trees. I wonder who produces that, this litter?'

However, as the topic-referent has not been explicitly mentioned before, only the label NN- is suitable in this case. This indicates that the RefTop-scheme is not able to account for inferable entities.

Having settled the issues with hypothesis H1, let us now turn to the remaining issue concerning hypothesis H2. Recall that H2 predicted the label ON- for ATs since the referent has already been mentioned before and the ST is shifted. Accordingly, AT-items should not be assigned the label NN- which indicates that the referent has not been previously introduced to the discourse. Yet, there are nine instances that received this label. The reason for this pattern, again, lies in the inferability of referents, as in all nine AT-instances of NN- the referent is merely inferable by a bridging relation provided by an earlier constructed scenario. Thus, these nine unexpected labels in AT provide further evidence that the RefTop-scheme is (yet) uncapable of accounting for inferable entities.

(87) provides an example of inferable information in AT: for a better understanding of this example, please note that the interlocutors are talking about a stage play. In this play, there is a scene in which the actors pretend to be off-stage during the intermission and use their spare time to gossip about some cabaret artists. One of these actors is the first interlocutor (A) being the guest in a late night show hosted by speaker B. Utterances contributing to the scenario that enable the associative anaphor are indicated by bold face while underlining marks the ambigious reference and its repair.

(87) Inferable referent in AT (404, Fokus-DB)

A: Die die die Sache die, dass so geschimpft wird. Über alles und **B**: Ja. **A**: Die Leute können sich damit so identifizieren. **B**: Ja. **A**: Also wenn man das auf der Bühne machen würde, dann wär's fast schon Bierzelt, aber weil's hinter der Bühne passiert, äh, macht's einfach, dass, dass niemand aus dem Saal geht. **B**: Gut. Und jetzt kommt die Stelle, bei der alle sagen... Dann, dann kommt die Stelle, wo du **sagst: Weißt du, wer de, wer das größte Arschloch unter allen Kabarettisten ist? A**: Genau, ja. **B**: So. So. Und in dem Moment **A**: klingelt's. Weil die Vorstellung beginnt, ja. **B**: Und du gehst wieder auf die Bühne. **A**: Ja, ja. **B**: Man erfährt es nicht. Die Antwort. **A**: Ja, genau.

A: The the the thing that, that it's grumbled. About everything and **B**: Yes. **A**: People can identify with it. **B**: Yes. **A**: So, if you'd be doing this on stage, then it would almost be as being in a beer tent [which is considered to be chavvy], but because it happens off-stage, err, it causes that, that no one leaves the hall. **B**: Well. And now there's this scene where everyone says… Then, then there's the scene where you **ask: Do you know who the, who the biggest asshole among all cabaret artists is? A**: Exactly, yes. **B**: Well. Well. And just in that moment **A**: the bell rings. Because the play starts. Yes. **B**: And you appear on stage again. **A**: Yes, yes. **B**: One doesn't get to know it. The answer. **A**: Yes, exactly.

In conclusion, although the RefTop-scheme does not capture the data perfectly (overall, three quarters of the data (168 out of 207 items, i.e. 81.2 %) are predicted correctly), it still appears to be a useful device. Applying it to the Fokus-DB resulted in an important finding: the large number of the label ON- in RDproto hints towards the fact that RD does not necessarily take up on the previous ST. Instead, RDproto is characterised by referring to highly salient discourse referents that can be regarded as constituting background information, and by using pronouns in an anaphoric way.

Another important aspect that became evident in the course of applying the RefTop-scheme to spontaneous data is that it is not able to cope with inferable information. This shortcoming of the system is the main reason for the high amount of overlap between RDstyle and AT.

To conclude, the RefTop-scheme is still far from constituting a suitable categorisation device for right-peripheral constructions: on the one hand, it is not able to

account for inferable information; on the other hand, its labels are not complementary distributed across constructions, as it turned out in the course of this chapter that RDproto may also involve shifts of sentential topics. Based on these findings, I propose to stick to the categorisation procedure explained in chapter 3.1.

3.2.2 Conclusion

In the beginning of this chapter it was shown that the account of CT is not suitable to be operationalised as a categorisation tool for constructions at the right sentence periphery. This conclusion contrasts with the results gained in Kalbertodt (2016), which is due to two aspects of the analysis in Kalbertodt (2016): first, the analysis in Kalbertodt (2016) was based on sparse data, i.e. merely ten items of RD and AT each. Second, and most importantly, the analysis did not factor in instances of RDstyle.

By contrast, the RefTop-scheme appeared to be rather promising. Applying it to the data of the Fokus-DB showed that it captured overall 81.2. % of all data in accordance with the formulated hypotheses. It performed especially well in RDstyle, yielding an accuracy rate of 93.6 %; however, it predicted merely three quarters correctly for both AT and RDproto. In the case of AT, the low performance of the RefTop-scheme can be explained by the fact that RefTop is (yet) not able to account for inferable information – which constitutes a crucial shortcoming of this labelling scheme.

By contrast, the low accuracy rate of RefTop in RDproto resulted in an important finding: there were unexpectedly many instances of the label ON-, indicating a shift of sentential topics. Closer examination of these items showed that they indeed constitute instances of RDproto rather than of RDstyle or AT. Accordingly, applying of the RefTop-scheme hinted at a misconception concerning the information structure of RDproto, namely that RDproto necessarily needs to maintain the ST of the previous sentence. This is, however, not the case. Instead, the only prerequisite for RDproto is that the topic-referent has to be highly salient in the discourse. Since RDproto is characterised by not repairing an ambiguous reference, and by an anaphoric relation between proform and dislocated constituent, the information structural features of right-peripheral constructions are yet sufficiently distinct to facilitate a proper division of RDproto, RDstyle and AT.

To conclude, although an overall accuracy rate of 81.2 % is quite appealing, the RefTop-scheme is not perfectly suited to be used in future research as a categorisation device for constructions at the right sentence-periphery. Instead, I propose a categorisation in two steps, as was already explained in section 3.1 and in the beginning of this chapter: in the first step, all right-peripheral items that involve a repair are categorised as AT; all remaining items are hence instances of RD. In the second step, the RD-items are further divided into RDproto and RDstyle, depending on whether the relation between proform and dislocated constituent is either anaphoric or cataphoric.

3.3 RD and AT in the framework of *Lexical-Funtional Grammar*

It was shown in chapter 2.2 that there are various accounts to RD within the framework of *Generative Grammar*. However, none of the previous analyses captures the possibility that RD and its proform can diverge with respect to gender. For this reason I propose to analyse RD instead within the framework of *Lexical-Functional Grammar* (LFG). This chapter begins with a brief introduction to LFG in section 3.3.1 and proceeds with an outline of German syntax in LFG following Berman (2003) in section 3.3.2. On the basis of her analysis of Left Dislocation (LD), I will propose an analysis of RD in section 3.3.3. By contrast, section 3.3.4 will provide an analysis of AT within LFG. This chapter closes with a general discussion and conclusion (section 3.3.5).

3.3.1 Lexical-Functional Grammar

Lexical-Functional Grammar (LFG afterwards) was developed in 1982 by Ronald Kaplan and Joan Bresnan and was designed as a counterpart to *Generative Grammar* (GG hereafter). It was understood as a "[…] medium for expressing and explaining important generalisations about the syntax of human languages […]" (KAPLAN & BRESNAN 1995:2). In contrast to GG, LFG does not assume a deep structure but instead operates on the surface structure of sentences; it hence does not involve deletion or movement operations (cf. ibid.:4). A further characteristic of LFG is that syntactic information is not located in only one representation but is instead distributed across different structures (cf. BERMAN 2003:7). Each structure is represented differently and has to satisfy specific constraints (cf. ibid.).

In the original system, LFG contained two different levels of syntactic description: the constituent-structure (*c-structure*) and the functional structure (*f-structure*; cf. KAPLAN & BRESNAN 1995:3). Later, the system was extended by the argument-structure (*a-structure*; cf. BRESNAN ET AL ^{2}2016, chapter 3). As a-structure is negligible in the analysis of RD, I will focus alone on c- and f-structure in the following.

C-Structure

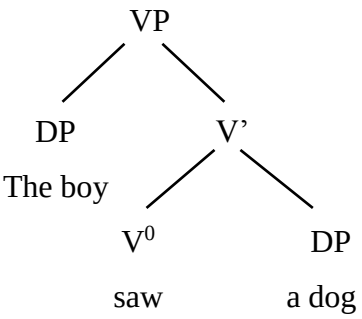
The constituent-structure is represented by a phrase structure tree that employs the established terminology known from GG; it involves heads, speficiers and (maxi-

mal) projections and distinguishes between lexical (noun, verb, adjective, preposition) and functional categories (determiner, complementizer, inflection). C-structure is derived by phrase structure rules (e.g. that every sentence consists of an NP and a VP), which project onto an infinite set of sentences (cf. KAPLAN & BRESNAN 1995:8). C-structure may be understood as a variable structure wih different realisations across languages (cf. BERMAN 2003:8).

There are two distinct modes in which c-structure may be organised: it is either organised in an endocentric way, resulting in a hierarchical tree structure, or it is organised exocentrically, resulting in a totally flat structure (cf. ibid.:8f). An ENDOCENTRIC organisation is typical for configurational languages such as English, in which grammatical functions are assigned by the position a constituent takes inside the sentence (i.e. rigid word order languages); an EXOCENTRIC organisation, by contrast, is typical for non-configurational languages as e.g. Warlpiri, which use a rich morphology system to assign grammatical functions and accordingly show an overwhelmingly free word order (cf. e.g. BRESNAN ET AL. [2]2016:3ff).

The sentence "The boy saw a dog" is represented by a c-structure like (88):

(88) C-structure for "The boy saw a dog"



In order to only display well-formed sentences, c-structure has to satisfy two constraints: *Economy of Expression* (cf. BRESNAN ET AL. [2]2016:90) and *Lexical Integrity* (cf. ibid.:92). The Economy-constraint demands that all syntactic phrase structure nodes are optional and are not used unless they are required by independent principles (see paragraph *F-structure*). This constraint avoids that phrase structure trees get too complex. The Integrity-constraint, on the other hand, states that a morphologically complete word can only correspond to one c-structure node at a time. It thus permits only fully inflected words to enter syntax, and further avoids movement from a lower position to a higher position within the tree.

The tree in (88) may appear odd at first glance as its maximal projection is a VP instead of a CP. This structure originates in the principles just mentioned: Integrity prohibits that the constituent 'the boy' is moved further up in the tree, while Economy prohibits the existence of a CP, since the sentence does not entail a complementizer.

F-Structure

For each sentence there has to be a functional-structure encoding a sentence's grammatical relations. The information provided in f-structure is represented as a set of ordered pairs of attributes (i.e. the name of a grammatical function) and their values (cf. KAPLAN & BRESNAN 1995:4). The f-structure for the sentence "The boy saw a dog" is given in (89):

(89) F-structure for "The boy saw a dog"

$$\begin{bmatrix} \text{SUBJ} & \begin{bmatrix} \text{SPEC} & \text{THE} \\ \text{NUM} & \text{SG} \\ \text{PRED} & \text{'boy'} \end{bmatrix} \\ \text{TENSE} & \text{PAST} \\ \text{PRED} & \text{'see <(↑SUBJ) (↑OBJ)>'} \\ \text{OBJ} & \begin{bmatrix} \text{SPEC} & \text{A} \\ \text{NUM} & \text{SG} \\ \text{PRED} & \text{'dog'} \end{bmatrix} \end{bmatrix}$$

In this representation, quotes indicate semantic forms ('boy', 'see', 'dog'), while angle brackets denote the argument-list specification. The f-structure above is read as follows: the described sentence consists of a grammatical subject, a verb in past tense and a grammatical object. The subject is further specified as the word 'boy' which stands in singular form and is accompanied by the specifier THE. The object is specified as the word 'dog' in its singular form, accompanied by the determiner A. Finally, the specification of the verb, i.e. the sentence predicate, reads as: the word is 'see' with the lexicon entry that assigns both grammatical subject and object function. That is, if the verb 'see' would be used in the sentence "I see", the value of PRED would be different, indicating that a different lexicon entry is used: 'see

<(↑SUBJ)>'. By accessing different lexicon entries, the system avoids that the f-structure for "I see" would have to assume an empty grammatical object.

In order for an f-structure to be well-formed, it has to satisfy four constraints: Completeness (cf. BRESNAN ET Al. [2]2016:62), Coherence (cf. ibid.), Extended Coherence (cf. ibid.), and the Uniqueness Condition (cf. BRESNAN ET AL. [2]2016:45).

The COMPLETENESS condition states that every function designated by a PRED must be present in the f-structure of that PRED; it hence prevents missing objects in a sentence.[1] The COHERENCE condition demands that every argument function in an f-structure needs to be designated by a PRED; this condition ensures that a sentence "The dog was seen by the boy" displays a different f-structure than the sentence "The boy saw the dog". While the latter displays an f-structure with the argument-list specification 'see <(↑SUBJ) (↑OBJ)>', the former needs an argument-list specification that accounts for the prepositional phrase, i.e. 'see <(↑SUBJ) (↑OBL_θ)>'.

The EXTENDED COHERENCE condition postulates that all syntactic functions must be appropriately integrated into the f-structure, while the UNIQUENESS condition determines that every attribute has a unique value.

Endocentric Mapping Principles

Only if taken together, c-structure and f-structure suffice to describe the sentence "The boy saw the dog" appropriately. To display the features of f-structure within the c-structure, five mapping principles are employed which assign upward and downward arrows. The downward arrow (↓) denotes the f-structure corresponding to the node annotated by it, while the upward arrow (↑) denotes the f-structure corresponding to the immediate dominating node, i.e. the mother node. The endocentric mapping principles are listed in the following (cf. BERMAN 2003:16):

a. heads: annotate a projection node in a projection of the same kind with ↑=↓;
b. specifiers: annotate a non-projecting node in F'' with (↑DF)=↓;[2]
c. coheads: annotate a non-projecting complement node dominated by any functional category F^n with ↑=↓;

[1] This is the reason why the sentence "I see" operates on a different lexicon entry than the sentence "The boy saw the dog".

[2] Here, DF means 'discourse function'. Discourse functions in LFG are topic (TOP), focus (FOC) and subject (SUBJ) (cf. BERMAN 2003:11).

d. complements: annotate a non-projecting complement node dominated by any lexical category L^n with (↑CF)=↓;[3]
e. adjuncts: optionally annotate a non-projecting node and its adjoined-to sister node with (↑$\overline{\text{AF}}$)=↓ and ↑=↓, respectively.

A schematised example of application is given in (90) for the sentence "The boy will see a dog".

(90) Mapping principles applied

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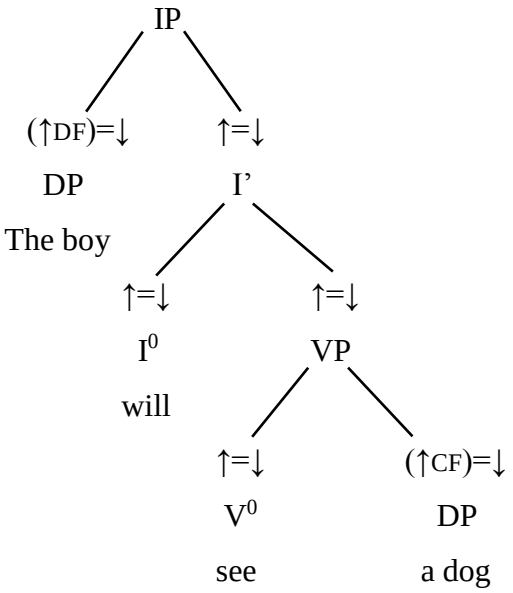


In explaining the reasons for the assignment of symbols we will proceed from left to right and from top to bottom. First, the DP THE BOY is annotated with (↑DF)=↓ because it is a non-projecting node within a maximal projection (specifiers principle). I' and I^0 are annotated with ↑=↓ since they are both projection nodes within the same kind of projection (heads principle). VP is annotated with ↑=↓ because it is non-projecting and dominated by the functional category I' (coheads principle). V^0 is annotated with ↑=↓, following the heads principle. Lastly, the DP A DOG is annotated with (↑CF)=↓ since it is a non-projecting node and dominated by the lexical category VP (complements principle). Assigning the specific discourse and complement functions results in the DP THE BOY being annotated with (↑SUBJ)=↓ and the DP A DOG being annotated with (↑OBJ)=↓.

[3] CF means 'complement function'. In LFG complement functions entail object (OBJ), genitive object (OBJ_θ), prepositional object (OBL_θ), and complement (COMPL) (cf. BERMAN 2003:11).

3.3.2 Berman's (2003) account for German syntax

To understand Berman's (2003) view of German syntax, we need to begin with the topological model of traditional German grammar[4]. In this model, German sentences are divided into the *Vorfeld* (VF), the *Mittelfeld* (MF) and the *Nachfeld* (NF) which are separated by the *Satzklammer* (SK) that surrounds the MF. The underlying observation for this structure is that German sentences have two main positions for the verb (and its particles, auxiliaries, etc.): the left and the right Satzklammer (LSK and RSK, respectively). In front of the LSK, only one constituent is permitted, while after the LSK as well as after the RSK the number of constituents is not limited (cf. WÖLLSTEIN 2014:145f).

This original scheme was extended by Zifonun and colleagues (1997) who proposed an additional *Außenfeld* (AF) at both sentence peripheries. In their view, the NF is reserved for proper syntactic constituents (e.g. extraposition), whereas the AF-positions entail entities that do not belong to the core sentence, e.g. appellation of the addressee. Accordingly, the topological model for German assumes the structure displayed in Table 17. The table also gives examples for constituent types that may occupy certain positions in German sentences.

Table 17: Topological model for German.[5]

left AF	*VF*	*LSK*	*MF*	*RSK*	*NF*	*right AF*
Maria,	Paul	hat	einen Hund	gesehen,	der kein Fell hatte,	gestern.
		Weil	Paul Hunde	liebt.		
		Geliebt		hat	Maria den Paul.	
Die Maria,	die	hat	einen Kuchen	gebacken.		
Die Maria,	ich	hab	die ewig nicht	gesehen.		
	Die	hab	ich ewig nicht	gesehen,	die Maria.	
	Die	hab	ich ewig nicht	gesehen,	weil ich krank war,	die Maria.

[4] A detailed introduction into this topic is provided e.g. in Wöllstein ([2]2014).

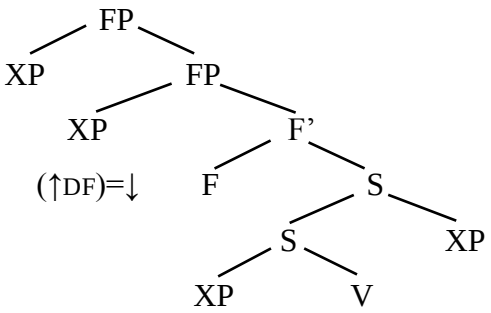
[5] Free translation of the sentences in Table 17, from top to bottom: 1) Maria, Paul has seen a dog who had no fur yesterday. 2) Because Paul loves dogs. 3) Loved, Mary had Paul. 4) Maria, she baked a cake. 5) Maria, I haven't seen her for a while. 6) I haven't seen her for a while, Maria. 7) I haven't seen her for a while, because I've been sick, Maria.

The first three sentences in Table 17 above show that LSK can only be occupied by either a finite verb, an auxiliary or a complementizer. The RSK, by contrast, is reserved for finite and non-finite verb-forms as well as for separable verbal prefixes. The last four sentences show how LD, Hanging Topic (HT), RD and AT are accounted for by the topological model.

To return to the framework of LFG, Berman (1996:3) observes that German has both endocentric and exocentric properties: it shows a fixed verb position (as acknowledged by the topological model), which is an endocentric property. On the other hand, grammatical functions are assigned independently of sentence position solely by the morphological features of a word; i.e. German shows a rich case system and free word order, both of which are exocentric properties.

Berman therefore suggests a sentence structure that mirrors the positions of the topological model (given in (91)). In this structure, the XP node which is a sister to the functional projection FP corresponds to the left AF and therefore licenses LD and HT. The XP which is sister to F' corresponds to the VF, while F constitutes the LSK. Further, the XP which is sister to V constitutes the MF, while V displays the RSK. Finally, the sister-XP to S corresponds to the NF. The right AF, however, is not considered in Berman's account.

(91) German syntax tree according to Berman (1996:3)



Within S, which is considered a non-projecting exocentric category, the argument functions are defined on the basis of morphology, i.e. case marking. By contrast, FP constitutes an endocentric functional category projection; this way, the XP corresponding to VF determines that the entity which is assigned to it must be marked as either topic or focus, if it is not a subject.[6] As reason for this constraint, Berman

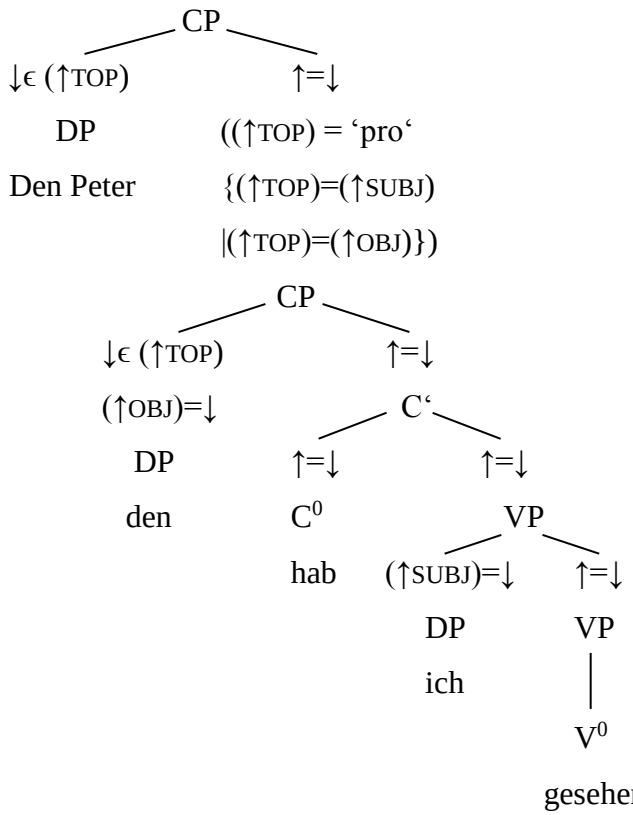
[6] Please recall that there are three discourse functions in LFG: subject, topic and focus.

quotes the fact that German is a Topic Drop language, i.e. that Pro Drop is only possible if that proform is the topic of the sentence. Further, Berman observes that "[…] a constituent in the VF – and only in the VF – that bears the discourse function of topic may be phonetically unrealized […]" (Berman 1996:9). However, the possibility of Topic Drop is restricted to subjects (SUBJ) or accusative objects (OBJ) only; genitive objects (OBJ_θ), dative objects and prepositional objects (OBL_θ) do not qualify for Topic Drop (cf. ibid.).

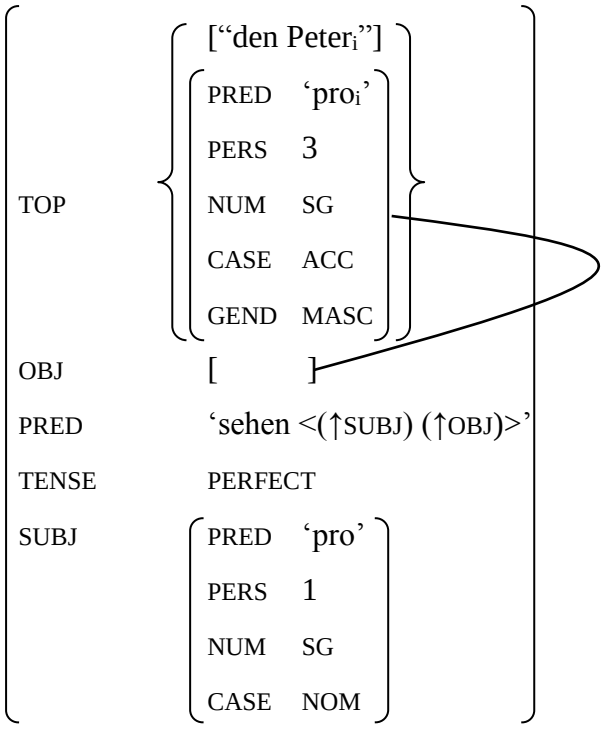
There are two reasons why Berman's account to German syntax is appealing: first, it comprises a designated position for NF. In her work on German RD and AT, Averintseva-Klisch (2009:36) notes that a syntactic difference between these two constructions is that RD is a constituent of the NF whereas AT occupies the right AF, since it is no actual part of the host sentence.

Second, in analysing sentential arguments as being obligatorily left-dislocated, Berman (2003, chapter 7) already provides an analysis of German LD that can be adapted to RD (see next section). According to Berman (2003:139), the German LD "Den Peter, den hab ich gesehen" ('Peter, him, I have seen') is represented in LFG by the c-structure in (92) and the f-structure in (93).

(92) c-structure for the LD "Den Peter, den hab ich gesehen"



(93) f-structure for the LD “Den Peter, den hab ich gesehen”



In (92) we encounter several annotations with which we are not yet familiar. The annotation ↓∈ (↑TOP) is a so-called membership connective. It indicates that ↓ is an element of a set of f-structures which is the value of TOP. Connectives are used for the nonargument functions TOPIC, FOCUS, and ADJUNCT which “[…] all allow multiple instances without violating functional uniqueness […]” (BRESNAN ET AL. [2]2016:70). The formula on top of CP means that somewhere under CP there is a proform holding the topic function; further, this proform may be either the grammatical subject or the grammatical object. In the case of (92) the TOP-element is the grammatical object.

The f-structure in (93) for our LD begins with TOP, since this is the very first constituent of the sentence. As already indicated in the c-structure, the f-structure of TOP is a set of f-structures. This is displayed by the curly brackets that surround both the DP DEN PETER and the coreferential proform DEN. The coreference relation is expressed by using the same index, indicating *anaphoric control*[7]. In anaphoric control only the referential index of controller and controllee is identified, permitting instances of case or gender mismatch (cf. BRESNAN ET AL. [2]2016:320).

[7] The counterpart to anaphoric control is *functional control*. Functional control is encountered e.g. in infinitive clauses that only contain an implicit subject (for more details see Bresnan et al. [2]2016, chapter 12). It identifies the f-structure values of controller and controllee and thus demands that f-structure attributes, e.g. CASE, are shared (cf. ibid.:320).

Another unfamiliar but nonetheless rather intuitive notation is provided for OBJ: its value is left empty but connected via a curvy line to the proform within TOP. This indicates that the proform of TOP is simultaneously the OBJ of the sentence.

However, recalling that German is a Topic Drop language (see above), the question arises why dropping the proform in LD is impossible. As the LD-proform always occupies the VF, and Topic Drop is permitted for SUBJ and OBJ in VF, LD should be able to drop the proform. On the other hand, dropping the proform will result in the canonical sentence "Den Peter habe ich gesehen" ('Peter, I have seen'). So Topic Drop is prohibited by the very nature of LD. The same is true in Berman's (2003) account to German syntax: if the proform was dropped, the coreferential TOP-DP DEN PETER would have to occupy its position instead, since the economy constraint does not permit empty slots.

A further advantage of Berman's analysis is that it can also account for HT, and can explain why in HT Topic Drop is impossible, too. Imagine the sentence was "Den Peter, ich habe ihn gesehen" ('Peter, I have seen him'). This sentence combines all properties of HT as it uses a personal pronoun instead of a D-pronoun, and also the pronoun is not directly adjacent to the dislocated DP. Adapting Berman's analysis of LD, the proform would not be realised under CP but under VP instead. In this position it is assigned the object function via its case marking. Nevertheless, it would still be a member of the TOP-set. The subject ICH would be realised in CP, but since only TOP may be dropped in VF, the sentence "Den Peter, Ø hab ihn gesehen" is ungrammatical. The fact that HT shows an alternation of den/ihn is taken into account by the mechanism of anaphoric control.

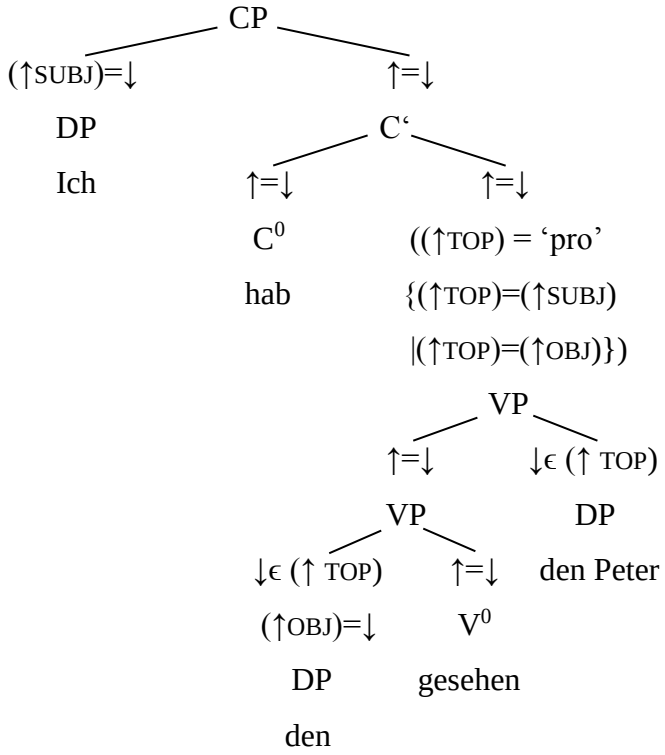
After reviewing and discussing Berman's (2003) account to German syntax on the basis of LD and HT, it appears most likely that it is also capable of explaining RD and AT. In the next section I will show how Berman's analysis can be adapted to RD. Further, I will discuss the advantages of analysing RD within the framework of LFG. Section 3.3.4 will then address an analysis of AT in depth.

3.3.3 Adapting Berman (2003) to RD

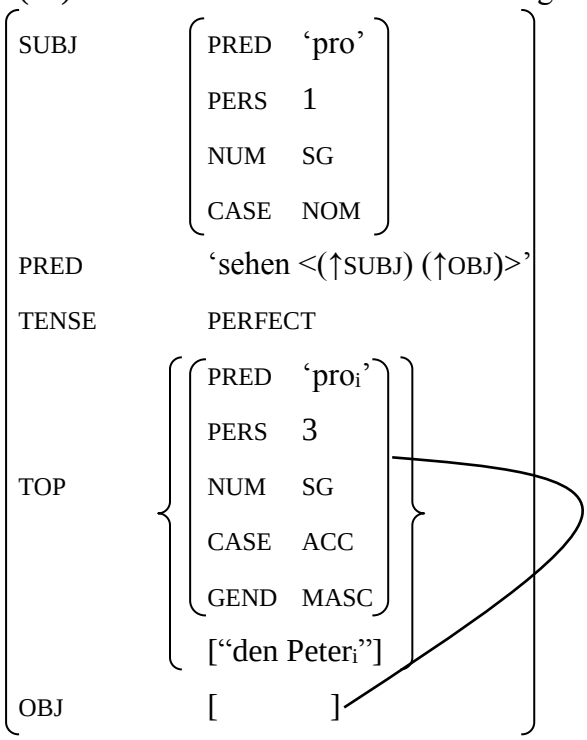
As was explained before, the syntax tree proposed by Berman (1996:3) corresponds to the sentence positions assumed in the topological model. Consequently, it bears a designated position for constituents of the NF, i.e. the XP node adjoined to S (see (91)). In adapting this sentence structure to RD, the TOP-constituent now occupies

the XP node which is sister to S (VP in (94)) instead of the one which is sister to FP (C'in (94)). We will begin with the unmarked order of subject-object. The c-structure for the RD "Ich hab den gesehen, den Peter" ('I have seen him, Peter') is given in (94), its f-structure in (95).

(94) c-structure for the RD "Ich hab den gesehen, den Peter"



(95) f-structure for the RD "Ich hab den gesehen, den Peter"



In (94) the VF is occupied by SUBJ, which is one of the three possible discourse functions for which VF is reserved. In contrast to the c-structure of LD, the constraint that a TOP-proform which fulfils either SUBJ or OBJ function operates on VP instead of CP. The TOP-proform is identified by its morphological features as OBJ and hence occupies Spec-VP. The RD-DP DEN PETER is right adjoined to V^0 and bears the feature of being a member of TOP.

This c-structure of RD does not only explain RD without any account of deletion or movement, it further explains why the sentences in (96) are both ungrammatical. The reason for the impossibility of Pro Drop in (96) is that German only permits to drop the sentence topic, but only provided that the topic constituent occupies the VF (see above). However, in the example at hand SUBJ does not coincide with TOP; it can therefore not be dropped, although occupying the VF. Accordingly (96a) is ill-formed. Second, OBJ – although coinciding with TOP – does not occupy VF and is therefore not permitted to be dropped. Hence, also (96b) is ill-formed.

(96) Impossibility of Pro Drop in RD (subject-object-order)

a. #Ø hab den gesehen, den Peter.
b. *Ich hab Ø gesehen, den Peter.

The f-structure in (95) is rather similar to the one provided for LD in (93): the f-structure for TOP is a set of f-structures, indicated by the curly brackets. This set of f-structures encompasses an f-structure for the proform and an f-structure for the dislocated DP. These f-structures share the same index displaying that their coreference relation is established via anaphoric control. Since TOP coincides with OBJ, the attribute-brackets for OBJ are empty but connected to the attributes of the TOP-proform.

The c-structure of (94) can easily be adapted to an RD dislocating a SUBJ-constituent. For the sake of space I will desist from drawing a phrase structure tree here but will instead use a bracket-annotation. (97) displays the c-structure for the RD "Er ist gut informiert, der Peter" ('He is well informed, Peter'), as well as the corresponding positional analysis in the topological model.

(97) c-structure for the RD "Er ist gut informiert, der Peter"

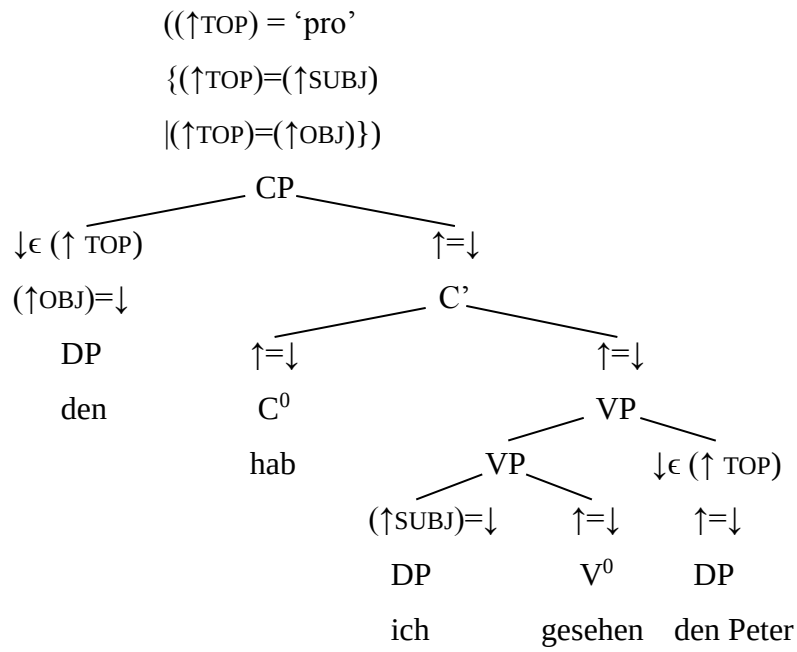
a. [$_{CP}$ er [$_{C'}$ ist [$_{VP}$ gut [$_{VP}$ informiert [$_{DP}$ der Peter]]]]]
b. [$_{VF}$ er][$_{LSK}$ ist][$_{MF}$ gut][$_{RSK}$ informiert][$_{NF}$ der Peter]

In this example, Topic Drop is licensed since TOP is fulfilled by SUBJ, and also TOP occupies VF. Accordingly, dropping the proform in a context like the one in (98) results in a well-formed sentence:

(98) Topic Drop in RD
Peter hat die ganze Nacht recherchiert. (Er) ist jetzt gut informiert, der Peter.
'Peter did research all night. (He) is well informed now, Peter.'

The er/der-alternation is captured by the mechanism of anaphoric control. However, Berman's (2003) account can also be adapted to RD with the marked order of object-subject. (99) displays the c-structure for the RD "Den hab ich gesehen, den Peter" ('Him, I have seen, Peter'), while (100) shows its f-structure.

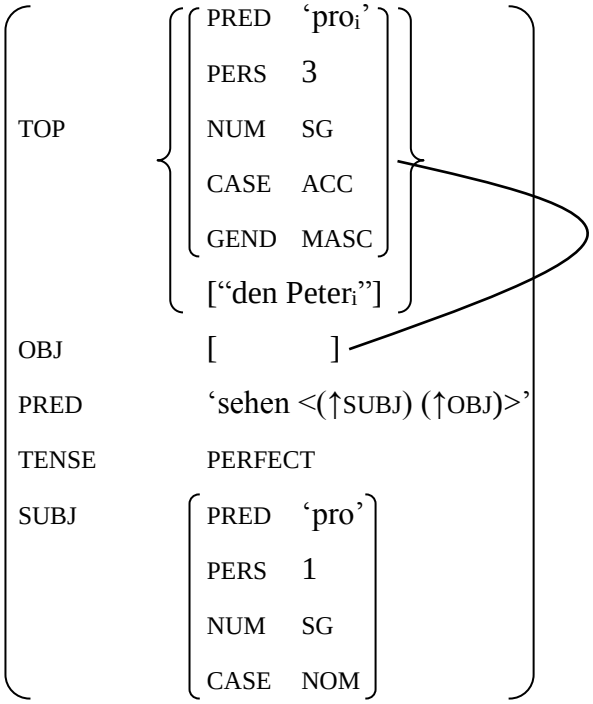
(99) c-structure for the RD "Den hab ich gesehen, den Peter"



In this case, the constraint that the TOP-proform has to fulfil either SUBJ or OBJ is superimposed on CP, since Economy prohibits the assumption of a further CP as the left AF is empty. Further, this structure permits Topic Drop of the proform because the proform satisfies both conditions of occupying the VF and of fulfilling either SUBJ or OBJ function.[8]

[8] For example: Peter war gestern im Stress. Er eilte durch den Supermarkt. – (Den) hab ich gesehen, den Peter. ('Peter had a stressful day yesterday. He rushed trough the supermarket. – (Him,) I have seen, Peter.')

(100) f-structure for the RD “Den hab ich gesehen, den Peter”



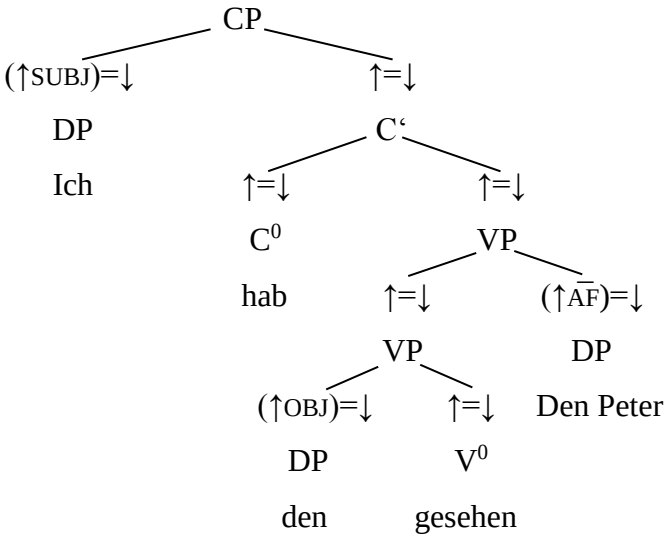
The f-structure given in (100) is the same as for the sentence with unmarked subject-object order (see (95)); the only difference is the order of sentence constituents, in that the set of f-structures for TOP and the f-structure for OBJ precede the predicate, whereas the f-structure for SUBJ follows the predicate.

3.3.4 An approach to AT in LFG

Concerning AT, an appropriate syntactic analysis within LFG is not as straightforward as for RD. The main reason behind this issue is that Berman (2003) did not assume a designated position for the right AF but only for the left AF. Nevertheless, it would be possible to analyse AT as an adjunct to the NF (i.e. to the DP in (99)): this way, the AT-DP would be annotated with $\overline{\text{AF}}$ (adjuncts-principle; see above) in c-structure and would be marked as an adjunct in f-structure (cf. (102)). However, within the Fokus-DB, AT is most commonly produced without an occupied NF;[9] given the fact that Economy prohibits empty slots inside c-structure, we have to assume that the AT constituent is an adjunct to VP instead (cf. (101)).

[9] Merely one item (i.e. 2.6 %) shows an occupied NF: “Die Leute sterben ja weg wie die Fliegen teilweise. Die Gäste.” (453, Fokus-DB; ‘The people die like the flies, sometimes. The guests’).

(101) c-structure for the AT “Ich hab den gesehen. Den Peter”



(102) f-structure for the AT “Ich hab den gesehen. Den Peter”

SUBJ	PRED	‘pro’
	PERS	1
	NUM	SG
	CASE	NOM
PRED	‘sehen <(↑SUBJ) (↑OBJ)>’	
TENSE	PERFECT	
OBJ	PRED	‘pro’
	PERS	3
	NUM	SG
	CASE	ACC
	GEND	MASC
ADJ	{“den Peter”}	

As is observable in (101), the AT occupies the same position as the RD in (99). It would therefore by analysed as occupying the NF instead of the right AF.[10] Yet, the difference with respect to RD is captured by the annotation: while RD is a member

[10] Support for this argument is provided by Kaplan and Bresnan (1995:39ff) who introduced the possibility of marking adjuncts to account for sentences like ‘The girl gave the boy some sweets at the park’. In this sentence, ‘at the park’ does not constitute an argument of the verb. In the corresponding German sentence “Das Mädchen gab dem Jungen Süßigkeiten im Park”, “im Park” would be an element occupying NF.

of TOP (i.e. ↓∈ (↑ TOP)), AT is annotated with $\overline{\text{AF}}$, indicating its status of being an adjunct.

Although the analysis above shows a structure that is distinct to the one of RD – even though both RD and AT occupy the same position within the sentence – it is not satisfying. Recall that we have seen in chapter 2.1 that AT is understood as a specification of the host sentence's topic, involving an ellipsis of the comment (cf. GIVÓN 1983b:361). Defining it merely as an adjunct to the host does, hence, not capture all relevant information.

A second counterargument to the analysis in (101) is that AT does not only allow for intervening clauses, such as tag questions, but also for whole sentences that may be produced before the repair is uttered (cf. example (39a) which is here repeated as (103)).

(103) AT with intervening clausal material

Die können gar nicht genug dazu beitragen. Ich würde das noch sogar äh erhöhen. Die Banker. (405, Fokus-DB)

'They can't do enough for it. I, personally, would even, err, increase it. The bankers.'

Clearly, the intervening sentence in (103) cannot be interpreted as being part of the host and occupying the NF, since it lacks a syntactic connection to the host. It has, accordingly, to be considered as an independent sentence. This raises the question whether the assumption that AT occupies the right AF is sustainable. Especially if considering that Zifonun (2015) discussed whether the distinction of NF and right AF on the basis of a diminished syntactic integratedness is justified.

What complicates the matter even more, is the fact that AT may be produced before the host sentence is completed (cf. example (104), depending on the point in time at which the speaker realises that the reference he made was ambiguous. Assuming a right AF would result in acknowledging that this right AF cannot only interfere between narrow and wide NF (cf. WÖLLSTEIN ^{2}2014) but also between MF and RSK (as in (104b)) and even between elements of the MF (as in (104a)).

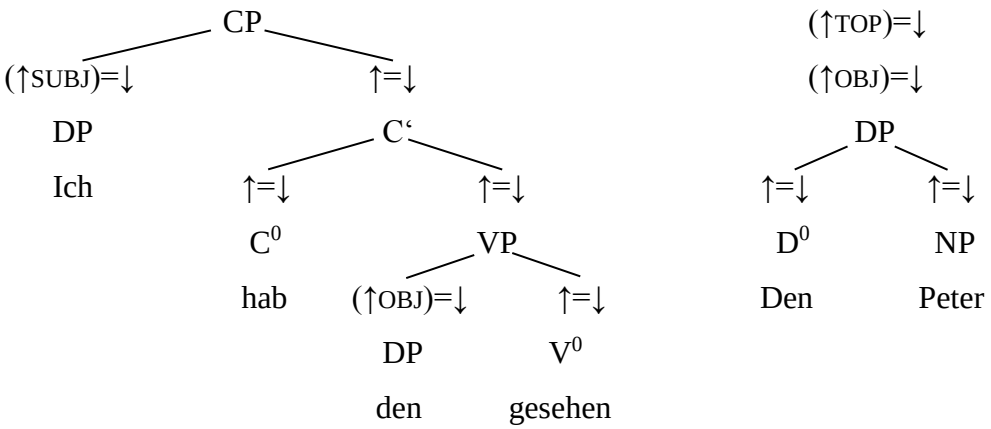
(104) Possible positions of AT inside and outside the host

a. Den hab ich – den Peter – gestern gesehen.
   'Him, I have – Peter – seen yesterday.'

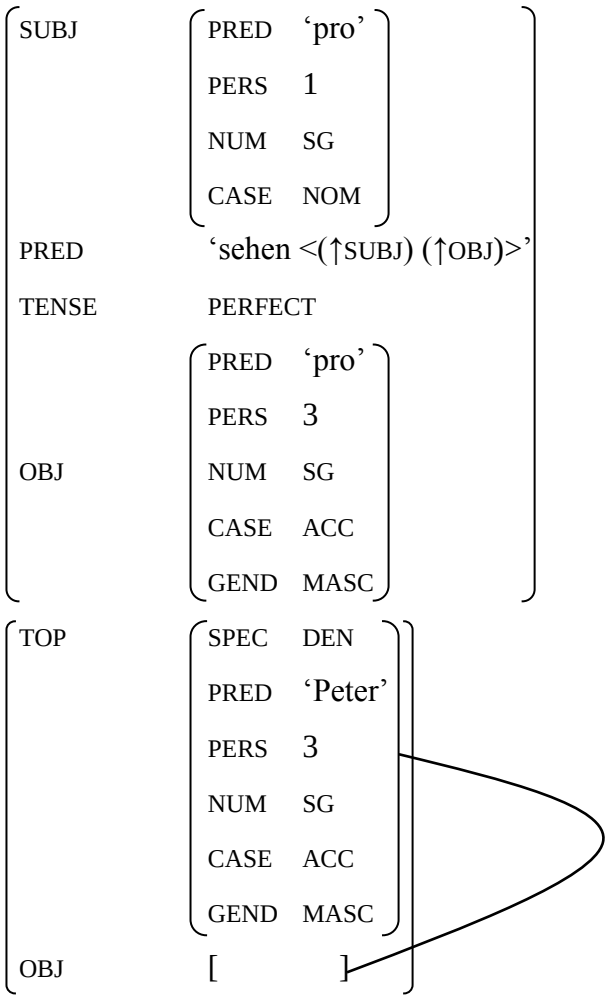
b. Den hab ich gestern – den Peter – gesehen.
   'Him, I have seen – Peter – yesterday.'
c. Den hab ich gestern gesehen. Den Peter.
   'Him, I have seen yesterday. Peter.'
d. Den hab ich gestern gesehen, als ich einkaufen war. Den Peter.
   'Him, I have seen yesterday, when doing the shopping. Peter.'
e. Den hab ich gestern gesehen. Ich kaufte Bananen. Den Peter.
   'Him, I have seen yesterday. I was bying bananas. Peter.'

This behaviour is a cue to syntactic independence, as AT does not conform to island constraints; as a consequence, an analysis of AT that captures this syntactic independence is to be preferred. For that reason, I propose to adapt the approach of orphan analysis to LFG. An example for such an analysis is given in (105) and (106).

(105) c-structure of the AT "Ich hab den gesehen. Den Peter"



(106) f-structure of the AT “Ich hab den gesehen. Den Peter”



Since the DP “den Peter” is marked by the accusative, the f-structure correctly identifies it as being the object of an elided sentence. However, we have seen before (chapters 2.2 and 2.3) that AT does not necessarily need to agree in case with the proform within the host sentence. The possibility of case mismatch does not pose a challenge to the analysis above, as the grammatical function is assigned solely on the basis of case marking. Accordingly, if the AT would instead be “Ich hab den gesehen. Der Peter”, the DP would be identified as the grammatical subject of an elided sentence. The same is true for instances of gender mismatch. In a sentence like “Ich hab ihn gesehen. Das Auto” (‘I have seen him. The car’), there is no need for anaphoric control, as opposed to RD, since the phrase “Das Auto” is considered as an independent unit.

To summarise, there are three advantages of analysing AT as an independent syntactic unit within LFG: first, this analysis accounts for instances of both case and gender mismatch; second, it accounts for intervening clauses and sentences as well

as a possibly varying position of AT inside the host sentence. Third, it also captures the fact that the AT phrase constitutes a specification of the host sentence's topic.

3.3.5 Discussion and Conclusion

In this chapter I argued that the framework of LFG is most suitable to explain the syntactic constraints of RD and to provide an appropriate analysis. One major advantage of LFG is that it does not assume deletion or movement processes from an underlying deep structure; instead it operates on the surface structure of sentences. Accordingly, LFG already cancels out an unresolvable debate of whether RD is base generated or derived via movement.

A further advantage of LFG is that the non-argument functions TOPIC, FOCUS and ADJUNCT permit multiple instances within the same sentence, without violating the uniqueness condition (expressed by the membership schema $\in$). The fact that RD realises two instances of the same grammatical function has long been viewed with discomfort in the traditional accounts (cf. e.g. ALTMANN 1981). However, since RD and its coreferential proform constitute the sentence topic, irrespective of the grammatical function they fulfil, the multiple realisation does not pose a challenge for LFG.

It could be shown that the account to German syntax by Berman (2003) can be easily adapted to RD, as it mirrors the positions identified in the framework of the topological model. The assumption of an endocentric functional projection FP provides an explanation for constraints in German Pro Drop. FP designates a position that must be occupied by either the grammatical subject or by elements marked as focus or topic. Pro Drop is only permitted for constituents in this position, but only if satisfying two conditions: the proform must be the topic of the sentence, and it has to either fulfil the function of SUBJ or OBJ. Pro Drop in German is hence best understood as Topic Drop.

There is good evidence provided by the Fokus-DB that LFG reliably explains the syntactic behaviour of RD: reviewing the items of RDproto and RDstyle shows that seven items of RDproto (i.e. 7.7 %) and eight items of RDstyle (i.e. 10.3 %) dislocate elements that undertake the OBL_θ-function; in addition, RDproto also entails one item (i.e. 1.1 %) that dislocates the OBJ_θ-function. Within of these 15 items dislocating OBL_θ, there is only a single instance in which the proform is dropped – however, a non-representative survey reveals that listeners perceive this item (given

in (107)) as being ill-formed. Accordingly, this token is not regarded as counter evidence. To the contrary: although there is one further case of OBL_θ in which the proform occupies the VF (see example (108)), the proform is not dropped. Thus, the overall behaviour of the data confirms that Topic Drop is restricted to SUBJ and OBJ only, as claimed by Berman (2003).

(107) Example of (presumably) ill-formed Topic Drop in OBL_θ in RD
?**Ø** sitzt man schon tief drin, in so'm Wagen. (400, Fokus-DB)
'You're sitting low in **Ø**, in such a car.'

(108) Example of no Topic Drop in RD realising OBL_θ
Dafür hast du mich dreizehn Jahre zur Schule geschickt, für diesen Reporterjob. (800, Fokus-DB)
'**That**'s what you sent me to school for for thirteen years, for this job as a reporter.'

In contrast, OBJ is dislocated in 21 items of RDproto (i.e. 23.1 %) and 13 items of RDstyle (i.e. 16.7 %). Out of these items, only two instances of RDproto and one instance of RDstyle show Topic Drop (cf. example (109a) for RDproto). This is due to the fact that OBJ in most items does not occupy the VF but rather the MF (see example (109b) for RDstyle).

(109) Examples of (no) Topic Drop in RD realising OBJ

a. **Ø** ist schon vorbei, die Sendung? (377, Fokus-DB)
   '**Ø** is already over, the broadcast?'
b. Und dann kennen wir **ihn**, unseren Song für Deutschland! (637, Fokus-DB)
   'And then we'll know **it**, our song for Germany!'

Further, Topic Drop is observable in RDs that dislocate the constituent fulfilling SUBJ function: 5 out of 62 instances of RDproto that dislocate SUBJ (i.e. 8.1 %) and 5 out of 57 items of RDstyle that dislocate SUBJ (i.e. 8.8 %) show Topic Drop. (110) gives examples for both dropping and non-dropping of the proform when realising SUBJ.

(110) Examples of (no) Topic Drop in RD realsising SUBJ

a. **Ø** entzückend, deine Frau. (768, Fokus-DB)
   '**Ø** lovely, your wife.'
b. Sind **sie** hochmotiviert, unsere Türken? (776, Fokus-DB)
   'Are **they** highly motivated, our Turks?'

In (110a) the proform could be dropped since it occupies the VF; this possibility is not given in (110b), where the proform occupies the MF instead. However, it should be noted that Topic Drop is not obligatory but rather optional in RD. Consequently, we do not have to explain the remaining instances of RD that fulfil the function of either SUBJ or OBJ but do not drop the proform.

Finally, in assuming that the RD-constituent and its coreferential proform are connected via anaphoric control instead of functional control, Berman's (2003) analysis also accounts for instances of RD that show gender mismatch between proform and RD-DP. This is a major advantage of LFG over GG: it was shown in chapter 2.2.3 that all analyses within GG fail to explain the possibility of gender mismatch in RD.

Given the advantages discussed above I conclude that the framework of LFG is most suitable to account for RD. It is further also capable of analysing AT, even though Berman (1996) did not offer a structural position that corresponds to the right AF in the topological model. It was shown that also within LFG, AT is best captured by analysing it as syntactic orphan. Accordingly, the difference between RD and AT is captured in both c-structure and f-structure: in c-structure, the RD-constituent is part of the c-structure of the matrix sentence, whereas AT forms an independent c-structure. In f-structure the difference between RD and AT is displayed by RD being a member of TOP (i.e. $\downarrow\epsilon(\uparrow\text{TOP})$) whereas AT forms the only TOP constituent inside an independent f-structure.

In conclusion, the framework of LFG appears to be well suited for the syntactic distinction of RD and AT as it does not only capture all relevant syntactic properties of both constructions but is also able to provide distinct analyses.

3.4 Case Agreement in RD and AT

We have seen in section 1.1 that there is a consensus that RD obligatorily agrees in case and number with its coreferential pronoun, whereas dis-agreement of gender is allowed under certain conditions. AT, in contrast, does not necessarily need to agree in case with the proform in the host sentence, as the two sentences are not syntactically connected. Regarding the question whether AT is free with respect to case, there are two approaches. Both claim that AT cannot be viewed as being free with respect to case assignment: the first approach, formulated in Averintseva-Klisch (2009), assumes that AT is used with a default-nominative marking. This assumption would result in numerous instances of case-mismatch, as AT may not only repair a pronoun in nominative case, but can (in principle) also repair pronouns with either genitive, dative or accusative case marking. Accordingly, the following pattern would be expected for spontaneous AT:

(111) Predictions for case agreement in AT (default-nominative marking)

a. expected: NOM-NOM, GEN-NOM, DAT-NOM, ACC-NOM
b. not expected: NOM-GEN/DAT/ACC, GEN-GEN/DAT/ACC, DAT-GEN/DAT/ACC, ACC-GEN/DAT/ACC

As indicated in (111), the assumption that AT is characterised by a default-nominative implies that case agreement is expected in one condition only, i.e. if the pronoun in the host already displays nominative marking. Other kinds of case agreement, such as GEN-GEN, DAT-DAT and ACC-ACC, would be prohibited, or at least not be expected.

The second approach, on the other hand, was formulated in Dewald (2014) and assumes that AT is part of a repair loop that always repeats the functional head of the phrase which is being repaired. As a consequence, AT would be characterised by case agreement, as displayed in (112).

(112) Predictions for case agreement in AT (repair loop)

a. expected: NOM-NOM, GEN-GEN, DAT-DAT, ACC-ACC
b. not expected: NOM-GEN/DAT/ACC, GEN-NOM/DAT/ACC, DAT-NOM/GEN/ACC, ACC-NOM/GEN/DAT

These two approaches obviously differ with respect to their predictions, the only commonality being that a nominative pronoun in the host will be repaired by an AT with nominative case marking. Although possible (cf. 1.1), instances of repairing a pronoun with genitive or dative case marking are extremely rare[1] and will hence be disregarded in the following.

Most interestingly, Averintseva-Klisch (2009:25; repeated in (113)) provides an example that calls her assumption of a default-nominative marking into question: she recognises an asymmetry in AT, in that an accusative repair to a nominative pronoun is regarded as well-formed if it is accompanied by the cue phrase 'meine ich' ('I mean'; cf. (113b)). In contrast, a nominative repair to an accusative pronoun which is accompanied by the set phrase 'also' ('well') is regarded as rather ill-formed ((113a)).

(113) Asymmetry concerning the possibility of case-mismatch in AT

a. Ich sah ihn gestern im Tiergarten. Ich meine den Otto. / ??Also der Otto.

ich sah ihn gestern im tiergarten ich meine den otto /
I saw him.ACC yesterday in.the zoo I mean the.ACC otto /
also der otto
well the.NOM otto

'I saw him yesterday at the zoo. I mean Otto. / Well, Otto.'

b. Er traf Peter gestern im Tiergarten. Ich meine der Otto / den Otto.

er traf peter gestern im tiergarten ich meine der otto /
he.NOM met peter yesterday in.the zoo I mean the.NOM otto /
den otto
the.ACC otto

'He met Peter yesterday at the zoo. I mean Otto.'

As was already shown in (111) above, an asymmetry with regard to the acceptability of case-mismatch in AT is to be expected. However, the default-nominative assumption would predict the opposite pattern, i.e. that the nominative repair of an accusative pronoun would be perceived as well-formed.

[1] Within the Fokus-DB, there is only one instance of dative case marking, and this instance is categorised an RD.

A possible explanation for the pattern in (113) would be that the intransitive cue phrase ‘meine ich’ is re-analysed by both speakers and listeners as the homophonous transitive verb ‘meinen’ (‘to mean’), taking the AT-DP as an argument and thus demanding an accusative case marking. However, this possibility is ruled out by Averintseva-Klisch (2009).

In this chapter, I will present a survey that aims at investigating two questions: first, is AT used with a default-nominative, or does is rather display case agreement, due to being part of a repair loop? Second, is the intransitive cue phrase ‘meine ich’ re-analysed as the transitive verb ‘meinen’?

The first question was addressed by testing for differences regarding the acceptability of case-mismatch, i.e. whether the order NOM-ACC is more acceptable than the order ACC-NOM, and *vice versa*. The second question was addressed by testing two different set phrases, namely ‘meine ich’ and ‘also’. In order to reduce the complexity of the experiment while reliably teasing apart the possible effects of re-analysis (i.e. set phrase) and order of case (NOM-ACC vs. ACC-NOM), the survey was divided into two questionnaires. One questionnaire included filler and control items with NOM-violations as well as critical AT-items that only contained ACC-pronouns in the host sentence. The second questionnaire included filler and control items with ACC-violations as well as AT-items that only contained NOM-pronouns in the host sentence. Each questionnaire consisted of 70 items and was composed of ten bare ATs (henceforth *ATb*), ten ATs with ‘meine ich’ (hence *ATm*) and ten ATs with ‘also’ (in the following *ATa*) each. One half of all AT-items showed case agreement, the other half did not. Ten RD-items (with both agreeing and disagreeing case) were used as a control group, since RD is not well-formed if pronoun and dislocation do not agree in case (cf. section 2.2.1). In addition, 30 fillers that were used as distractors entered the questionnaires.

Table 18: Structure of questionnaire 1 (Q1).

	agreeing	*non-agreeing*
Filler	agent + NOM	agent + DAT
RD	NOM	NOM-ACC
ATb	ACC	ACC-NOM
ATm	ACC	ACC-NOM
ATa	ACC	ACC-NOM

Table 18 and Table 19 provide an overview of the structure of the experiment. In the case of control and critical items, the labels ‘agreeing’ and ‘non-agreeing’ refer to whether sentence internal proform and dislocated DP agree in case; regarding the filler items, these labels refer to whether the case of the answer-constituent matches the case demanded by the question word.

Table 19: Structure of questionnaire 2 (Q2).

	agreeing	*non-agreeing*
Filler	recipient + DAT	recipient + NOM
RD	ACC	ACC-NOM
ATb	NOM	NOM-ACC
ATm	NOM	NOM-ACC
ATa	NOM	NOM-ACC

Given the asymmetry in example (113), I assume that the intransitive cue phrase ‘meine ich’ is commonly re-analysed as its homophonous transitive counterpart. Further, I assume that AT is part of a repair loop, since the Fokus-DB contains not even one AT displaying case mismatch (cf. 2.3). Taken together, these assumptions lead to the following hypotheses:

H1 Control group:
RD with agreeing pronoun and DP will be judged as well-formed, whereas RD with case-mismatch will be judged as ill-formed, irrespective of the direction of case violation (NOM-ACC = ACC-NOM).

H2 AT with case agreement:
AT with case agreement will be judged as equally well-formed, independent of the presence and the type of set phrase (ATb = ATm= ATa).

H3 AT without case agreement
a) Non-agreeing ATb as well as non-agreeing ATa will be judged as ill-formed, independent of the direction of case violation (NOM-ACC = ACC-NOM).
b) Non-agreeing ATm will be judged as well-formed only with NOM-ACC order, but not with ACC-NOM order (NOM-ACC > ACC-NOM).

In order to veil the aim of this questionnaire, fillers in this experiment differed from control and critical items with respect to (i) syntax and (ii) gender of the manipulated referent. Regarding syntax, filler sentences used ditransitive verbs (such as

'schenken', 'to gift') and manipulated the case of either the subject/agent (default case: nominative) or the indirect object/recipient (default case: dative) constituent. Additionally, the referent in filler items was feminine in order to provide some alternation within the experiment.[2]

3.4.1 Experimental setup and material

In this experiment, a total of 140 items was designed and divided up into two different questionnaires. All items consisted of an A- and a B-part: the A-part was a context question that simply asked for the relevant referent in filler items but rendered it given in the case of ATs and RD; the B-part contained an answer to A that delivered the necessary information (filler items), treated the referent as maintained sentence topic (RD) or established one of two possible referents as new sentence topic by using an ambiguous pronoun (AT). Examples are given in Table 20 and Table 21.

Table 20: Examples of control and critical stimuli in Q1 (B-part only; complete test items are provided in the appendix). Stars indicate an assumed ill-formedness.

	agreeing	*non-agreeing*
Filler (Subj-IO-DO)	Die Karin hat dem Michael einen Kuchen gebacken.	*Der Karin hat dem Michael einen Kuchen gebacken.
Filler (IO-Subj-DO)	Dem Michael hat die Karin einen Kuchen gebacken.	Dem Michael hat *der Karin einen Kuchen gebacken.
Filler (Subj-DO-IO)	Die Karin hat einen Kuchen dem Michael gebacken.	*Der Karin hat einen Kuchen dem Michael gebacken.
RD	Hm. **Er** kann schon sehr nerven, **der** Bernd.	Hm. ***Er** kann schon sehr nerven, **den** Bernd.
ATb	Ja. Ich hab **ihn** gestern getroffen. **Den** Bernd.	Ja. Ich hab **ihn** gestern getroffen. ***Der** Bernd.
ATm	Ja. Ich hab **ihn** gestern getroffen. **Den** Michael, meine ich.	Ja. Ich hab **ihn** gestern getroffen. ***Der** Michael, meine ich.
ATa	Ja. Ich hab **ihn** gestern getroffen. Also **den** Bernd.	Ja. Ich hab **ihn** gestern getroffen. *Also **der** Bernd.

[2] Note that it was not possible for critical and control items to use referents of female gender, as the case marking of the determiner in female words is conflated for NOM and ACC to 'die' ('the').

Apart from distracting participants from the experiment's aim, fillers also served as a comparison group for the overall well-formedness judgment of participants. Accordingly, the order of verbal arguments was systematically varied which led to three different sentences per filler item: one default version with the order subject (Subj), indirect object (IO), direct object (DO); one version with the order IO-Subj-DO that is only appropriate in Q2, in which the A-part explicitly asks for the object; and a third version with the rather unusual – but nevertheless possible – order Subj-DO-IO.

Table 21: Examples of control and critical stimuli in Q2 (B-part only; complete test items are provided in the appendix). Stars indicate an assumed ill-formedness.

	agreeing	*non-agreeing*
Filler (Subj-IO-DO)	Der Ludwig hat der Katja gestern ein Buch geliehen.	Der Ludwig hat *die Katja gestern ein Buch geliehen.
Filler (IO-Subj-DO)	Der Katja hat der Ludwig gestern ein Buch geliehen.	*Die Katja hat der Ludwig gestern ein Buch geliehen.
Filler (Subj-DO-IO)	Der Ludwig hat ein Buch gestern der Katja geliehen.	Der Ludwig hat ein Buch gestern *die Katja geliehen.
RD	Doch. Ich mag **ihn**, **den** Peter.	Doch. *Ich mag **ihn**, **der** Peter.
ATb	Also, **er** kann schon sehr nerven. **Der** Moritz.	Also, **er** kann schon sehr nerven. ***Den** Moritz.
ATm	Also, **er** kann schon sehr nerven. **Der** Nils, meine ich.	Also, **er** kann schon sehr nerven. **Den** Nils, meine ich.[3]
ATa	Also, **er** kann schon sehr nerven. Also **der** Moritz.	Also, **er** kann schon sehr nerven. *Also **den** Moritz.

The test items for each questionnaire were pseudo-randomised once, so that every participant within lists received the same order of items. The pseudo-randomisation instead of simple randomisation was chosen to avoid that items of the same condition directly succeeded each other.

3.4.2 Participants and procedure

In this survey, 60 monolingual German native speakers aged between 15 and 59 years (on average 27.3 years) participated, 30 per list (Q1: 11 male, Q2: 12 male).

[3] Please note that in all instances of ATm a comma intervenes between cue phrase ('meine ich') and AT-constituent. This comma signals a syntactic break (cf. 2.6) and hence marks the cue phrase as being intransitive.

Student subjects received credits for participation, and session length amounted to approximately 10-15 minutes. Before the experiment, participants gave written informed consent.

Subjects were instructed to judge the well-formedness of the test items' B-part on a four point Likert-scale, ranging from 'sehr gut' ('very good') through 'eher gut' ('rather good') and 'eher schlecht' ('rather bad') to 'sehr schlecht' ('very bad'). Subsequent to the experiment participants had to fill in a form on personal data and were also asked what the experiment was about. Examination of these forms confirmed that none of the subjects was aware of the experiment's aim, hence no subject had to be excluded from analysis at this point of time.

3.4.3 Data and statistical analysis

In total, 4200 tokens were gathered (70 items x 2 lists x 30 participants); however, two tokens had to be excluded from the statistical analysis due to the fact that participants did not judge them. Furthermore two participants of Q1 and two participants of Q2 had to be excluded altogether because they either judged less than half of the grammatically correct filler items better than 'rather bad' or did not use the levels 'very good' and 'rather good' at all. The remaining 3918 tokens were analysed with loglinear modelling with the predictors case combination (NOM-NOM, NOM-ACC, ACC-ACC, ACC-NOM) and condition (ATb, ATm, ATa, RD). In line with the hypotheses stated above I expect to find an interaction of condition and case combination, since I assume that non-agreeing case is only acceptable for AT with 'meine ich', and only if the DP's case is accusative.

3.4.4 Results

Loglinear analysis of the data returned the saturated model as the final model ($\chi^2(0) = 0$, $p = 1$) and thus confirms an interaction of the parameters condition and case combination affecting the rating of test items ($\chi^2(54) = 318.8608$, $p = 0$). As the patterns are rather complex, this interaction will be resolved in the following by condition, starting with the control group RD.

RD:

In general, participants judged RD as 'very good' (=1) or 'rather good' (=2), if the case of pronoun and dislocated phrase were identical (97.8 % 'good' ratings for NOM-NOM, 80 % 'good' ratings for ACC-ACC). In contrast, non-matching case marking was strongly dispreferred, indicated by a clear majority of 'rather bad' (=3) or 'very bad' (=4) ratings (100 % 'bad' ratings for NOM-ACC, 98.6 % 'bad' ratings for ACC-NOM). Interestingly, participants preferred sentences that dislocated the subject over sentences that dislocated the object (see Figure 5).

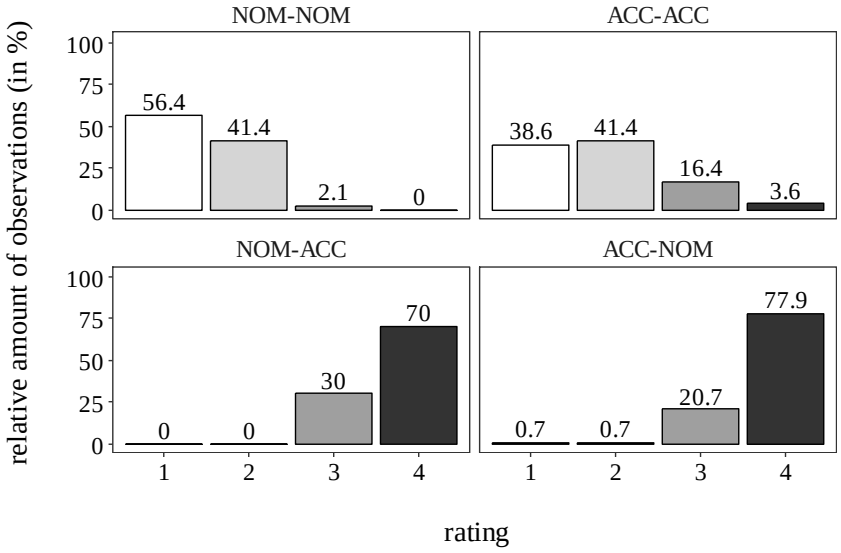


Figure 5: Well-formedness ratings of RD-items as a function of case combination. Light colours display good ratings (1 and 2), dark colours indicate bad ratings (3 and 4).

ATb:

In contrast to RD, the pronoun resolution is preferred for sentences that repair the object rather than the subject for bare ATs in the match condition (cf. Figure 6). However, case agreement of pronoun and repair phrase is still favoured (61.4 % 'good' ratings in NOM-NOM, 89.3 % 'good' ratings in ACC-ACC) over case-mismatch (99.3 % 'bad' ratings in NOM-ACC, 97.1 % 'bad' ratings in ACC-NOM).

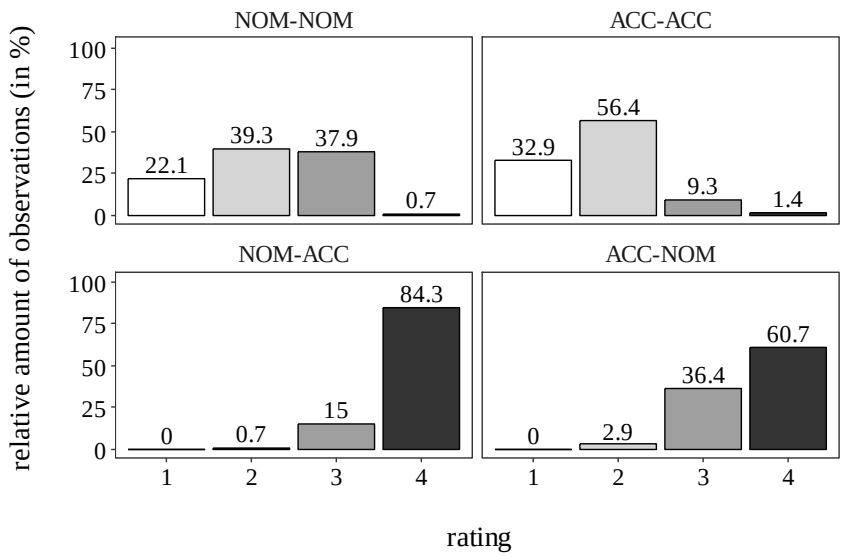


Figure 6: Well-formedness ratings of ATb-items as a function of case combination. Light colours display good ratings (1 and 2), dark colours indicate bad ratings (3 and 4).

ATm:

ATs presented with the set phrase ‘meine ich’ behave similarly to ATbs. First, participants show a preference of an object-repair over a subject-repair (92.2 % ‘good’ ratings in ACC-ACC, 59.3 % ‘good’ ratings in NOM-NOM) in the match-condition (cf. Figure 7). Further, they favour case agreement over case-mismatch (59.3 % ‘bad’ ratings in NOM-ACC, 97.1 % ‘bad’ ratings in ACC-NOM).

However, ATm differs from ATb with one respect: participants prefer an accusative over a nominative if there is a case mismatch between proform and corrective phrase (40.7 % ‘good’ ratings in ATm NOM-ACC, only 0.7 % ‘good’ ratings in ATb NOM-ACC).

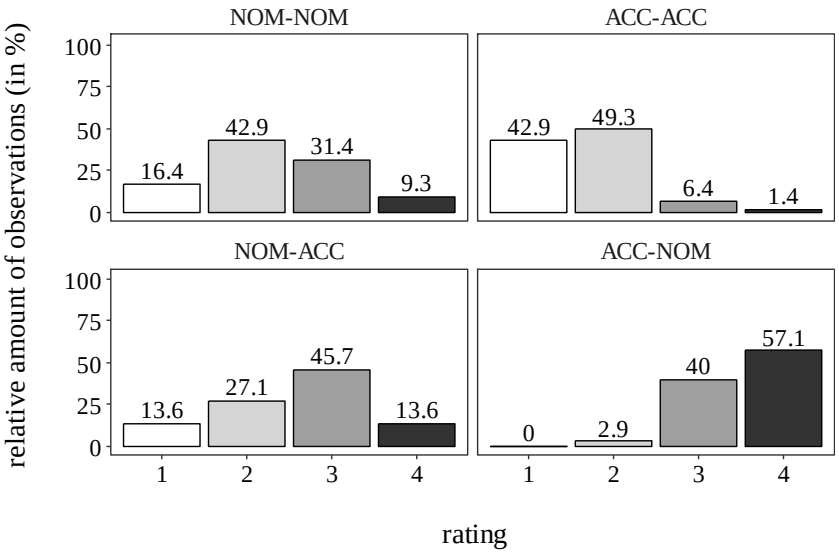


Figure 7: Well-formedness ratings of ATm-items as a function of case combination. Light colours display good ratings (1 and 2), dark colours indicate bad ratings (3 and 4).

ATa:

ATs with the set phrase 'also' strongly resemble ATb, as object items in the match condition received an overall better rating than subject items in the match condition (90.7 % 'good' ratings in ACC-ACC as compared to 74.3 % 'good' ratings in NOM-NOM; cf. Figure 8).

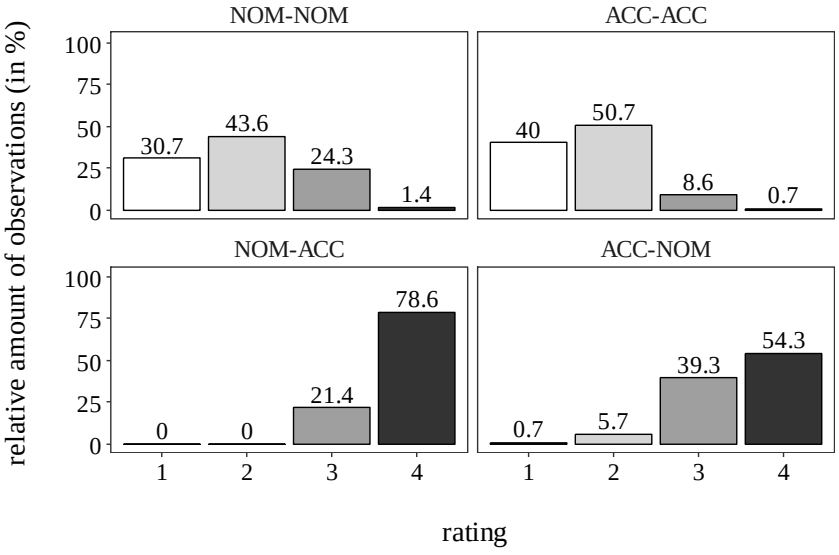


Figure 8: Well-formedness ratings of ATa-items as a function of case combination. Light colours display good ratings (1 and 2), dark colours indicate bad ratings (3 and 4).

Additionally, only agreeing items were judged as 'good' whereas non-agreeing items were consistently rated as 'bad' (NOM-ACC: 100 % 'bad' ratings; ACC-NOM: 93.6 % 'bad' ratings).

3.4.5 Discussion

In the data presented above there are three major patterns that go together with the hypotheses stated in the beginning of this chapter and that will be discussed here in more detail.

First, agreeing RDs are in general rather rated as 'good' (about 98 % in NOM-NOM, 80 % in ACC-ACC) while non-agreeing RDs were consistently judged as 'bad' (100 % in NOM-ACC, about 98 % in ACC-NOM); this pattern validates the necessity of case agreement in RD and thus confirms H1. Interestingly, RDs in which the dislocated constituent holds the grammatical function of the subject are clearly preferred over RDs in which the dislocated referent holds the object function. This is indicated by more 'bad' ratings in the ACC-ACC items (about 20 %) than in the NOM-NOM items (2.1 %). This preference is probably biased by the experimental setup: the continuation of a sentence topic is regarded as coherent if the referent holds the subject role in the following sentence rather than if the referent holds the object role, as indicated by the ranking of forward-looking centres in *Centering Theory* (cf. GROSZ ET AL. 1995:214). Hence, test items like '*A: Wieso ist Dennis so traurig? – B: Seine Freundin hat ihn verlassen, den Dennis.*'[4] violate this general preference from the start and are accordingly penalised by more 'bad' ratings.

Another interesting finding of this study is that ATs are in general not judged as well as RDs (amount of 'bad' ratings ranges from about 8 % to about 40 % in the match-conditions). Although interesting, this pattern is rather unsurprising: RD items differ from AT items in that the referent is both given and maintained as sentence topic within the mini-dialogue; in ATs, two referents are offered as possible topics (or as one complex topic with coordinated referents) but it is unclear to the participants, which of the two given referents is taken up by the pronoun. This ambiguity results in overall worse judgements, since topic continuation is preferred over topic shifts (cf. Rule 2 of GROSZ ET AL. 1995).

[4] Free translation: 'A: Why is Dennis so sad? – B: His girlfriend left him, Dennis.'

As the second major finding, we observe that agreeing ATs, independently of the presence and kind of a set phrase, are rated rather 'good' (ranging between about 60 % and about 92 % of 'good' ratings), confirming H2. In contrast to RDs, we further find that participants prefer ATs that repair the object-constituent over ATs that repair the subject-constituent (about 25 to 40 % 'bad' ratings in NOM-NOM, but only about 8 to 10 % 'bad' ratings in ACC-ACC). This pattern can be explained by means of processing difficulties: in items like (114) the subject *ich* is given and already determined because of the question that explicitly asks for B's opinion. In contrast, the subject in items like (115) is ambiguous. Accordingly, these examples differ with respect to the point in time at which the processing difficulty due to the ambiguous pronoun arises. In (114), the processing difficulty only emerges at the end of the sentence and is immediately resolved by the AT. In (115), by contrast, the processing difficulty already emerges in the beginning of the sentence and is only later resolved by the AT. In other words: the participants are unable to parse the sentence for a longer duration in (115) than in (114). Accordingly, items like (108) receive better judgements due to the immediate resolution of the ambiguous pronoun.

(114) AT with unambiguous subject constituent in the host sentence
A: Wie findest du Daniel und Timo? – B: Ich mag ihn. Den Daniel.
'A: How do you like Daniel and Timo? – B: I like him. Daniel.'

(115) AT with ambiguous subject constituent in the host sentence
A: Wie findest du Robert und Niklas? – B: Er ist recht nett. Der Niklas.
'A: How do you like Robert and Niklas? – B: He's quite nice. Niklas.'

Thirdly and most importantly, we observe that the match condition is unambiguously preferred over the mismatch condition in AT. If pronoun and DP do not agree in case, participants penalise these items with 'bad' ratings (the amount of 'bad' ratings of test items ranges between 93 % and 100 %). This behaviour confirms H3a and can be regarded as evidence that AT follows the concept of repair loops. The only exception to this rule constitutes ATm: while the order ACC-NOM was rated as 'bad' in 97 % of test items, there were only about 60 % 'bad' ratings in the case of NOM-ACC. Recall that I hypothesised a re-analysis of the intransitive set phrase

‘meine ich’ as transtive verb that takes the referent as its argument, and also recall that the set phrase was set off from the referent by a comma to facilitate its status as a set phrase. The fact that, yet, 40 % of NOM-ACC test items were judged as ‘good’ speaks in favour of the assumption that ‘meine ich’ is indeed re-analysed. However, this re-analysis pattern is only a tendency since not even half of the items was rated ‘good’. The reason that re-analysis was not the dominant pattern might lie in the experimental setup: as mentioned before, all test items with ‘meine ich’ were punctuated with a comma between the cue phrase and the DP to unambiguously mark ‘meine ich’ as a set phrase rather than the transitive homonym. The comma rules by Primus (1993) that were explained in chapter 2.6 state that the comma signals a syntactic boundary between the constituents that stand before and after the comma. *Vice versa,* encountering a comma should forbid the reader to interpret the DP as an argument of the verbal phrase ‘meine ich’. I thus assume that the dominant set phrase interpretation is due to the comma as it is a rather strong cue of syntactic dependencies. Nevertheless and in contrast to Averintseva-Klisch (2009), I regard hypothesis 3b (re-analysis of ‘meine ich’) as confirmed – at least to some extent –, since nearly half of the test items was rated ‘good’ and hence syntactically integrated despite the presence of the comma.

3.4.6 Conclusion

Although AT is claimed to be in principle more free with regard to case marking, there is a strong tendency for proform and corrective phrase to agree in case, when examining spontaneous speech (cf. 1.1). In order to solve the question whether AT uses a default-nominative case marking or whether it follows the concept of repair loops, I provided experimentally gained data in the form of well-formedness judgements for different kinds of ATs as well as for RD. The results show that RD is in general better rated than AT, indicating that coherent texts (i.e. without ambiguous pronouns) are preferred by particpants. In addition, the necessity of RD to agree with the pronoun was confirmed.

As to AT, both bare ATs and ATs accompanied by the set phrase ‘also’ (‘well’) are overall judged as well-formed if pronoun and corrective phrase agree in case, whereas non-agreeing items are penalised by ill-formed judgements. This finding

can be explained by assuming that AT follows the concept of repair loops rather than employing a default-nominative case marking.

Although this general pattern also holds for ATs accompanied by the cue phrase ‘meine ich’ (‘I mean’), the data further show that participants rather accept case-mismatch in the NOM-ACC condition. This indicates that, although being presented with a comma that prohibits syntactic integration, the intransitive cue phrase ‘meine ich’ was regularly re-analysed as the homophonous transitive verb ‘meinen’ (‘to mean’).

The findings obtained in this questionnaire study speak in favour of understanding AT as conforming to the rules of repair loops, although permitting instances of case-mismatch between proform and DP. However these instances follow strict regulations: on the one hand, only violations in the form of a nominative pronoun and an accusative AT is permitted; on the other hand, this form of case-mismatch is only possible if the DP is accompanied by the cue phrase ‘meine ich’. Accordingly, this cue phrase can be regarded as being frequently re-analysed as transitive verb, although the process of re-analysis does not outweigh the interpretation of ‘meine ich’ as a set phrase.

3.5 Phrase-Final Lengthening in RD and AT

Chapter 2.5 addressed the topic of phrase-final lengthening and discussed whether Dewald's (2014) assumption that RDs have a longer duration than ATs is plausible. This chapter aims at solving this issue by providing experimentally gained data.
Dewald (2014:101) assumes that RD is affected by the mechanism of domain-final (also: phrase-final) lengthening whereas AT is characterised by being added more hastily. Her claim that AT is added in a hasty manner is in line with previous work on repair: e.g. Uhmann (1997b:209) and Plug (2014:335) observe that repairs are usually produced with an enhanced speech rate, i.e. they are articulated faster.
However, considering that both RD and AT are located in the domain of final lengthening (henceforth FL), these constructions should be equally affected by FL. In addition, Turk and Shattuck-Hufnagel (2007) found a cumulative effect of accentuation and final lengthening on a word's duration, such that AT should in fact be longer than RD. As a consequence, Dewald's assumption and my own are rather conflicting, as indicated in (116).

(116) Conflicting assumptions with regard to the effects of FL in RD and AT

a. Dewald (2014): AT < RD
b. Kalbertodt: RD < AT

In order to solve this debate, an interactive reading production study was carried out, carefully teasing apart the effects of hastiness, accentuation and FL. In addition, the experiment used control items to verify that domain-final lengthening has the assumed effect in German on both unaccented and accented words that are used in non-marked sentence structures. Before we turn to this experiment, I formulate the following hypotheses:

H1: General effect of FL
Words in sentence-medial position are shorter than words in sentence-final position. This is true for both unaccented and accented words.

H2: FL in RD

RD constituents are produced in sentence-final position and are thus affected by domain-final lengthening. Hence they show a longer duration than when the constituent is produced in sentence-medial position.

H3: FL in AT

AT constituents are also produced in sentence-final position and are thus affected by domain-final lengthening. Accordingly they show a longer duration as opposed to sentence-medial position.

H4: Differences between RD and AT

In contrast to RD constituents which are unaccented, AT constituents bear an accent. Because of the cumulative effect of accentual strengthening and phrase-final lengthening, AT constituents show a longer duration than their RD counterparts.

3.5.1 Participants and procedure

In total, 17 subjects (12 female, 19-57 years old, on average 31.2 years old) participated in this study, but only 15 subjects entered the analysis, as subject F11 reported a hearing loss (tinnitus) after the experiment had run and subject F12 produced test items inappropriately due to not understanding the task.

After they gave written informed consent, participants were recorded via headset (44,100 Hz sampling rate, 16 bit resolution) in a soundproof booth, where they sat in front of a screen that displayed the written stimuli. In a first step, subjects heard the pre-recorded context question that was meant to trigger the predicted accent pattern in the target sentence via headphones, while it appeared on the screen. In a second step, participants had to read out the target sentence in an appropriate manner and a natural but swift speech rate. In the reading part of the experiment, participants could repeat the sentence as often as they liked in case they were not content with their prior realisation(s), i.e. if they had the impression that their response did not match the context question.

Completion of the task took about 5-10 minutes, after which subjects filled in a questionnaire on personal data. Subjects were paid for participation.

3.5.2 Experimental setup and material

This study uses 20 disyllabic nonce words with stress on the first syllable. Nonce words resemble actual German words with respect to their phonotactics and have the structure CV.CV, where each C in the first syllable is a (voiced or voiceless) stop and every C in the second syllable is a voiceless stop. This structure was chosen to improve the measurability of syllables as voiceless stops are easier identified between vowels than for example nasals or voiced stops (cf. 3.1.2). Further, all ten target words contain the vowel /a/ in the first syllable and ended with a schwa (e.g. /kʰaːkʰə/). Within the 20 filler words, in contrast, half of the words contain an /i:/ or an /e:/ in the stressed syllable, respectively. Nonce words are used to be able to average across target words, since there are not enough actual German words with the requested CV.CV-structure accessible that contain the same vowel in the stressed syllable.

The ten target words are used in four conditions, the ten filler words in an additional two conditions, leading to a total of 60 test items. Target words are used in two control conditions where the test word is expected to be unaccented, once in medial, once in final position, and in both the RD and the AT condition in which they occur in sentence-final position only. Filler items are used in two filler conditions where the test word is expected to be accented, here again once in sentence-medial and once in sentence-final position.

In order to trigger the expected accent pattern, which is crucial for the comparison of word and syllable durations in this study, test sentences are preceded by a context question, as exemplified in Table 22. In the case of the AT targets, the context question has to ensure that the referent of the target sentence is mentioned before but not yet established as sentence topic. Therefore, the context question for AT targets contains two referents, both of male gender, while the target sentence refers only to one of them. Still, the target word could be interpreted by participants as given and already being the sentence topic (or at least as part of this topic) since it appears in question final position; so the set phrase ‘also’ (’well’) is used in AT items to further disambiguate the ambiguous information structure of ATs. [1]

1 Please note that in principle it would have been possible to have four more conditions, namely ip-medial (e.g. Hast du Dahke **geflüstert**, als du dich vorgestellt hast? – Have you **whispered** Dahke when you introduced yourself?) and ip-final (e.g. **Flüstertest** du Dahpe, als du dich vorgestellt hast? – Did you **whisper** Dahpe, when you introduced yourself?) for both unaccented and accented words. However, a study by Kalbertodt, Primus & Schumacher (2015) showed that it is quite difficult to

Table 22: Examples of test sentences. Bold face indicates actual accents in the second column and predicted accents in the third column.

Condition	*Context question*	*Target sentence*
Control, sentence-medial (CSM)	Hast du Dahke **geflüstert**? 'Have you **whispered** Dahke?'	Nein, ich habe Dahke **gesagt**. 'No, I've **said** Dahke.'
Control, sentence-final (CSF)	**Flüstertest** du Dahpe? 'Did you **whisper** Dahpe?'	Nein, ich **sagte** Dahpe. 'No, I **said** Dahpe.'
RD: unaccented, sentence-final (RD)	Wie findest du eigentlich den **Dahke**? 'What do you think of **Dahke**?'	Er ist total **nett**, der Dahke. 'He's very **friendly**, Dahke.'
AT: accented, sentence-final (AT)	Wie findest du eigentlich **Kohke** und **Dahpe**? 'What do you think of **Kohke** and **Dahpe**?'	Er ist total **nett**. Also der **Dahpe**. 'He's very **friendly**. Well, **Dahpe**.
Filler, sentence-medial (FSM)	Hast du **Bihpe** gesagt? 'Have you said **Bihpe**?'	Ja, ich habe **Bihpe** gesagt. 'Yes, I've said **Bihpe**.'
Filler, sentence-final (FSF)	Sagtest du **Bihke**? 'Did you say **Bihke**?'	Ja, ich sagte **Bihke**. 'Yes, I said **Bihke**.'

The decision to use only 'masculine' target words in critical items is justified by the fact that the pronoun of 'feminine' target words would have been ambiguous until the verb is processed, as SIE ('she') also marks the plural (cf. (117)).

(117) Ambiguity of the feminine pronoun SIE
'Wie findest du Bihpe und Kehpe? – **Sie*$_{PL}$/*Sie*$_{SG}$ ist nett. Also die Kehpe.'
'How do you like Bihpe and Kehpe? – **They/She* is nice. Well, Kehpe.'

Since the context question explicitly asks for a coordinated subject, the plural reading would be the preferred one in the answer. In order to avoid a re-analysis of the

elicit mere ip-boundaries instead of IP-boundaries in reading tasks. On this basis it was decided to not include ip-conditions in this experiment.

pronoun within the item (which probably would have caused hesitations and misreadings), critical items employed 'masculine' target words, instead.

As none of the target words is an actual German word, the experimental setup has to ensure that subjects would interpret the gender of these names as intended by the experimenter. Hence, the gender of the names is semantically established[2] instead of relying on an intuitive vowel understanding through participants. A short frame story explains to the subjects that aliens came to earth and had to live together with humans who just could not remember their unusual names. The story concludes as an mnemonic that male names contain an /a:/ or an /o:/, whereas female names contain an /i:/ or an /e:/ (the frame story is given in 6.3.1).

All test items are pseudo-randomized and divided into four blocks that are separated by a short pause.

3.5.3 Data analysis

Before we turn to the number of test items that entered the analysis, it is important to mention the criteria to include items. Please recall that Dewald (2014) assumes RD and AT to differ with respect to accentuation and phrasing in a complementary manner; accordingly, she expects RD to be produced without both accent and phrase break, whereas she expects AT to constitute an IP of their own with a fully-fledged accent. As her assumed difference in the amount of final lengthening is a direct result of this complementary prosodic realisation, and the above formulated hypotheses are oriented on Dewald's assumptions, all items that did not match this kind of realisation were removed in order to avoid confounding factors.

In total 900 items (15 speakers * 60 test sentences) were prepared for analysis. However, five speakers produced five or more RD items (i.e. one half or more) with an accent- and/or phrasing pattern that did not match Dewald's assumptions regarding their prosodic realisation. Accordingly, all RD and AT items for those speakers were removed, in order to keep sample sizes comparable. Another speaker produced seven out of ten CSM-items with an incorrect focus, and hence accent, on

[2] An ERP-study by Schwichtenberg & Schiller (2004) showed that gender assignment in German is influenced by "[…] many types of linguistic information […]" (ibid.:335), among which are phonological, morphological and semantic regularities. They argue that gender is not stored in the lexicon but is computed instead, and that no strict hierarchy of rules is possible (ibid.:334). Accordingly, it was possible in this experiment to use semantics to override possible phonological rules internalised by participants.

the target word, leading to the removal of all control and filler items for that speaker (again for the reason of comparable sample size). An additional 15 RD items, 16 control items and 7 filler items were removed because of non-matching accent patterns, resulting in a total number of 722 items that entered the analysis.

In this experiment, four different measures have been employed. To account for effects of FL, in all conditions the duration of a target's second syllable was measured in milliseconds (ms); to investigate the effect of accentuation, the duration of a target's first syllable was measured in ms in the case of critical items.[3] As a measure of hastiness, the speech rate (in syllables per second) was calculated for critical items; lastly, since effects of hastiness and FL could possibly cancel each other out, the word duration of critical items was measured in ms.

Linear mixed effect models were performed on the data, with random intercepts for speaker and target word. When testing for effects of final lengthening, position within the test sentence (medial vs final) entered the model as predicting factor for control and filler items; sentence structure entered as predictor for the comparison of RD and AT.[4] When testing for effects of accentuation and hastiness, which was only done for critical items, sentence structure (RD vs AT) entered the model as independent variable.[5] Finally, the model for testing whether possible effects of accentuation and hastiness cancel each other out, also sentence structure (RD vs AT) entered the model as predictor.[6]

3.5.4 Results

In both filler and control items an unequivocal effect of phrase-final lengthening is detectable (cf. Figure 9). Linear mixed effects modelling returned a final model with a likelihood ratio of $\chi^2(1) = 424.9$, $p < .001$ for the unaccented control items, displaying that the duration of the second syllable is elongated from sentence-medial to sentence-final position by 100 ms ($t = 33.8$). The duration of the last syllable

[3] Due to systematic variation of the unreduced vowel in filler and control items and their intrinsically different durations, it was not possible to test for effects of accentuation in the first syllable across these conditions.

[4] Control and filler items: Duration of $syllable_2$ ~ sentence position + (1|subject) + (1|word); critical items: Duration of $syllable_2$ ~ type of construction + (1|subject) + (1|word).

[5] Accentuation: Duration of $syllable_1$ ~ type of construction + (1|subject) + (1|word); hastiness: speech rate ~ type of construction + (1|subject) + (1|word).

[6] Word duration ~ type of construction + (1|subject) + (1|word).

of accented words (filler items) was prolonged from medial to final position by 97 ms (t = 27.16), with a model likelihood ratio of $\chi^2(1) = 72.51$ and $p < .001$. Further, the duration of the last syllable displays an effect of accentuation, in that unaccented words are shorter than accented words in both medial (123 ms as opposed to 141 ms; $\chi^2(1) = 23.078$, $p < .001$; $t = -6.49$) and final position (221 ms as opposed to 237 ms, $\chi^2(1) = 11.597$, $p = .00066$; $t = -3.987$).

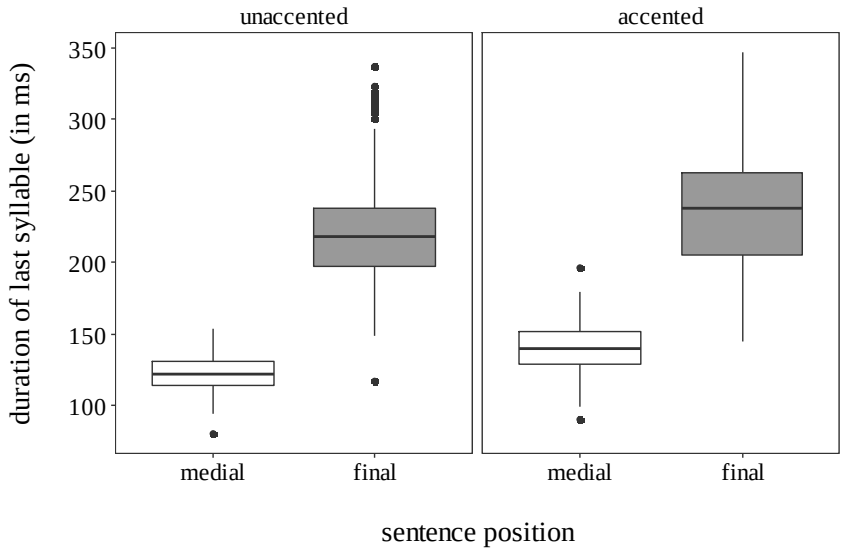


Figure 9: Duration of the second syllable (in ms) of unaccented and accented control items in both sentence-medial and sentence-final position. Light boxes display items in sentence-medial position, dark boxes display items in sentence-final position.

Comparing the average durations of the last syllable in RD and AT items to those in the control items shows that both RD and AT are affected by final lengthening, since the duration values (228 ms for RD, 221 ms for AT; cf. Figure 10) resemble those of filler and control items in final position (see above) instead of those in sentence-medial position. However, the durational difference between RD and AT falls short to reach significance ($\chi^2(1) = 3.13$, $p = .07686$), indicating that both RD and AT are equally affected by FL ($t = -1.778$).

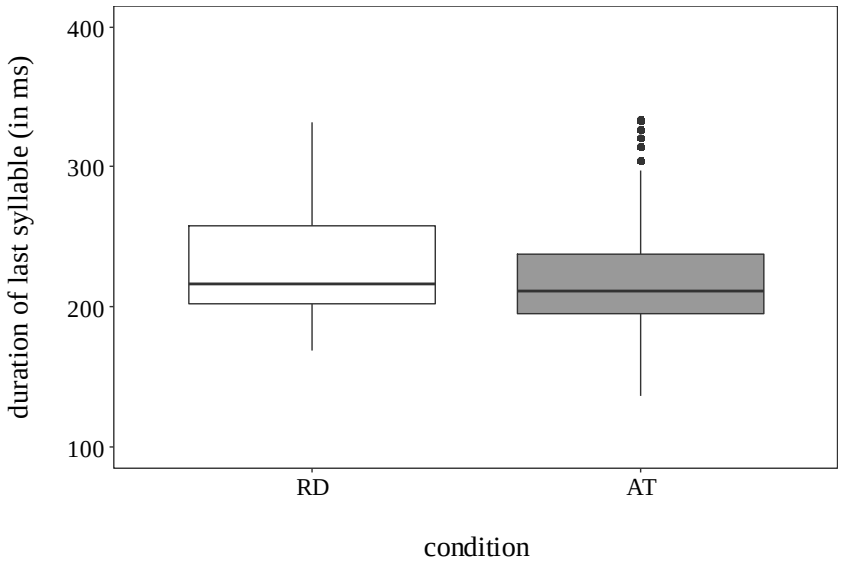


Figure 10: Duration of the second syllable (in ms) of RD (unaccented) and AT items (accented).

When testing for effects of accentuation, the first syllable of ATs is on average 3 ms longer than the first syllable of RDs. The likelihood ratio of the linear mixed effects model is $\chi^2(1) = 4.5731$ with $p = 0.03248$, indicating that AT is elongated due to being accented ($t = 2.156$).

When testing for effects of hastiness, linear mixed effects modelling returned a final model with a likelihood ratio of $\chi^2(1) = 276.27$, $p < 0.001$, indicating that ATs are on average faster articulated than RDs ($t = -26.45$; cf. Figure 11). RDs on average display a speech rate of 5.1 syl/sec, ATs show a speech rate of 6.6 syl/sec.

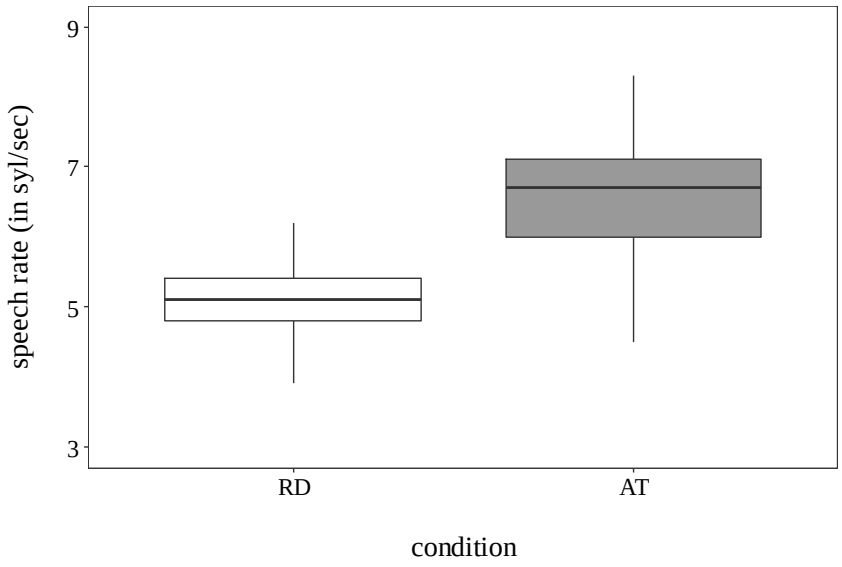


Figure 11: Differences in speech rate (in syllables/second) between RD and AT-items.

When the overall word durations of RD and AT are compared, linear mixed effects modelling returns a final model with a likelihood ratio of $\chi^2(1) = 0.0461$, $p = 0.83$. The overall word durations of RD (on average 461 ms) and AT (on average 458 ms) do not significantly differ from each other ($t = -0.215$), indicating that the different durations of the first and last syllables cancel each other out.

3.5.5 Discussion

Comparison of the control and filler items in this experiment displays that there are two parameters that unambiguously affect the duration of the last syllable: on the one hand, a word's position inside the sentence influences its last syllable duration, with words in sentence-medial position showing shorter durations than words in sentence-final position (phrase-final lengthening; confirmation of H1); on the other hand, words that bear an accent show in general longer durations of the last syllable than unaccented words, indicating that accentuation does not only influence the duration of the lexically strong syllable.[7]

For the critical items, the results clearly show that RDs are affected by phrase-final lengthening as target words show last syllable durations that are comparable to those of (un-)accented control words in sentence-final position (RD: 228 ms, USF: 221 ms, ASF: 237 ms). This finding confirms H2. The results further confirm hypothesis H3, since ATs show an equal effect as do RDs, with an average last syllable duration of 221 ms.

However, hypothesis H4, stating that ATs are expected to be longer than RDs due to bearing an accent, is not confirmed. The overall word durations of RD and AT do not significantly differ (RD: 461 ms, AT: 458 ms). This is most probably due to an interplay of accentuation, hastiness and FL, which will be discussed in the following.

Investigation of the second syllables has shown that RD and AT are equally affected by the mechanism of FL, since these two constructions do not significantly differ ($t = -1.778$). Instead, AT displays minor effects of accentuation in the first syllable

[7] Since target words of control and filler items differed systematically with respect to the vowel in the lexically strong syllable, overall word durations were not comparable as the accented words always contained the intrinsically shorter vowels. Measuring vowel length in control and filler items revealed that the duration increased by on average 20 ms from close via mid-close to open vowels in both sentence positions, significantly affecting the duration of the first syllable ($\chi^2(1) = 20.786$, $p < .001$) which was shorter for filler than for control items.

(3 ms longer than RD; t = 2.156). However, examining the effect size in terms of the correlation coefficient Pearson's *r* shows that the practical relevance of this effect is highly questionable as *r* tends towards zero (r = 0.06). This indicates that there is almost no correlation of the type of construction (RD vs AT) and the duration of the first syllable.[8] The last observation concerning RD and AT is that ATs are on average by 1.5 syl/sec faster articulated than RDs, pointing towards a more hasty articulation in the sense of Dewald (2014). Now, how can it be that RD and AT do not differ with respect to overall word durations, if AT clearly displays an accelerated speech rate?

The measure of speech rate is provided by dividing the number of syllables in a phrase by the duration in which these syllables are produced. In this experiment, RD and AT phrases systematically differ in length, since ATs are always accompanied by the cue phrase 'also' ('well'), in order to facilitate the AT reading. It immediately suggests itself that the effects of hastiness are strongest in the beginning of the AT phrase, i.e. in the cue word 'also' and possibly in the determiner as well. This assumption is confirmed if recalculating the speech rates, this time only including target words: RD displays on average a speech rate of 4.5 syl/sec, whereas AT displays on average a speech rate of 4.3 syl/sec.

Taken together, these findings suggest that the local demands of discourse structure do not override the more global mechanism of phrase-final lengthening. To be more precise, the function of AT is to repair an ambiguous reference made earlier in the discourse. Accordingly, AT is demanded to be added quickly in order to provide the missing information as soon as possible. On the other hand, the end of an intonational unit has to be appropriately marked in order to enable the reader to correctly comprehend the speech signal, i.e. by the mechanism of FL. This is why the hastiness in AT items does not cancel out the effect of FL. Hastiness does not affect the whole AT phrase; rather, only the beginning of the AT phrase is produced with an accelerated speech rate.

To summarise, this experiment confirms effects of (i) phrase-final lengthening on both RD and AT, (ii) accentuation on ATs with longer first syllable durations, and (iii) 'hastiness' on AT with an accelerated speech rate. Although ATs are affected

[8] For comparison: the effects of final lengthening resulted in r = 0.84 for filler items and r = 0.85 for control items, showing an almost perfect positive correlation of sentence position and syllable duration.

by hastiness, this effect does not cancel out the effect of phrase-final lengthening. As a consequence, the results of this experiment clearly speak against Dewald's (2014) assumption that only RD is affected by the mechanism of FL. Moreover, the data rules out the possibility that the amount of FL can be taken as a distinctive feature of RD and AT, since both constructions are equally affected by FL.

3.5.6 Conclusion

In the beginning of this chapter the question was raised whether RD and AT constituents differ with respect to their word and syllable durations, as Dewald (2014) assumed that RD falls under the domain of phrase-final lengthening whereas AT is added in a hasty manner. Considering that both RD and AT constituents stand in sentence-final position and that AT bears an additional accent, led to the hypotheses that AT should at least be equally long as RDs, if not even longer due to the accent. In order to investigate these hypotheses, an interactive reading experiment was carried out that tested (i) for general effects of final lengthening in German (sentence-medial vs sentence-final position) as well as for effects of accentuation (unaccented and accented words in both positions), and (ii) for the effects of final lengthening and accentuation in RD compared to AT. Results show both effects of final lengthening and accentuation in the control items, and further display that RD and AT are both affected by final lengthening, challenging Dewald's assumption that RDs are longer than ATs. However, contrary to the consideration that AT should in fact be longer than RD, due to bearing a nuclear accent, the results of this experiment show that the word durations of RD and AT items do not significantly differ. This is most probably due to conflicting demands of discourse structure on the one hand and prosody on the other hand: while the discourse structure demands ATs to be produced as fast as possible, prosody demands the end of utterances to be appropriately marked. These competing demands result in AT being produced with an accelerated speech rate – but only in the beginning of the corrective phrase. The more global demand of prosody to unambiguously mark the end of an utterance is not overridden by the more local demand of discourse structure. As a consequence, the amount of final lengthening cannot be regarded as a distinctive feature of RD and AT.

3.6 Speaker-Specificity in the Prosody of RD and AT

The theoretical work on the distinction of RD and AT draws a rather smooth picture of their prosodic realisations: as such, RD-constituents are produced unaccented in postnuclear position with reduced pitch range (LAMBRECHT 2001) whereas AT-constituents receive a nuclear accent, forming their own intonation phrase (IP) (AVERINTSEVA-KLISCH 2009) with unreduced pitch range (LAMBRECHT 2001). While these assumptions are indeed well motivated by means of syntax and information structure (cf. chapter 2.4), studies on the prosodic realisations of RD and AT indicate that this topic is not that simple: Kalbertodt (2016) found that RDs are primarily produced with a phrase break, a nuclear accent, but reduced pitch range whereas ATs always show a 2-IP realisation with a nucear accent of their own and an almost unreduced pitch range. Kalbertodt and colleagues (2015), on the other hand, confirmed that RD and AT differ with respect to phrasing and accentuation, RDs showing less IP-boundaries and nuclear accents, but found that they do not differ with respect to the amount of pitch range reduction. Moreover, Kalbertodt and Baumann (2017a, b) detected that RDs are prosodically integrated into the IP of the matrix sentence, carrying only a weak accent (if any); ATs constitute an IP of their own, bearing a strong nuclear accent, while the pitch range is equally reduced for both structures. As the results of these studies do not only differ from each other but also show a high degree of variability internally, the question emerges whether the variation within the data can be explained by means of speaker-dependent strategies for setting off RD from AT prosodically.

This chapter aims at investigating what parameters speakers make use of when distinguishing RD from AT; if and how these parameters are combined; and whether there is a specific parameter that needs to be adjusted in order to set AT apart from RD. To do so, a corpus study is conducted that operates on the experimental data of chapter 3.5. The reason to use read data instead of spontaneous data is that the read speech corpus contains more than one item per construction and speaker. This structure just makes the planned speaker-dependent analysis possible. A limitation of this corpus study, however, is that the material reviewed here only contains instances of prototypical RD[1] and AT. This investigation is exploratory in nature, hence no hypotheses will be formulated.

[1] For a prosodic analysis of stylized RDs, see chapter 2.4.

3.6.1 Corpus study –Material and data analysis

The corpus material consists of read items obtained in the experiment of chapter 3.5. In this experiment, participants had to read out the target sentences that were part of a mini-dialogue, establishing the information structure of RD and AT, respectively. The corpus contains realisations of ten women and five men, resulting in to a total number of 300 items (150 realisations of AT and RD each) that entered the analysis. These items are examined with regard to the parameters PAUSE[2], PHRASING, i.e. the type of prosodic boundary (no, ip- or IP-boundary), and PERCEIVED PROMINENCE following DIMA (no, weak or strong prominence; cf. KÜGLER & BAUMANN 2017), PITCH RANGE[3] and SPEECH RATE. Since the sample size for each speaker is rather small (ten items for RD and AT each), no inferential statistics are provided to evaluate the observable differences.

For evaluating whether speakers mark RD and AT differently, two different mechanisms were employed, reflecting the different types of dependent variables. In count data (presence of pause, phrasing, and perceived prominence), a threshold of three quarters was applied: e.g. if three quarters of AT-items were produced with a pause whereas RD-items were not, this difference was regarded as systematic. By contrast, regarding the continuous dependent variables pitch range and speech rate, a treshhold of 1 st and 1 syllable were used, respectively.

3.6.2 Results

Comparison of RD against AT with respect to the parameters pause, phrasing, accentuation, pitch range and speech rate leads to the results summarised in Table 23. Most interestingly, there is not a single pattern that is used by all speakers; rather, many different patterns can be observed, combining certain parameters while leaving out others. There are two patterns that occur most frequently in the data: first,

[2] Please note that it would have been in principle possible to also employ the duration of pauses as a distinctive feature. However, since none of the subjects produced both RD and AT with pauses, there was no need (or even the possibility) to include the measure of pause duration. In all cases in which speakers did not use the presence of pause as a distinctive criterion, all instances of RD and AT were produced without a pause.

[3] As this examination aims at detecting actual contrasts in the prosodic marking of RD and AT, it will not offer an overview of the direction of pitch modulation, as was provided in 2.4, but will rather answer the question whether a certain speaker modulated the pitch span of RD- and AT-items in the same or a different way. The decision whether pitch was modulated equally or differently is made upon the threshold of 1 semitone (st), introduced by Isačenko and Schädlich (1966) and further explained in chapter 2.4.

four speakers (F04, F07, F09 and M05) use all parameters except for the amount of pauses (both RD and AT are produced without a pause) to distinguish RD from AT; second, three subjects (F01, F03 and M04) use all available parameters for a distinction.

Table 23: Parameters speakers use when setting off RD from AT. The '+' and '−' indicate whether a parameter is used for contrasting RD and AT or not. The '++' indicates that this parameter was used in a true complementary way.

speaker	*Pause*	*Phrasing*	*Prominence*	*Pitch range*	*Speech rate*
F01	++	+	+	+	+
F02	−	+	+	−	+
F03	+	+	+	+	+
F04	−	+	+	+	+
F05	+	+	+	−	+
F06	−	−	+	+	+
F07	−	+	+	+	+
F08	++	−	−	+	+
F09	−	++	++	+	+
F10	+	−	−	−	+
M01	+	−	−	+	+
M02	−	−	+	+	+
M03	−	++	+	−	−
M04	++	+	+	+	+
M05	−	+	+	+	+

The most striking observation in this data, however, is that the parameters phrasing and prominence have not been employed by all speakers: three participants did not use any of these parameters to distinguish RD from AT (F08, F10 and M01), while two further subjects (F06 and M02) did not use phrasing. This behaviour contradicts former claims that phrasing and prominence assignment are the two most important parameters for distinguishing RD and AT. A further counter argument against this claim is that in all other speakers who do make use of these factors, only speaker F09 does so in a true complementary manner (as indicated by '++') for both parameters, whereas speaker M03 uses a complementary pattern only for phrasing.

As a final observation, there is not a single speaker in the data who draws on only a single parameter for distinguishing RD from AT. Rather, all but two speakers (F10 and M03) use at least 3 parameters for the distinction of RD and AT.

3.6.3 Discussion

In this corpus study, five parameters have been investigated that have previously been discussed as playing an important role in the distinction of RD and AT as they reflect the different levels of syntactic and pragmatic cohesiveness on the one hand, and pragmatic needs of the speaker on the other hand: the placement of PAUSES, PHRASING, PROMINENCE, the PITCH RANGE of the extra-sentential constituent, and also the SPEECH RATE for this constituent. Following the theoretical assumptions that are explained in more depth in chapter 2.4, the predicted pattern for pause is that pauses are only produced for AT-utterances; in case that a speaker produces both RD and AT with a pause, the pause duration is expected to be significantly longer for AT than for RD, since AT is not syntactically but only pragmatically connected to its host. With respect to phrasing, ATs are expected to constitute an IP of their own, i.e. that an IP-boundary is perceivable between the anchor sentence and the repairing constituent; RDs, by contrast, are expected to be prosodically integrated into the matrix contour, i.e. that there is no or only an ip-boundary between matrix sentence and dislocated constituent. With regard to prominences, AT is expected to bear a strong prominence whereas RD should be unaccented or produced with a weak prominence only. Pitch range is expected to be narrower for RD than for AT, since RD is characterised by postfocal compression whereas AT is only affected by the mechanism of supradeclination. Although supradeclination also reduces the pitch span of an utterance, its extent does still not compare to postfocal compression. Lastly, speech rate is expected to be higher for AT-constituents, i.e. that more syllables per second are produced, as repairs are usually produced faster than the defective material.

In case participants use a certain parameter for the distinguishing RD from AT, all adjustments are in line with the theoretical assumptions stated above: RDs are characterised by prosodic integration (fewer and weaker phrase boundaries, fewer and weaker prominences) whereas ATs are produced as an independent unit, further showing higher speech rates and a wider pitch range than RD. Since the actual productions do not contrast with the theoretical assumptions, the question remains

whether there is a specific parameter that needs to be adjusted in order to keep RD and AT apart from another. If not, are there recurring patterns?

The results of the corpus examination reveal a high degree of variation in the data, strongly arguing in favour of speaker-dependent strategies with respect to the prosodic distinction of RD and AT. Not a single parameter is used by all speakers, although speech rate comes closest by being used by all but one speaker (M03). This pattern points in the direction that RD and AT are indeed prosodically distinct by means of speech rate, since the latter is a repairing device while the former is not. Most importantly, the parameters of phrasing and prominence assignment, which are often deemed to be the most important features of RD and AT, are employed by 10 and 12 out of 15 participants, respectively. Within these subjects, only a single speaker (F09) shows a true complementary use of these parameters, while the others allow for more variability. This pattern strongly contradicts the assumption that phrasing and prominence assignment are the most reliable factors for distinguishing RD from AT, and further strengthens the claim formulated in chapter 2.1, that RD and AT should not be classified by means of intonation but rather by means of information structure.

Since in our data there is no specific parameter that needs to be adjusted in order to keep RD and AT apart form another, the question for recurring patterns receives priority. It can be observed in the data that there are many different patterns, some speakers combining two or more parameters, and some also employing all available distinctive criteria. Although no clear majority pattern was observed with respect to the parameters that were employed[4], there is an unmistakable tendency to be preferably robust in the prosodic marking of RD and AT, i.e. to use at least two cues for the prosodic distinction. In the data investigated, there was no speaker that employed only one parameter for the distinction of RD and AT.

Nonetheless, in being preferably robust, it seems to be irrelevant which cues to use. This observation is in line with Baumann and colleagues (2006), Baumann and colleagues (2007) as well as Cangemi and colleagues (2015), who all investigated focus marking in German. In Baumann and colleagues' (2006) production experiment, not a single cue (out of five) was employed by all speakers. Baumann and

[4] Closest to being a majority-pattern is that 4 out of 15 subjects (F04, F07, F09 and M05; i.e. 26.7 %) use all available parameters except for pause to distinguish RD from AT. The second most common pattern is to use all available parameters to set off RD from AT, which was done by 3 out of 15 speakers (F01, F03 and M04; i.e. 20 %).

colleagues (2007) observed a similar pattern: in their production study there was also not a single parameter (out of seven) used by all speakers, but all subjects combined at least three cues to mark different focus structures. Baumann and colleagues (2007:1032) concluded that "[…] both segmental and suprasegmental cues can be used to achieve the same interaction goal, i.e. to signal information structure". This conclusion also seems to be true for the distinction of RD and AT, since subjects employ both segmental (pause duration, speech rate) and suprasegmental (pitch range, phrasing, prominence assignment) parameters in the encoding of the information-structural contrast.

Cangemi and colleagues (2015), by contrast, did not only find that differrent speakers used different cues in the encoding of focus structures, but also that some speakers were more robust than others: i.e. that some speakers use more of the available parameters to signal a difference than others. Interestingly, the fact that a speaker is highly robust in his encoding of an intonational contrast does not guarantee that this contrast is equally well decoded by listeners, as the authors found an interaction of speaker- and listener-specificities (cf. CANGEMI ET AL. 2015:138ff). Accordingly, it is quite important to be robust in the encoding of intonational contrasts, as more robust productions are overall more intelligible (cf. CANGEMI ET AL. 2015:141). Since different listeners are sensitive to different cues, employing as many cues as possible in the prosodic marking of an information-structural contrast (e.g. RD vs AT) ensures that preferably many listeners correctly comprehend this contrast.[5]

To summarise, the main finding of this corpus study is that the prosody of RD and AT is not as invariable as conveyed by previous research but rather shows much speaker-dependent variability. Indeed, speakers vary as to the cues they use to encode the difference between RD and AT and, hence, to the degree of robustness. The more robustly a contrast is encoded, the more likely is this contrast correctly decoded by listeners (albeit not necessarily by all listeners). In this study, 3 out of 15 subjects (still 20 % of the speakers) encode the information-structural contrast in the most robust way, i.e. by employing all available cues. In this respect, the prosodic realisations of these three speakers mirror all of the expectations driven by

[5] For further work on the topic of speaker- and listener-specificity see e.g. Eisner (2015) and Smith (2015). For the more general topic of robustness of spoken language confer Winter and Christiansen (2012) or Winter (2014), among others.

previous work, in that RD is completely prosodically integrated whereas AT forms prosodically independent units.

However, a second important finding of this corpus study is that the two parameters phrasing and prominence assignment, that have previously been accounted for as being the most reliable cues in the prosodic distinction of RD and AT, were not used by all speakers to encode the difference between RD and AT. Out of the 15 subjects, only 10 and 12 participants, respectively, used these parameters systematically for distinguishing RD from AT. Further, only a single speaker (F09) marked these distinct constructions with a true complementary prosody: i.e. RDs always being produced unaccented without a phrase break and ATs always constituting an IP of their own, bearing a strong prominence. Since the other speakers clearly allow for more variability and speaker F09 also employs additional parameters, the data strongly suggests that the combination of the cues phrasing and prominence cannot be regarded as constituting the only true distinctive criterion of RD and AT. This conclusion has serious implications for future RD-research, as it points in the direction that RD and AT cannot be classified on the basis of their prosodic realisation.

Nevertheless, it is important to point out that the results obtained in this corpus study are based on sparse data. For future work it is inevitable to have more data in order to run proper inferential statistics and gain more reliable instead of merely tentative results.

3.6.4 Conclusion

This chapter showed on the basis of a corpus study examining 300 RD- and AT-items that the topic of the prosodic marking of RD and AT is not as simple as often depicted in the literature. Actually, there is a high degree of variability in the prosody of RD and AT, depending on the speaker that has to contrast these two constructions. Speakers can draw on (at least) five parameters to keep RD and AT apart from one another, and are not restricted as to which cues to use or how to combine them. There is actually not a single strategy that was employed by the majority of subjects, although almost all speakers make use of the cue speech rate. This points in the direction that the prosodic marking of RD and AT is much more flexible than assumed so far. However, speakers show a strong tendency to be as robust as pos-

sible in the encoding of the information-structural contrast, by combining at least two of the available cues.

It cannot be argued that adjusting the parameters phrasing and prominence suffices to contrast RD with AT, since these parameters are not used by all speakers. Although speaker M03 solely makes use of them, he does not show a true complementary marking of RD and AT with respect to prominence. In fact, only speaker F09 displays a complementary marking of RD and AT with respect to both phrasing and prominence. The fact that all other speakers allow for variability regarding phrasing and prominence is taken as further evidence that a preferably robust coding is of greater importance than a specific parameter.

Nevertheless, as the corpus examined here does not allow for inferential statistics due to sparse data, a more comprehensive study needs to be conducted in future research to confirm the tentative findings of this survey.

4 Conclusion and Future Research

Aims and Findings

This thesis aimed at contributing to a more fine-grained understanding of two constructions in German at the right sentence periphery: Right Dislocation (RD) and Afterthought (AT). This aim was supposed to be achieved by collecting empirical data and providing quantitative analyses.

I have shown that the previous work on German RD and AT has been predominantly coined by introspection and the description of isolated cases. Further, already the definition of RD and AT in earlier accounts appeared rather dubious as RD and AT were often determined on the basis of their prosodic realisation. Consequently, this approach is extremely prone to result in a circular line of argumenttation. I therefore argued that RD and AT are instead best defined on the basis of information structure and the discourse function they take, since AT constitutes a repair mechanism. With regard to RD, I could show that there are two different kinds: one that can be understood as an organisator of topic structure (which is assumed to be its prototypical use; RDproto), while the other constitutes a stylisation, serving to present new topics to the discourse (RDstyle). On this basis I proposed to operationalise the differences in information structure, in order to obtain a more objective categorisation of right-peripheral structures. For this purpose, the RefTop-scheme was applied to a corpus of (semi-)spontaneous speech. It could be shown that the *RefTop* annotation scheme proved rather reliable in identifying the kind of right-peripheral structure, predicting three quarters of the data correctly. However, due to a considerably high amount of overlap between RDproto and AT, I proposed to use the categorisation procedure introduced in chapter 3.1 in future research on RD and AT for categorisation. In this procedure, right-peripheral structures involving ambiguous anaphoric pronouns are categorised as AT, instances using unambiguous anaphoric pronouns are categorised as RDproto, and items displaying a cataphoric use of pronouns are categorised as RDstyle. Still, RefTop may be used as a verification device as it is capable of indicating erroneously categorised items.

In examining RD and AT that were purely defined on the basis of information structure, several levels of linguistic descriptions were investigated in the further course of this work. These levels ranged from morphosyntax through prosody in spoken language to the orthography in written language.

To begin with syntax, former accounts to both RD and AT have been discussed. It was shown that AT is best understood as a syntactic orphan, as it does not belong to the host containing the unfelicitous reference. In contrast, it was shown that former approaches to a syntactic analysis of RD, all of which are anchored in the framework of Generative Grammar, failed to predict instances of gender-mismatch. As a consequence, I suggested to analyse RD within the framework of Lexical-Functional Grammar instead. I provided an analysis that is based on the assumption that German exhibits both endocentric and exocentric properties, in that it displays specific verb positions inside the sentence while grammatical roles are assigned on the basis of a rich inflectional system. I could show that the suggested analysis is able to capture and predict all properties of RD, including the possibility to drop the pronoun as well as gender-mismatch and conforming to island constraints. In addition, I also provided a syntactic analysis of AT within Lexical-Functional Grammar in order to evaluate whether the differences between RD and AT are captured. I suggested to analyse AT as syntactic orphan, as this kind of analysis most accurately displays the properties of AT. It was shown that Lexical-Functional Grammar does not only provide appropriate analyses of RD and AT, but that it also captures the differences between these constructions.

While there is a consensus that RD obligatorily needs to agree in case and number, nevertheless allowing for gender-mismatch if the DP provides a generic reading, there are two approaches to case marking in AT. The first approach postulates a default-nominative marking which automatically results in case mismatch if the grammatical object of a sentence is repaired. The second approach regards AT as being produced in the course of a repair loop, resulting in an overall preference for case agreement, since the functional head of the defective phrase is repeated. Still, this approach allows for instances of case-mismatch, though to a lesser degree. Another disputed topic regarding the morphosyntax of AT is the question whether the intransitive cue phrase ‘meine ich’ (‘I mean’) is re-analysed as its transitive homonym. There seems to be an asymmetry in AT, as corrective phrases with accusative marking, repairing pronouns with nominative marking, are judged as well-formed. However, corrective phrases with nominative marking that repair pronouns with accusative marking are rather regarded as ill-formed. The re-analysis assumption would explain this asymmetry. Both issues were addressed by a questionnaire study. The results yielded in this experiment clearly speak against a default-

nominative marking of AT-phrases, since case agreement between proform and DP is in general preferred, even in accusative pronouns. Further, the results provide evidence that the cue phrase ‘meine ich’ is regularly re-analysed as a transitive verb instead of an intransitive set phrase. In both bare AT and AT with ‘also’ (‘well’) participants clearly dispreferred an accusative case marking of the DP if the pronoun was marked with the nominative. Only if the AT was used in combination with ‘meine ich’, this dispreference was significantly weakened. These patterns speak in favour of understanding AT as conforming to the rules of repair loops, although permitting instances of case-mismatch between proform and DP. However these instances follow strict regulations, as they are only possible if the DP is accompanied by the cue phrase ‘meine ich’.

Besides the distinctive criteria commonly agreed on to constitute RD and AT, another feature was most recently suggested: the degree of domain-final lengthening. It was argued that RD would belong to the domain of final lengthening but AT would not. Rather, AT would be characterised by an enhanced speech rate that is innate to repairs. However, since both RD and AT are produced in IP-final position, actually both constructions should show the same amount of lengthening. AT might even be longer than RD because it bears an additional accent. In order to solve this question, a reading production study was conducted. The results show that RD and AT do not significantly differ with respect to overall word duration and the duration of the last syllable, although AT displays an accelerated speech rate. These patterns indicate that the demands of discourse function, i.e. to repair the defect as soon as possible, do not cancel out the more global effect of phrase-final lengthening which signals the end of a prosodic unit.

With respect to the prosodic marking of RD and AT, previous accounts regarded both constructions as being marked with invariant contours, hence allowing to be used as a categorisation device. RD was commonly described as being produced in postnuclear position without a prominence, thus displaying a reduced pitch range. AT, in contrast, was described as constituting a separate intonation phrase (possibly including a pause) and carrying a fully fledged nuclear accent with unreduced pitch range. A corpus study on experimentally gained data, however, provided evidence that this assumption is far too simple. The results suggest that RD and AT cannot be distinguished on the basis of a specific set of parameters. Instead, there are several parameters which speakers may use in order to set off RD from AT. The

only prerequisite is to be as robust as possible. Accordigly, there are many different prosodic realisations, as some speakers employ all available cues whereas others only use two or three (out of at least five dimensions), resulting in dozens of possible combinations. It is concluded that there is not *the* prosodic realisation of either RD or AT. Future research has to take this finding into account, as it provides a counterargument against defining RD and/or AT solely on the basis of prosody.

General conclusion and outlook

In the previous research on RD and AT, diverging assumptions have been stated with regard to different levels of linguistic description. Many of these assumptions were based on introspection. In addition, former research was often prone to a circular line of argumentation, since RD and AT have commonly been defined on the basis of their prosodic realisation. In this thesis I aimed at overcoming both the issues of circularity and of introspection.

To achieve the first aim, I showed on the basis of spontaneous corpus data that RD and AT are best defined on the basis of information structure. It became evident that the reason for diverging assumptions regarding the function of RD lies in the fact that there are indeed two different subtypes with very distinct properties and functions. Acknowledging these subtypes prevents a blending of constructions and further enables researchers to formulate more precise predictions.

In order to overcome the issue of introspection, I provided experimentally gained as well as corpus data. With the data that were gathered in the experiments at hand I could contribute to a more fine-grained understanding of RD and AT, especially with respect to the prosodic realisation of RD and AT, as well as to the morphological marking of AT. However, there are still some aspects that need to be accounted for by future research.

With respect to the discourse function of RD, it was tentatively considered that RD might be a device for disentangling accent tones and edge tones, in order to facilitate the comprehension of utterances, especially in infant-directed speech. Investigating the use of RD and also LD in parent-child interaction could provide important insights to the possibility that German RD is an accent-placement device, as was currently suggested for Catalan.

Further, there is still much work left with respect to the prosodic realisation of RD and AT. First, this thesis mainly focussed on declarative RD and AT. Especially

with regard to prosody, it would be worthwhile to also have a look at interrogative RD and AT. They will most presumably work differently in some respects: in the case of RD, the rising boundary tone has to be realised on the dislocated phrase; in the case of AT, by contrast, it is more than likely that the contour of the host question will be repeated on the AT in order to enhance the coherence of the discourse and to enable the listener to connect the AT to the intended sentence. However, these assumptions would have to be tested.

Second, since this thesis concentrated on the distinction of RDproto and AT, more systematic investigation of RDstyle is needed. Especially with respect to the question whether phrasing and prominence may be regarded as distinctive parameters that might serve as a categorisation device, it is extremely important to also factor in the prosodic realisation of RDstyle. In the course of such an investigation, it is also advisable to gather more data per speaker in order to make it possible to provide inferential statistics.

Third, given the fact that different speakers make use of different cues to distinguish RD from AT, a perception study should investigate whether different listeners react differently to different speakers. In other words: are some listeners better at identifying RD and AT than others? And are there speakers that are more intelligible than others? A positive answer to these questions would explain the need to be preferably robust in the marking of a conceptual contrast.

Finally, there is still a huge corpus left of RD and AT items that were produced in sports comments. Due to the very nature of the speaking situation it is more than likely that RDs produced in the context of a sports comment behave very differently than the instances examined in this work. The sportscaster has to immediately react to the surrounding situation that is permanently changing. He has to convey the necessary information about what is happening while simultaneously providing some background information to possible newcomers that tune it for the first time. Accordingly, there will be instances in which he is continuously talking about the same topic, thus licensing an RD, but he also has to convey the information that something different, exciting is currently happening. This mismatch of demands will most certainly result in interesting realisations of RD.

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6 Appendix

6.1 Analysis of information structure – RefTop

All RefTop-analyses are provided via the *open science framework* (osf):
https://osf.io/f3tgx/?view_only=1a8fab496eee40ddb35d0df6e0f1bb7d

6.2 Material for the questionnaire on case agreement

The processed data as well as the R-script for loglinear modelling are available at:
https://osf.io/f3tgx/?view_only=1a8fab496eee40ddb35d0df6e0f1bb7d

6.2.1 Q1

1) A: Kennst du eigentlich Ingo und Bernd?
   B: Ja. Ich hab ihn gestern getroffen. Der Bernd.
2) A: Wer hat Michael einen Kuchen gebacken?
   B: Die Karin hat dem Michael einen Kuchen gebacken.
3) A: Hast du schon Lukas und Michael kennengelernt?
   B: Ja. Ich hab ihn gestern getroffen. Der Michael, meine ich.
4) A: Wer hat Thorsten eine Flasche Wein geschenkt?
   B: Der Sabine hat dem Thorsten eine Flasche Wein geschenkt.
5) A: Wer hat Olaf einen Film geliehen?
   B: Die Veronika hat dem Olaf einen Film geliehen.
6) A: Wie geht's Christian und Manuel?
   B: Ich hab ihn noch nie so traurig gesehen. Also den Christian.
7) A: Wieso trägst du den Mantel so oft?
   B: Weil er voll schön ist, den Mantel.
8) A: Wie findest du Klaus und Heiko?
   B: Ich mag ihn. Den Heiko.
9) A: Wer hat Carsten einen Muffin mitgebracht?
   B: Der Norma hat dem Carsten einen Muffin mitgebracht.
10) A: Wie findest du Daniel und Timo?
    B: Ich mag ihn. Den Daniel, meine ich.
11) A: Wer hat Oliver eine Postkarte geschrieben?
    B: Die Maria hat dem Oliver eine Postkarte geschrieben.

12) A: Weißt du was Neues von Günther und Lasse?
B: Seine Freundin hat ihn verlassen. Also der Lasse.

13) A: Wie findest du eigentlich Bernd?
B: Hm. Er kann schon sehr nerven, der Bernd.

14) A: Wer hat Michael einen Kuchen gebacken?
B: Dem Michael hat der Karin einen Kuchen gebacken.

15) A: Magst du Herbert und Mirko?
B: Nein, ich kann ihn nicht ausstehen. Der Herbert.

16) A: Wer hat Thorsten eine Flasche Wein geschenkt?
B: Dem Thorsten hat die Sabine eine Flasche Wein geschenkt.

17) A: Magst du Tilo und Matthias?
B: Nein, ich kann ihn nicht leiden. Der Matthias, meine ich.

18) A: Wer hat Olaf einen Film geliehen?
B: Dem Olaf hat der Veronika einen Film geliehen.

19) A: Magst du Herbert und Mirko?
B: Nein, ich kann ihn nicht ausstehen. Also den Herbert.

20) A: Ist Matthias sauer auf dich?
B: Nein, er guckt immer so, den Matthias.

21) A: Weißt du was Neues von Günther und Lasse?
B: Seine Freundin hat ihn verlassen. Den Lasse.

22) A: Wer hat Carsten einen Muffin mitgebracht?
B: Dem Carsten hat die Norma einen Muffin mitgebracht.

23) A: Wer hat Oliver eine Postkarte geschrieben?
B: Dem Oliver hat der Maria eine Postkarte geschrieben.

24) A: Was gibt’s Neues von Marcel und Dennis?
B: Seine Freundin hat ihn geohrfeigt. Den Dennis, meine ich.

25) A: Wer hat Michael einen Kuchen gebacken?
B: Der Karin hat einen Kuchen dem Michael gebacken.

26) A: Wie findest du Klaus und Heiko?
B: Ich mag ihn. Also der Heiko.

27) A: Wie findest du Michael?
B: Er ist sehr nett, der Michael.

28) A: Wie geht’s Christian und Manuel?
B: Ich hab ihn noch nie so traurig gesehen. Der Christian.

29) A: Wer hat Thorsten eine Flasche Wein geschenkt?
B: Die Sabine hat eine Flasche Wein dem Thorsten geschenkt.

30) A: Wie geht’s Ingo und Lars?
B: Ich hab ihn noch nie so glücklich gesehen. Der Lars, meine ich.

31) A: Wer hat Olaf einen Film geliehen?
B: Der Veronika hat einen Film dem Olaf geliehen.

32) A: Wer hat Carsten einen Muffin mitgebracht?
B: Die Norma hat einen Muffin dem Carsten mitgebracht.

33) A: Kennst du eigentlich Ingo und Bernd?
B: Ja. Ich hab ihn gestern getroffen. Also den Bernd.

34) A: Ist Daniel gut in der Schule?
B: Nein, er ist total dumm, den Daniel.

35) A: Wer hat Oliver eine Postkarte geschrieben?
B: Der Maria hat eine Postkarte dem Oliver geschrieben.

36) A: Wie geht’s Christian und Manuel?
B: Ich hab ihn noch nie so traurig gesehen. Den Christian.

37) A: Wer hat Michael einen Kuchen gebacken?
B: Die Karin hat einen Kuchen dem Michael gebacken.

38) A: Hast du schon Lukas und Michael kennengelernt?
B: Ja. Ich hab ihn gestern getroffen. Den Michael, meine ich.

39) A: Wer hat Thorsten eine Flasche Wein geschenkt?
B: Der Sabine hat eine Flasche Wein dem Thorsten geschenkt.

40) A: Wie findest du eigentlich Bernd?
B: Hm. Er kann schon sehr nerven, den Bernd.

41) A: Kennst du eigentlich Ingo und Bernd?
B: Ja. Ich hab ihn gestern getroffen. Also der Bernd.

42) A: Wer hat Olaf einen Film geliehen?
B: Die Veronika hat einen Film dem Olaf geliehen.

43) A: Weißt du was Neues von Günther und Lasse?
B: Seine Freundin hat ihn verlassen. Der Lasse.

44) A: Wieso trägst du den Mantel so oft?
B: Weil er voll schön ist, der Mantel.

45) A: Wer hat Carsten einen Muffin mitgebracht?
B: Der Norma hat einen Muffin dem Carsten mitgebracht.

46) A: Wie findest du Daniel und Timo?
B: Ich mag ihn. Der Daniel, meine ich.
47) A: Wer hat Oliver eine Postkarte geschrieben?
B: Die Maria hat eine Postkarte dem Oliver geschrieben.
48) A: Wie findest du Klaus und Heiko?
B: Ich mag ihn. Also den Heiko.
49) A: Wer hat Michael einen Kuchen gebacken?
B: Dem Michael hat die Karin einen Kuchen gebacken.
50) A: Wer hat Thorsten eine Flasche Wein geschenkt?
B: Dem Thorsten hat der Sabine eine Flasche Wein geschenkt.
51) A: Magst du Herbert und Mirko?
B: Nein, ich kann ihn nicht ausstehen. Den Herbert.
52) A: Wer hat Olaf einen Film geliehen?
B: Dem Olaf hat die Veronika einen Film geliehen.
53) A: Magst du Tilo und Matthias?
B: Nein, ich kann ihn nicht leiden. Den Matthias, meine ich.
54) A: Ist Matthias sauer auf dich?
B: Nein, er guckt immer so, der Matthias.
55) A: Magst du Herbert und Mirko?
B: Nein, ich kann ihn nicht ausstehen. Also der Herbert.
56) A: Wer hat Carsten einen Muffin mitgebracht?
B: Dem Carsten hat der Norma einen Muffin mitgebracht.
57) A: Wie findest du Klaus und Heiko?
B: Ich mag ihn. Der Heiko.
58) A: Wer hat Oliver eine Postkarte geschrieben?
B: Dem Oliver hat die Maria eine Postkarte geschrieben.
59) A: Wie findest du Michael?
B: Er ist sehr nett, den Michael.
60) A: Was gibt’s Neues von Marcel und Dennis?
B: Seine Freundin hat ihn geohrfeigt. Der Dennis, meine ich.
61) A: Wer hat Michael einen Kuchen gebacken?
B: Der Karin hat dem Michael einen Kuchen gebacken.
62) A: Wer hat Thorsten eine Flasche Wein geschenkt?
B: Die Sabine hat dem Thorsten eine Flasche Wein geschenkt.

63) A: Weißt du was Neues von Günther und Lasse?
B: Seine Freundin hat ihn verlassen. Also den Lasse.

64) A: Wer hat Olaf einen Film geliehen?
B: Der Veronika hat dem Olaf einen Film geliehen.

65) A: Kennst du eigentlich Ingo und Bernd?
B: Ja. Ich hab ihn gestern getroffen. Den Bernd.

66) A: Ist Daniel gut in der Schule?
B: Nein, er ist total dumm, der Daniel.

67) A: Wie geht's Ingo und Lars?
B: Ich hab ihn noch nie so glücklich gesehen. Den Lars, meine ich.

68) A: Wer hat Carsten einen Muffin mitgebracht?
B: Die Norma hat dem Carsten einen Muffin mitgebracht.

69) A: Wie geht's Christian und Manuel?
B: Ich hab ihn noch nie so traurig gesehen. Also der Christian.

70) A: Wer hat Oliver eine Postkarte geschrieben?
B: Der Maria hat dem Oliver eine Postkarte geschrieben.

6.2.2 Q2

1) A: Wie findest du Sascha und Moritz?
B: Also, er kann schon sehr nerven. Den Moritz.

2) A: Wem hat Ludwig gestern ein Buch geliehen?
B: Der Ludwig hat der Katja gestern ein Buch geliehen.

3) A: Wie findest du Mark und Nils?
B: Also, er kann schon sehr nerven. Den Nils, meine ich.

4) A: Wem hat Manuel ein Handy geschenkt?
B: Der Manuel hat die Mareike ein Handy geschenkt.

5) A: Wem hat Peter einen Blumenstrauß mitgebracht?
B: Der Peter hat der Kristina einen Blumenstrauß mitgebracht.

6) A: Wieso trägst du den Hut und den Mantel so oft?
B: Weil er voll schön ist. Also der Hut.

7) A: Kennst du schon Timo?
B: Ja, ich habe ihn gestern getroffen, der Timo.

8) A: Wie findest du Robert und Niklas?
B: Er ist recht nett. Der Niklas.

9) A: Wem hat Ruben ein Lied geschrieben?
B: Der Ruben hat die Tanja ein Lied geschrieben.

10) A: Wie findest du Kilian und Finn?
B: Er ist ziemlich gutaussehend. Der Finn, meine ich.

11) A: Wem hat Fabian ein Drei-Gänge-Menü gekocht?
B: Der Fabian hat der Michaela ein Drei-Gänge-Menü gekocht.

12) A: Sind Franz und Peter sauer auf dich?
B: Nein, er guckt immer so. Also den Franz.

13) A: Ich hab gehört, du kannst Peter nicht leiden.
B: Doch. Ich mag ihn, den Peter.

14) A: Wem hat Ludwig gestern ein Buch geliehen?
B: Die Katja hat der Ludwig gestern ein Buch geliehen.

15) A: Sind Max und Ludwig gut in der Schule?
B: Nein, er ist total dumm. Den Ludwig.

16) A: Wem hat Manuel ein Handy geschenkt?
B: Der Mareike hat der Manuel ein Handy geschenkt.

17) A: Sind Marvin und Sven schlecht in der Schule?
B: Nein, er ist total schlau. Den Marvin, meine ich.

18) A: Wem hat Peter einen Blumenstrauß mitgebracht?
B: Die Kristina hat der Peter einen Blumenstrauß mitgebracht.

19) A: Sind Max und Ludwig gut in der Schule?
B: Nein, er ist total dumm. Also der Ludwig.

20) A: Wieso ist Dennis so traurig?
B: Seine Freundin hat ihn verlassen, der Dennis.

21) A: Sind Franz und Peter sauer auf dich?
B: Nein, er guckt immer so. Der Franz.

22) A: Wem hat Ruben ein Lied geschrieben?
B: Der Tanja hat der Ruben ein Lied geschrieben.

23) A: Wem hat Fabian ein Drei-Gänge-Menü gekocht?
B: Die Michaela hat der Fabian ein Drei-Gänge-Menü gekocht.

24) A: Sind Hagen und Sebastian sauer auf dich?
B: Nein, er guckt immer so. Der Hagen, meine ich.

25) A: Wem hat Ludwig gestern ein Buch geliehen?
B: Der Ludwig hat ein Buch gestern die Katja geliehen.

26) A: Wie findest du Robert und Niklas?

B: Er ist recht nett. Also den Niklas.

27) A: Magst du Lukas?

B: Nein, ich kann ihn nicht ausstehen, den Lukas.

28) A: Wieso trägst du den Hut und den Mantel so oft?

B: Weil er voll schön ist. Den Hut.

29) A: Wem hat Manuel ein Handy geschenkt?

B: Der Manuel hat ein Handy der Mareike geschenkt.

30) A: Wieso trägst du den Schal und den Anstecker so oft?

B: Weil er voll schön ist. Den Anstecker, meine ich.

31) A: Wem hat Peter einen Blumenstrauß mitgebracht?

B: Der Peter hat einen Blumenstrauß die Kristina mitgebracht.

32) A: Wem hat Ruben ein Lied geschrieben?

B: Der Ruben hat ein Lied der Tanja geschrieben.

33) A: Wie findest du Sascha und Moritz?

B: Er kann manchmal schon sehr nerven. Also der Moritz.

34) A: Wie geht's Ingo?

B: Ich hab ihn noch nie so traurig gesehen, der Ingo.

35) A: Wem hat Fabian ein Drei-Gänge-Menü gekocht?

B: Der Fabian hat ein Drei-Gänge-Menü die Michaela gekocht.

36) A: Wie findest du Sascha und Moritz?

B: Also, er kann schon sehr nerven. Der Moritz.

37) A: Wem hat Ludwig gestern ein Buch geliehen?

B: Der Ludwig hat ein Buch gestern der Katja geliehen.

38) A: Wie findest du Mark und Nils?

B: Also, er kann schon sehr nerven. Der Nils, meine ich.

39) A: Wem hat Manuel ein Handy geschenkt?

B: Der Manuel hat ein Handy die Mareike geschenkt.

40) A: Ich hab gehört, du kannst Peter nicht leiden. –

B: Doch. Ich mag ihn, der Peter.

41) A: Wieso trägst du den Hut und den Mantel so oft?

B: Weil er voll schön ist. Also den Hut.

42) A: Wem hat Peter einen Blumenstrauß mitgebracht?

B: Der Peter hat einen Blumenstrauß der Kristina mitgebracht.

43) A: Wie findest du Robert und Niklas?
B: Er ist recht nett. Den Niklas.

44) A: Wieso ist Dennis so traurig?
B: Seine Freundin hat ihn verlassen, den Dennis.

45) A: Wem hat Ruben ein Lied geschrieben?
B: Der Ruben hat ein Lied die Tanja geschrieben.

46) A: Wie findest du Kilian und Finn?
B: Er ist ziemlich gutaussehend. Den Finn, meine ich.

47) A: Wem hat Fabian ein Drei-Gänge-Menü gekocht?
B: Der Fabian hat ein Drei-Gänge-Menü der Michaela gekocht.

48) A: Sind Franz und Peter sauer auf dich?
B: Nein, er guckt immer so. Also der Franz.

49) A: Wem hat Ludwig gestern ein Buch geliehen?
B: Der Katja hat der Ludwig gestern ein Buch geliehen.

50) A: Wem hat Manuel ein Handy geschenkt?
B: Die Mareike hat der Manuel ein Handy geschenkt.

51) A: Sind Max und Ludwig gut in der Schule?
B: Nein, er ist total dumm. Der Ludwig.

52) A: Wem hat Peter einen Blumenstrauß mitgebracht?
B: Der Kristina hat der Peter einen Blumenstrauß mitgebracht.

53) A: Sind Marvin und Sven schlecht in der Schule?
B: Nein, er ist total schlau. Der Marvin, meine ich.

54) A: Kennst du schon Timo?
B: Ja, ich habe ihn gestern getroffen, den Timo.

55) A: Sind Max und Ludwig gut in der Schule?
B: Nein, er ist total dumm. Also den Ludwig.

56) A: Wem hat Ruben ein Lied geschrieben?
B: Die Tanja hat der Ruben ein Lied geschrieben.

57) A: Sind Franz und Peter sauer auf dich?
B: Nein, er guckt immer so. Den Franz.

58) A: Wem hat Fabian ein Drei-Gänge-Menü gekocht?
B: Der Michaela hat der Fabian ein Drei-Gänge-Menü gekocht.

59) A: Magst du Lukas?
B: Nein, ich kann ihn nicht ausstehen, der Lukas.

60) A: Sind Hagen und Sebastian sauer auf dich?
B: Nein, er guckt immer so. Den Hagen, meine ich.

61) A: Wem hat Ludwig gestern ein Buch geliehen?
B: Der Ludwig hat die Katja gestern ein Buch geliehen.

62) A: Wem hat Manuel ein Handy geschenkt?
B: Der Manuel hat der Mareike ein Handy geschenkt.

63) A: Wie findest du Robert und Niklas?
B: Er ist recht nett. Also der Niklas.

64) A: Wem hat Peter einen Blumenstrauß mitgebracht?
B: Der Peter hat die Kristina einen Blumenstrauß mitgebracht.

65) A: Wieso trägst du den Hut und den Mantel so oft?
B: Weil er voll schön ist. Der Hut.

66) A: Wie geht's Ingo?
B: Ich hab ihn noch nie so traurig gesehen, den Ingo.

67) A: Wieso trägst du den Schal und den Anstecker so oft?
B: Weil er voll schön ist. Der Anstecker, meine ich.

68) A: Wem hat Ruben ein Lied geschrieben?
B: Der Ruben hat der Tanja ein Lied geschrieben.

69) A: Wie findest du Sascha und Moritz?
B: Er kann manchmal schon sehr nerven. Also den Moritz.

70) A: Wem hat Fabian ein Drei-Gänge-Menü gekocht?
B: Der Fabian hat die Michaela ein Drei-Gänge-Menü gekocht.

6.3 Material for the interactive reading experiment on final lengthening

The PowerPoint presentations of the frame story and the experiment as well as both the processed data and the R-script for linear mixed effects modelling are available at:
https://osf.io/f3tgx/?view_only=1a8fab496eee40ddb35d0df6e0f1bb7d

6.3.1 Frame story

Auf einem erdenähnlichen Planeten in einer weit entfernten Galaxis lebten die Wuggis. Lange Zeit waren sie glücklich.

Doch eines Tages verwandelte sich ein benachbarter Stern in ein schwarzes Loch, das immer größer wurde.
Also bemannten die Wuggis ihre Raumschiffe und evakuierten den Planeten. Das war auch gut so, denn ihr Planet wurde von dem schwarzen Loch verschluckt.
Doch die Wuggis hatten ihren Planeten nicht in reiner Panik verlassen. Sie wussten, dass es mindestens einen weiteren Planeten gab, auf dem sie leben könnten: die Erde.
Bei ihrer Landung wurden die Wuggis von den Menschen herzlich begrüßt. Doch wohin mit so vielen neuen Bewohnern?
Also wurde ein neues Wohnkonzept vorgestellt: es würde eine neue Wohnsiedlung gebaut werden, in der die Wuggis zusammen mit den Menschen leben könnten.
Gesagt, getan. Doch das Zusammenleben mit den Wuggis gestaltet sich zu Beginn nicht ganz so einfach, weil sie so ungewöhnliche Namen haben.
Doch es gibt einen Trick: weibliche Wuggis haben ein /i:/ oder ein /e:/ in ihrem Namen. Männliche Wuggis hingegen ein /a:/ oder ein /o:/.
Kannst du den Wuggis und Menschen bei der Kommunikation helfen und ihre Fragen beantworten?

6.3.2 Pictures of aliens

The pictures of the aliens were taken from a hand drawn set developed and used by van de Vijver and Baer-Henney (2014).

male Wuggi	female Wuggi
	

6.3.3 Test items

In all test items, bold face indicates actual accentuation (i.e. the placement of the nucleus) in the question-part and predicted accentuation in the answer-part.

Filler items: IP-medial, target word accented

1)	Hast du **Bihpe** gesagt?	–	Ja, ich habe **Bihpe** gesagt.
2)	Hast du **Dihpe** gesagt?	–	Ja, ich habe **Dihpe** gesagt.
3)	Hast du **Gihpe** gesagt?	–	Ja, ich habe **Gihpe** gesagt.
4)	Hast du **Pihpe** gesagt?	–	Ja, ich habe **Pihpe** gesagt.
5)	Hast du **Tihpe** gesagt?	–	Ja, ich habe **Tihpe** gesagt.
6)	Hast du **Behpe** gesagt?	–	Ja, ich habe **Behpe** gesagt.
7)	Hast du **Dehpe** gesagt?	–	Ja, ich habe **Dehpe** gesagt.
8)	Hast du **Gehpe** gesagt?	–	Ja, ich habe **Gehpe** gesagt.
9)	Hast du **Kehpe** gesagt?	–	Ja, ich habe **Kehpe** gesagt.
10)	Hast du **Tehpe** gesagt?	–	Ja, ich habe **Tehpe** gesagt.

Filler: IP-final, target word accented

1)	Sagtest du **Bihke**?	–	Ja, ich sagte **Bihke**.
2)	Sagtest du **Dihke**?	–	Ja, ich sagte **Dihke**.
3)	Sagtest du **Gihke**?	–	Ja, ich sagte **Gihke**.
4)	Sagtest du **Tihke**?	–	Ja, ich sagte **Tihke**.
5)	Sagtest du **Kihke**?	–	Ja, ich sagte **Kihke**.
6)	Sagtest du **Behke**?	–	Ja, ich sagte **Behke**.
7)	Sagtest du **Dehke**?	–	Ja, ich sagte **Dehke**.
8)	Sagtest du **Gehke**?	–	Ja, ich sagte **Gehke**.
9)	Sagtest du **Pehke**?	–	Ja, ich sagte **Pehke**.
10)	Sagtest du **Kehke**?	–	Ja, ich sagte **Kehke**.

Control items: IP-medial, target word unaccented

1)	Hast du Dahke **geflüstert**?	–	Nein, ich habe Dahke **gesagt**.
2)	Hast du Gahke **geschrien**?	–	Nein, ich habe Gahke **gesagt**.
3)	Hast du Pahke **gesäuselt**?	–	Nein, ich habe Pahke **gesagt**.
4)	Hast du Tahke **gebrüllt**?	–	Nein, ich habe Tahke **gesagt**.
5)	Hast du Kahke **gewispert**?	–	Nein, ich habe Kahke **gesagt**.
6)	Hast du Dahpe **geflüstert**?	–	Nein, ich habe Dahpe **gesagt**.
7)	Hast du Gahpe **geschrien**?	–	Nein, ich habe Gahpe **gesagt**.
8)	Hast du Pahpe **gesäuselt**?	–	Nein, ich habe Pahpe **gesagt**.
9)	Hast du Tahpe **gebrüllt**?	–	Nein, ich habe Tahpe **gesagt**.

10) Hast du Kahpe **gewispert**? – Nein, ich habe Kahpe **gesagt**.

Control items: IP-final, target word unaccented

1) **Flüstertest** du Dahpe? – Nein, ich **sagte** Dahpe.
2) **Schriest** du Gahpe? – Nein, ich **sagte** Gahpe.
3) **Säuseltest** du Pahpe? – Nein, ich **sagte** Pahpe.
4) **Brülltest** du Tahpe? – Nein, ich **sagte** Tahpe.
5) **Wispertest** du Kahpe? – Nein, ich **sagte** Kahpe.
6) **Flüstertest** du Dahke? – Nein, ich **sagte** Dahke.
7) **Schriest** du Gahke? – Nein, ich **sagte** Gahke.
8) **Säuseltest** du Pahke? – Nein, ich **sagte** Pahke.
9) **Brülltest** du Tahke? – Nein, ich **sagte** Tahke.
10) **Wispertest** du Kahke? – Nein, ich **sagte** Kahke.

RD: IP-final, target word unaccented

1) Wie findest du eigentlich den Dahpe? – Er ist total **nett**, der Dahpe.
2) Wie findest du eigentlich den Gahpe? – Er ist total **doof**, der Gahpe.
3) Wie findest du eigentlich den Pahpe? – Er ist total **lieb**, der Pahpe.
4) Wie findest du eigentlich den Tahpe? – Er ist total **blöd**, der Tahpe.
5) Wie findest du eigentlich den Kahpe? – Er ist total **schlau**, der Kahpe.
6) Wie findest du eigentlich den Dahke? – Er ist total **nett**, der Dahke.
7) Wie findest du eigentlich den Gahke? – Er ist total **doof**, der Gahke.
8) Wie findest du eigentlich den Pahke? – Er ist total **lieb**, der Pahke.
9) Wie findest du eigentlich den Tahke? – Er ist total **blöd**, der Tahke.
10) Wie findest du eigentlich den Kahke? – Er ist total **schlau**, der Kahke.

AT: IP-final, target word accented

1) Wie findest du eigentlich Kohke und Dahpe? – Er ist total **nett**. Der Dahpe.
2) Wie findest du eigentlich Dohke und Gahpe? – Er ist total **doof**. Der Gahpe.
3) Wie findest du eigentlich Gohke und Pahpe? – Er ist total **lieb**. Der Pahpe.
4) Wie findest du eigentlich Pohke und Tahpe? – Er ist total **blöd**. Der Tahpe.
5) Wie findest du eigentlich Tohke und Kahpe? – Er ist total **schlau**. Der Kahpe.
6) Wie findest du eigentlich Kohpe und Dahke? – Er ist total **nett**. Der Dahke.

7) Wie findest du eigentlich Dohpe und Gahke? – Er ist total **doof**. Der Gahke.
8) Wie findest du eigentlich Gohpe und Pahke? – Er ist total **lieb**. Der Pahke.
9) Wie findest du eigentlich Pohpe und Tahke? – Er ist total **blöd**. Der Tahke.
10) Wie findest du eigentlich Tohpe und Kahke? – Er ist total **schlau**. Der Kahke.