Modal Particles, Discourse Structure and Common Ground Management.

Theoretical and Empirical Aspects.
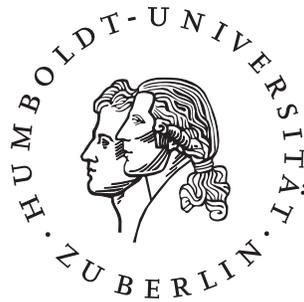
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Acknowledgments

1. Introduction

Few expressions of German have been discussed as extensively in the last decades as modal particles. Once reduced to filler words, the class of modal particle moved into the focus of syntactic, semantic, and pragmatic analyses since their meaning contribution is a challenge for all of these sub-disciplines. Modal particles do not add to the meaning of an utterance on the truth-functional level, but their meaning is of expressive nature. By making reference to an attitude of the speaker, their meaning is context-dependent and therefore difficult to capture. In a number of papers, the class of modal particles has been approached in different ways: Their meaning has been explained with respect to speech acts, felicity conditions, common ground, modification of sentence type or illocutionary operators, and descriptive accounts collected different uses in different environments. In this dissertation, I will discuss German modal particles from a new perspective, i.e. that of discourse structure. Former approaches almost exclusively analyzed the meaning of particles within the sentence boundaries. I will show that it is worthwhile to take a broader perspective and to consider not only what a modal particle does within the sentence it occurs with, but also what function is has with respect to the discourse structure that is currently built up. I conduct two quantitative studies, a corpus study and a forced lexical choice experiment. While prior analyses of modal particles are almost exclusively based on introspective judgments, this is also methodologically a new approach. I will show that quantitative studies offer important new insights. In the corpus study, I analyze the occurrence of six German modal particles in parliament speeches with respect to their interaction with discourse relations, using the framework of Rhetorical Structure Theory (Mann & Thompson 1988). The subsequent experiment serves to gain additional evidence for the observations from the corpus study.

This discourse perspective on modal particles offers insights into the function of modal particles which cannot be gained by purely word- or sentence-semantic analyses. I will show that the use of modal particles can guide the discourse in different ways. The main aim of discourse participants in communication is to exchange information and to enrich the set of shared knowledge (the common ground). In order to be successful, speakers present information in a way that makes it easy for the addressee(s) to process and integrate it into their knowledge. Moreover, discourse participants avoid disagreement and inconsistencies. Modal particles can be used for exactly these tasks. I will show that they can structure discourse in different ways and different particles are associated with different strategies.

This work does not contradict previous research on modal particles by revising former assumptions. Instead, I want to point to characteristics and functions of modal particles that have been neglected so far. This dissertation, therefore, is to be understood as complementing previous research on modal particles from other sub-disciplines.

The dissertation consists of two theoretical and two empirical parts. In the first theoretical part, I will focus on modal particles. In chapter 2, I will present different approaches to their meaning and function, but concentrate on those proposals that discuss the particles' influence on common ground management and the negotiation of commitments. I will introduce an own model of common ground that includes the notion of salience as well as meta-information for propositions (chapter 3). In chapter 4, I explain the meaning and function of *ja*, *doch*, *eben*, *halt*, *wohl*, and *schon* within this model.

The second theoretical part is dedicated to discourse and discourse coherence. I will motivate the relevance of the analysis of discourse for the understanding of certain linguistic phenomena (chapter 5), before I discuss important concepts of discourse structure and coherence in chapter 6 and introduce a selection of relevant approaches to analyze discourse structure. The focus here will be on Rhetorical Structure Theory. At the end of this part (chapter 7), I make a proposal how to organize a set of discourse relations hierarchically to overcome the often discussed problem of arbitrariness inherent to theories of discourse relations.

In chapter 8, I will then formulate predictions for the occurrence of the particles *ja*, *doch*, *eben*, *halt*, *wohl*, and *schon* in discourse structure on the basis of the meaning proposed for them. The first empirical part, chapter 9, presents the corpus study I conducted within a corpus of parliament speeches. After presenting the results and the statistical analysis, I discuss the findings. In the second empirical part (chapter 10), I present a subsequent experimental study which provides another type of quantitative evidence for the interaction of particles and discourse structure.

Finally, in chapter 12, I discuss the new insights on a more general level before I conclude and address remaining questions for future research.

2. Frameworks for Modal Particles

2.1. Introduction

German modal particles have been discussed intensively in the last decades. While they had been reduced to filler words in the past, linguists have discovered them as a challenge for semantic descriptions at least since the 1960s as – mainly due to their context dependency – it is not trivial to grasp their meaning. In the wake of the seminal work of Weydt (1969), the interest in modal particles increased. He was the first to claim that modal particles do not make a contribution to the propositional content of an utterance but instead express an attitude of the speaker.

The focus here will be to review a selection of approaches to modal particles, their most important characteristics will be summarized only briefly. The semantics of chosen particles will be discussed in more detail in chapter 4. In general, modal particles constitute a closed class of linguistic elements and are used more often in spoken than in written language. The use of modal particles is, however, no longer is seen as an indicator for poor or colloquial style. Modal particles usually modify the whole sentence. Looking at modal particles from the phonological perspective, it can be stated that they usually are monosyllabic or bisyllabic. They are typically unstressed, but there are also stressed variants of them which come – at least at a first glance – with a slightly different meaning, cf. section 4. From the level of morphology, it can be observed that modal particles cannot be subject to inflection or derivation, in general they cannot be part of word formation processes.

The syntactic behavior of modal particles has been discussed in depth in recent years, most prominently in Coniglio (2011). Most importantly, modal particles are barred from sentence-initial position. They occur in the middle field of the German sentence, and there can be found regularities for where they occur. Most authors argue that modal particles occur in the left periphery of the middle field (see for example Jacobs 1991, Kwon 2005, Zimmermann 2008), or respectively right of the Wackernagel position (Haider 1993: 178). It can be observed that modal particles precede material in the sentence which is focused, but if backgrounded material is moved out of the VP by scrambling, modal particles follow it (cf. Diesing 1992). This can be illustrated by the following examples:

(1) weil   **ja** [Peter]$_{foc}$ einen Salat zum   Picknick mitbringen wollte.
     because JA Peter   a   salad for-the picnic   bring   wanted
     '... because Peter wanted to bring salad for the picnic.'

(2) weil   Peter [den Salat]$_t$ **ja** [zum Picknick t mitbringen
     because Peter the   salad   JA for-the picnic   bring
     wollte]$_{VP}$.
     wanted
     '... because Peter wanted to bring salad for the picnic.'

What this shows us is that modal particles interact with information structural categories such as focus and background, without being themselves part of information structure. A number of papers also shows that, when combined, the order of modal particles underlies certain regularities (cf. Thurmair 1989, Lemnitzer 2001, Coniglio 2011).

Furthermore, modal particles can neither be negated nor coordinated with another element, as shown in (3-a) and (3-b):

(3) a. #Paul hat nicht **ja** gekündigt.
        Paul has not   JA resigned
        'Paul has not JA resigned.'

     b. #Paul hat **ja** und **halt** gekündigt.
        Paul has JA and HALT resigned
        'Paul has JA and HALT resigned.'

The main focus of research on modal particles lies in the area of semantics and pragmatics. Although there is a controversy about the question of how to analyze them appropriately, some features are agreed on: Modal particles do not contribute to the truth-value of the sentence as can be seen in example (4). The particle *ja* in (4) signals that the speaker takes the information to be already known. But this contribution is not on the truth-functional level, the truth conditions for the proposition 'The bakery is closed on Mondays' remain the same – irrespective of the presence or absence of *ja*.

(4)   Die Bäckerei hat **ja** montags   Ruhetag.
        The bakery   has JA on-monday day of rest
        'The bakery is closed on mondays.'

Finally, some properties of modal particles can only be accounted for when taking the interfaces between these linguistic levels into account, instead of one level only. As I just mentioned, Diesing (1992) discusses the tendency that given information occurs to the left of a particle, while focused information follows it. This observation requires to consider information structure and the syntax/semantics interface. Another phenomenon which is at the interface is the analysis of stressed particles. In order to explain these, it has to be investigated how the stress influences the syntactic and semantic behavior as opposed to the unstressed counterparts.

Most of the approaches to modal particles concentrate on their meaning contribution to an utterance and how it can be captured within a semantic theory. The proposals themselves, however, differ radically. On the one hand, there are accounts that mainly describe the different uses of modal particles (e.g. Weydt 1969, Thurmair 1989, Abraham 1991, Lindner 1991). Often focusing on one particle, the different shades of meaning in different environments are described, sometimes in contrast to particles from other languages. On the other hand, there are approaches which aim at a more abstract theoretical analysis of the characteristics of modal particles. These have been developed only recently and there is no agreement on the right treatment of this class of expressions so far. One of the first accounts in

this category is that of Doherty (1985), who claims that modal particles express epistemic attitudes, and offers an analysis for the interaction of particles with other aspects of sentence meaning. A newer theory of this type is that of Karagjosova (2004) which models the influence of particles on the common ground. Karagjosova's theory will be discussed in section 2.3. In the different approaches, modal particles have been analyzed as modifiers on sentence type operators (see for example Zimmermann 2008 on *wohl*) or as modifiers on illocutionary operators (e.g. Lindner 1991, Jacobs 1991). They are also interpreted in terms of felicity conditions for utterances (Kratzer 1999, Gutzmann 2009, Egg 2013), within Common Ground approaches (Karagjosova 2004, Repp 2013) or within a Question under Discussion approach (Rojas-Esponda 2014). The variety of analyses mirrors different perspectives on modal particles and some papers combine the ideas just mentioned. In the following, I will discuss a selection of the proposals from the literature – not following the different categorizations just mentioned, but concentrating on three functions modal particles have: 1. the modification of sentence type or illocutionary operator, 2. the modal particles' effect of relating the proposition of the host utterance to another proposition in the common ground, 3. their function as meta-pragmatic instructions.

2.2. Modal Particles as Modifiers of Illocutionary Operators

The analysis of modal particles as modifiers of speech acts can be found in a number of works and some of these approaches will be sketched in the following. An early and very comprehensive one is the contribution to the analysis of modal particles of Thurmair (1989). She describes the meaning and use of 20 particles which is by far more than any other theory has considered. Her aim is to describe the basic meaning of every particle and then illustrate how this may be influenced by the different sentence types a particle can occur in. In order to arrive at a simple, precise and economic description of the particles' meaning, Thurmair establishes binary meaning

features. These features, and therefore the effect of single particles, can be assigned to the following levels:

Effect	Features (selection)	Example
Evaluation of the proposition with respect to knowledge, expectation or wishes (either of speaker or addressee)	⟨KNOWN⟩ ⟨EXPECTED⟩ ⟨PREFERRED⟩	*ja, doch*
Reference to addressee	⟨CORRECTION⟩ ⟨ENCOURAGEMENT⟩	*doch, einfach, mal*
Reference to illocutionary act	⟨RESTRICTION⟩ ⟨STRENGTHENING⟩ ⟨WEAKENING⟩	*bloß, mal*
Reference to preceding utterance	⟨CONNEX⟩ ⟨EXPECTED⟩ ⟨UNEXPECTED⟩	*eben, halt, auch*

Table 2.1.: Selection of the meaning features proposed by Thurmair (1989)

Each particle is described with as few features as possible. The final classification of the 20 particles using the proposed features is a very useful basis for any analysis of modal particles (cf. Thurmair 1989: 200 for an overview over all features), as the features capture basic intuitions about the particles' meaning and the analysis is based on examples from corpora. Thurmair (1989) stresses the importance of analyzing particles not in construed but in actually spoken language. Furthermore she considers dialogues instead of single sentences since the particles in many cases refer to the addressee and his/her knowledge and beliefs. I will come back to this in the discussion of *ja, doch, eben* and *halt* in chapter 4.

Using the features, Thurmair stresses similarities between particles as well as differences. For instance, *ja* and *doch* share the feature ⟨KNOWN⟩ which captures that they both express that the respective proposition should be already known to the addressee. But they differ in that *doch* additionally has a feature ⟨CORRECTION⟩ which means that the particle indicates that

the utterance containing the particle corrects information mentioned in a preceding utterance. This reflects the observation that *ja* and *doch* have something in common but *doch* is more complex. I will come back to these features when discussing the meaning of the particles in more detail in section 4.

Thurmair's work provides a very comprehensive survey of the meaning contribution of a large number of particles. For all of them, a great range of corpus examples is given as well as a simple and intuitive account of their effect. Moreover, the fact that the features belong to different levels reflects very well that some particles work in a similar fashion while others seem to have an effect on a completely different level.

A second example for a theory which describes modal particles as modifiers of illocutionary operators is Jacobs (1991). He concentrates on the modal particle *ja* and describes it as an operator on the illocutionary type (IT) of sentences. His analysis is based on illocutionary semantics (Zaefferer 1979, 1984). If an utterance is of illocutionary type *I*, the addition of a particle turns it into *I'*, a more specific version of *I*. For example, an utterance of the assertive type is described by using ASSERT as the illocutionary type operator, the addition of *ja* results in the operator j-ASSERT. Consider Jacobs' (1991) meaning postulates for j-ASSERT below (here slightly simplified). The definition is based on the felicity conditions for ASSERT. (P7) and (P8) are identical with what Jacobs defines as the conditions of use for the unmodified assertive type, i.e., the speaker expresses the belief that the proposition ϕ holds (=P7) and that the addressee *ad* b-considers whether ϕ is true (=P8). Jacobs defines B-CONS(x, p) as "*x* thinks about the possibility of *p*'s being true in the given situation or is already convinced that *p* is true" (Jacobs 1991: 144). (P9) captures the actual effect of *ja*, which is: The speaker *sp* expresses the belief that the addressee *ad* does not b-consider that ϕ is not the case. The box operator $\Box$ stands for necessity and its scope is what is written in the parentheses. Note that this representation misses a relativization to the current point in conversation.

(P7) $\Box$ (J-ASSERT(sp,ad,α, β) $\rightarrow$ EXPR-BEL(sp,ϕ)

(P8) $\Box$ (J-ASSERT(sp,ad,α, β) $\rightarrow$ EXPR-BEL(sp,B-CONS(ad,ϕ)))

(P9) $\Box$ (J-Assert(sp,ad,α, β) $\rightarrow$ Expr-Bel(sp,$\neg$B-Cons(ad,$\neg\phi$)))

This definition accounts for the intuition that a speaker uses *ja* if s/he assumes that the addressee also believes that the proposition *p* holds, or as Jacobs (1991) puts it: that the addressee "neither believes that this proposition is false nor considers the possibility of its being false in the given situation" (Jacobs 1991: 146). Jacobs' (1991) approach explains many aspects of *ja*'s meaning, but it concentrates on only one particle. It is left open whether his approach is also applicable for other particles.

Waltereit (2001) explains the function of modal particles in a speech-act theoretical approach. He claims that the basic function of particles is to accommodate the speech act "at minimal linguistic expense" to the speech situation (Waltereit 2001: 1391). This is spelled out for *ja*: Usually, the speech act of assertions comes with the preparatory condition that "it is not obvious to both *S* and *H* that *H* knows *p*" (Searle 1969: 66). This means that it is not appropriate to make an assertion if the hearer already knows that *p* holds, the utterance would be redundant in this case as it does not convey new information. An assertion with *ja*, thus, would violate this preparatory conditions because *ja* signals that the information is already known (or uncontroversial or that there is sufficient evidence that *p* holds). Waltereit claims that the effect of *ja* is to modify this preparatory condition, more explicitly: *ja* cancels the condition that *p* should not be obvious already – Waltereit argues that preparatory conditions of speech acts are similar to conversational implicatures and thus also cancelable.

A similar approach can be found in Egg (2013), who analyzes the particles *doch* and *schon* with respect to their felicity conditions. Egg emphasizes that particles cannot only take the proposition of the current or some previous utterance as semantic argument, but also the felicity conditions of the respective speech acts. With this assumption, the more problematic discourse initial uses of the particle *doch* can be explained, as well as the use of *doch* in non-declarative utterances. Examples like (5) usually are difficult to explain within theories that assume that *doch* always indicates a conflict with a preceding utterance, since (5) would be fine even as the beginning of a discourse.

(5)   Sie sind **doch** Paul Meier.
         You are   DOCH Paul Meier.
         'You must be Paul Meier.'

A possible explanation for examples like (5) could be that *doch* here does not relate to the knowledge of the addressee. Egg (2013) takes *doch* in (5) to signal that the utterance stands in contrast with the first preparatory condition for assertions, i.e., that the speaker believes that the hearer does not already know the respective piece of information. Telling somebody else his name clearly violates this condition. (6) can be explained along the same lines: *Doch* in imperatives may be used in a provocative way (cf. Egg 2013: 135), but note that not all occurrences of *doch* have this component. In (6), *doch* indicates the speaker's belief that the hearer will not sue him/her, which again violates the felicity conditions of directives: If the speaker does not expect the hearer to fulfill the request, the preparatory condition for the speech act is not fulfilled and *doch* again points to this contrast. I will come back to *doch* in imperatives in section 4.1.

(6)   Verklag mich **doch**!
         Sue   me   DOCH
         'Go ahead and sue me!'

The relationship of modal particles to felicity conditions can also be found in approaches to modal particles that concentrate on their expressive nature. Kratzer (1999) proposed that their meaning is to be understood as expressive meaning, so it must be distinguished from descriptive meaning and she locates it on a different level. This idea is taken up again in a number of papers, also in Kratzer & Matthewson (2009) or Gutzmann (2009). Following this idea, some approaches elaborate the general proposal of Kaplan (1989) for the description of expressive meaning, i.e. that expressive meaning cannot be captured in terms of truth conditions but rather by defining the conditions of use that have to be fulfilled. Gutzmann (2009) proposes a hybrid semantics with a level for truth-conditions and a level for use-conditions to account for the characteristics of modal particles. The use of a modal particle is not true or false in the sense of truth-conditions, but felicitous or infelicitous (use conditions). Gutzmann's (2009) hybrid seman-

tics is based on the mechanisms introduced by Potts (2005) for conventional implicatures. The innovation of hybrid semantics is to introduce a type u for use values, parallel to type t for truth values, where the domain for t is $D_t = \{1, 0\}$ and of u respectively $D_u = \{\checkmark, \nparallel\}$, where $\checkmark$ is short-hand for felicitous, and $\nparallel$ for infelicitous.

Turning back to the idea to treat modal particles as speech act modifiers, this can also be found in Karagjosova's (2004) work which will be discussed in more detail in a section on its own (cf. 2.5). Karagjosova motivates this perspective with a general difficulty that arises when dealing with modal particles. As observed above, modal particles can show different nuances of meaning in different contexts, which is a challenge for all approaches and a general decision has to be made: Is there one basic meaning for each particle, and if so, how can the different uses be derived? The alternative is to assume that there are different lexical entries for the different meanings. Zimmermann (2011) calls these two general directions *minimalist* and respectively *maximalist* approach (cf. Zimmermann 2011: 2014). The approach that I propose in this dissertation is a minimalist one. I assume that the slightly different reading of one particle can be traced back to different contexts.

What this overview shows is that the different meaning nuances that particles exhibit can be explained well when assigning these differences to the particles' occurrence in different speech acts, instead of introducing different lexical entries for one particle.

2.3. Modal Particles for Organizing Common Ground

Common Ground as introduced by Stalnaker (1978) is understood as a set of shared assumptions.

> "It is common ground that ϕ in a group if all members accept (for the purpose of the conversation) that ϕ, and all believe that all accept that ϕ, and all believe that all believe that all accept that ϕ, etc." (Stalnaker 2002: 716)

Assertions are proposals to add content to the common ground, as long as there are no objections by the addressee(s)[1] and thus to change the context. The idea that the function of modal particles can be explained with reference to common ground management (in the sense of Krifka 2008) can be found in the literature in a number of proposals. Especially for *ja* and *doch* this idea is obvious as they express that the proposition is already known. The idea of common ground management is crucial for the description of modal particles and will be discussed in detail in chapter 2.3. In this discussion of the literature, I will present former approaches to modal particles using common ground.

To start with, Repp (2013) analyzes German modal particles as common ground managing operators which indicate the common ground status of the respective proposition, i.e., whether the proposition is already part of the common ground or not, whether it is expected or unexpected. Particles can also indicate whether a proposition should be added to the common ground or rather be removed, as well as the degree of commitment of the speaker towards the proposition (cf. Repp 2013: 232). For *ja* and *doch*, Repp argues that their main function is *retrieve*: With both particles, the speaker can instruct the hearer to retrieve a proposition which is already in the common ground, but currently not considered. *Doch* additionally has another meaning component, it expresses that the proposition in the common ground is 'at odds' with something uttered or implicated by the preceding utterance. The definition of *ja* looks as follows in Repp's framework (Repp 2013: 245):

(7) $\llbracket \text{ja} \rrbracket = \llbracket \text{retrieve} \rrbracket = \lambda p_{\langle s,t \rangle} \cdot p$
         Discourse conditions for utterance u_n with the meaning $\llbracket retrieve \rrbracket (p)$:

   (i)   CG entails or implicates p
   (ii) u_{n-1} does not entail, presuppose or implicate p

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[1]There is a stronger claim saying that an assertion itself changes the context (cf. Stalnaker 1978) and weaker ones like that of Clark & Schaefer (1989) who claim that it is not sufficient to make the right utterance at the right time in order to accumulate common ground. Instead, discourse participants have to make clear that the addressee understood and accepted the discourse move for it to be a successful contribution to discourse.

So, the retrieval function is defined by Repp by giving the discourse conditions for an utterance, i.e., (i) the proposition follows in some way from the common ground and (ii) it is not contained in the preceding utterance u_{n-1}. This shows why modal particles are interpreted as common ground managing operators: They signal the status of the proposition, e.g. that it is already in the common ground. I will later on (see section 3.1.3) take up this idea of signaling the common ground status, but phrase the meaning of the particles in a dynamic framework which includes a reference to input context.

With this proposal, Repp (2013) assumes a notion of common ground that is wider than the original one by Stalnaker (1978, 2002). Stalnaker takes the common ground to be the set of all propositions that the discourse participants agreed on as true. In contrast, common ground according to Repp also includes the common ground status of a proposition, e.g. whether the commitment to it is low or high. The common ground, thus, does not only contain propositions that are agreed on as true, but also what all discourse participants are aware of. Note that the fact that they are aware of the propositions does not necessarily mean that all discourse participants are also committed to the truth of this proposition, the common ground in Repp's model can also contain a low commitment of a discourse participant towards a proposition. An additional important assumption is that propositions are not immediately added to the common ground after the utterance, but only when the addressee signals agreement, or at least does not indicate disagreement (I will come back to the different types of agreement below in 3.1.3, cf. also Farkas & Bruce 2010 for the role of signaling agreement). I will show later on that such a broader notion of common ground is crucial to treat modal particles properly.

Grosz (2014) takes potential counter-arguments for an explanation of the particles' meaning by using the notion of common ground as a starting point for his approach. As mentioned before, there are examples in which the respective proposition seems not to be known and still, the particles are appropriate. An example for a discourse-initial use of *doch* has been given in (5) above. To preserve the common ground account, therefore, it

has to be assumed that the context can be accommodated. Just like Repp (2013), Grosz (2014, to appear) proposes that modal particles pose explicit conditions on the common ground. Grosz calls them presuppositions and stresses that they are not presuppositions in the sense of Stalnaker (1978) with reference to the common ground, but expressive presuppositions as proposed by Kratzer & Matthewson (2009) which presuppose that p is an established fact (cf. Grosz 2014: 163). Kratzer & Matthewson define expressive propositions for *ja* as follows:

For any sentence α $[\![\text{particle } \alpha]\!]^{c,g}$ is only defined if:

   a. the speaker in c takes $[\![\alpha']\!]^c$ to be firmly established and therefore

   b. doesn't consider the question $\lambda w\ [\![\alpha']\!]^c\ (w) = [\![\alpha']\!]^c\ (w_c)$ to be an issue for inquiry in c or after c.

If defined, $[\![\text{particle } \alpha]\!]^{c,g} = [\![\alpha]\!]^{c,g}$.

<div align="right">(Kratzer & Matthewson 2009: 15)</div>

While in an utterance without a particle the speaker would take $[\![\text{a}]\!]^c$ to be entailed by the common ground, here with a particle, the speaker takes it to be firmly established in the sense of: This is shared knowledge. *Ja*, accordingly, is a "truth-conditionally vacuous presupposition trigger" (Grosz to appear: 1): It presupposes the truth of the proposition on the one hand, and the fact that it is already known on the other hand. Grosz in fact makes a weaker assumption for the second part, he takes *ja* to express that the proposition is uncontroversial. *Doch* works in a similar way, but beside the 'uncontroversiality presupposition', Grosz (2014) also assumes a 'correction presupposition'. This perspective constitutes a weakened version of the original idea of common ground and therefore can also explain why modal particles work in contexts like (5).

The work of Repp (2013) and Grosz (2014) shows that using the concept of common ground to account for the meaning of modal particles is very useful. Nevertheless, one can go one step further and make explicit what exactly the effect of the particles on common ground management is. To

do so, a more elaborate theory of common ground is needed. Such a theory will be provided in section 3.1.3.

2.4. Modal Particles as Meta-Pragmatic Instructions

A different perspective on modal particles is that of König & Recquard (1991) (see also König 1997) who call particles meta-pragmatic instructions on how to process the respective utterance in certain contexts. Meta-pragmatic means that these expressions refer to the process of comprehension and indicate in which context a discourse contribution is to be interpreted. What König & Recquard subsume under the notion of 'meta-pragmatic' is the same as what Karagjosova (2004) establishes as her *Higher Level Discourse Acts* (HLDAs) (cf. section 2.5).

Based on the ideas of Blakemore (1987) and Sperber & Wilson (1986) in Relevance Theory, König & Recquard (1991) propose that modal particles relate to all three types of tasks an inference system (i.e. the discourse participants) has to deal with when assessing a new piece of information. First of all, it has to check for possible inconsistencies in what is already known. Second, the strength of the assumptions has to be assessed, and third, contextual implications have to be derived (cf. König & Recquard 1991: 69). Against this background, König & Recquard argue that the primary function of *ja* is to indicate the strength of a proposition by expressing that there is clear evidence for an utterance. This may be background knowledge of speaker and hearer or perceptual evidence. The latter assumption accounts for the 'surprise' reading of *ja*, also called 'mirative', which will be discussed in section 4.1. An example is given in (8) where the speaker tells the addressee something that s/he should be able to notice him-/herself. *Ja* here expresses a surprise of the speaker who has just noticed the hole in the addressee's shoe.

(8)   Dein Schuh hat **ja** ein Loch!
       Your shoe   has JA a   hole
       'There is a hole in your shoe!'

Doch, on the contrary, primarily hints at an inconsistency between a new discourse move and existing knowledge. Discourse-initial occurrences of *doch* can be explained along the same lines: The speaker avoids inconsistencies that might occur with the current utterance by spelling out relevant background assumptions. In a discourse-initial move with *doch*, no preceding utterance is present, so *doch* sets the context. As a consequence, it would be inconsistent if the addressee rejected the assumptions about the context (cf. König & Recquard 1991: 71). Overall, then, the main effect of *ja* and *doch* is to create agreement in discourse, i.e. to make sure that speaker and addressee share the same beliefs, and that there are no inconsistencies. I will discuss later on in more detail what 'agreement' with respect to the common ground means (cf. Farkas & Bruce 2010, cf. section 3.1.1).

König & Recquard (1991) argue that all modal particles contribute to one, or to more than one of the tasks discourse participants have to deal with. Their account can explain occurrences of the particles which often pose a problem for other approaches, e.g. the discourse-initial use of *doch*. The reason is that they explain the use of particles as pointing to potential inconsistencies in discourse and thus as a way to organize discourse. Like Karagjosova (2004), König & Recquard (1991) do not only focus on the particle's semantics in a certain sentence, but also on the function is has in communication. It is this aspect that will also be pursued in this dissertation by analyzing discourse structure.

The effect of modal particles as meta-pragmatic instructions has led a niche life in the modal particle research so far, the function of particles in discourse is usually not considered. But as I will show in the quantitative studies presented in chapter 9 and 10, this is a crucial side of the use of modal particles and it deserves more attention.

2.5. Combining the Perspectives: Karagjosova (2004)

Karagjosova (2004) subsumes in her work nearly all perspectives on modal particles that I have discussed so far and offers a comprehensive common

ground model. Therefore, her work will be discussed in more detail in this section. Karagjosova aims at explaining the different uses of modal particles in a minimalist way – in the sense of Zimmermann (2011) discussed above. She takes modal particles to have one basic meaning which can be captured in terms of the speaker's attitude towards the common ground (see below). The interaction of this basic meaning with the particular speech act gives rise to seemingly different meanings. In addition to the speech act type, there are other factors influencing the meaning contribution of modal particles, such as sentence type, discourse structure or dialogue structure.

Just like the approaches discussed above, Karagjosova also accounts for the particles' reference to the common ground. The main contribution of her work is a very detailed theory about beliefs and belief systems which goes beyond the standard notion of common ground. There are three important building blocks for Karagjosova's model: First, she proposes that beliefs can have a different status in the belief system of a discourse participant. Second, Karagjosova discusses what the conversational input consists of. Third, she includes the speaker's intentions in her model. These three components will be discussed in the following.

Karagjosova's model is one of **resource-bounded belief revision** which reflects the fact that the human cognitive capacities are limited. It may be the case that new information is not compatible with what a person believes so far, so s/he may have to overwrite old beliefs with new ones – or alternatively stick with the old beliefs and reject the new information. So, the belief state of a discourse participant, i.e. the set of beliefs s/he holds at a certain time, is not static, but changes all the time. In line with this assumption, Karagjosova argues that beliefs can have a different status within the belief system of a discourse participant. Beliefs can be **active** or **inactive** (which can be translated as salience) as well as **explicit** or **implicit** (the latter can only be deductively inferred from the explicit ones). Furthermore, beliefs may be **provisional** which means that the discourse participant considers them for acceptance, but they are not decided yet. The notion of provisional beliefs is important to capture the fact that new information is not immediately believed but instead is checked for compatibility with the established beliefs of the agent first. These claims about the

nature of beliefs form the first component of her model.

Second, Karagjosova makes claims about the nature of conversational input and common beliefs. As for the nature of conversational input, Karagjosova assumes that the **conveyed meaning** (CM) of an utterance consists of what is asserted, what is presupposed, and what is implicated. When a speaker i makes an utterance, the conveyed meaning reflects the speaker's currently active explicit beliefs (H_A) of proposition φ according to the addressee j. CM_φ at the same time forms the provisional beliefs of the addressee.

(9) $CM_{\varphi i:j} \subseteq H_{Ai(j)}$

The addressee infers what the speaker conveyed and then has to decide whether to accept or reject the information. When mutually accepted, the information becomes part of the **common beliefs** of i and j. Karagjosova distinguishes between common beliefs and common ground, where the latter is seen like the classical idea of common ground, which she interprets as something like a dialogue history. With this notion of common ground, Karagjosova (2004) does not see examples of a discourse-initial use of particles like *doch* like (5) as a counter-argument to the claim that the particles refer to the common ground. She argues that the speaker, by using them, only commits to the belief that something is already shared knowledge. Karagjosova describes the particles *ja*, *doch*, *halt* and *eben* in terms of Searle's (1969) speech acts as triggering a remind act instead of an assert act. A remind act has as a preparatory condition that the speaker takes the addressee to already know the proposition, but is temporarily not aware of it.

Consider the definition for *doch* for illustration of Karagjosova's proposal:

(10) $(doch\ \varphi)_{i,j}$ conventionally indicates $B_{A_i} C_{E_{\{i.j\}}} \varphi \wedge \neg\ B_{A_i} C_{A_{\{i.j\}}} \varphi$

This reads as: It is the active belief of the speaker that it is explicit common knowledge of i and j ($C_{E_{\{i.j\}}}$) that φ, but it is not part of the active common

knowledge of i and j ($C_{A_{\{i.j\}}}$) that φ. This meaning of *doch* models the precondition for the reminding function of *doch*.

As a third building block of her model, Karagjosova includes the intentions of the speaker. She argues that the speaker's intentions are reflected in the sentence type and speech act on the one hand, and in the discourse organization on the other hand. The role of a particle in discourse therefore can be seen 1. the speech acts performed by an utterance with the particle and 2. by the **higher level discourse acts** (HLDAs) performed by that utterance. An utterance which contains a modal particle realizes three types of HLDAs: 1. a meta-communicative HLDA, where by using a particle, the speaker indicates the cognitive status of the propositional content of the utterance. 2. A rhetorical HLDA, where the particle indicates the goals that the speaker wants to achieve with the utterance with respect to the rhetorical structure of the text. 3. A dialogue-specific HLDA, where a modal particle contributes to the role the respective utterance has in discourse. What Karagjosova captures under her three types of HLDAs subsumes the functions of modal particles in discourse: They have a meta-communicative function in that they can be used to remind the addressee of something. By this, modal particles do not refer to the content of an assertion but to its epistemic status. They can also have a rhetorical function: By marking information as part of the common ground, it can for instance be established as a salient basis for what follows or as a convincing argument:

> "MPs may convey *meta-communicative* or *interaction-regulating* instructions to the hearer by indicating the view of the speaker on the cognitive status of the propositional content of the ut- terance and possibly its relation to other beliefs of speaker and hearer." (Karagjosova 2004: 9)

Let us illustrate this with the example of *doch*. Karagjosova (2004) claims that the HLDAs of *doch* are 'argue' (i.e. the speaker wants to convince the addressee that something holds) and 'background/preparation' (i.e. the speaker indicates that the proposition is shared knowledge to facilitate the processing of related information (cf. Karagjosova 2004: 54)) as well as 'meta-communicative check' (i.e. check whether something is commonly

believed) or a 'meta-communicative correction' (i.e. correct something the addressee previously believed). These functions depend mainly on the type of illocutionary act performed.

Turning to the speech acts performed by an utterance with *doch*, the speaker uses *doch* to remind the addressee of something which s/he should already know. Therefore, Karagjosova calls the speech acts performed by an utterance with *doch* 'remind acts' (see above) and splits these further in *doch*-assert, *doch*-request (where these are the acts of a normal assertions and requests), *doch*-check (cf. (11)), *doch*-deliberation for the act performed by deliberative questions (cf. (12)) and *doch*-rhetorical (cf. Karagjosova 2004: 145). Note that this idea is similar to that of Jacobs (1991).

(11)   Du kommst **doch** nachher?
       You come   DOCH later
       'But you will come later on, won't you?'

(12)   Wie heißt   sie **doch** gleich?
       How is-called she DOCH just
       'What is her name again?'

In general, Karagjosova's definitions for the particles comprise many aspects that play a role for the analysis of the meaning of particles: They make reference to the status of the information in the belief system, they express what the speaker assumes about the knowledge of the hearer as well as the common knowledge. The definitions also capture the influence on the speech act by introducing modulations. With the latter move, as well as with her proposal for HLDAs, Karagjosova takes the intentions of the speaker into account. Karagjosova's model, therefore, goes further than other studies on particles by not only describing their pure "local" semantics, but also accounting for context, intentions, and consequences in discourse. The model refers to all the three functions modal particles can have, which were postulated in section 2.1.

3. The Negotiation of Commitments

3.1. Common Ground and Commitments

In chapter 2.3, we have seen accounts for modal particles that use the notion of common ground and I have also discussed the original notion of common ground as established by Stalnaker (1978). We can think of the common ground also in terms of discourse commitments (DCs), i.e. the common ground is the set of discourse commitments that have been made public and are taken as being true by all discourse participants in a conversation. I follow Farkas & Bruce's (2010) definition of discourse commitments: They are the current mental state of a discourse participant, and only what s/he has publicly committed to.

I propose that a more complex common ground theory which also assumes individual commitment sets is necessary to account for the meaning of modal particles appropriately: If a theory only considers a common ground, everything that is not part of the common ground cannot be accounted for. The model I introduce here includes ideas from Karagjosova (2004), but also basic claims of Farkas & Bruce's (2010) common ground approach which models interlocutors' negotiations about additions to the common ground and takes into account the discourse commitments of the individual interlocutors (cf. Ginzburg 1995, Asher & Lascarides 2003 for similar proposals). The main difference between a theory like the one of Farkas & Bruce and that of Stalnaker is that the common ground is separated from individual commitment sets. This is important for several reasons. First of all, a theory that only assumes a set of shared discourse commitments may face

problems when one speaker denies what another speaker says, i.e. in case of any type of disagreement. With individual DCs, there is no problem (given that they are preserved in the common ground, which is not assumed in all theories. The relevance of this aspect will be discussed below in 3.1.3.2). The DCs of speaker and addressee may contain different beliefs which do not enter the common ground. In cases like these, speaker and addressee agree to disagree. Before I show why a theory like this is well-suited to deal with modal particles, the background will be built by a) discussing the main components of Farkas & Bruce's common ground theory and b) introducing the ideas of Smith & Jucker (2000) on how discourse markers can be used to negotiate common ground. These two together will provide a good frame for my account for the function of modal particles in discourse, which will be spelled out in section 3.1.3.

3.1.1. Negotiating Commitments I: Farkas & Bruce (2010)

In Farkas & Bruce (2010), the set of shared knowledge, the **common ground** (cg) equals what has also been assumed in previous theories: It is the set of shared knowledge, i.e. the propositions that all discourse participants agree with. In addition, there are sets of **individual discourse commitments** (DCs), which, as mentioned above, keep track of what each interlocutor has publicly committed to during a conversation. For these, it does not matter whether other discourse participants share them, they are just what one participant has committed to:

> "The discourse commitment set of a participant A at a time t in a conversation c contains those propositions A has publicly committed to in the course of c up to t and which have not (yet) become mutual commitments."

> (Farkas & Bruce 2010: 85)

A discourse participant is coherent if all assumptions in his/her DC are coherent. The discourse commitments do not necessarily have to be correct

in the sense that the proposition expressed has to be true, but within the conversation, they are assumed to be correct. The cg is the intersection of the propositions in DC_A and DC_B plus shared background knowledge.

Farkas & Bruce's model furthermore contains a component called **table**, which records what is currently under discussion. Interlocutors place syntactic objects paired with their denotations on the table. All open issues on the table form a stack. This assumption is supposed to capture the close connection between initiating moves and responding moves in discourse. For example, the connection of an answer to a preceding question is made obvious because the preceding question is on top of the stack of propositions on the table and therefore still salient. What is on the table is 'at issue'. It is the interlocutors' aim to remove issues from the table and to move them to the common ground, i.e. to increase shared knowledge. When the table is empty, the discourse is said to be in a stable state. A stable state can be a natural endpoint of a discourse. As long as there are issues on the table, a context state cannot be a natural endpoint.

Moving an issue to the common ground happens via so-called **projected sets**, which contain future developments of the common ground, and which are projected according to default rules about expected moves by the interlocutors. In the case of assertions, the default move of the addressee is the acceptance of the information on the table, so after the assertion of a proposition p all possible future common grounds contain p. For polar questions, in contrast, the future common grounds may contain p or $\neg p$. According to Farkas & Bruce, projected sets are necessary because they contain the *privileged* future common grounds, i.e. those that are to be expected as a default after a certain speech act. The addressee might also react in a non-default way. Let's illustrate how the model works by using an example:

(13)   A: Mary broke up with Jack last week.
       B: No, she wanted to, but then she didn't.
       A: Ah, I see, then my information was not correct.
       B: Yes.

With the first utterance, it becomes part of A's individual commitment set that A believes that Mary broke up with Jack. The issue is placed on the table. So far, nothing has been added to the common ground. But the projected set contains a possible future common ground in which the information 'Mary broke up with Jack last week' is included. With B's reply, the information is not confirmed but contradicted. The propositions 'Mary wanted to break up with Jack' and 'Mary did not break up with Jack' are added to B's individual commitment set and also are placed on the table. The projected sets now contain the future continuations of the discourse in which these propositions are part of the common ground. At this moment, the table contains propositions which are not compatible with each other (i.e. 'Mary broke up with Jack' and 'Mary did not break up with Jack') which would lead to what Farkas & Bruce call a **conversational crisis** (Farkas & Bruce 2010: 83). Such a crisis arises either if the common ground, or all sets on the level of the projected sets are inconsistent. In the above example, however, with the next discourse move, A corrects his/her own belief and so removes the proposition from the table (and B confirms this), so the proposition 'Mary did not break up with Jack' is part of both individual commitment sets, DC_A and DC_B. When this is the case, the common ground increasing operation M' adds the proposition to the table. It is important to note that Farkas & Bruce assume that M' does not only add p to the common ground, but also removes it from the individual DCs (cf. Farkas & Bruce 2010: 99). I will come back to this later. In an idealized discourse, the table is empty at that moment, so the level of projected sets contains only the current common ground and the discourse is stable.

In general, Farkas & Bruce (2010) assume that what drives conversation is to increase the common ground, but also to have an empty table and thus to reach a stable state. As a consequence, a discourse move that rejects the utterance of another discourse participant is more marked than a move that accepts a previous move. Acceptance leads to the removal of the respective proposition from the table and to its addition to the common ground whereas a rejection requires a retraction of a discourse commitment by one of the interlocutors. These are the two "fundamental engines" that drive conversation: On the one hand, discourse participants want to in-

crease common ground, i.e. turn commitments from the individual DCs into shared knowledge. This is called "conversational pressure" (Farkas & Bruce 2010: 85). It leads participants to bring issues on the table, so the common ground as well as the individuals DCs are constantly upgraded. (They can be downgraded as well, but upgrading is the standard case). On the other hand, interlocutors want to empty the table and reach a stable state in discourse (cf. Farkas & Bruce 2010: 87).

3.1.2. Negotiating Commitments II: Smith & Jucker (2000)

Smith & Jucker (2000) discuss the function of a class of discourse markers (e.g. *like, you know, actually, well, in fact*) that signal an apparent discrepancy between the propositional attitude of speaker and addressee. In their paper, they stress an important function of these expressions: Discourse markers are involved in negotiating common ground, which is also what I will propose for modal particles in the next section. Smith & Jucker assume as a basic conversational principle that speaker and addressee see their contribution to discourse as consistent. This does not only refer to propositional content but also to propositional attitude. Speakers negotiate what is part of the common ground and also which attitude is taken to be in the common ground. The authors distinguish between three main types of attitudes: a) Speakers want to make clear to what degree they are committed to a claim, which results in what Smith & Jucker call an up- or downgrading of the respective claim on the table (in their terminology: *the floor*). To do so, speakers may for example restate a claim to position it on the table or link it to their "territory of information" (where "territory of information" is a notion of Kamio 1997 and roughly refers to what the speaker knows). I will come back to this idea. b) The speaker's attitude can also refer to the newsworthiness of a claim. By default an utterance has a moderate level of newsworthiness (cf. Smith & Jucker 2000: 212). If a speaker deviates from the default, e.g. by uttering something already known, this will be signaled. A reason for giving redundant information

may be that the speaker wants to make sure that the relevance is stressed. As a result, the addressee might have to re-assess the information. c) Finally, speakers also give personal evaluations of information.

With respect to the content of an utterance, agreement is taken as the default reaction to utterances in communication (cf. Farkas & Bruce 2010). If the addressee does not contradict, a subsequent utterance is taken as implicit agreement to what has been introduced before. If an utterance deviates from the expectations of the hearer, the speaker may signal that (e.g. by discourse markers) to facilitate processing. The speaker can indicate that s/he is about to utter a counterclaim, and disagreement can be mitigated (in terms of Farkas & Bruce, this serves to avoid conversational crises). According to Smith & Jucker, markers like *actually*, *well* or *in fact* serve as means to signal a forthcoming discrepancy (Smith & Jucker 2000: 208) and therefore make sure that the addressee interprets the information in the desired way. Speakers have to decide all the time what has to be made explicit in discourse and what is implicit but still present for the addressee, and they can use discourse markers to signal the status of a proposition to the addressee. As we will see below, this can be transferred to modal particles.

We have seen that Farkas & Bruce (2010) propose a model of common ground which involves individual discourse commitments as well as a table to keep track of what is currently at issue. Only when a proposition is accepted by all discourse participants, it is moved from the table to the common ground. Smith & Jucker (2000) assume a similar architecture but concentrate on the different kinds of attitudes that speakers can have towards an utterance since these attitudes are negotiated just like the propositions are. Smith & Jucker's approach provides ideas that are also useful for describing the effect of modal particles.

3.1.3. My Proposal: Common Ground with Salience and Meta-Information

Farkas & Bruce (2010) restrict the model's scope to the Heimean context change potential (Heim 1983) and exclude aspects that go beyond truth-conditional meaning. Their model, therefore, is not designed to account for the development of mental discourse representations. For the description of particles like *ja*, however, it is relevant to also account for something like the mental salience of propositions, e.g. such that reminding the addressee of a proposition results in greater salience (this idea can also be found in Karagjosova's 2004 distinction between inactive vs. active beliefs, cf. section 2.5) or in greater 'awareness' of propositions. Particles like *ja* and *doch* impose conditions on the common ground, i.e. they are relevant for the context change potential. At the same time, they have non-truth-conditional functions which are relevant for the felicity of a discourse. To account for these functions, it seems that the integration of the salience of a proposition in a common ground model is necessary to explain the use of modal particles in discourse, and eventually common ground management.

The concept of salience is a general feature of realistic models of common ground and context. It often plays a role for the interpretation of nominal expressions and the resolution of anaphora. It is uncontroversial that referring expressions differ in their availability in discourse (cf. for example Centering theory (Grosz, Joshi & Weinstein 1995) or Ariel 2001). Centering theory discusses that discourse referents which are highly salient can be referred back to more appropriate by using pronouns instead of nominal expressions. Consider example (14) for illustration: The pronoun *he* in the last clause is more appropriate to refer back to *Peter* because *Peter* is highly salient after the preceding sentences.

(14) Peter seems to be unhappy. He smiles only rarely. Lately, he does not even want to speak to John. He/ #Peter always had a very close contact to his friends.

This shows that the concept of salience is crucial to account for the interpretation preferences in discourse. Here, in this dissertation, not the salience

of nominal expressions, but the salience of propositions will be discussed. I assume that propositions as well as discourse commitments differ in accessibility depending on their mental activation status (also cf. Karagjosova 2004). This is essentially what Chafe (1976) formulated as the function of information packaging: to attend to the temporary state of the addressee's mind when structuring the information that is to be uttered. I will account for this by introducing a subset of the common ground which contains what is currently salient, i.e. the propositions and commitments that are have been under discussion recently.

Consider example (15) for an illustration:

(15)   Maria plant **ja** für nächstes Jahr eine Reise nach Portugal.
       Maria plans JA for next   year a   trip to   Portugal
       'Maria is planning a trip to Portugal for next year.'

By using *ja* in (15), the speaker expresses that s/he takes the fact that Maria plans a trip to Portugal to be already known to the addressee. As we already saw in section 2.2 in the discussion of Waltereit (2001), it is redundant to make an assertion which does not convey new information. As a side note, it can be added that Farkas & Bruce (2010) allow for redundant discourse moves. For instance a speaker may make an assertion and thereby place an issue on the table, and immediately afterwards s/he may make a self-confirming discourse move. The second move in (16) does not result in a change of the projected set and the common ground – nothing new is added.

(16)   Peter is extremely nervous when talking to strangers. He really is!

Farkas & Bruce propose that the move might be useful for rhetorical reasons such as emphasis (cf. Farkas & Bruce 2010: 98). One can also imagine that the speaker accommodates a potential objection by the addressee.

The utterance with *ja* in (15) is different from self-confirmations because the proposition that *ja* scopes over is taken to be already in the common ground. Still, the utterance is felicitous: I argue that the function of *ja* here is to make the respective proposition salient again. I will come back to this mechanism in more detail when discussing the individual modal particles.

The question arises whether a proposition which is already part of the common ground (as in the case of *ja*) is placed on and removed from the table like a new proposition. I propose that it is indeed placed on the table: An interlocutor might not agree with the speaker's assumption that the proposition is already in the common ground[1] or s/he might altogether disagree with the truth of the proposition. Evidence for this assumption comes from dialogues like (15) where *B* contradicts an utterance containing *ja*:

(17) A: Maria plant **ja** für nächstes Jahr eine Reise nach Portugal.
          Maria plans JA for next   year a   trip to   Portugal
          'Maria plans a trip to Portugal for next year.'

      B: Nein, das stimmt nicht, sie will nach Spanien.
          No   this is-true not   she wants to   Spain
          'No, that's not true, she wants to go to Spain.'

Discourses like (17) are felicitous: *B* rejects the proposition that *A* assumed was in the common ground, φ_{ja}, by publicly committing to $\neg\varphi$ and placing it on the table. As a consequence the information on the table is inconsistent. A conversational crisis arises. One of the speakers must retract his/her commitment.

3.1.3.1. Propositions, Assertions and Discourse Commitments

In the following, I will introduce the basic assumptions for my common ground model. As a first step, it is important to distinguish between the propositions and the respective discourse commitments since both can be referred back to later in discourse. I take commitments to be the main effect of assertions, following for example Brandom (1983). Brandom argues that the most important aspect of assertions is not that the addressee believes what the speaker asserts but that the speaker commits to what s/he asserts: "It is not the intention of the speaker which matters in the first instance, but the social authority of his remark" (Brandom 1983: 648). If a speaker commits to a proposition, s/he is held responsible for it. Krifka

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[1]Note that discourse participants can have different conceptions of what the current common ground is.

(2014) argues that this responsibility is twofold: "(i) by committing oneself to justify the proposition, and (ii) by licensing the assertion, and inferences from it, by others" (Krifka 2014: 7) I want to stress that the set of discourse commitments is not identical with the set of beliefs of a speaker: The speaker's set of beliefs may – and in almost all cases will – contain more than the speaker has publicly committed to. In discourse, however, participants take the set of discourse commitments of the other speakers as representing their relevant beliefs. For the analysis of discourse, discourse commitments are primary, beliefs are only secondary: One should not commit to something one does not believe because a commitment has an effect on the social standing of the speaker. If a speaker commits to something, therefore, it can be inferred that s/he believes it. In the following, I will only refer to discourse commitments.

An example illustrates the distinction between proposition and commitment, where c stands for the context of the utterance and i for the circumstance of evaluation. This notation follows Kaplan (1989), so that p is a character and DC is a proposition about contexts:

(18)   A: Anna lives in Portugal.
         p: $\lambda c\lambda i$[Anna lives in Portugal in i]
         DC: λc[A is committed in c to λi[Anna lives in Portugal]]

I add two important assumptions: First, in the sets of discourse commitments, salience plays a role the first time. I argue that the discourse commitments of a speaker are ordered for salience which affects their availability. The commitments which have been at issue in the conversation immediately before, are more active (and therefore salient) (cf. Karagjosova's distinction between active and inactive beliefs). This feature is important to capture the fact that speakers do not have everything in mind to the same degree during conversation. Newer information is more easily available than information which has been discussed hours before. This is of course due to a limit in cognitive capacity (cf. also Karagjosova 2004 for her idea of resource-bounded belief revision).

Second, Farkas & Bruce (2010) argue that the propositions are removed from

the individual DCs as soon as they are moved to the common ground. In contrast to this, I argue that it is important that the discourse commitments remain available, i.e. they are not 'lost' when speaker and addressee(s) agree on a proposition φ. I will point out why this is important below, but first I will show how discourse commitments and propositions are included in the common ground.

3.1.3.2. The Common Ground

Before discussing the common ground, I want to make a side note. I assume that – in addition to the common ground – there is also something which I will call 'the ground'. If the common ground contains everything that is shared knowledge, as well as the discourse commitments of the discourse participants, the Ground contains rather non-verbal information that is also available to all discourse participants, such as world knowledge, contextual knowledge (e.g. visual evidence), knowledge based on a shared cultural background, etc. I do not want to add these types of knowledge to the common ground, but it seems to be uncontroversial that they also play a role in communication as discourse participants presuppose such knowledge.

Moving something from the table to the common ground usually requires the acceptance of the addressee.[2] As I proposed before, it is not necessary to make the acceptance explicit, it is sufficient the addressee does not object (see also Krifka's 2012 distinction between *acceptance* and *confirmation* of a proposition. While the latter requires that the addressee makes explicit that s/he shares the belief of the speaker, the former can also be achieved by nodding or not rejecting (cf. Krifka 2012: 13, as well as Krifka 2014, 2015).

As I mentioned before, I propose that not only propositions but also discourse commitments are stored in the common ground. I assume that all commitments are available in the common ground, not only the shared ones.

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[2]The original idea was that propositions are added to the table and then moved to the common ground one after the other. In natural discourse, however, an addressee does not signal acceptance or denial after every single sentence uttered. I therefore assume that during a discourse, propositions are added to the table and then they are moved to common ground in stages as soon as the addressee signals acceptance or it is safe to assume that s/he had the chance to make objections.

In this sense, the common ground in my model is not the intersection of the individual discourse commitment sets, it also contains those that only one discourse participant is committed to. Note that, in general, commitments do not have to be negotiated on the table: If a speaker commits to a proposition, this commitment usually is not questioned.[3] So, the commitment can immediately be added to the common ground (remember that discourse commitments do not have to be negotiated) while the proposition is only moved to the common ground when there is no objection. The addressee can also commit to the same proposition by saying "Yes, that's right", then this commitment is also added to the common ground.

The decision to include commitments into the common ground can be motivated by different aspects of discourse. First of all, there are cases in which the discourse participants do not share beliefs. If no agreement is reached, the proposition itself is not added to the common ground, but it is recorded that "Speaker A ⊢ p" and "Speaker B ⊢ ¬p" (cf. (26)) and the issue is cleared from the table: The speakers agree to disagree.

Second, it is relevant to store the commitments for the case of utterances with a low degree of commitment of the speaker (cf. also Searle & Vanderveken 1985 who take the degree of strength of an illocutionary point as one component of illocutionary force), as for example marked by the modal particle *wohl*. If a speaker utters an assumption during discourse, it is still possible to refer back to it later on, as for instance in (19):

(19)   A: Peter presumably comes.
              (One hour later:)
         A: Peter should actually be here by now.
         B: Ah, so now it is certain that he will come?

In (19), speaker B refers to an uncertainty about the truth of the proposition 'Peter will come' that was contained in A's first utterance. This shows that – although not all speakers were committed to its truth – the common

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[3]Although it is possible to construct scenarios in which the commitment itself is questioned, imagine for example a conversation between a psychiater and a patient in which the psychiater questions whether the client really believes in something s/he has uttered.

ground also contains the fact that the speaker's commitment towards the proposition was low. If the common ground only contained propositions, it would not be possible later on to discuss the uncertainty itself.

There are three types how weak modality and commitment can interact: In (20), the speaker commits to the fact that s/he thinks that φ. The proposition φ itself is only an inference that can be drawn under the assumption that the speaker has sound beliefs and reasoning abilities. In (21), A commits to the possibility that φ, where the diamond operator $\Diamond$ of modal logic stands for 'it is possible that'. The modal particle *wohl* in (22) is a special case, here it is the commitment itself which is weakened, for example because the speaker has only indirect evidence.

(20)   I think Peter comes.
        $A \vdash A$ thinks that φ

(21)   Peter might come.
        $A \vdash \Diamond\varphi$

(22)   Peter kommt **wohl**.
        Peter comes   WOHL
        'Probably Peter comes.'
        $A \vdash_{weak} \varphi$

Therefore, I propose that the common ground in a discourse like (19) contains the following:

(23) φ: Peter comes.
        $A \vdash_{weak} \varphi$

The strength of a commitment translates into consequences for the speaker in terms of social sanctions: If a speaker commits to a proposition, s/he is held responsible for its truth. If a speaker places a proposition on the table but indicates that s/he is not committed to its truth, it can be understood as an invitation towards the addressee to add information which helps to decide on the truth of the proposition. If this is the case, the discourse commitments of the participants can be changed and consequently also the common ground changes.

In this dissertation, I need to account for a low degree of commitment to account for the effect of particles like *wohl* which express that the speaker is not certain about the information s/he provides. Particles like *wohl* can be interpreted as epistemic illocutionary operators (cf. section 4.3), they express how certain a speaker is that a proposition should be added to the common ground (cf. Repp 2009 and Romero & Han 2004). Therefore it is necessary to include discourse commitments into the common ground.

3.1.3.3. Acceptance, Confirmation, and Rejection

I argue that the default case is that an assertion of a proposition φ enhances the common ground CG(c) so that the updated common ground CG(c') contains φ. We have to distinguish between three ways to react to assertions which are depicted in (24) to (26), where I use the Turnstile operator $\vdash$ for commitment: Either a speaker simply accepts that assertion by signaling that s/he understood it, as for example by "I see", or by not objecting, cf. (24). In this case, the speaker's commitment is added to the common ground immediately and the proposition itself in a second step when it is clear that the addressee does not object. The addressee can also confirm the speaker's assertion by an utterance like "Yes, that's right" as depicted in (25). In this case, the addressee also commits to the proposition and this commitment is added to the common ground, too. The third possibility is that the addressee rejects the speaker's utterance (see (26)), in this case, the proposition φ is not added to the common ground but only the commitments of the discourse participants.

(24) **Acceptance:**

    i.   c + [A $\vdash \varphi$] = c $\cup$ {A $\vdash \varphi$} = c'

    ii. c' $\cup$ {φ} = c"

(25) **Confirmation:**

    i.   [c + A $\vdash \varphi$] + B $\vdash \varphi$

    ii. c $\cup$ {A $\vdash \varphi$} $\cup$ {φ} = c'

    iii. c' $\cup$ {B $\vdash \varphi$} = c"

(26) **Rejection:**

i. $[c + A \vdash \varphi] + B \vdash \neg\varphi$

ii. $c \cup \{A \vdash \varphi\} = c'$

iii. $c' \cup \{B \vdash \neg\varphi\} = c''$

So, the common ground does not only contain the proposition but also the respective discourse commitments.

3.1.3.4. Salience

To account for salience, it has to distinguished at least between 1. the table TB(c) where the negotiations take place, 2. a salient part of the common ground, SAL(c), which contains the discourse commitments and propositions that were introduced immediately before. This part corresponds to the active common knowledge.[4] 3. A non-salient part of the common ground.

(27) c: $\langle$CG(c), SAL(c), TB(c)$\rangle$
       where SAL(c) $\subseteq$ CG(c)

In an unmarked update of the context c with an assertion A: φ, we get an output context c' with the following restrictions: The unmarked update of the context c is defined if the assertion of A does not contradict with what is already on the table TB(c) (i.e. the input table) (= (28)i.). (28)ii. The table then becomes the common ground, i.e. the output common ground CG(c') consists of the input common ground CG(c) and the input table. (28)iii. Additionally, the input table becomes the salient part of the output common ground. (28)iv. The new assertion becomes the new table.

(28) c + A: φ = c'

i.   defined if TB(c) and [A: φ] do not contradict each other

ii. CG(c') = CG(c) $\cup$ TB(c)

iii. SAL(c') = TB(c)

---

[4]How long information remains salient will not be discussed here, this is subject to psycholinguistic investigations. We can say that the minimal requirement is that the common ground contains the last proposition and discourse commitment, but even if I write SAL(c') = TB(c), I assume that the set of salient material in the common ground contains more than just what has been on the table immediately before, it will contain propositions and commitments of a number of last discourse moves.

iv.   TB(c') = [A: φ]

As a general rule, we can say that there are two cases: If the new discourse commitment DC is compatible with what is on the table, it becomes part of the salient part of the common ground SAL(c) (together with what is also on the table). If the DC is not compatible with what is on the table, the proposition (or DC) that is not compatible (indicated by $\natural$) with the new DC has to be removed from the table or it has to be negotiated further. Only when the incompatibility is solved, the DC can be moved to SAL(c):

(29) $\langle$CG(c), SAL(c), TB(c)$\rangle$ + DC

    a.   If DC is compatible with the table TB(c):
        $\langle$CG(c), SAL(c) $\cup$ TB(c), {DC}$\rangle$

    b.   If DC is not compatible with the table TB(c):
        $\langle$CG(c), SAL(c), TB(c) $\cup$ DC - {φ | DC $\natural$ φ}$\rangle$

I now come back to the three types of the addressee's reaction to the speaker's assertion. In the case of acceptance (see (31)), the output context c'' contains what has been on the table, i.e. the proposition φ and the speaker's commitment to it. Both become part of the salient part of the common ground. The new table is empty. In case of a confirmation of the addressee (see (32), the same happens, but additionally the new table TB(c'') contains the addressee's commitment $B \vdash \varphi$ (which is moved to the common ground in the next step if no objection is uttered). If the addressee rejects an assertion, I assume that there is a special update $+_{CON}$ of the common ground (see (33)) which is defined if the utterance of a speaker contradicts with what is on the table. As a result, nothing is added to SAL(c) and CG(c) and all propositions and commitments remain on the table until the inconsistency is solved. This is shown in (34): CG and SAL are not updated, but the table contains the commitment of both speakers as well as the incompatible propositions φ and $\neg\varphi$.

(30)   A: Ann has two Siamese cats.

B': (nodding) (acceptance)

B": Yes, that's right. (confirmation)

B"': No, (she does not have Siamese cats). (rejection)

(31) **Acceptance:**

c' + B: *Okay.* / (nodding) = c"

   i.   defined if TB(c') was generated by assertion of speaker A

   ii. $CG(c") = CG(c') \cup TB(c') = CG(c') \cup \{A \vdash \varphi , \varphi\}$

   iii. $SAL(c") = TB(c') = \{A \vdash \varphi , \varphi\}$

   iv. $TB(c") = \varnothing$

(32) **Confirmation:**

c' + B: *Yes, that's right.* = c"

   i.   defined as there is no contradiction between TB(c') and B: *Yes, that's right.*

   ii. $CG(c") = CG(c') \cup TB(c') = CG(c') \cup \{A \vdash \varphi , \varphi\}$

   iii. $SAL(c") = TB(c') = \{A \vdash \varphi , \varphi\}$

   iv. $TB(c") = \{B \vdash \varphi\}$

(33) **Update $+_{CON}$ in case of contradiction:**

c $+_{CON}$ A: φ = c"

   i.   is defined if A: φ and TB(c) contradict each other

   ii. $CG(c') = CG(c)$

   iii. $SAL(c') = SAL(c)$

   iv. $TB(c') = TB(c) \cup [A: \varphi]$

(34) **Rejection:**

c' $+_{CON}$ B: *No, (she does not have Siamese cats).* = c"

   i.   is defined as B: *No.* and TB(c') contradict each other

   ii. $CG(c") = CG(c')$

   iii. $SAL(c") = SAL(c')$

   iv. $TB(c") = [A \vdash \varphi], \varphi, [B \vdash \neg\varphi], \neg\varphi$

In the case of a rejection as in (34), there are two possibilities: Either one of the speakers withdraws his/her commitment and removes the respective proposition from the table or the speakers agree to disagree. In the latter

case, neither φ ('Ann has two Siamese cats.') nor $\neg\varphi$ ('Ann does not have Siamese cats.') are added to the common ground, but only the two commitments are since they do not form a logical contradiction. The result is $\text{SAL(c'')} = [\text{A} \vdash \varphi] \cup [\text{B} \vdash \neg\varphi]$.

3.1.3.5. Meta-Information on the Table

Finally, I make some assumptions on what information is put on the table. For simplicity, I will often speak of 'propositions' that are placed on the table. To be exact, I follow Farkas & Bruce (2010) who argue that the items on the table have to be more than just propositions, they have to contain enough information for anaphoric reference. So the elements on the table have to be representational, e.g. in the form of SDRSs[5], but as this is not relevant for the current question, I concentrate on the semantic core.

I propose that the items on the table carry additional meta information that can be thought of as **labels**. For my aims, mainly two parameters are relevant:

a. Explicit or implicit status

If a proposition on the table is derived implicitly from an utterance, it carries a label *Impl*.

A proposition can be added to the table because there is an explicit corresponding utterance, but also because it is implied by an utterance. I argue that this feature is also moved together with the proposition to the common ground. It is crucial that implicit information does also enter the common ground, because it can also be addressed again later in discourse. The explicit status is the default. If the proposition is derived, it is marked as implicit (cf. also Karagjosova 2004 who distinguishes between explicit and implicit knowledge.) Such an implicit information can also be thought of as a meta-proposition stored in common ground. The example in (35)

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[5]If we assume that the elements on the table have the form of a SDRS, there would in fact not only be a set union operation, but rather the new propositions would have to be integrated into the existing discourse representations. However, I will keep the process more simple here.

illustrates this for a conventional implicature:

(35)   This stupid idiot Paul has read my diary.
        Propositions on TB(c'):
        φ = Paul has read the speaker's diary. (explicit)
        ψ_{Impl} = Speaker A has a negative attitude towards Paul. (implicit)

b. Common Ground Status

If a proposition on the table is already contained in the common ground, it carries the label *CG*.

The default is that speakers bring up new information as they want to increase the set of shared knowledge. If something is brought up in a discourse which is already part of the common ground, s/he is expected to make this clear in the utterance. The respective proposition is still added to the table, but marked as already part of the common ground. In the common ground, of course, this feature is no longer necessary to keep.

There is also other important meta-information that comes with utterances. In negotiating commitments before adding propositions to the common ground, it is also important to keep track of who added which proposition to the table. However, both, propositions as well as discourse commitments are functions from the context c, and for c, I assume that roles like SP(c) and ADDR(c) for speaker and addressee are defined. Therefore, this information can be retrieved, the propositions as characters have access to the context. Information about the speaker therefore has not to be attached as a label to the proposition. I assume that discourse participants are also aware of where information comes from, i.e. whether it is world knowledge (in this case it is part of what I called 'the ground'), whether they experienced something themselves and thus they have direct evidence, whether someone reported it, it is in the immediate context, etc. The source of knowledge can be marked by evidential expressions like *according to Ann*. The examples below illustrate different sources of evidence:

(36)   Driving drunk is dangerous. (source: world knowledge)

(37)   (I met Mary yesterday.) She dyed her hair. (source: speaker's visual evidence)

(38)   (I met Mary yesterday.) Peter finally sold the old car. (source: Mary)

The source of information can be referred back to later on in discourse, so I assume it is marked as additional information on propositions, too. However, it will not play a role for the discussion of the modal particles in the next section, therefore I will leave it aside now.

Finally, not everything on the table has to be moved to the common ground, issues can also be dropped. In (39), one speaker expresses that something should not be under discussion:

(39)   A: I wonder whether Peter's new girlfriend works in a strip bar.
         B: That's really nothing that we should worry about.

In cases like (39), *B*'s utterance is not a proposal to move the proposition to the common ground but instead a proposal to remove it from the table. In general, according to Farkas & Bruce, the table can be completely empty at some point in discourse and this constitutes a possible endpoint for discourse. It is, however, unlikely that in a natural discourse there is absolutely nothing that is under discussion at any point.

To sum up, it is important that there is an order for salience in the common ground. This is crucial to explain how discourse actions like reminding work. Additionally, I argued that not only the propositions are stored in the common ground, but also the speakers' individual commitments towards propositions, as well as the strength of these commitments.

In the next sections, the meaning and function of *ja, doch, halt eben, wohl*, and *schon* will be described, using the common ground approach sketched here.

4. Common Ground Management with Modal Particles

4.1. ja and doch

4.1.1. Basic Meaning and Previous Accounts

From the collection of German modal particles, *ja* and *doch* probably are the ones described best. Analyses can be found in Doherty (1985), König & Requardt (1991), Jacobs (1991), Lindner (1991), Kratzer (1999), Karagjosova (2004, 2006), Repp (2013), Grosz (2014) among others. The two particles will be treated in one section since their meaning is similar to a certain degree: *Doch* shares one meaning component with *ja*. As a first approximation, consider the example in (40) for *ja*:

(40) Ich würde Maria als Sprecherin vorschlagen. Sie hat **ja** gesagt,
      I   would Maria as   speaker   recommend   She has JA said
      sie würde die Aufgabe gern übernehmen.
      she would the task   like to take over
      'I would recommend Maria as the speaker. She said she would like to take over this task.'

In general, by using *ja*, the speaker signals that s/he assumes that the information s/he provides is already known to the addressee or it is at least uncontroversial. So, in (40), the speaker thinks that the addressee should already know that Maria said that she wants to do the job, s/he thinks the proposition is already part of the shared knowledge.

The particle *doch* has partly the same effect: It also suggests that the information should be common knowledge and uncontroversial. But additionally it has a reminding function that is often described as contrastive in the sense that the proposition expressed is not compatible with what the addressee believes at the time of the utterance. See the example below in (41) for illustration:

(41) A: Warum kommst du morgen nicht ins   Büro?
Why   come   you tomorrow not   to-the office
'Why won't you come to the office tomorrow?'

   B: Bei mir sind **doch** morgen Handwerker in der Wohnung.
At   me   are   DOCH tomorrow builders   in the apartment
'There are builders in my apartment tomorrow.'

Here, speaker *B* thinks that *A* should actually know that there are builders in his/her apartment the next day and that this is the reason for his/her not coming to the office. *A*'s question shows that s/he is in fact not aware of that at the time of utterance, so *B* tells *A* again and by using *doch*, s/he signals, that it is no new information.

If the speaker uses *ja* or *doch* but the proposition is not part of the shared knowledge, the addressee either can accommodate it or has to reject it. If the addressee does not want to accommodate the given information, the rejection has to be made explicit. Consider (42):

(42) A: Ich hab nicht so viel Zeit, ich geh **ja/doch** nachher zum
I   have not   so much time, I   go   JA/DOCH later   to the
Yoga.
yoga class
'I don't have much time, I will go to the yoga class later on.'

   B: Woher   soll   ich das wissen? / #Nein.
Where-from should I   that know   No
'How am I supposed to know this? / #No.'

As the particles operate on the expressive level, answering with "No" would only reject the truth-conditional content of the sentence.

With this meaning, *ja* and *doch* have a factive component, i.e. they presuppose the truth of the proposition. Consequently, there are contexts in which *ja* and *doch* are not acceptable. These are certain out-of-the-blue

contexts in the sense that the discourse participants do not have any relevant common background knowledge (cf. (43) where the sentence is uttered to a stranger on a street, i.e. there is no relevant common ground). *Ja* can also not occur in cases in which the addressee signals that s/he does not know that φ holds (cf. (44)). Note that *doch* could be used in (44) because the answer of B would then imply that A should know the proposition, but maybe is not aware of it. *Ja* and *doch* can both not occur in questions because of their factive component (cf. (45)):

(43)   To a stranger on the street:

         # Ich habe **ja/ doch** heute frei.
           I   have   JA/ DOCH today   free
         'It is my free day today.'

(44)   A: Wer ist der Mann, der mit Maria gekommen ist?
            Who is   the man   who with Maria   came
           'Who is that man who came with Maria?'

         B: Das ist #**ja/ doch** ihr Bruder.
            This is   JA   DOCH her brother.
           '(But) this is her brother.'

(45)   #Wer hat **ja/ doch** den Vogel befreit?
         Who has   JA/ DOCH the   bird   freed
         'Who has freed the bird?'

Note, however, that *doch* can occur in rising declaratives which express the speech act of a question, but the sentence type is declarative:

(46)   Du hast **doch** die Tickets dabei?
         You have   DOCH the tickets   with you
         'You brought the tickets, right?'

I also want to add a note on *doch* in imperative sentences. It has been observed in the literature that *doch* is often used in imperatives (cf. Thurmair 1989 or Egg 2013). An example is given below in (47):

(47)   Mach **doch** bitte mal die Musik lauter!
         Make   DOCH please PRT the music   louder
         'Please turn up the music!'

It is important to note that in imperatives, it is not the proposition that is at stake but an action. So in (47), the speaker uses *doch* to express the belief that the addressee's wish to turn up the music is not active at the time of the utterance, but it would be natural to perform this action. I will discuss more examples with imperatives later on.

Note that there is a discourse-initial use of *ja* that is associated with a surprise reading, illustrated below in (48) and (49):

(48) Du hast **ja** richtig viel   abgenommen!
      You have JA really   a lot of lost weight
      (Wow,) You have lost a lot of weight!

(49) Es schneit **ja** draußen!
      It   snows   JA outside
      (Oh,) it is snowing outside!

In cases like (48), it is obvious that the addressee already knows that the proposition holds, i.e. s/he probably is aware that s/he has lost weight. (49) is a case where the addressee is likely to also know that it is snowing because s/he is able to perceive it (maybe speaker and addressee see the snow through a window). In both of these cases, the speaker seems to notice the fact immediately in the utterance situation and expresses surprise. With the use of *ja*, the speaker signals that s/he utters a non-standard utterance in the sense of Zeevat (2000): It is not common ground that the speaker believes φ. Thurmair calls this type of uses *emphatic utterances* (Thurmair 1989: 106), Karagjosova classifies them as *exclamatives* (Karagjosova 2004: 197). Note that the sentences are ordinary declarative sentences, but they exhibit characteristics of the speech act of an exclamation. Just as with the other use of *ja* described above, here the particle also expresses that the proposition is uncontroversial, but the source of this uncontroversiality in this case is not common knowledge but the fact that it is directly perceivable in the utterance situation.

In the previous chapter, I discussed a number of approaches to the class of modal particles. Here, I will include the proposals for the meaning of single particles by Thurmair (1989) as well as Karagjosova (2004) since

both provide good accounts for the particles' meaning. Thurmair's (1989) captures the basic meaning of *ja* and *doch* as follows:

(50)   **Thurmair's meaning features for *ja* and *doch*:**
        ja: ⟨KNOWN⟩$_H$
        doch: ⟨KNOWN⟩$_H$, ⟨CORRECTION⟩

The features reflect that *doch* partly does the same as *ja* but has an additional function: Both particles express that the speaker assumes φ to be known to the addressee (H stands for 'hearer'). This aspect of their meaning can also be described in terms of speech acts: *Ja* and *doch* signal that a preparatory condition of assertions, i.e. that the information expressed is not already known, is violated. *Doch* has an additional correcting function. With ⟨CORRECTION⟩, Thurmair captures what was called a contrastive function above: The speaker thinks that the addressee at the time of utterance is not aware of φ or believes $\neg\varphi$. For a comparison, consider Karagjosova's account of the basic meaning of *ja* and *doch*:

(51)   **Karagjosova's meaning features for *ja* and *doch*:**
        $(ja\ \varphi)_{i,j}$ conventionally indicates $B_{A_i}C_{A_{\{i.j\}}}\varphi$
        $(doch\ \varphi)_{i,j}$ conventionally indicates $B_{A_i}C_{E_{\{i.j\}}}\varphi \wedge\neg\ B_{A_i}C_{A_{\{i.j\}}}\varphi$

Ja is characterized as follows: The *ja*-speaker i actively believes (B_{A_i}) that it is active common knowledge of both, the addressee j and the speaker ($C_{A_{\{i.j\}}}$) that the proposition φ holds. *Doch*, in contrast to that, expresses that the speaker believes that the proposition is part of the explicit common knowledge ($C_{E_{\{i.j\}}}$), i.e. it is shared knowledge but not active common knowledge. Recall that in terms of Karagjosova, *active knowledge* refers to what is salient while *explicit knowledge* is used for information that is not derived or inferred, but explicit. With this proposal, Karagjosova (2004) spells out in more detail what is subsumed under ⟨KNOWN⟩ in Thurmair's theory. Karagjosova's definition, however, does not reflect that *ja* and *doch* both express that φ is known. For *ja*, she claims that the speaker believes that φ is active common knowledge, for *doch* she proposes that the speaker believes that φ is explicit common knowledge.

There are also stressed variants of both particles. Stressed *JA* can only occur in imperatives, stressed *DOCH* in declaratives and in interrogatives:

(52)   Komm **JA** nicht wieder erst   so spät nach Hause!
        Come   JA not   again   not until so late to   home
        'Don't be home so late again!'

(53)   Paul hat **DOCH** seine Freundin mitgebracht.
        Paul has DOCH   his   girlfriend brought
        'Paul did bring his girlfriend.'

(54)   Findet das Konzert **DOCH** statt?
        Finds   the concert   DOCH   PRT
        'Does the concert really take place?'

Stressed *JA* as in (52) does not carry the same meaning as its unstressed counterpart, i.e. it does not express that it is already known that the addressee should be home early. Instead, it just strengthens or emphasizes the speaker's utterance. Using *JA* in an imperative makes it more insistent. The effect of *DOCH*, on the contrary, is not completely different from the unstressed *doch*. While *doch* indicates that the speaker thinks that φ is not active at the time of the utterance, *DOCH* expresses that the speaker assumes that not-φ is active in the addressee's mind. Stressed *DOCH* in that sense is stronger than unstressed *doch*. More concretely, in (53), the use of *DOCH* signals that the speaker believes that the addressee thought that Paul would not bring his girlfriend. It is likely that the speaker thought so, too. In general, there is a controversy in the literature on whether the stressed particles should be treated as different from their unstressed counterparts or not (see for example Egg & Zimmermann 2012). In this dissertation, I will focus on the unstressed variants.

4.1.2. Effect on Table and Common Ground

I will now turn to the analysis of *ja* and *doch* within the common ground approach sketched above in section 3.1.3. I will argue that *ja* affects the availability of information, i.e. re-mentioning something already known

increases the salience of this information. *Ja* signals that the respective proposition, φ_{ja}, is already part of the common ground but still, like every normal assertion, is has to be added to the table. Consider (55) for an illustration of *ja*'s influence on common ground using an example:

(55)   Anna hat jetzt einen Sprachkurs   angefangen. Sie kommt **ja**
        Anna has now a   language-course started   she comes   JA
        aus Portugal.
        from Portugal
        'Anna has started with a language course now. She is from Portugal.'

The basic meaning of *ja* can be captured as in (56).[1] An assertion with *ja* is defined if φ is already part of CG(c) and it is not salient:

(56)   c + *Anna kommt ja aus Portugal.* (= $[ja\ \varphi]$) = c'
        defined if $\varphi \in$ CG(c) & $\varphi \notin$ SAL(c)
        otherwise as with regular assertions

Let us assume that the table TB(c), the common ground CG(c) and the salient part of it SAL(c) before *A*'s utterance look as follows, where the table before the discourse move of speaker *A* is empty (which is an idealized assumption) and φ is already contained in the common ground:

TB(c)
∅

CG(c)
SAL(c)
.
.
.
.
φ = Anna is from Portugal.

---

[1] *Ja* in the surprise reading as illustrated in (48) und (49) has the same underlying meaning, except that in this case, it is visual evidence in the current utterance situation which indicates that φ is in what I called 'the ground' (cf. section 3.1.3.2).

Now, with A's utterance of φ and ψ, both propositions as well as the speaker's commitments are added to the table:

TB(c')
$A \vdash \varphi$
$A \vdash \psi$
ψ = Anna started with a language course.
φ_{CG} = Anna is from Portugal.

The proposition associated with the *ja*-assertion is marked as already part of the common ground with a label *CG*. The speaker signals that a preparatory condition of assertions is not met, i.e. that the proposition that is asserted is not already in the common ground (cf. Waltereit 2001). Note that this proposal differs from Farkas & Bruce's (2010) analysis which assumes that everything on the table is under discussion in order to decide whether it should be added to the common ground. For both propositions, φ as well as ψ, the next discourse move is crucial. If the addressee accepts or confirms the propositions (he can always accommodate information), the propositions and the discourse commitments are added to the salient part of the common ground in the next step – in case the addressee does not make an objection.[2] As a result, φ, which was part of CG before, now is salient again. In the case of φ, the update of the common ground is trivial: the intersection of φ with the common ground does not result in a changed common ground since φ was already contained. Still, I assume that there is an update mechanism operative in such a situation: this mechanism empties the table. For normal assertions, the output common ground equals the union of the input common ground with the proposition that has been put on the table. For an assertion with *ja*, in contrast, the output common ground equals the input common ground.

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[2]I argued before that commitments can be moved immediately to the common ground because they do not have to be negotiated. Only for simplicity, I will not introduce an intermediate step in the representation of the common ground content here.

CG(c')
SAL(c')
$A \vdash \varphi$
$A \vdash \psi$
ψ = Anna started with a language course.
φ = Anna is from Portugal.
.

(table continues)

.
.

As I argued before in 3.1.3, a proposition has to be placed on the table again, even though it is marked as already part of the common ground because assertions with *ja* still can be objected to by the addressee.

Turning to *doch*, the speaker indicates with an utterance of φ with *doch* that the current assertion is not compatible with something on the table. At the same time, s/he indicates that φ is uncontroversial, which is the meaning component shared with *ja*. The speaker thinks that φ is in the common ground but s/he has reasons to assume that the addressee is currently not aware of the fact that φ holds, and therefore introduced an incompatible proposition.[3] Consider (57) for illustration:

(57)   A: Maria kommt aus Italien und Anna kommt aus Spanien.
               Maria comes from Italy   and Anna comes from Spain
               'Maria is from Italy and Anna is from Spain.'

        B: Anna kommt **doch** aus Portugal.
               Anna comes   DOCH from Portugal.
               'Anna is from Portugal.'

With the use of *doch*, speaker *B* expresses that s/he assumes that *A* should actually know that Anna is from Portugal. An assertion with *doch*, just like in the case with *ja*, does not update the common ground because φ is already part of it, but it is not salient. Additionally it expresses that φ is

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[3]Note that there is not always an explicit controversial discourse move. In the case of (41) above, for example, it can be inferred from the question of *A* that s/he thinks *B* has time and can come to the office. The controversial move is only implied.

not compatible with the current table TB(c):

(58)   c + *Anna kommt doch aus Portugal.* (= [*doch* φ]) = c'
         defined if $\varphi \in$ CG(c) & $\varphi \notin$ SAL(c) & $\varphi \not\models$ TB(c)
         otherwise as with regular assertions

With A's utterance of ψ and σ, both propositions as well as the speaker's commitments are added to the table. Just as in the case of *ja*, the common ground already contains φ:

TB(c')
$A \vdash \psi$
$A \vdash \sigma$
ψ = Maria is from Italy.
σ = Anna is from Spain.

CG(c')
SAL(c')
.
.
.
.
φ = Anna is from Portugal.

With the utterance of B, now, φ is added to the table. *Doch* indicates that φ is already part of the common ground – against the evidence that the speaker has just received: A cannot be committed to φ since s/he has put σ on the table and φ is in contrast with σ, so only ψ is moved to the common ground, what is controversial remains on the table:

TB(c'')
$A \vdash \sigma$
σ = Anna is from Spain.
$B \vdash \varphi$
φ_{CG} = Anna is from Portugal.
$\sigma \not\models \varphi$

CG(c')
SAL(c')
$A \vdash \psi$
ψ = Maria is from Italy.
.
.
φ = Anna is from Portugal.

At this stage, the table in inconsistent because σ and φ cannot be true at the same time. This would lead to a conversational crisis, so the discourse participants have to resolve the inconsistency. Let us assume that speaker A utters something like "Oh right, sorry" and therefore confirms B's assertion of φ. Then s/he withdraws his/her commitment $A \vdash \sigma$ and σ itself and the rest of the table is moved to SAL(c"). The proposition φ has been part of the common ground before, but now also is salient again.

CG(c")
SAL(c")
$A \vdash \psi$
$B \vdash \varphi$
$A \vdash \varphi$
ψ = Maria is from Italy.
φ = Anna is from Portugal.
.
.
.

One could ask the question why B uses *doch* since the preceding utterance indicates that speaker A does not know φ. Speaker B assumes that φ is inactive knowledge, i.e. speaker A does not remember it at the time of the utterance (so it is not part of SAL), but s/he actually should know. Note that B's utterance without the particle would be coherent, too: *doch* is not required to mark the inconsistency. B could just make an ordinary assertion, i.e. one without *doch*, but this would lack the additional meaning: I suggest that *doch* is used in (57) to resolve a conversational crisis in a quick and efficient way, 'quick' meaning that A will retract the commitment to σ without further discussion. If A is told by B that s/he is already committed to a proposition that is inconsistent with σ, which s/he just placed on the table, s/he might be more easily inclined to retract the new commitment, and the table can be cleared. Discourse-wise, B thus is aiming at making a quick and successful rejection of the previous utterance.

4.2. halt and eben

4.2.1. Basic Meaning and Previous Accounts

The particles *halt* and *eben* are not discussed as extensively in the literature (cf. Hartog & Rüttenauer 1982, Hentschel 1986, Thurmair 1989, Karagjosova 2004). Usually, they are treated as nearly synonymous. As a first approach, consider the examples (59) and (60) for an illustration of the meaning of *eben* and *halt*:

(59)   A: Der Spaziergang war ganz schön anstrengend.
            The walk   was quite   exhausting
            'The walk was pretty exhausting.'

        B: Du machst **halt**/ **eben** zu wenig Sport.
            You make   HALT/ EBEN too less   sports
            '(Well, that's because) you don't exercise enough.'

(60)   Die Kinder sind sehr enttäuscht, dass wir dieses Jahr nicht
        The children are   very disappointed that we this   year not
    wegfahren. Aber wir haben **eben**/ **halt** einfach kein Geld für
        go away   But we have   EBEN/ HALT simply no   money for
    Urlaub.
        vacation
    'The kids are very disappointed that we don't go away on a trip this year. But we just don't have money for vacations.'

In the above examples, *halt* and *eben* are equally acceptable. Their effect is to express that the information is obvious or evident and the speaker signals that s/he does not tell any news to the addressee. In most cases, φ_{MP} can be derived from world knowledge or situational knowledge. So, in (60), for example, the use of *halt* or *eben* signals that the speaker believes it to be obvious that they do not have enough money for vacations. With this basic meaning, the particles again also have a factive meaning component, just like *ja* and *doch*.

The effect of *eben* and *halt* is that they tie the utterance in which they occur to a preceding utterance (Thurmair 1989: 120), as in (59) where the paraphrase already indicates that a causal reading is plausible: *B* considers the fact that *A* does not do sports regularly to be the obvious reason for

being exhausted after the walk. The relationship between the clause with
eben/halt and the preceding clause is a causal one (cf. Thurmair 1989: 121).
The particle often occurs in the part that serves as an explanation or cause
and marks it as being the most obvious explanation.

By expressing that something should be obvious for the addressee, *halt* and
eben – just like *ja* – are not acceptable in out-of-the-blue contexts ((61))
and if the addressee has signaled before that s/he is not aware that φ holds,
cf. (62) and (63):

(61)   To a stranger on the street:

       # Ich habe **eben** kein Auto.
         I   have EBEN no   car
       '(Well,) I don't have a car.'

(62)   A: Peter hat sich   einen Opel gekauft.
           Peter has himself an   Opel bought
           'Peter bought an Opel.'

        B: #Nein, Peter hat sich   **eben** einen Ford gekauft.
           No,   Peter has himself EBEN a   Ford bought
           'No, Peter has bought a Ford.'

(63)   A: Hat Maria heute Geburtstag?
           Has Maria today birthday
           'Is it Maria's birthday today?'

        B: #Maria hat **eben** morgen Geburtstag.
           Maria has EBEN tomorrow birthday
           'Tomorrow is Maria's birthday.'

Thurmair (1989) captures the basic meaning of *halt* and *eben* in the follow-
ing meaning features:

(64)   **Thurmair's meaning features for *halt* and *eben*:**
       halt: $\langle\text{PLAUSIBLE}\rangle_H$, $\langle\text{KONNEX}\rangle$
       eben: $\langle\text{EVIDENT}\rangle_H$, $\langle\text{KONNEX}\rangle$

The $\langle\text{KONNEX}\rangle$ feature, which is shared by both particles, captures the
observation that the utterance with *halt* or *eben* establishes a relationship
to a preceding utterance, as described above. I take $\langle\text{KONNEX}\rangle$ to be too
general: After all, in a coherent discourse, every utterance should be tied

to another one. Thurmair does not use CAUSE as a feature for *eben* and *halt*, although she assumes that the particles most of the time establish a causal relationship.

With respect to the question whether *eben* and *halt* are synonymous, we can see in Thurmair's features that she takes the meaning to differ slightly: While *eben* marks the information as evident, *halt* is weaker. She argues that they cannot be replaced for each other in cases like the following:

(65)   Du kannst deine Freunde schon   mitbringen. Wir haben **halt**/
        You can   your   friends   SCHON bring along   We have   HALT/
        #eben kein Bier mehr.
        EBEN   no   beer anymore
        '(Sure,) You can bring your friends. We just don't have any beer left.' (Thurmair 1989: 124)

(66)   Jetzt gib ihm **halt**/ **#eben** eine Chance!
        Now   give him HALT/ EBEN   a   chance
        'Give him a chance!'

According to Thurmair, *halt* is acceptable in cases like (65) and (66), while *eben* is not.[4] This can be explained by her meaning postulates: A state of affairs, which is evident, is also plausible but not vice versa. So, *halt* is acceptable in all cases in which *eben* can occur but not the other way around. Hartog & Rüttenauer (1982) predict the same restrictions on the distribution, but with a different kind of argument. They distinguish between different types of *eben*:

- unalterable *eben* (e.g. *Die Welt ist eben nicht gerecht.* - 'The world just is not fair.')

- indifferent *eben* (e.g. *Dann kommt sie eben nicht.* - 'Well, then she does not come.')

- exclusive *eben* (*eben dieses XY* - 'just this XY')

- agreement *eben* (e.g. *A: This point is crucial.* - *B: Eben!*)

---

[4]I personally do not share the intuition for (65), but other native speaker I have consulted confirm the judgements for both, (65) and (66).

- possibility *eben* (e.g. *wenn es eben zu machen ist* - 'if it is EBEN possible')

According to Hartog & Rüttenauer (1982), *halt* can only replace the unalterable *eben*, not the others.[5] Note, however, that Hartog & Rüttenauer (1982) list instances of *eben* together that are very different: While the first two *eben* and the last one seem to be different readings of the modal particle *eben*, their agreement *eben* is the use as an answer particle and the exclusive *eben* in fact is a focus sensitive use. This focus-sensitive use is something that cannot be found for *halt*. Consider (67) for an illustration of this use of *eben*:

(67)   **Eben** [diese Diskussion]$_F$ wollte ich vermeiden.
       EBEN this   discussion   wanted I   avoid
       'It is exactly this discussion I wanted to avoid.'

This *eben*, I will call it *eben$_{foc}$*, differs in meaning from *eben$_{MP}$*. While *eben$_{MP}$* can be paraphrased with *halt*, *eben$_{foc}$* cannot, instead the German *gerade* ('just') is an appropriate paraphrase, which also can be used for a replacement test. As (67) shows, *eben$_{foc}$* can occur in the prefield together with the associated DP. The modal particle *eben* cannot occupy this position.

In contrast to Thurmair (1989) and Hartog & Rüttenauer (1982), Karagjosova (2004) and Hentschel (1986) claim that there is no meaning difference between *halt* and *eben*. However, they concede that *eben* cannot be used in imperatives and *halt* cannot be used as an answer particle. Moreover, we do find cases where the two occur together which should be redundant if they mean exactly the same, cf. (68):

(68)   A: Ich hab wieder kein Reh gesehen.
           I   have again   no   deer seen
           'Again, I haven't seen a deer.'

      B: Du bist **halt eben** zu   ungeduldig.
           You are   HALT   EBEN too   impatient
           '(That's because) You are too impatient.'

---

[5]Most informants I have consulted, however, would agree that *halt* can also replace the indifferent *eben*.

It is completely fine to combine the two particles, the effect stays the same as if just one of them is used. These observations suggest that there is a slight difference between *halt* and *eben*, at least with respect to how they can be used (i.e. in which sentence types and whether they can also be used on their own as an answer particle). The proclaimed unacceptability of *eben* in declaratives like (65), however, is not shared by all speakers, as indicated before. I will come back to a potential difference later on.

As another, more formal approach to their meaning, consider again Karagjosova (2004). In contrast to Thurmair, she includes the notion of causality in her definition:

(69)   **Karagjosova's meaning features for *halt* and *eben*:**
        $(eben/halt \; \varphi)_{i,j}$ conventionally indicates $\mathrm{B}_{A_i} \mathrm{C}_{E_G}(\varphi \wedge (\varphi > \psi))$

What Thurmair captures in her general ⟨KONNEX⟩ feature, is an inferential relation between two propositions in Karagjosova's approach to *eben* and *halt*: $(eben/halt \; \varphi)_{i,j}$ conventionally indicates that it is the active belief of the speaker i that it is explicit common knowledge of G (a group of speakers including i and j) that on the one hand φ holds and on the other hand there is an inferential relation between φ and a proposition ψ uttered before. Note that these are the differences to *ja* and *doch* in Karagjosova's proposal: One the hand, *ja* and *doch* do not include an inferential relation. On the other hand, while *ja* and *doch* claim that it is active or explicit knowledge of the speaker and the addressee that φ holds, in the case of *eben* and *halt* it refers to the knowledge of a group of speakers G. So, in the case of *eben* and *halt*, the speaker proposes that it is general knowledge that φ. This is parallel to Thurmair's features ⟨EVIDENT⟩$_H$ and ⟨PLAUSIBLE⟩$_H$.

Even more than for the other particles, *eben* and *halt* are associated with certain secondary effects. They may indicate resignation as well as impatience, an unfriendly attitude or an attitude of "I can't help it". As we saw above, Hartog & Rüttenauer (1982) include this partly in their description of *eben* (e.g. their indifferent *eben*). However, these secondary effects can all be derived from the general meaning of the particles. If something is completely obvious, there is naturally no need to discuss it further. The

expression of this attitude can be interpreted as not friendly, depending on the context. For the same reason, the two particles are also associated with a topic-closing function: Since *eben* and *halt* signal, that something is evident, they express that the topic needs no discussion and so they can be used to signal the speakers' wish to close a topic.

4.2.2. Effect on Table and Common Ground

The meaning of *eben*[6] has not been discussed much in the literature, so it is worthwhile to take a closer look at minimal pairs of examples again, before embedding it in my common ground model. For *eben*, two meaning components are postulated: 1. *Eben* is said to indicate that the proposition it occurs with is evident, and 2. *eben* expresses that the respective proposition stands in a causal relationship to another proposition (and this is also evident). The effect of *eben* can be seen best when comparing it with the same sentence without particle and then with the particle *ja*, which only expresses that the proposition is known and not more. In (70), *B*'s answer is understood as the explanation for the state of affairs introduced by *A*, i.e. Anna finds the German winter cold because she comes from Brazil. While *B'* just expresses that this known, *B"* underlines the causality:

(70)   A: Anna findet den Winter in Deutschland kalt.
            Anna finds   the winter in Germany   cold
            'Anna finds the German winter cold.'

        B: Sie kommt aus Brasilien.
            She comes   from Brazil.
            'She is from Brazil.'

        B': Sie kommt **ja** aus Brasilien.
            She comes   JA from Brazil.
            'She is from Brazil.'

        B": Sie kommt **eben** aus Brasilien.
            She comes   EBEN from Brazil.
            '(Well,) She is from Brazil.'

B" indicated with the use of *eben* that newsworthiness of the proposition of *A's* utterance (*'Anna finds the German winter cold.'*) is low as this clearly

---

[6]I will refer to *eben* in the following, but my proposal also holds for *halt*.

follows from her being from Brazil.

The fact that *eben* establishes a reading of causality becomes even clearer when using it in a sentence pair where causality is not present per se as in (71). There is nothing in our world knowledge that tells us that loving cake has to do with coming from Brazil. But we see that *B"* in (71) expresses much stronger that her preference for cake has to do with her place of origin than *B* or *B'*, which both appear a bit unmotivated as reaction to *A*'s utterance. This shows very well that causality indeed plays an important role in the meaning contribution of *eben*.

(71)   A: Anna isst gern Kuchen.
             Anna   eats gladly cake
             'Anna likes to eat cake.'

        B: Sie kommt aus Brasilien.
             She comes   from Brazil.
             'She is from Brazil.'

        B': Sie kommt **ja** aus Brasilien.
             She comes   JA from Brazil.
             'She is from Brazil.'

        B": Sie kommt **eben** aus Brasilien.
             She comes   EBEN from Brazil.
             '(Well,) She is from Brazil.'

Another way to test this, and compare *eben* to the variant with *ja* and without particle, is to explicitly reject a causal relation between the two propositions as in (72). Here we see clearly that a causal relation between *'Anna finds the German winter cold'* and *'Anna is from Brazil'* can be rejected easily in the case of no particle (*B*) and *ja* (*B'*), but it results in a contradiction in the case of *eben* (*B"*):

(72)   A: Anna findet den Winter in Deutschland kalt.
             Anna finds   the   winter   in Germany   cold
             'Anna finds the German winter cold.'

        B: Sie kommt aus Brasilien, aber das ist nicht der Grund
             She comes   from Brazil   but   this is   not   the reason
             dafür.
             for-that
             'She is from Brazil but this is not the reason.'

B': Sie kommt **ja** aus Brasilien, aber das ist nicht der Grund
She comes   JA from Brazil   but this is not   the reason
dafür.
for-that
'She is from Brazil but this is not the reason.'

B": Sie kommt **eben** aus Brasilien, # aber das ist nicht der
She comes   EBEN from Brazil   but this is not   the
Grund dafür.
reason for-that
'(Well,) She is from Brazil but this is not the reason.'

So, there is good evidence to assume that the main component of *eben*'s meaning is causality. I want to turn to the proposal that *eben* expresses that the proposition, as well as the causal relation are evident. Remember that Karagjosova's (2004) proposal contains $B_{A_i}C_{E_G}(\varphi \wedge (\varphi > \psi))$: It is common knowledge that φ holds and also that $\varphi > \psi$. If something is evident or common explicit knowledge, this translates as: The proposition is in the common ground. The source for this knowledge can be different, it can be world knowledge or contextually salient or discussed before (cf. section 3.1.3), but it is part of the shared knowledge. However, the example in (73) shows that *eben* works fine, even though the addressee makes explicit that s/he does not know that Anna is from Brazil, so this proposition is not in the common ground:

(73)   A: Anna findet den Winter in Deutschland kalt. Kein Wunder
Anna finds   the winter in Germany   cold no   wonder
bei ihrer Herkunft!
with her   origin
'Anna finds the German winter cold. Unsurprisingly, considering her place of origin!'

B: Ich weiß gar nicht, woher   sie kommt. / Woher   kommt
I   know not   from-where she comes   From-where comes
sie denn?
she DENN
'I don't know where she is from. / Where is she from?'

A: Sie kommt **eben** aus Brasilien.
She comes   EBEN from Brazil.
'(Well,) She is from Brazil.'

Therefore, I argue that *eben* does not express that the proposition it occurs with is evident (and already part of the common ground), but only that it is evident that a proposition ψ, which is after a previous utterance currently on the table, follows from the proposition containing *eben*, φ. I capture this as $>_{CG}$. It may seem surprising to assume that a causal relation between two proposition is known, even though the propositions themselves are not. Consider (74) as a motivation: Here, it is clear that it is not common ground that Anna does not come to the meeting and that her train is late. Still, speaker B marks it as evident that the consequence of her missing the train would be that she cannot come to the meeting.[7] The fact that a delay causes being late for a meeting is general knowledge about the world.[8]

(74)   A: Do you know if Anna comes to the meeting?

          B: I have no idea.

          A: Well, is her train in time?

          B: Ich weiß es nicht. Aber wenn der Zug Verspätung hat, wird
              I   know it not   but if   the train delay   has will
              sie es **eben** nicht zum Treffen schaffen.
              she it EBEN not   to-the meeting make
              'I don't know. But if her train has delay, she will not make it to the meeting.'

So, within my common ground approach I capture the causality and its obviousness with $>_{CG}$:

(75)   **eben:**

        $\langle$CG(c), SAL(c), TB(c)$\rangle$ + A $\vdash$ [eben φ]

        defined iff $\varphi >_{CG} \psi$, where $\psi \in$ TB(c)

The effect on the table is illustrated below for the example in (70) repeated in (76):

(76)   A: Anna findet den Winter in Deutschland kalt.
              Anna finds   the winter in Germany   cold

---

[7]Note that *eben* here stands not in the part that constitutes the cause, but in the result. Both is possible, the distribution in the corpus will be discussed in section 9.5.2.

[8]As this already shows, this causal relationship can also be deduced from something in the ground so to be precise, it is $>_{CG}$ or $>_G$.

> 'Anna finds the German winter cold.'

B: Sie kommt **eben** aus Brasilien.
She comes EBEN from Brazil.
'(Well,) She is from Brazil.'

TB(c')
A ⊢ ψ
ψ = Anna thinks the winter is very cold in Germany.

CG(c')
SAL(c')
.
.
.
.

With A's utterance, ψ and the respective commitment are put on the table. Now, with the assertion of B, the commitment and φ are also added to the table, as well as the fact that $\varphi >_{CG} \psi$, which is implied by the particle *eben*. Note that this is somewhat simplified. In the above example, speaker B only utters that Anna is from Brazil. ψ does not follow directly from it, but an information like $\sigma =$ *Brazil is a country with a high average temperature* is part of world knowledge, e.g. of the ground. From this in turn follows that somebody from Brazil finds the low temperatures in winter in Germany very cold. So the causality between φ and ψ is established not directly, but via an intermediate step, i.e. something in the ground.

With B's utterance, A's commitment and ψ are already moved to the salient part of the common ground as the speaker confirms it: B's commitment to $\varphi > \psi$ can be understood as confirmation of ψ.

TB(c''):
B ⊢ φ
φ = Anna is from Brazil.
B ⊢ $[\varphi > \psi]$
$[\varphi >_{cg} \psi]_{impl}$

CG(c'')
SAL(c'')
A ⊢ ψ
ψ = Anna thinks the winter is very cold in Germany.
.
.
.

As a final step, with the acceptance of A, the table is emptied and SAL(c''') contains the commitments as well as the propositions. I propose that the commitment B ⊢ $[\varphi > \psi]$ is part of the common ground, but not $\varphi > \psi$ itself. The relation between propositions or parts of discourse is not stored in the common ground but always in the discourse structure that is built up. Still, with the commitment stored, it is later accessible that speaker B postulated a causality between φ and ψ with the utterance.

TB(c'''):
∅

CG(c''')
SAL(c''')
A ⊢ ψ
ψ = Anna thinks the winter is very cold in Germany.
B ⊢ φ
B ⊢ $[\varphi > \psi]$
φ = Anna is from Portugal.
.
.

Considering the table, the particle *eben* seems to have little effect: Speaker B confirms A's utterance, so that the respective proposition ψ can be added to the common ground. Furthermore, B adds another proposition, φ, and indicates that φ stands in a causal relationship to ψ. Discourse-wise, however,

this utterance with *eben* has a certain effect. Speaker B could have simply signaled agreement, so that ψ is moved to the common ground and the table is emptied. Instead, s/he also brings up φ as the reason for Anna's opinion and marks this causality as evident. This more costly discourse move has a secondary effect: It conveys that speaker B thinks it is not necessary to discuss ψ at all, since the reason for Anna's perception is so evident. It can even be understood as an "appeal to the hearer to refrain from giving irrelevant information" (Karagjosova 2004: 215).

4.3. wohl and schon

4.3.1. Basic Meaning and Previous Accounts

All of the previously described particles, *ja*, *doch*, *eben* and *halt*, have in common that they make reference to the presumed knowledge of the addressee (or the knowledge of a group of people) in that they indicate that something should already be part of the shared knowledge. *Wohl* (cf. Doherty 1985, Abraham 1991, Zimmermann 2004, 2008) and *schon* (König 1977, Jacobs 1991, Féry 2010) differ in this respect from the other four particles. They only refer to the speaker's knowledge. Both, *wohl* and *schon* are particles that 'weaken' an assertion, but they do so in different ways: *Wohl* marks a piece of information as uncertain, *schon* restricts the validity of information that occurred in a preceding utterance, but has an affirming meaning at the same time. In contrast to *ja*, *doch*, *halt* and *eben*, *wohl* and *schon* do not refer to the presumed knowledge of the addressee or a group of speakers but only to that of the speaker. Following Smith & Jucker (2000), *wohl* and *schon* have the function to say something about the strength of commitment of the speaker towards the proposition. Both particles downgrade the strength of the claim.

I will first discuss *wohl*. Consider the examples for the use of *wohl* below:

(77)   Wenn wir noch länger im   Stau   stehen, werden wir **wohl**
           If   we   any longer   in-the traffic jam stand   will   we   WOHL
           unseren Zug verpassen.
           our   train miss

> 'If we are stuck in traffic jam any longer, we will miss our train.'

(78)   Der Typ mit den roten Haaren ist **wohl** der neue Freund von
       The guy with the red   hair   is WOHL the new   boyfriend of
       Maria.
       Maria
       'The redheaded guy seems to be Maria's new boyfriend.'

By using *wohl*, the speaker signals that s/he is not sure whether the proposition expressed is true. So, in (77), s/he expresses the assumption that they will miss the train, it is no reliable knowledge. *Wohl* here can be paraphrased as 'presumably', and in many cases *wohl* can in fact be replaced by the German sentence adverb *vermutlich*. *Wohl* is, however, different from modal auxiliary verbs and modal adverbs like *vermutlich* or *wahrscheinlich* ('probably'). Zimmermann (2008) argues that *wohl* is not part of the descriptive meaning of a proposition, while *vermutlich* and *wahrscheinlich* are. Proof for the idea that *wohl* is located higher than on the propositional level, comes from two observations: 1. *wohl* scopes over question formation – while modal adverbs do not –, and 2. *wohl* does not affect the interpretation of focus presuppositions (cf. Zimmermann 2008: 210).[9] In (77), missing the train is presented as the likely but not definite consequence of being stuck in the traffic jam. By using *wohl* in (78), the speaker does not commit completely to the claim that the red-haired man is Maria's new boyfriend. As (77) and (78) suggest already, an information can be marked as uncertain for different reasons: The speaker could be lacking information or s/he may have received the information from someone else so that the evidence is only indirect. In the case of (77), the source of the uncertainty is that the speaker merely makes a claim about what might happen in the future. In (78), the speaker might express a lowered degree of commitment because s/he received the information from someone else and is not sure if it is true.

Thurmair (1989) defines the meaning of *wohl* by the following meaning feature:

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[9]Thurmair (1989) argues that *wohl* cannot be replaced by *vermutlich* in all cases – depending on whether the uncertainty refers to the propositional content or the illocutionary act (cf. Thurmair 1989: 140).

(79) **Thurmair's meaning feature for *wohl*:**
    wohl: ⟨RESTRICT⟩

A detailed discussion of the meaning of *wohl* can be found in Zimmermann (2004). He also proposes that *wohl* operates on a level higher than that of the propositional content (see also Zimmermann 2011). His account for the meaning contribution of *wohl* is as follows (Zimmermann 2011: 2018):

(80) **Zimmermann's account for *wohl*:**
    $[\![\text{wohl}_x]\!](p)$ ASSUME (x, p)

The operator ASSUME is supposed to capture the fact that *wohl* expresses a weakened commitment towards the truth of the respective proposition. Zimmermann (2004) argues that *wohl* is an operator which modifies the sentence type operator (on SpecForceP), i.e. it modifies the strength of commitment towards the truth of *p*. An argument in favor of this position is that the interpretation of *wohl* depends on the sentence type: While it conveys an uncertainty of the speaker in declaratives, it assigns uncertainty to the hearer in interrogatives. It is anchored epistemically in the respective sentence type (cf. Zimmermann 2004: 7). In contrast to *ja*, *doch*, *halt* and *eben*, *wohl* can occur in interrogative sentences, as it does not involve a factive component (cf. (81) and (82)). *Ja*, *doch*, *halt* and *eben* all imply that the proposition expressed is true, therefore they cannot occur in interrogatives.

(81) Wer hat hier **wohl** mal gelebt?
    Who has here WOHL once lived
    'I wonder who once lived here.'

(82) a. Gibt es **wohl** bereits frische Erdbeeren?
    Gives it WOHL already fresh strawberries?
    'I wonder whether there are already fresh strawberries available.'

    b. Ob es **wohl** bereits frische Erdbeeren gibt?
    Whether it WOHL already fresh strawberries gives
    'I wonder whether there are already fresh strawberries available.'

In general, questions with *wohl* (and also with *schon*) are often rhetorical questions or questions where the speaker expresses that s/he does not expect an answer from the addressee, if at all, s/he expects a suggestion or an answer with a low degree of commitment (cf. Zimmermann 2004). Note that therefore the embedded question in (82)b is preferred over a normal polar question because this type of question already indicates that the speaker does not expect an answer. This observation is crucial: The uncertainty that is expressed by *wohl* is not assigned to the speaker in interrogatives, instead the speaker believes that the addressee will not be certain about the answer (cf. Döring 2013). (The speaker does not know the answer either, but this is due to the sentence type of questions.)

Unlike *ja*, *doch*, *eben* and *halt*, *wohl* cannot occur in contexts in which the speaker expresses a strong commitment to the proposition because this is not compatible with *wohl*'s meaning, see (83)[10]:

(83)   Eines weiß ich sicher: Max wird   #**wohl** der neue Vorsitzende.
         One   know I   sure   Max will-be WOHL the new chairman
         'One thing I know for sure: Max presumably will be the new chairman.'

Comparing the features for *wohl* with those that Thurmair (1989) assigned to *ja*, *doch*, *halt* and *eben*, it becomes visible that all of the four particles discussed before make a claim about the status of the proposition with respect to the knowledge of the discourse participants or a group of speakers. *Ja* and *doch* do so in that they mark it as ⟨KNOWN⟩, *halt* and *eben* mark it as ⟨PLAUSIBLE⟩, or ⟨EVIDENT⟩ respectively. *Wohl* (and also *schon*) do not evaluate the proposition with which they occur with respect to someone's knowledge. In contrast, they both restrict the validity, but on different levels. *Wohl*, in Thurmair's classification, expresses a restriction which refers to the illocutionary act, i.e. the speaker weakens the assertion s/he makes (cf. the discussion of different types of uncertainty in section 3.1.3.2).

As a side note it should be mentioned that there is a general debate about

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[10]Note that the stressed *WOHL* could be used in (88), but again, it is not identical with the unstressed modal particle *wohl*. Is has merely an emphasizing function, just as the stressed *JA*. The modal particle *schon*, in contrast, can occur stressed or unstressed, both have the same basic meaning, i.e. restriction and affirmation.

modals and whether they contribute to the descriptive meaning of an utterance. If they do not, they can be seen as a kind of side-remark on the proposition or as speech act modifiers (cf. von Fintel & Gillies 2010 for a discussion of different proposals). I will not join in this discussion here, it is sufficient to say that *wohl* does not contribute to the descriptive meaning of the utterance - unlike other epistemic modal expressions for example modal verbs (see Zimmermann 2004: 8).

For a comparison, consider the examples for the use of *schon* in (84) and (85). In examples like these, *schon* is usually accented, which is not the case for the temporal adverb *schon*.

(84) A: Ich dachte, das Haus gefällt dir.
I thought the house pleases you
'I thought you liked the house.'

B: Es gefällt mir **schon**. Aber es ist wirklich sehr baufällig.
It pleases me SCHON But it is really very dilapidated
'I do like it. But it is really dilapidated.'

(85) A: Verstehst du dich gut mit den neuen Kollegen?
Get-along you yourself well with the new colleagues
'Do you get along well with your new colleagues?'

B: Mit den meisten **schon**. Aber zwei mag ich nicht.
With the most SCHON But two like I not
'With most of them, I do. But two of them I don't like.'

At first glance, the effect of *schon* in the above examples is to admit that the proposition holds but to restrict it at the same time (cf. also Egg 2013). In (84), the speaker affirms that s/he likes the house. At the same time s/he restricts or weakens the claim since the house is in a bad condition, which typically is a reason to not be completely positive about something. This restriction of validity is also described as *concessive component* (cf. Féry 2010). In (85), the speaker admits that s/he likes the new colleagues but narrows it down to all colleagues except two. So, *schon* seems to express an affirmation combined with a restriction and therefore is often followed by a *but*-sentence which makes the restriction explicit. The meaning of the modal particle *schon* has been described as scalar. It is a scale from disagreement to agreement, it elicits "a 'zone of penumbra' on a denial-

affirmation scale" (Féry 2010: 160). Applied to (84), this translates as: On a scale of disagreement to agreement, the speaker is on the side of agreement, but not quite since s/he considers the house dilapidated.

Again, consider Thurmair's (1989) proposed features for the meaning of *schon*, where the index *pre* stands for 'preceding utterance':

(86)   **Thurmair's meaning features for *schon*:**
       schon: ⟨RESTRICT-VALIDITY⟩$_{pre}$

For *schon*, we can see that examples differ with respect to whether the affirmative component or the restrictive component play a bigger role. The example in (87) first appears to show a slightly reversed meaning of *schon* when compared to the one described above. This use is usually not accented:

(87)   A: Ich hab jetzt nur zwei Flaschen Wein bekommen.
            I   have now only two bottles   wine got
            'There were only two bottles of wine available.'

       B: Das wird **schon** reichen.
            This will   SCHON suffice
            'That will be enough.'

Here, not the restriction of validity, but the affirmation seems to be more important: Speaker *B* assures *A* that two bottles of wine will be enough. With this effect, *schon* appears slightly different in meaning when compared to the examples above but it can be explained along the same lines: With *schon*, speaker *B* restricts the validity or justification of *A*'s doubts that two bottles might not be enough. Thurmair (1989) calls these uses of *schon* "future-oriented" (cf. Thurmair 1989: 151). A potential problem is brought up and *schon* is then used to restrict the validity of this problem.

With respect to contextual restrictions, it can be seen in (88) that – in contrast to *wohl* – *schon* can be used together with strong commitment, but only if it is the stressed *SCHON* and the context is such that the addressee claimed the opposite before (i.e. that Max will not be the new chairman). In this case, the affirming component of *schon* is strong enough and it can co-occur with a strong commitment of the speaker.

(88) Eines weiß ich sicher: Max wird ?**schon** der neue Vorsitzende.
      One know I sure   Max will-be SCHON the new chairman
      'One thing I know for sure: Max WILL be the new chairman.'

Unlike *wohl*, *schon* does imply the speaker's belief that φ is true, still it can be used in rhetorical questions like (89).

(89) Wer will **schon** bezahlen, wenn es Freikarten gibt?
      Who wants SCHON pay   if   it free-tickets gives
      'Who would want to pay if there are free tickets available?'

The *schon* in the rhetorical question in (89) serves as an affirmation that nobody would want to pay if free tickets are available, too, that is: Intuitively, *schon* affirms what is implied by the rhetorical question.

4.3.2. Effect on Table and Common Ground

Turning to my common ground approach, as compared to *ja*, *doch* or *eben/halt*, there are no restrictions on the use of *wohl*:

(90) **wohl:**
      $A \vdash [\text{wohl } \varphi] = A \vdash_{weak} \varphi$

Zimmermann (2004) claims that the use of *wohl* causes that the proposition is not added to the common ground but instead the information that the speaker assumes that the proposition holds is added – as an information about the speaker's epistemic state. Within my common ground approach, I propose that the proposition is added to the table and also to the common ground, but with it, the weak commitment of the speaker is stored. So both, the proposition as well as the uncertainty can be referred back to later. Consider (91) for an illustration and the respective table and common ground: The proposition φ as well as the weak discourse commitment are added to the table and – given that the addressee accepts or confirms φ – to the common ground.

(91) Anna kommt **wohl** aus Portugal.
      Anna comes   WOHL from Portugal
      '(I think) Anna is from Portugal.'

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TC(c')
A $\vdash_{weak} \varphi$
φ = Anna is from Portugal.

CG(c")
SAL(c")
A $\vdash_{weak} \varphi$
φ = Anna is from Portugal.
.
.
.

Turning to *schon*, I will explain its meaning contribution slightly different than preceding accounts, which took the restrictive-affirmative component as most important. I propose that with the use of *schon*, the speaker commits to the respective proposition φ and s/he presupposes that there was an underlying question whether φ, which I will write as $?\varphi$. I stick to the idea of a scale of affirmation. A speaker could answer a (maybe implicit) question $?\varphi$ with "yes" or "no", choosing the outer ends of the scale. If s/he does not, but uses *schon* instead, s/he chooses a different point on this scale, and this typically happens for a reason. The speaker has a reason to not completely affirm or reject the question and this reason can be made explicit, but it does not have to. However, the analysis of the utterances with *schon* in the KOHL CORPUS shows that only a third of them is indeed accompanied by an explicit restriction (11 of 42). In (92), for example, no restriction is made explicit. The speaker reports an impression, presupposing that there is a question like *'Do people use their opposition against the currency reform as an excuse because they do not want a political union?'*. With *schon*, the speaker presents this impression carefully, but s/he commits to it:

(92) Ich habe [...] mich aufmerksam im   Land   umgehört und Land
      I   have   me   attentively   in-the country ask-around and country
      und Leute beobachtet. Gelegentlich habe ich **schon** den
      and people observed   sometimes   have I   SCHON the
      Eindruck, daß manche ihre Gegnerschaft zur   Währungsunion
      impression that some   their opposition   to-the currency reform

vorschieben,   weil   sie in Wirklichkeit die politische Union
put-forward   because they in reality   the political   union
gar nicht wollen.
not   want

'I have asked around in the country attentatively and observed the country and its people. Sometimes I get the impression that some people use their opposition against the currency reform as an excuse because they do not want a political union.'

(KOHL CORPUS, Speech 19, #100276)

Consider (93) below for an illustration of *schon*'s effect:

(93)   Anna mag Portugal **schon**, (aber es gibt auch viele Dinge, die
        Anna likes Portugal SCHON but   it gives also   many things   that
        ihr dort nicht gefallen).
        her there not   please
        'Anna DOES like Portugal, but there are also many things she does not like about it.'

I assume that *schon* first of all indicates that there is a question 'Does Anna like Portugal?' (= $?\varphi$) is on the table, either because it was brought up explicitly or it is only implicit. Speaker A commits to φ. Using a sentence with *schon* instead of just affirming with "yes", s/he indicates that s/he does not completely affirm this. The speaker could leave the utterance like this, or make explicit why s/he limits his affirmation as in the sentence in the brackets.

For the definition of *schon*, I therefore propose that it requires that a question of whether φ has to be on the table. Everything else follows on the pragmatic level: The fact that the speaker uses a sentence with *schon* instead of answering the question with "yes" or "no" leads to the inference that there are reasons why s/he does so, i.e. there are possibly restrictions to the validity of φ. However, this is not part of the semantics of *schon* itself:

(94)   **schon:**
        $\langle$CG(c), SAL(c), TB(c)$\rangle$ + A $\vdash$ [schon φ]

defined iff $?\varphi \in \mathrm{TB(c)}$

The effect of *schon* on the table and the common ground is that of a normal assertion. I assume that before the utterance of φ happens, $?\varphi$ is already on the table:

TB(c)
$?\varphi$ = Does Anna like Portugal?

TB(c')
$\mathrm{A} \vdash \varphi$
$\mathrm{A} \vdash \psi$
φ = Anna like Portugal.
ψ = There are things about Portugal that Anna does not like.

With the utterance of A, the speaker commits to the truth of φ. With the use of *schon*, s/he signals that there may be restrictions. These can be spelled out as in the second clause, the proposition ψ: 'Anna does not like everything about Portugal'. On the table and in the common ground, an utterance with *schon* results in a commitment of the speaker to the respective proposition. The fact that this commitment is weaker than an unmarked commitment to a proposition is not visible on the table because – unlike in the case of *wohl* – this restriction follows on a pragmatic level. Also, the fact that ψ restricts the validity of φ, does not show on the table. For the discourse structure that is build up, however, this has an effect: The utterance containing φ is placed in a certain position in discourse structure, i.e. in a contrastive relation with the discourse unit containing ψ. I will discuss how *schon* might influence the interpretation of a relation in section 9.6.2.

There is one important observation which is a puzzle to solve in future work. Interestingly, *schon* can also occur in the restricting part if there is one. See (95) for illustration:

(95) Anna mag Portugal, aber es gibt **schon** auch Dinge, die   ihr
      Anna likes Portugal   but it has SCHON also   things   which her
      nicht gefallen.
      not   please
      "Anna does like Portugal, but there are also things she does not
      like."

Here, *schon* confirms the restriction, but still the underlying question that
seems to be implied is: 'Does Anna like Portugal?', so the proposition
confirmed by the first clause, although this does not contain the particle.
The same distribution is also illustrated by the example from the corpus in
(96). Here, the speaker expresses that it is important to accept the moral
obligation that the Germans have (= the affirming part), but still it has
to be clear that Germany cannot carry the burden alone (= the restricting
part). *Schon* occurs in the restricting part. However, it could also stand in
the first clause. The underlying question here would have to be 'Do we have
to persist that people understand that Germany cannot carry the burden
alone?'.

(96) Wir Deutschen stehen zu unserer moralischen Verpflichtung, aber
      We Germans   stand to our   moral   obligation   but
      ich muß   **schon** darauf bestehen, daß man auch begreift,   daß
      I   have-to SCHON on-it   persist   that one also understands that
      wir nicht allein eine europäische Last   schultern können [...]
      we not   alone a   European   burden carry   can
      'We, the Germans, accept our moral obligation but I have to persist
      that people understand that we cannot carry the European burden
      on our own.'

(Kohl Corpus, Speech 23, #121645)

For now, it has to remain open what exactly happens when *schon* is placed
in the restricting part. Its effect seems to be exactly the same, but it refers
not to the proposition it occurs with, but to another one.

4.4. Intermediate Summary

In this section I made a proposal how to account for the meaning of *ja*, *doch*, *halt*, *eben*, *wohl*, and *schon* in an extended common ground approach. I discussed their effect on the management of propositions on the table and in the common ground. At the same time I described the particles' effect on the discourse structure.

Within this approach it can be shown that different modal particles have different functions with respect to common ground. Utterances with *ja* and *doch* usually do not update the common ground since the respective information should already be part of it. Still they have a function, i.e. to move the respective proposition to SAL(c) again. *Ja* and *doch* can help to avoid conversational crises by making relevant knowledge salient again, and – in the case of *doch* – pointing to inconsistencies between propositions on the table or in the common ground. I assume that both particles can be used to place a proposition as salient basis in the discourse structure.

Eben and *halt* indicate that there is an evident causal relationship between the proposition they occur with and another one. 'Evident' does not mean that the information has been discussed before, it can be world knowledge or immediately evident in the utterance situation. The main effect of the particles is not to make sure that a proposition is salient in discourse for what follows but to indicate the causal relationship between two propositions.

I have also shown that *wohl* and *schon* have a different effect than *ja*, *doch*, *eben* and *halt*. While the latter four indicate the common ground status of the respective proposition and in turn have the effect that propositions are removed from the table faster, *wohl* and *schon* do not. *Wohl* weakens the speaker's commitment towards φ, so that the common ground contains this weak commitment. If φ turns out to be wrong, the speaker is not held responsible because s/he indicated that s/he is not sure. *Schon* confirms that φ holds, therefore φ can be removed from the table and be added to the common ground. But at the same time the speaker leaves room for restrictions, which can also be a useful strategy for discourse.

In the following, I will introduce important notions and theories of discourse

structure to build the ground for the quantitative studies.

5. Why do we need Discourse Analysis?

5.1. The Discourse Perspective

In analyzing and investigating language and linguistic phenomena, we can concentrate on different levels which correspond to the different sub-disciplines of linguistics. For many phenomena, it is very fruitful to consider all these levels for a full understanding of their linguistic characteristics. This also holds for modal particles.

In the previous chapter, I presented proposals for this phenomenon from different levels. What can we say about modal particles when looking at them from the discourse level? The answer is: so far, hardly anything. The reason for this is not that there is nothing to say about it, but rather that with respect to the research on modal particles, this level has not really been explored yet.

This dissertation aims to close this gap. The focus of the present work is the level of discourse, where I take discourse to be a coherent sequence of sentences. This is a view on modal particles from a position "high enough" to see the relationship that holds between the sentence containing the particle and the ones surrounding it.

Discourse and discourse coherence are usually only taken into account when the structure of text is investigated. When discussing the semantics and pragmatics of linguistic entities, as mentioned above, studies tend to remain on the sentence level while the larger relationship between sentences often remains out of focus. Why is this? Why do hardly any studies take the discourse level into account? One reason is that it often seems to be not

clear what the perspective from the discourse level can contribute compared to an analysis within the sentence boundaries. Secondly, different theories of discourse coherence exhibit a lot of variation and little consensus which makes it difficult to apply them and to work with them in a satisfying way. In the following, I will make a more general plea for the importance of the level of discourse. I will discuss three linguistic phenomena that can only be explained adequately when considering the interaction between clause level and discourse level. I chose only three phenomena, but this selection is of course not exhaustive.

5.2. Interaction between Clause and Discourse Level

5.2.1. Swahili ka-

A morphological phenomenon that can only be explained with reference to the discourse level is the **ka- prefix in Swahili** which, attached to a verb, expresses that the respective action or state follows another one (Ashton 1976: 133, see also Hopper & Thompson 1980, Drolc 2001).[1] The prefix therefore is a clause-internal marker but it operates clause-externally. Consider (97) for an illustration of the function of *ka-*[2]:

(97)   Nilikwenda sokoni, ni**ka**nunua ndizi sita, ni**ka**la tatu, ni**ka**mpa mwenzangu tatu.
        'I went to the market, and bought six bananas; I ate three and three I gave to my companion.'

(cf. Ashton 1976: 133)

The prefix *ka-* in (97) expresses that the buying of the bananas happened after the speaker went to the market, and that the eating took place after the buying and finally he gave three bananas to his friend after he ate

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[1] Another example is the *ki-* prefix in Swahili which marks that something is background information (Hopper & Thompson 1980, Drolc 2001).

[2] Unfortunately, Ashon (1976) does not provide glosses.

three himself. So, with the use of *ka-*, each action is understood as happening after the one mentioned before. As a consequence, *ka-* cannot be used discourse-initially (Ashton 1976: 134).

When attached to a verb in subjunctive mood, *ka-* can also express a purpose-reading as in (98):

(98)   Nitakwenda sokoni, ni**ka**nunue ndizi.
        'I shall go to the market and buy some bananas.'

(cf. Ashton 1976: 134)

Ka- still implies that one action follows the other one, but here, it additionally expresses purpose.

There is a general tendency for language users to interpret discourse in a way that what is reported first has probably happened first, i.e. the order of mention corresponds to the order of events. In this sense, *ka-* only emphasizes or confirms that one action is subsequent to the other. The exact function and meaning of this prefix, however, can only be described when taking into account that discourse is structured and there is a relation between the single discourse units. In this particular case, it is a relation of temporal succession, which in most theories on discourse relation receives the name SEQUENCE. It is this level of discourse relations that *ka*'s meaning refers to.

5.2.2. Continuative Relative Clauses in German

There are also phenomena on the clause level which can only be explained with reference to the discourse level. Holler (2008) discusses a specific type of relative clauses, continuative relative clauses.[3] This verb-final relative clause is a subtype of non-restrictive relative clauses and is illustrated in (99):

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[3]Here, I will only focus on the narrative function of this relative clause, but it may possibly have more functions than this.

(99)   Emma hat es einer Freundin erzählt, die nun den Tratsch
       Emma has it a   friend   told   who now the gossip
       durch   die ganze Stadt trägt.
       throughout the whole town   spreads
       'Emma told a friend the news, who now is spreading gossip through-
       out the whole town.'

(Holler 2008: 249)

The relative clause implies that the action expressed (i.e. the friend spreads
the gossip) follows the action conveyed in the main clause. (Note that this
effect would also hold if the temporal adverb *nun* was not present.)
Holler (2008) shows that continuative relative clauses differ from other non-
restrictive relative clauses: They have an independent focus domain and
illocutionary force which makes them (prosodically) independent from their
matrix clause (Holler 2008: 251). She explains this difference in terms of
communicative weight assignment. While appositive relative clauses contain
minor information, continuative relative clauses express main information,
just like their host clause. They therefore are equal in importance.[4]

The difference between continuative relative clauses and other non-re-
strictive relative clauses can only be explained when looking at the level
of discourse structure. Continuative relative clauses have a specific narra-
tive function (i.e. to continue in discourse) which is different from other
non-restrictive relative clauses, which simply add side or background in-
formation. This difference is also reflected in their function in discourse
structure: Holler argues that continuative relative clauses are related by
a coordinating relation to their matrix clause while other non-restrictive
relative clauses are subordinated (Holler 2008: 264), where coordinating
relations connect two discourse units of equal importance, while in subordi-
nating relations one is less central to the main point (cf. chapter 6.2). From
this difference with respect to their function in discourse, the difference in
the assignment of communicative weight can be derived.

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[4]Holler does not define what 'major' and 'minor' exactly mean, but refers to 'primary'
and 'secondary' information. We can think of these terms as referring to information
which is central to the overall topic and aim of a text, and information which is less
central.

5.2.3. Pronoun Resolution

When it comes to language phenomena that ask for an explanation which goes beyond the sentence boundaries, one of the first things that comes to mind are pronominal expressions. The antecedent of pronominal expressions does not have to be adjacent to it, so resolving the reference requires looking at the preceding sentences. Pronoun resolution relates to discourse coherence directly. It is essential for the understanding of a discourse to find the right antecedent for pronominal forms. Consider for instance (100):

(100)   John has met Peter's father the other day. He was sun-tanned from his holidays.

For a discourse as in (100), a language user has to identify the right antecedent for the pronoun *he* in the second sentence. Considering the preceding sentence, *John*, *Peter's father* as well as *Peter* are possible antecedents. The choice of the antecedent will be influenced by a number of different factors, e.g. intonation, syntax, world knowledge, shared knowledge and inferences.

It has been observed that the structure of discourse also influences pronoun resolution. Kehler (2002) argues that the type of discourse relation holding between two sentences influences how a pronoun is resolved, and this claim is tested by Wolf, Gibson & Desmet (2004). They investigate experimentally whether Centering Theory (CT) (Grosz & Sidner 1986, Grosz et al. 1995), the Parallel Reference Account (PRA) (Chambers & Smyth 1998) or Kehler's (2002) discourse relations approach can explain best how language users resolve the reference of pronouns.

Centering Theory claims that speakers have a tendency to choose the subject of a sentence as antecedent for pronouns because it is more salient than the object (Gordon, Grosz & Gilliom 1993). Therefore, it is more difficult to process sentences in which the pronoun refers to a referent in object position. The Parallel Reference Account, on the other hand, argues that pronouns, provided that the sentences have the same structure, are resolved

to a referent in the same position[5]. Kehler (2002), finally, claims that pronouns are resolved naturally in the process of establishing coherence, the process is a by-product of general reasoning about the correct interpretation of a discourse. Therefore, the respective discourse relation and the kind of reasoning involved has an influence on the resolution of a pronoun.

Gordon, Grosz and Gilliom (1993) point out that there are cases in which CT and PRA do not make the correct predictions. The minimal pair in (101-a) and (101-b) from Winograd (1972) is such an example:

(101)   a.   The city council denied the demonstrators the permit because
                 they advocated violence.
          b.   The city council denied the demonstrators the permit because
                 they feared violence.

In fact, the pronoun *they* should refer to *the city council* in both cases because the two have parallel positions in the sentences (PRA), i.e. in the first position, (or because *the city council* is in the subject position (CT)). In (101-a), however, the pronoun refers to *the demonstrators*. Kehler (2002) can explain this pattern: There is a causal relationship between the sentences in (101-a) and (101-b) (CAUSE-EFFECT in Kehler's terms). Since the two variants of the second sentence (*they feared* vs. *they advocated*) result in two different predications and during the establishing of a CAUSE-EFFECT relation, the items in the respective argument positions are merged, this leads to the choice of *the demonstrators* as antecedent in (101-a) and *the city council* in (101-b).

Ehrlich (1980) claims that a causal relationship between two sentences influences the resolution of pronouns. If the relation between the sentences is not causal, as in **??** above, the entity in subject position is preferred as antecedent – just like Centering Theory would predict. Kehler (2002), in contrast, proposes that pronoun resolution is influenced by the discourse relation between two sentences in general, not only in the case of causal relations. Gordon, Grosz & Gilliom (1993) have tested the same idea by

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[5]'Position' here refers to the expression's position in a hierarchical syntactic structure, i.e. it correlates with the syntactic function.

carrying out a self-paced reading task. They use sentences in which either the pronouns and their antecedents are in parallel positions or not and the sentence pairs are either related by a Cause-Effect relation or by a Resemblance relation (which includes relations of similarity or contrast). Their study found that in the case of a Resemblance relation, pronouns with an antecedent in parallel object position were processed faster than those with an antecedent in object position. In cases in which a Cause-Effect relation holds, those pronouns were read faster which referred to an antecedent in subject position (Gordon, Grosz & Gilliom 1993: 673) What this shows is that pronoun resolution is not only a phenomenon that requires looking at more than one sentence, but that can only be fully explained when taking discourse structure and relations into account.

These three phenomena illustrate that the discourse level is crucial for the understanding of certain elements and their function. In the next chapter, I will discuss the structure of discourse in more detail.

6. Discourse: More than a Soup of Sentences

"Linguists, especially the more formally minded, are often held back from the study of discourse by the belief, strongly felt though seldom clearly articulated, that discourse itself is simply an unstructured soup of sentences."

(Polanyi 2001: 278)

6.1. What holds Discourse together?

In this section, I will discuss what it means for a discourse to be coherent and how coherence comes about. On the one hand, discourse structure is a cognitive phenomenon and on the other hand it is often discussed how different linguistic expressions can signal the function of a unit in this structure. Coherence, therefore, can be discussed as a semantic property of a discourse or as something cognitive. In relation with coherence, I will discuss how linguistic cues can help the hearer to establish relations in discourse. This will lay the foundation for the detailed discussion of discourse structure in section 6.2.

6.1.1. Coherence

The quotation of Polanyi (2001) points to one of the main reasons why the discourse level and discourse structure are often neglected in the study of meaning. It is not obvious what the level above the sentence level should look like. However, a discourse is not simply an unordered collection of sentences and its meaning is more than the sum of the meaning of the

sentences, it is also the way in which the parts of the discourse are connected. The *Principle of Compositionality* by Gottlob Frege (1884), thus, does not only hold for the meaning of sentences, but also on the level above it, i.e. the level of discourse. Discourse has a structure. Just like sentences, a discourse can be divided into smaller elementary units and these stand in a relationship with each other. As a result, the discourse as a whole is coherent. Consider (102):

(102)   Tom bought milk and Liz brought eggs. They want to make pancakes.

This discourse's meaning is not just the sum of the propositions 'Tom bought milk', 'Liz brought eggs' and 'They want to make pancakes', it also involves the information that the second part of the discourse gives the reason for the information contained in the first two units of the discourse (i.e. the first two sentences). The relationship between the units adds extra information. This relation can be inferred on the basis of world knowledge: It takes milk and eggs to make pancakes.
There are also discourses with a less transparent structure:

(103)   John is painting his house green. The post office is closed for two weeks. Spring is coming.

The sentences in (103) are not related by any linguistic devices: There are no connectives tying them together, as for example conjunctions like *because, but* or *and*. Neither are there adverbials like *at the same time*. The discourse neither contains anaphoric expressions that refer back to an antecedent in a preceding clause. Additionally, world knowledge does not help to establish a relation neither. Still, we do not want to claim that the discourse is incoherent. The simplest interpretation is that of an enumeration of facts. The three sentences could for instance answer the question "Are there any news?"[1].
Language users try to interpret discourses like (103) as coherent – even though there are no overt markers to establish coherence. In order to obtain

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[1]Approaches to discourse using implicit questions will be discussed in 6.3

a coherent interpretation, speakers are willing to draw additional inferences. In (103), possible inferences are: John works in the post office and the fact that it is closed is the reason why he is able to paint his house. Maybe the post office always closes when spring is coming. Or the near spring is what has motivated John to paint his house green.

The two interpretations are summarized below:

> **Reading 1:**
>
> There are some news for you: John is painting his house, the post office is closed for two weeks, and spring is coming.
>
> **Reading 2:**
>
> John has time to paint his house because the post office he is working for is closed for two weeks. As spring is coming, he wants his house to look nice.

Beside these two readings, more interpretations are available for (103), depending on, among other factors, the addressee's background knowledge, the utterance context, world knowledge and so on. What this shows is that language users seek to establish coherence in texts, also in the absence of explicit linguistic cues (cf. also Sanders et al. 1993, Gernsbacher 1997, Sanders & Noordman 2000, etc.). Discourse participants avoid interpreting a discourse as incoherent, they try to establish a relationship between the sentences and make additional assumptions if necessary. This general expectation of the hearer can be accounted for by an interplay of the Maxim of Relevance and the Maxim of Manner of Grice's (1975) *Co-operative Principle*: The hearer assumes that what the speaker says is relevant to convey information and that s/he utters it in an appropriate way.

As I pointed out, (103) does not contain linguistic cues for marking the relations. In terms of Reinhart (1980), it is is implicitly coherent, which means that the hearer has to derive coherence through certain procedures (e.g. drawing a conversational implicature when realizing a violation of a Gricean maxim). In contrast, a discourse is explicitly coherent if the coherence is overtly marked by linguistic cues. To make (103) explicitly coherent, it has to be modified as in (104):

(104)   John paints his house green because the post office is closed for
          two weeks. Also, Spring is coming.

Here, it is easier for the reader to derive the discourse interpretation, the
speaker signals which relations hold between the sentences by using con-
nectives, in this case the conjunctions *because* and *also*. Linguistic cues
facilitate establishing coherence and guide the interpretation of a discourse:
This is referred to as cohesion and will be discussed in the next section.

Essentially, the notion 'coherence' refers to the fact that utterances are
connected with each other, there are relations between them. Instead of a
collection of single units, the parts of a text together form a whole. The
main problem in defining coherence is that the discourse level – as opposed
to the sentence level – does not exhibit a clear syntax or semantics. This
is the reason why there is controversy about how to define the notion of
'coherence'.

A definition, which takes coherence as a purely semantic property, is too
narrow. In fact, whether a text is coherent or not can only be judged by
the hearer. Although we say that a discourse is coherent or is incoherent,
this distinction depends on the language users' understanding of it. A text
can be thought of as a score of what is supposed to develop in the mind of
the hearer. Different hearers can either build up a coherent interpretation
of a discourse or fail to do so. A discourse, then, is coherent if the hearer
builds up a coherent picture of it. This idea is also worked out in Sanders,
Spooren & Noordman's (1993) definition of coherence. They propose that a
discourse coheres if people are able to build a coherent representation of it
(Sanders, Spooren & Noordman 1993: 94). But of course the characteristics
of a specific discourse influence whether a coherent interpretation is easily
available or not.

In this dissertation, I will take the following position: Coherence arises in
the mind of the hearer, it is not an inherent property of a given discourse.
There are linguistic cues that can facilitate the interpretation for the hearer
in that they mark the intended relation (these will be discussed below in
6.1.2). But these linguistic markers alone cannot make a text coherent.
Accordingly, a discourse is coherent if the hearer is able to build a coherent

representation of it.[2]

6.1.2. Cohesion

As mentioned in the previous chapter, linguistic devices in texts help the addressee to establish a coherent representation. The use of linguistic items that connect utterances or parts of them, i.e. connectives as well as anaphoric expressions, is subsumed under the notion of *cohesion*. Cohesion is treated as separate from coherence: While coherence refers to the semantic (or pragmatic) relation between utterances, regardless of whether the relation between the discourse units is overtly marked or not, cohesion refers explicitly to words and phrases that establish a relation. Cohesive devices signal the coherence intended by the speaker.

> "Cohesion occurs where the INTERPRETATION of some element in the discourse is dependent on that of another. The one PRE-SUPPOSES the other, in the sense that it cannot be effectively decoded except by recourse to it. When this happens, a relation of cohesion is set up, and the two elements, the presupposing and the presupposed, are thereby at least potentially integrated into a text." (Halliday & Hasan 1976: 4)

The class of expressions that is most likely to be associated with cohesion is that of connectives, which have often been used as a basis for setting up a set of coherence relations (e.g. Knott 1994, 1998, Prasad et al. 2007). Connectives directly reflect the structure of the discourse. Knott's (1996) collection of more than 300 cue phrases for certain discourse relations in the appendix of his dissertation, i.e. conjunctions and adverbial phrases defined in terms of a matrix of features, shows how many devices language possesses to mark the relationship between utterances. As Knott's (1996) list shows,

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[2]Some approaches (e.g. Grosz et al. 1995) additionally distinguish between 'local' or 'linear' coherence (or the 'micro-structure 'of a text) and 'global' coherence (or 'macro-structure'). Local coherence refers to adjacent discourse segments, while global coherence describes the connection of larger segments of discourse. For the analysis of modal particles, it is mainly local coherence that matters as I will show below.

the inventory of connectives is large, but there is no one-to-one relationship between a particular connective and the relation it signals. This can be seen when comparing (105) and (106):

(105)   Peter arrived in his office and called his wife.

(106)   Peter likes fish and Martin prefers pork.

The conjunction *and* is part of both examples but it signals different discourse relations. In (105), the normal interpretation is that Peter arrived in his office and afterwards he called his wife. As a general tendency, hearers understand what is mentioned first as what has happened first (as already discussed in 5.2.1). The temporal relation that holds between the two parts would be labeled SEQUENCE in most theories. In (106), in contrast, no temporal relationship is implied, *and* connects two parallel facts: Peter's and Martin's preferences with respect to food. This kind of relation is often labeled as LIST.

Although there is no one-to-one relationship between a connective and its function, cohesive ties still are of great value to hearers to establish the right interpretation of a discourse faster because they narrow down the number of possible relations.

However, connectives are not the only linguistic means associated with discourse relations. As Taboada & Mann (2006) point out, there are other ways to mark relations. Questions, for instance, are often associated with a SOLUTIONHOOD relation and non-finite clauses often come with a PURPOSE relation. Non-restrictive relative clauses often have the function of an ELABORATION. These correlations, however, have not been investigated in depth so far.

In contrast to cohesive markers that specify discourse relations, other phenomena establish a co-reference between constituents within the utterances, e.g. by anaphora, as well as for instance the repetition of lexical elements. Note that phenomena like anaphora or ellipsis do not reflect the structure of discourse as directly as connectives, they do not have to be parallel to the discourse structure. Here, the focus will be on the first class of cohesive markers.

Beside cohesive ties, there are a number of other factors which influence whether a hearer can build up a coherent interpretation of a discourse: world knowledge plays a role as well as the common ground between speaker and hearer (cf. chapter 3), the (linguistic as well as non-linguistic) context of the discourse and also the type of text.

The relationship between cohesion and coherence is discussed over and over again in the literature and it centers around the question: Is cohesion a necessary prerequisite for a text to be coherent? Halliday & Hasan (1976) claim that coherence can be derived from cohesion, i.e. cohesive ties are one factor to produce coherence:

> "A text is a passage of discourse which is coherent in these two regards: it is coherent with respect to the context of situation, and therefore consistent in register; and it is coherent with respect to itself, and therefore cohesive. Neither of these two conditions is sufficient without the other, nor does the one by necessity entail the other." (Halliday & Hasan 1976: 23)

A similar position is taken by Reinhart (1980) who takes cohesion as one of the three conditions for coherence (besides consistency and relevance, cf. Reinhart 1980: 164). Thus, in these views, cohesion is one of the requirements for coherence. A different position is taken by Carrell (1982), as well as by Morgan & Sellner (1980), who take cohesion to be only a sign for coherence. Cohesive ties, according to them, do not produce coherence, but it is because a discourse is coherent on the content level, that it exhibits cohesive ties. Cohesion then is seen as an epiphenomenon of coherence (Morgan & Scheller 1980: 179), which is almost the opposite view to Haliday & Hasan's (1976) and Reinhart's (1980) position.

From the discussion in the previous section, we already know that cohesion is not a prerequisite for coherence, because recipients are able to come up with a coherent interpretation for discourses like (103) even though it lacks cohesive ties. But the same holds the other way around: A discourse can exhibit a number of cohesive ties and still be incoherent, see for instance (107):

(107)   The man opens his letters with an old knife. People don't write
           many letters nowadays. They smell the fish from the market be-
           cause the car is broken.

In (107), a number of linguistic means establish a link between the sen-
tences: *letter* is taken up again in the second sentence. The pronoun *they*
in the third sentence refers back to *people* in the second one. The conjunc-
tion *because* signals a causal relation between *They smelled the fish from
the market* and *the car is broken.* Still, we would not call this discourse
coherent[3], it would require a lot of additional assumptions to arrive at an
interpretation which relates the given information in a meaningful way.

The position that I will take up here is the following: Cohesion is neither a
prerequisite for coherence, nor does coherence show itself in cohesion on the
surface. Cohesion refers to the means that the speaker uses for the coherent
structure s/he intends. Cohesion can contribute to coherence. (Recall that
I take coherence to be cognitive.) Cohesive ties help the hearer to arrive
at a coherent interpretation, provided that the content itself allows for a
coherent picture. If this condition is not fulfilled, cohesive ties will not be
helpful either.

To sum this part up, coherence plays an important role in text processing
because it is crucial for understanding a discourse to establish a meaning-
ful relation between the discourse parts. Just like speakers figure out the
relationship between words in a sentence, they seek to identify the relation
between sentences (cf. also Kehler 2002: 3). Discourse relations glue parts
of the discourse together and make it coherent which makes them the cen-
tral point of interest in most theories on discourse coherence. In the next
chapter, some of these theories will be introduced, but before, some gen-
eral observations on the structure of discourses will be made and important
terminology will be introduced.

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[3]There is also the point of view that there should not only be a distinction between
coherent and incoherent, but instead different degrees of coherence (cf. Knott 1996:
3). According to this perspective, (107) is hardly coherent.

6.2. Discourse Structure

6.2.1. Units, Relations and Trees

For describing the structure of discourse in a systematic way, we need to define a) what the basic units of discourse are and b) what kinds of structure can be built with them. Elementary discourse units (EDUs) are the building blocks for discourse structure. Most theories define discourse units as clauses, which, however, is not completely adequate. From a semantic point of view, discourse units consist of a single event or state of affairs. This already suggests that the claim that one sentence corresponds to one discourse unit is too simple. What follows is that sentence borders mark the border of a discourse unit – but there are also discourse units smaller than sentences. For instance, non-restrictive relative clauses and parentheticals also introduce discourse units, just as adverbial constructions moved to the left of the sentence or incomplete sentences in elliptical constructions do. Compare the examples below for illustration, where each ∥ signals the boundary of a discourse unit:

(108)   ∥ Johnny danced all night long ∥ although no one invited him. ∥

(109)   ∥ The girl ∥ who seemed to be bored ∥ watched him.

(110)   ∥ Due to the heavy rain ∥ they had to stay inside. ∥

(111)   ∥ He tried to read ∥ and fell asleep. ∥

(112)   ∥ The man who owns the house to their left has built a high fence. ∥

The subordinate clause in (108) constitutes its own discourse unit, as well as the appositive relative clause in (109) and the causal adverbial phrase in (110). The elliptical sentence in (111), conjoined by the conjunction *and*, also constitutes its own discourse unit, although, on the surface, it is incomplete. The restrictive relative clause in (112), however, is not an independent discourse unit, it belongs closely to the DP *the man* and therefore counts as part of the main clause as it restricts the DP meaning.

So, the idea that one clause corresponds to one discourse unit – although

appropriate in many cases – is not sufficient. It is in general problematic
to build on the syntactic surface structure in order to determine what is a
discourse unit and what is not. This can be illustrated by the sentence pair
below. The grammatical surface structure of the two sentences is identical.
But while (113-a) would be treated as one discourse unit, in (113-b), it is
possible to analyze 'der Wetterbericht sagt' as a single unit because it serves
as evidence of justification for the second clause:

(113)   a.   Peter sagt, dass es regnet.
              Peter says that it rains
              'Peter says that it rains.'

        b.   Der Wetterbericht sagt, dass es regnet.
              The weather report says that it rains
              'The weather report says that it rains.'

Determining discourse units on the basis of the surface structure, therefore,
is not the right way. Most approaches find a practical solution to the ques-
tion of what counts as a discourse unit. Rhetorical Structure Theory, for
example, states that restrictive relative clauses are treated as part of the
respective main clause and elliptical sentences as if they were non-elliptical
(Mann and Matthiessen 1991: 234). Also, to define a discourse unit as the
smallest part corresponding to one proposition, i.e. to adopt a semantically
motivated definition, is difficult since not every proposition corresponds to
one sentence (this is also the reason why Carlson & Marcu 2001 introduce a
relation SAME UNIT to draw parts together which correspond to one propo-
sition).

So there is no agreement on an exact criterion for what is a discourse unit
and what is not. In this dissertation, I am interested in the occurrence of
modal particles and their function and therefore, I will apply a rather fine-
grained discourse analysis, where in most cases a discourse unit corresponds
to one clause, but there may be exceptions to this general tendency.

I order to generate a structure of discourse, the relations between the dis-
course units have to be analyzed. These relations have received different
names in the literature, e.g. coherence relations, discourse relations, con-
junctive relations or rhetorical relations. Most approaches depict the struc-

ture of discourse as a tree because trees, like discourses, allow for hierarchical structures of any complexity.

As a short side note, let me point out that that this is not completely uncontroversial. There are two facts that trees cannot handle: 1) One discourse unit can have several relations with others, which cannot be represented with simple tree structure formats (cf. Danlos 2005). 2) The same can be true for crossing dependencies (see Kehler (2011) and Irmer (2011) for this discussion, and also Egg & Redeker 2008 for counter-arguments).[4] I will not take up this discussion here. In order to be able to depict discourse structure without structural limitations, I will use a flexible tree editor (RSTTool) that allows for all structure relation types which are included in my discourse structure model.

Turning back to the possible interpretation of the discourse in (103), the structures in 6.1 and 6.2 reflect the different readings. It is important that the trees include hierarchy and do not only relate the units in a linear order. Although this idea is not too odd if we bear in mind that discourse unfolds utterance by utterance in a linear fashion, the linear order does not represent the meaning of the discourse appropriately. In fact, in the first interpretation of (103), the second and the third discourse unit possibly belong 'closer together', they form a larger discourse unit which in turn is connected by a causal relation to the first discourse unit: The structure of discourse is hierarchical and recursive.

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[4]To solve this problem, less constrained graph structures have been proposed in which all the preceding discourse is included in interpreting a discourse unit and relations can hold between all discourse segments. This idea, however, is unconstrained and brings its own problems.

CAUSE

John paints his
house green.

LIST

The post office is
closed for two
weeks.

Spring is coming.
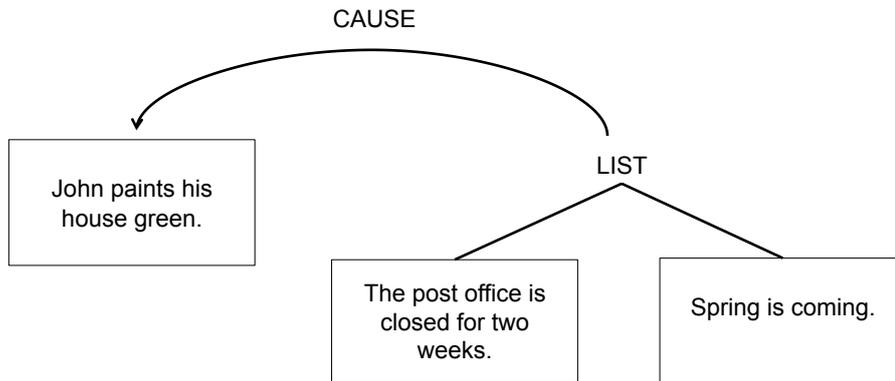
Figure 6.1.: Hierarchical discourse structure of reading 2 for (103)

In the second interpretation, in contrast, all three discourse units together answer the question "What happened?". It is not the first unit that forms a list with the second, and the second that forms a list with the third, but all three sentences together constitute a list.

LIST

John paints his
house green.

The post office is
closed for two
weeks.

Spring is coming.
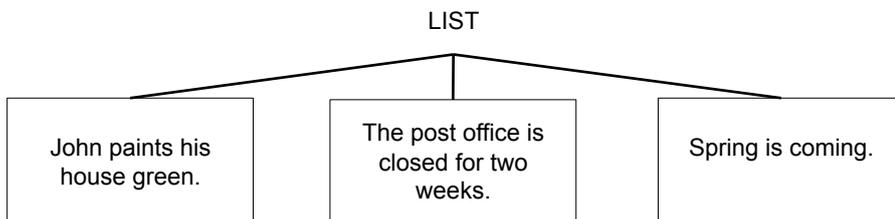
Figure 6.2.: Hierarchical discourse structure of reading 1 for (103)

The trees reflect that in reading 2, the discourse units are not of the same importance. While the three sentences are of the same or similar importance in reading 1, the LIST, but not in the causal relationship (reading 2): Information is given in one discourse unit, and the second part contributes to it in that gives the cause for what is described in the first part. The arrows in figure 6.1 make unambiguous which part constitutes the cause and which is the consequence (in the case of this relation).

The difference with respect to different levels in the structure that is to be

observed between figure 6.1 and 6.2 is that of 'subordinating' and 'coordinating' structures, which has been mentioned before (section 5.2.2). It is usually assumed that discourse relations are either coordinating or subordinating as in most cases one of two related discourse units is more central to the purpose of the discourse or that one cannot be comprehended without the other. Also, the relation between the discourse units in (103) can be reversed if it is a LIST relation, as illustrated in (114). This is not possible in the case of subordinative relations.[56]

(114)   The post office is is closed for two weeks. John paints his house green. Spring is coming.

The distinction between coordinating and subordinating discourse relations often – but not always – overlaps with syntactic coordination and subordination, which might be no coincidence: Taboada & Mann point out that subordination at the clause level might be the result of a grammaticalization of discourse relations (Taboada & Mann 2006: 427, cf. also Matthiessen & Thompson 1988). Overall, the dichotomy of coordination and subordination is one that is not explicitly made in all papers on discourse but often implicitly assumed as will be shown in the next section.

Apart from the intuition on different degrees of importance, there are also linguistic facts that make it necessary to assume a division into different types of discourse relations. One such motivation is the **Right Frontier Constraint** described by Polanyi (1988, 2001). It says that a new unit in discourse can only be added to the 'right edge' of the preceding discourse. The Right Frontier Constraint can serve as an explanation for the fact that the content of utterance made previous in discourse, are no longer accessible at the moment of speaking, i.e. the discourse participants cannot easily

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[5]It is also not possible in all coordinating relations: In case of a temporal sequence, the parts cannot be reversed in order.

[6]Asher & Vieu (2005) claim that some relations are not per se coordinating or subordinating, it rather depends on how they are used: "these notions [coordination and subordination, S.D.] are a feature of the structure of the discourse representation or logical form of a discourse, which we take to be part of the level of information packaging or how the information is presented" (Asher & Vieu 2005: 594). This feature of discourse relations, however, is not central for this work here, so we will stick to the classification of relations that is agreed on in most theories.

refer back to them without first bringing it up again. This is also due to limited capacities of speakers. The tree in figure 6.3 illustrates Polanyi's notion of 'being right open':
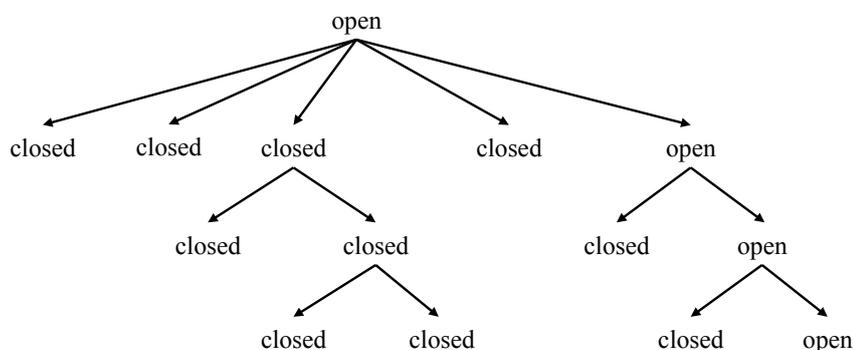
Figure 6.3.: Right Frontier Constraint (Polanyi 1988: 613), coordination and subordination

Figure 6.3 shows that in the case of coordinated discourse units, the rightmost unit, i.e. the last one uttered, and also the other units at the right edge remain open for the attachment of another unit, the others do not. In case of subordination, any node along the right edge is open, i.e. the mother node as well as the respective right daughter.

An example can be used to illustrate why it is necessary to assume a hierarchical structure involving different types of relations as in figure 6.3. Each π stands for a discourse referent.

(115) π_1 John had a great evening last night.
         π_2 He had a great meal.
         π_3 He ate salmon.
         π_4 He devoured lots of cheese.
         π_5 He won a dancing competition.
         π_6 ??It was a beautiful pink.

(Asher & Lascarides 2003: 8)

The utterance in π_6 does not match the preceding discourse. This is because the hearer would naturally try to resolve the pronoun *it* to *dancing competition* which does not make sense. It would be plausible for *it* to refer to *salmon* in π_3 but due to the Right Frontier Constraint, only items in the discourse units at the right edge are available for the resolution of an pronoun. Consider a simplified hierarchical structure of (115), where only coordination of relations is assumed:
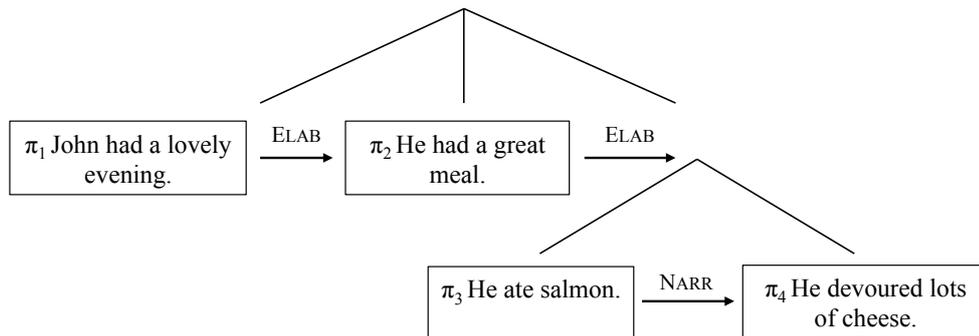
Figure 6.4.: Simple structure of (115) without subordination (as for example in Asher & Lascarides 2003)

This depicts the following interpretation: π_2 elaborates on π_1 and *the great meal* is elaborated on by the narrative sequence of π_3 and π_4. Figure 6.4 seems to capture the meaning of (115), but comes to an problem with the utterance of π_5. Intuitively, π_5 elaborates on π_1 and therefore should be attached to it together with π_2, but π_1 is not at the right edge of the discourse and therefore no longer available for attachment. Besides our intuitions on different types of discourse units, it is this problem that motivates why subordinating relations are needed. Assuming that ELABORATION is a subordinating relation, we arrive at the structure shown in figure 6.5 which allows us to subordinate π_5 under π_1 and makes the correct prediction about the inappropriateness of *it* in π_6:
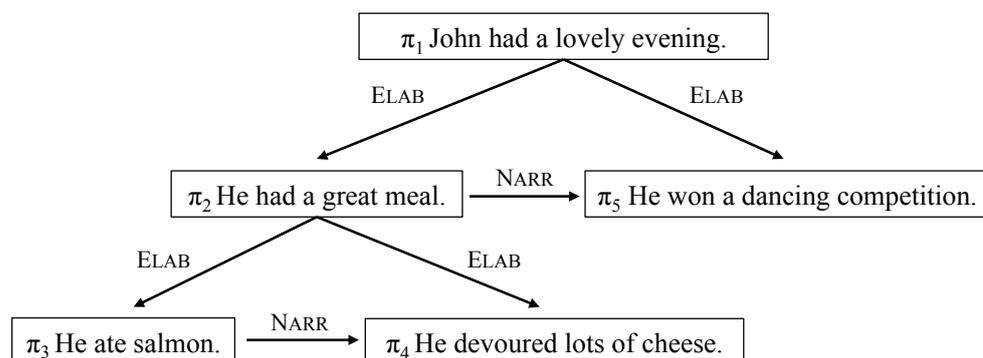
Figure 6.5.: Hierarchic structure of (115) (according to Asher & Vieu 2005: 593)

6.2.2. Previous Accounts with Discourse Relations

In the previous section, I discussed what discourse relations are and why they are relevant for the interpretation of discourses. It is the relations that determine the structure of a text and make it coherent, therefore they are at the core of theories of discourse coherence. The differences between theories most obviously are reflected by the different taxonomies of relations. Most basically, theories differ in the number of relations proposed. The span reaches from only two basic distinctions (DOMINANCE and SATISFACTION-PRECEDENCE, Grosz & Sidner 1986) to over 70 relations (Carlson & Marcu 2001) or even more. Hovy & Maier (1995) call these two positions 'parsimonious' and 'profligate'.

The differences in the taxonomies result from different strategies used in the approaches. There are two general ways to approach the question which discourse relations should be assumed. Either one considers in what ways discourse units can be connected from a cognitive perspective, i.e. how thoughts are related to each other. This can be called a **top-down** approach. Hume (1748) for example claims that there are three types of connections that hold between ideas: *Resemblance, Cause-Effect* and *Contiguity.* Or one proceeds in a **bottom-up** manner and categorizes the linguistic devices a language has to connect two utterances and infers the relations

from them (e.g. Knott & Dale 1994, Knott 1996). Knott's list of connective devices (see chapter 6.1.2) would be a good starting point for this approach. Depending on the approach, the proposed sets of relations may look quite different: a detailed classification of connectors will result in more categories than a theory based on the ways thoughts can be related with each other (consider e.g. Grosz & Sidner's two relations mentioned above).

Irrespective of the underlying theories, the differences between the taxonomies influence their 'manageability' in the sense that the set may be more or less feasible for an annotator. Clearly, a set with more than 70 relations is likely to be more difficult to use for annotation than one with only 20. Knott & Dale (1994) speak of a general proliferation of relations in the theories following Mann & Thompson's (1988) proposal. This criticism refers to the usability of the taxonomy, not to the power of the theory as such, so we have to distinguish between theory and annotation guidelines. Most approaches to discourse structure contain both: a theory as well as a concrete proposal for an inventory of discourse relations. It is not possible to give an exhaustive overview of all existing approaches to discourse structure using discourse relations, so I will introduce four influential approaches in order to represent the diversity: Hobbs (1985) was one of the first theories to elaborate the idea of discourse relations (section 6.2.2.1). The Rhetorical Structure Theory of Mann & Thompson (1988) has been very influential and is the starting point for many other approaches (section 6.2.2.2). Segmented Discourse Representation Theory (Asher & Lascarides 2003) is an extended version of the dynamic discourse representation theory (Kamp 1981, Kamp & Reyle 1993) (section 6.2.2.3). Finally, Kehler (2002) is a proposal for discourse relations based on the different ways to connect thoughts.

6.2.2.1. Hobbs (1985)

Hobbs (1985) was one of the first to provide a complete theory of discourse interpretation and discourse relations. Taking for granted that discourse is coherent and coherence relations exist, his aim is to give a theory of coherence relations that is part of a larger theory of discourse interpretation.

Hobbs' (1985) interest therefore is not purely descriptive, but he motivates the relations on a cognitive level. In Hobbs' theory, the notion of knowledge is crucial:

> "The process of interpreting discourse is a process of using our knowledge gained in the past to construct a theory of what is happening in the present." (Hobbs 1985: 2)

Discourse comprehension involves a number of steps that can each be described in their own sub-theory and Hobbs (1985) sketches these. First of all, discourse has to be translated into a formal notation (first-order predicate logic), which yields a logical form for each of the sentences in the discourse. Next, a knowledge base comprises world knowledge which is used by the comprehenders to interpret incoming information. More precisely, conclusions from these knowledge axioms are drawn by applying deductive mechanisms. Without any background and context knowledge, the hearer would probably generate more than one possible interpretation for a discourse. Therefore, the conclusions drawn from world knowledge are constrained in that they have to contribute to solving "discourse problems", as for instance coreference resolution or congruence between predicate and arguments in case of metonymy or metaphors. In other words, what the discourse is about influences what inferences the hearer draws in order for the whole process to be directed and economical. But there are also discourse problems to be fixed beyond sentence level: the hearer has to establish global coherence[7] as well as local coherence (the relationship between a sentence and the surrounding context) (Hobbs 1985: 8). So, information from the knowledge base is used to solve problems that may occur in interpreting discourse.

Within this larger framework of discourse interpretation, Hobbs (1985) places his theory of discourse relations. His definitional criteria for discourse are the following:

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[7]Global coherence in Hobbs means the relationship between a sentence and the surrounding world, where it remains unclear what 'world' or 'environment' refers to. Hobbs notes that the world might be understood in terms of plans or tasks pursued by speaker and hearer, cf. Hobbs (1985): 7.

"(1) The speaker wants to convey a message. (2) The message is in service of some goal. (3) The speaker must link what he says to what the listener already knows. (4) The speaker should ease the listener's difficulties in comprehension." (Hobbs 1985: 8)

In this definition, mainly the intentions of the speaker are emphasized: S/he wants to convey information to the hearer and make sure that this succeeds. Hobbs (1985) uses these four points to establish four groups of discourse relations: relations of **(1) occasion**, of **(2) evaluation**, relations that relate the information to **(3) prior knowledge** and relations of **(4) expansion**. In case of OCCASION relations, the speaker expresses that there is a relation between the underlying states or events and Hobbs takes OCCASION to be the most general relationship, more general than causal or temporal relations. Examples for OCCASION are given in (116) and (117):

(116)   Walk out the door of this building. Turn left. Go to the corner.

(117)   He noticed the broken connection in the control mechanism, and took it to his workshop to fix.

(Hobbs 1985: 12, 13)

Hobbs (1985) defines the two instances of OCCASION as follows:

1. A change of state can be inferred from the assertion of S_0, whose final state can be inferred from S_1.

2. A change of state can be inferred from the assertion of S_1, whose initial state can be inferred from S_0.

(Hobbs 1985: 10)

"Change of state" is not restricted in Hobbs' theory: It can refer to a change in knowledge (as in (117)) or in mental state as well as to a change of location if the discourse has the form of directions to get from A to B (as in (116)). Note that in fact a change of state is inevitable whenever an utterance is

made. Hobbs' definitions are based on the inferences the hearer can draw from the two sentences. As we see in (116) and (117), the definition is broad enough to include a number of relations between discourse units, for example temporal sequences, cause and result, condition and enablement. Hobbs (1985:23) argues that this class of relations involves a weak causality. The second group of relations is derived from part (2) of Hobbs' (1985) definition of discourse: It is about the goal of the discourse and how the information in a discourse unit relates to this goal. Goals include not only communicative goals as to entertain or to be understood but also "worldly goals", i.e. if the speaker wants to motivate the hearer to do something with his/her utterance (cf. Hobbs 1985: 12). This class of relations includes different types of rather meta-discursive utterances, such as evaluations (cf. (118)) as well as justifications (cf. (119)):

(118)   (A story). It was very funny at the time.

(119)   Did you bring your car today? My car is at the garage.

In contrast to Hobbs' (1985) class 1, this class of relations is not based on a relation between state of affairs, i.e. on the content level, but it is rather about the function one utterance has with respect to the other one.

The third class of relations accordingly relates to criterion (3) and establishes a relationship between the utterance and the hearer's background knowledge. It includes the relations BACKGROUND and EXPLANATION. The definition for BACKGROUND is given below. Hobbs' uses the notion 'entity' for referents of definite noun phrases (Hobbs 1985:6).

Background:
"Infer from S_0 a description of a system of entities and relations, and infer from S_1 that some entity is placed or moves against that system as a background." (Hobbs 1985: 13)

Hobbs defines BACKGROUND in terms of a figure that is viewed against a ground. The notion "system of entities and relations" as description for the ground is intentionally vague as it refers not only to temporal information

as in (120). For Hobbs, BACKGROUND does also refer to examples like (121), where a definition preamble constitutes the background information for what follows:

(120)   Peter was sitting in the garden, reading his music magazine. Suddenly, his neighbor started to scream.

(121)   T is a pointer to the root of a binary tree. ... The following algorithm visits all the nodes of the binary tree in inorder [sic], making use of an auxiliary stack A.
         T1: Initialize. Set stack A empty and set the link variable P to T.

(Hobbs 1985: 13)

The last class of relations that Hobbs (1985) proposes are the group of Expansion relations with which the speaker expands the discourse "in place" instead of moving on (Hobbs 1985: 14). In other words: The speaker sticks to one point and adds information to it (as in the well-known distinction between foreground and background) instead of introducing a new aspect to discourse. This kind of information is supposed to help the hearer during the comprehension process. This group includes more relations than the other ones (PARALLEL and ELABORATION, GENERALIZATION and EXEMPLIFICATION, CONTRAST and VIOLATED EXPECTATION). A point in discourse can be expanded from general to specific, from specific to general and also from specific to specific.

These four groups of relations cover the aspects that Hobbs (1985) considers to be central to discourse: To convey information. Hobbs (1985) also brings up the dichotomy of coordinating and subordinating relations that has already been mentioned in section 6.2. For Hobbs (1985), a relation is coordinating if from two related discourse segments one common proposition can be inferred. A relation is subordinating if "the assertion of the composed segment is the assertion of the dominant segment" (Hobbs 1985: 25), where the composed segment is the connection of S_0 and S_1. So, if S_1 is the dominant segment in the composed segment (Hobbs does not explain

the notion 'dominant' further), the assertion of S_0 and S_1 equals the assertion of S_1.

The set of discourse relations proposed in the theory of Hobbs (1985) - four groups with a total of ten to 15 concrete relations – is medium-sized. His work is so influential because it covers a wide range of relevant topics, not only discourse interpretation and discourse relations. He also discusses the notion of topic, the influence of genre, deviations of coherence, as well as the question how discourse analysis should proceed (from dividing the discourse into segments to assigning the relations).

Many of the aspects and notions introduced in Hobbs (1985) have been taken up, expanded and modified afterwards. His claims about the structure of discourse, also the introduction of discourse trees and the observation that segments are related recursively to larger segments, are assumptions that have been carried over to nearly all subsequent approaches.

In contrast to many other approaches, Hobbs (1985) does not discuss discourse relations in isolation, but he argues that a theory of relations has to be embedded in a theory of discourse interpretation. Throughout his work, he stresses the crucial role of the integration of knowledge. His four groups of discourse relations, therefore, are based on general aims and strategies in conversation: expanding discourse, setting the utterance in relations with background knowledge or with the goal of discourse and the description of changes of state.

6.2.2.2. Mann & Thompson's (1988) Rhetorical Structure Theory

The Rhetorical Structure Theory (RST) was developed parallel to the work of Hobbs (1985). The motivation to develop a theory like RST originated in the field of computational linguistics. At the beginning of the 1980s, a group of researchers around William C. Mann and Sandra A. Thompson found that computer-generated text was missing an important characteristic of discourse in general: coherence. To approach this issue, a theory of text organization was required. This was the starting point for Mann & Thompson's work on coherence and discourse relations. Their theory was

supposed to fit the needs of computational linguists.

In their first papers on the topic, Mann & Thompson (1983) call the relations between discourse units "relational propositions", arguing that the status of the relations is that of an implicit proposition. They stressed that these implicit propositions are basic in the sense that language users commonly draw these inferences during communication. Although the description of the single relations is rather pre-theoretical and vague in these first papers, it is already emphasized that they "are essential to the effective functioning of a text" (Mann & Thompson 1983: 10).

In the following discussion of the main features of RST, the focus will be on Mann & Thompson (1988), in which the theory is worked out in detail. Here, the tasks of RST are defined as follows:

> "It identifies hierarchic structure in text. It describes the relations between text parts in functional terms, identifying both the transition point of a relation and the extent of the items related. It provides comprehensive analyses rather than selective commentary." (Mann & Thompson 1988:243)

RST understands relations as an instrument to describe the structure of discourse. Mann & Thompson regard discourse as a cognitive entity and stress that the relations hold in fact between the intentions that are represented by the discourse units. The focus of their paper, however, is not on this cognitive level but to describe the structure of discourse and for simplicity, they say that the relations hold between text spans (Mann et al. 1992: 45). In later papers on RST, the relationship between discourse relations and intentions is discussed more explicitly (cf. Taboada & Mann 2006: 432).

In this classical version of RST, a set of 24 discourse relations is proposed. Mann & Thompson (1988) do not claim that this is exhaustive, it is "an open set, susceptible to extension and modification for the purposes of particular genres and cultural styles" (Mann & Thompson 1988: 250). Restrictions or modalities for expanding the set are not given. The 24 relations are chosen on the basis of experience: Having used RST for the analysis of a number of texts, these were the relations that Mann & Thompson found to be used regularly. The procedure, therefore, is neither top-down nor bottom-up in

the sense described in section 6.2.2 but based on practical experience.

Comparing Mann & Thompson (1988) to Hobbs (1985), there is a crucial difference in how the relations are defined. Hobbs (1985) defines most of them in terms of the inferences the hearer can draw from the utterances of S_0 and S_1 and the way they are connected. RST, in contrast, formulates constraints and gives the (intended) effect of the relation to classify them. The reason for focusing on the effect is that according to RST, there are no reliable morphological or syntactic signals for identifying relations (Taboada & Mann 2006: 426). A further note in terminology concerns the distinction between **nucleus** and **satellite**: The more important and central discourse unit in the relation is the nucleus. The other discourse unit which 'supports' the nucleus, is called satellite. The general idea is that all satellites could be deleted from a text, while the remaining nuclei would still convey the main line of argumentation.

Mann & Thompson's (1988) definition schema will be illustrated using the Background relation as an example. The definition consists of constraints for the nucleus (N), the satellite (S) and the combination of both: the utterance that constitutes the nucleus should be such that the reader (R) cannot completely comprehend it unless s/he receives the information given in the satellite. There are no constraints on what kind of utterance the satellite has to be. The constraints on the combination of nucleus and satellite are actually repeated in what Mann & Thompson (1988) formulate as the effect of Background. Additionally, it is noted whether the described effect originated in the nucleus or in the satellite.

relation name:	Background
constraints on N:	R won't comprehend N sufficiently before reading text of S
constraints on S:	none
constraints on the N+S combination:	S increases the ability of R to comprehend an element in N
effect:	R's ability to comprehend N increases
locus of the effect:	N

(Mann & Thompson 1988: 251)

An example for BACKGROUND is given in (122):

(122)   John works at 'The Green Umbrella'. That is a restaurant.

If we apply the above definition to the example, we get the following: The speaker assumes that the hearer will not understand 'John works at The Green Umbrella' completely unless s/he adds the information in the satellite, i.e. that it is a restaurant. The information in S increases the hearer ability to understand the information in N (or maybe only what 'The Green Umbrella' refers to). That is the effect at the same time, and this effect, i.e. the increased ability to understand, refers to the information in N (locus of effect).

For RST, the complete set of relations proposed will be introduced here since the set of relations I used (see appendix A) is derived from it. In table 6.1, the RST relations are divided into subject-matter and presentational relations and I will come back to this dichotomy down below. The three relations marked with a star (CONTRAST, JOINT and SEQUENCE) are multinuclear relations, whereas all the others are mononuclear. This distinctions is parallel to the one between coordinating and subordinating discourse relations made in Hobbs (1985) and discussed above in chapter 6.2.

Subject-Matter Relations	Presentational Relations
CIRCUMSTANCE	ANTITHESIS
CONDITION	BACKGROUND
CONTRAST*	CONCESSION
ELABORATION	ENABLEMENT
EVALUATION	EVIDENCE
INTERPRETATION	JUSTIFY
JOINT*	MOTIVATION
NON-VOLITIONAL CAUSE	
NON-VOLITIONAL RESULT	
OTHERWISE	
PURPOSE	
RESTATEMENT	
SEQUENCE*	
SOLUTIONHOOD	
SUMMARY	
VOLITIONAL CAUSE	
VOLITIONAL RESULT	

Table 6.1.: Basic RST Relations (Mann & Thompson 1988)

Mann & Thompson (1988) do not only define relations, they also point to similarities and differences between single relations. Moreover, they describe possible structures in discourse which arise through the different types of relations; these are called **schemas**. Figure 6.6 depicts the ways in which discourse units can be related to each other:
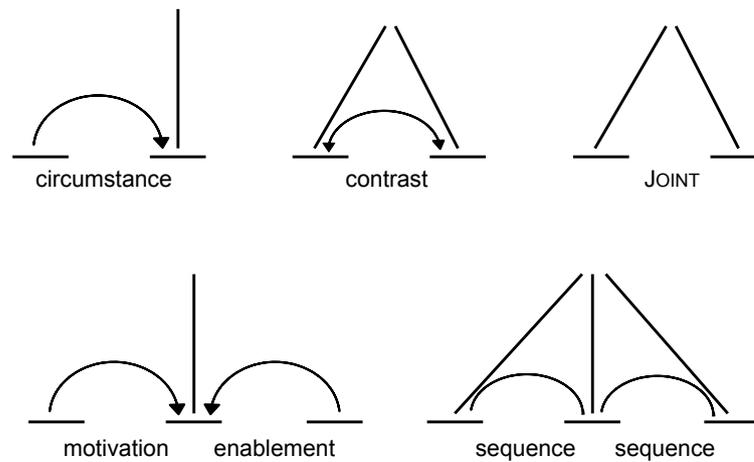
Figure 6.6.: RST schema types (Mann & Thompson 1988: 7)

In RST schemas, the nucleus is always marked by the vertical line and the satellite is connected to the nucleus by a curved arrow. In the most common case, a satellite relates to a nucleus, as in the first case. A discourse unit can also serve as the nucleus for two other satellites, as seen in the MOTIVATION-and-ENABLEMENT case. The other three cases are schemas for multinuclear relations where either two or more nuclei are related, i.e. the discourse units involved are of equal importance.[8] Mann & Thompson (1988) generalize observed tendencies by giving standard orderings for some of their relations: For ANTITHESIS, BACKGROUND, CONCESSION, CONDITION, JUSTIFY and SOLUTIONHOOD, the satellite usually is uttered before the nucleus. For ELABORATION, ENABLEMENT, EVIDENCE, PURPOSE and RESTATEMENT, it is the other way around (Mann & Thompson 1988: 256)[9]. With their schemas and schema application rules, Mann & Thompson (1988) restrict possible structures in discourse. The schemas are supposed to have the same status as grammatical rules. So, RST provides a set of relations and also formulates in which way these relations can combine discourse units.

Discourse structure according to RST is best depicted as a tree structure

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[8]There is no explanation in Mann & Thompson (1988) for the fact that on the case of SEQUENCE, no arrows point towards the nuclei.

[9]Stede (2008): 17 shows some reverse orderings.

and this follows from a set of conditions formulated for the structural analysis of a whole discourse.[10] The analysis of a whole discourse is a set of schema applications and has to fulfill the following conditions (cf. Mann & Thompson 1988: 266): Each discourse unit has to be connected to another by a schema application (**connectedness**) and each set of text spans is only involved in one schema application (**uniqueness**). Also, within a schema application, the text spans connected form another text span (**adjacency**). Finally, the condition of **completeness** requires that even long texts can be represented as one discourse tree. This is, however, an idealized assumptions since analyses of naturally occurring discourses prove very soon that this often is not possible. Discourses are often interrupted by utterances that do not contribute to the topic, or the topic is changed in between (theories like Carlson & Marcu 2001: 33 propose a relation TOPIC DRIFT for this). In order to be able to nevertheless have trees of large complexity, Mann & Thomson (1988) introduce the JOINT schema. JOINT is no relation, it is only a schema to connect (indefinitely many) nuclei. JOINT stands for "the declared absence of a relation" (Taboada & Mann 2006: 426; cf. also Mann & Thompson 1988: 6 and the appendix). This procedure of introducing a schema that does not imply any meaning relation is theoretically not very attractive, but in fact it is a practical solution for an unsolved problem within the theory, i.e. how to deal with relations that cannot be labeled with one of the 24 RST relations or with cases where for reasons of performance incoherence occurs.

I will now turn to the distinction between the RST relations shown in table 6.1: **subject-matter** versus **presentational** relations. The difference is based on the question what aspects of text structure a relation refers to. Subject-matter relations are based on the content level, while presentational relations "are used only to facilitate the presentation process itself" (Mann & Thompson 1988: 256). The difference can be seen clearly between CAUSE and JUSTIFY where the former is a causal relation on the subject-matter, i.e. propositional level and the latter on the presentational level. See (123)

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[10]Taboada & Mann (2006) in their revision of the latest development of RST also make clear that RST does not claim that discourse structure necessarily has to be captured as as tree. The use of trees is convenient but definitely not the only possibility.

and (124) for illustration:

(123)   Peter is in his office. He has to finish a project today.

(124)   Peter is in his office. You said you had a question for him.

(123) is an instance of a CAUSE relation: The fact that he has to finish a project is the reason for Peter to be in his office. The relation in (124) is different: The second sentence gives the reason why the first sentence is uttered by the speaker. This relation is a JUSTIFY relation in RST where the comprehending of the information in the satellite "increases R[eader]'s readiness to accept W[riter]'s right to present N[ucleus]" (Mann & Thompson 1988: 11). A similar distinction has been made by other authors who respectively called these relations 'semantic' versus 'pragmatic' (cf. van Dijk 1979, Sanders et al. 1992), or 'ideational' versus 'pragmatic' (cf. Redeker 1990). I will come back to this kind of distinction in section 7.2.1.

In the RST definitions, the distinction between subject-matter and presentational relations is reflected in the 'effect' parameter: For subject-matter relations, Mann & Thompson (1988) claim that their intended effect is that the addressee simply recognizes the relation. For (123), this means that the speaker wants the addressee to realize that the state of affairs expressed in the second discourse unit is the cause for the state of affairs in the first. The effects of presentational relations are more diverse:

> "presentational relations are those whose intended effect is to increase some inclination in the reader, such as the desire to act or the degree of positive regard for, belief in, or acceptance of the nucleus'.' (Mann & Thompson 1988: 257)

table 6.1 shows that RST takes seven relations to have a presentational effect: ANTITHESIS, BACKGROUND, CONCESSION, ENABLEMENT, EVIDENCE, JUSTIFY and MOTIVATION.

RST has been very influential as an approach to discourse structure in that it has served as a starting point for many subsequent theories. Mann & Thompson's (1988) article does not only offer a set of 24 relations, it also

specifies what forms a relation between discourse units can take and what conditions have to be fulfilled by a complete analysis of text. One of the main advantages of RST is that it has been proven to work for natural language data. But of course the theory has also received criticism in the last decades. Part of the criticism refers to annotation difficulties. RST defines the relations in a way that makes the analysis strongly depend on the intuition of the interpreter (cf. Bateman & Rondhuis 1997: 8). The relations are defined in terms of constraints on nucleus and satellite and the effect on the hearer, but no formal criteria or tests are given for the identification of the relation. The assignment of them, thus, completely depends on how the analyst interprets the discourse which makes the annotation more difficult – and probably also gives rise to more disagreement between annotators. Mann & Thompson (1988) themselves note that the analysis of texts using discourse relations is not a matter of right or wrong, but of plausibility (cf. Mann & Thompson 1988: 245). This might lead to arbitrariness:

> "The hypothesis that 'virtually any text can be analyzed by representing its rhetorical relations' becomes much less strong if relations can be created whenever they are needed. [...] The extra claim in RST –that text is coherent by virtue of the relations between its intentions – is virtually unfalsifiable without a method for specifying what is to count as a relation in the first place."

> (Knott & Dale 1994: 39)

To illustrate this, Knott & Dale 1994 use the following example:

(125)   John broke his leg. I like plums.

(125) appears to be incoherent without further context. According to Mann & Thompson (1988), however, a sequence of sentences is coherent as long as one can assign a rhetorical relation to it, and as the set of relations is open to extension, Knott & Dale (1994) argue that one could invent a INFORM-ACCIDENT-AND-MENTION-FRUIT relation and thereby analyze (125) as coherent. However, clearly not every discourse relation that possibly could be

introduced brings an explanatory advantage.

This kind of problem can also be found in other linguistic domains, as for example for the concept of thematic roles where there is no limitation for the addition of new thematic roles. One solution proposed often is to only allow relations for a classification for which a relatively clear marker can be found, even if there is no one-to-one relationship between markers and relations. This strategy would facilitate the annotation for discourse relations, but it would also limit the number of relations crucially as for some relations, there simply is no formal marker.

To be sure, RST, as worked out in Mann & Thompson (1988), has weaknesses. A theory which focuses on the usability of the relations more than on the cognitive side is relatively unconstrained with respect to the number and character of discourse relations.

However, it is for a good reason that RST has received so much attention, up to the present. The work of Mann & Thompson (1988) contains a set of discourse relations that is detailed enough to allow for an informative analysis of discourse and at the same time is concise enough to be convenient for annotators. Moreover, the RST set of relations has been developed based on the experience from analyzing a large number of naturally occurring texts. The fact that RST has been developed on the basis of experience with analyzing natural language data is one of the main arguments in favor of the theory.

6.2.2.3. Asher & Lascarides (2003) – Segmented Discourse Representation Theory

Some of the problems of RST are overcome in Segmented Discourse Representation Theory (SDRT) as set up in Asher & Lascarides (2003). In order to understand SDRT, Discourse Representation Theory (DRT) has to be introduced shortly since it is the precursor to SDRT.

DRT was developed by Kamp (1981), mainly for explaining the interpretation of anaphora and tense, which could not be described appropriately with existing semantic approaches, which were restricted to the sentence

level. The main innovation of DRT was to account for the interpretation of discourse, not only sentences. The mental representation of discourse, according to DRT, takes the form of discourse representation structures (DRSs) which are built up incrementally in the hearer's mind during the interpretation of a discourse: Every new sentence updates a DRS K_0 to a richer DRS K_1. A DRS consists of a set of **discourse referents** and a set of **DRS conditions**. The latter is knowledge the hearer already possesses about the discourse referents.[11] DRSs are typically represented as boxes where the top part contains the universe of discourse referents and below the conditions are given, as illustrated in 6.2:

$$\begin{array}{|l|} \hline x \\ \hline girl(x) \\ sing(x) \\ \hline \end{array}$$

Table 6.2.: Box notation for a simple DRS

DRT can be used to show how anaphoric references are interpreted, as well as quantifiers and presuppositions. It does not take into account, however, what relationship holds between two propositions.

This is the starting point for **Segmented Discourse Representation Theory**. Asher & Lascarides (2003) observe that the type of relation between two sentences influences the resolution of anaphora (cf. (101-a) and (101-b)). I have already discussed this phenomenon in section 6.2, the example for the Right Frontier Constraint is repeated here as (126):

(126) π_1 John had a great evening last night.
          π_2 He had a great meal.
          π_3 He ate salmon.
          π_4 He devoured lots of cheese.
          π_5 He won a dancing competition.
          π_6 ??It was a beautiful pink.

---

[11]Note that this general idea is very similar to Irene Heim's File Change Semantics which was developed almost at the same time in 1982.

DRT would allow the pronoun *it* to be interpreted as referring to *dancing competition* which does not make sense, as discussed in section 6.2. Asher & Lascarides (2003) use this example as evidence that it is necessary to take discourse relations into account. Asher & Lascarides argue that NARRATION is the default assumption for a relation between two sentences (in the genre of narrative texts). It implies that the event in the first sentence temporally precedes the event in the second sentence. In the case of ELABORATION, the speaker gives more information on a point (e.g. on *the great meal*) but under the condition of temporal inclusion. As discussed before, the two different types of relations also induce different discourse structures: NARRATION induces coordination, ELABORATION subordination. The resulting DRS for (126) depicts the difference between coordination and subordination and also shows that – due to the Right Frontier Constraints – π_3 is not accessible for π_6.

Max had a lovely evening

Elaboration

He had a
great meal

Narration

He won a
dancing competition

Elaboration

He ate salmon

Narration

He devoured cheese
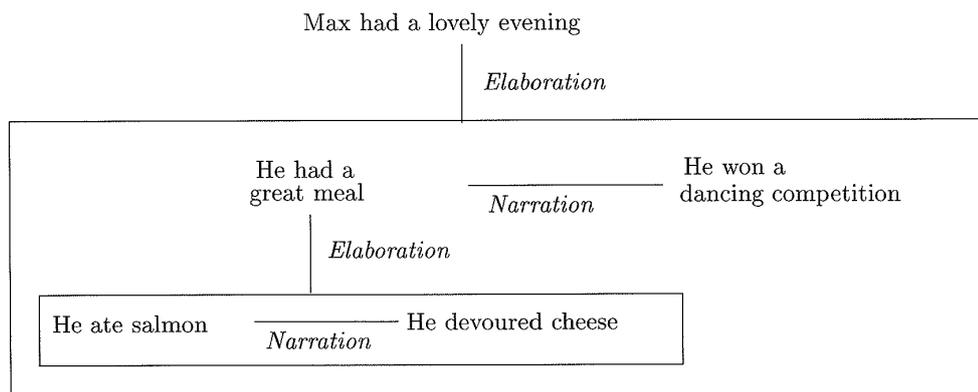
Figure 6.7.: Discourse Structure of (126) (Asher & Lascarides 2003: 9)

This example motivates why discourse relations are important and should find their way into SDRT as well. Asher & Lascarides (2003) propose to impose further conditions on the discourse referents. As a change to the unordered set of conditions in DRT, in SDRT, each sentence is represented as a segment which is assigned a label π_0, π_1, π_2 and so on. Discourse relations can hold between these labels and this in turn affects interpretation. If for example a NARRATION relation holds between two segments π_1 and

π_2, the hearer can infer via non-monotonic reasoning that the event e_1 described in π_1 happened prior to e_2 in π_2: $e_1 < e_2$. This temporal relation is part of the DRS. Asher (2013) calls the inferences that hearers draw to arrive at the right discourse relation **D-implicatures** (or discourse implicatures). These implicatures are defeasible, a hearer can always re-evaluate his/her interpretation of discourse.

In the appendix of Asher & Lascarides (2003), the authors define their proposed relations. Their set contains 24 relations some of which are defined for indicatives, interrogatives and imperatives separately. As an example, consider Asher & Lascarides' definition for BACKGROUND:

Background (α, β)

- It's veridical, and so satisfies the Satisfaction Schema.

- `Temporal Consequence of Background:`
  $\phi_{Background(\alpha,\beta)} \Rightarrow$ overlap (e_β, e_α)

- If the SDRS contains π' : $Background(\pi_1, \pi_2)$, then it also contains π : K_π where K_π 'repeats' the contents of K_{π_1} and K_{π_2} and π'' : $FBP(\pi, \pi')$

(Asher & Lascarides 2003: 460)

For Asher & Lascarides (2003), BACKGROUND is a coordinating relation. If a relation is subordinating, they state it explicitly in its definition. Recall that RST's BACKGROUND is a mononuclear relation, i.e. subordinating. The first part in the above definition is stated for all non-hypothetical relations and captures factivity, i.e. the relation entails that the two propositions expressed hold. In the second part, the SDRT definition contains a temporal relation, namely that the two events e_α and e_β overlap. Such a temporal overlap condition is not present in RST BACKGROUND, so SDRT BACKGROUND corresponds rather to CIRCUMSTANCE in RST.[12] SDRT-

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[12]In RST, BACKGROUND provides information which is supposed to help the addressee to understand the information given in the nucleus, while the satellite in CIRCUMSTANCE sets a (temporal) frame for the interpretation of the nucleus.

BACKGROUND applies to examples like (127):

(127)   Max opened the door. The room was pitch dark.

The last part of the definition captures the structural properties of the relation, where *FBP* stands for a relation *Foreground-Background-Pair*. In order to understand the specification for BACKGROUND, we need to look at a difference between NARRATION and BACKGROUND:

(128) π_1 A burglar broke into Mary's apartment.
         π_2 Mary was asleep.
         π_3 He stole the silver.

(129) π_1 A burglar broke into Mary's apartment.
         π_2 A police woman visited her the next day.
         π_3 ??He stole the silver.

(Asher & Lascarides 2003: 166)

In the case of BACKGROUND in (128), the referent in π_1 is available for the resolution of the pronoun *he* in π_3, while this is not the case in (129) where a NARRATION relation holds. This is unexpected since BACKGROUND in SDRT is a coordinating relation and so a referent in π_1 should not be available to π_3. To account for this, Asher & Lascarides (2003) argue that a BACKGROUND relation involves a specific kind of topic "whose content is constructed by repeating (rather than summarizing) the contents of K_{π_1} and K_{π_2}" (Asher & Lascarides 2003: 166), where K_{π_1} is a foregrounded event (and the main story line) and K_{π_2} is a background state. The relation *Foreground-Background-Pair* (FBP) connects this topic with the background.

This idea, captured by the third part of the definition above, only serves the aim to ensure that the resulting structure can account for the observed behavior of pronouns and referents. Vieu & Prévor 2004, however, argue that it is much more convincing to refuse the idea that BACKGROUND is a coordinating relation. If it is treated as a subordinating relation instead, these observations can be accounted for without additional assumptions.

There is no overlap between RST's and SDRT's Background, which on the one hand is due to the fact that the SDRT relation rather correspond to Circumstance in RST, and on the other hand the idea that the information in S is necessary for the hearer to understand N, is not present in SDRT at all. In SDRT, there is also a version of Background for interrogatives: Background$_q(\alpha, \beta)$ where β is a question for background information.

Generally speaking, SDRT is more detailed and comprehensive than RST. What hardly plays a role in SDRT, however, are those relations that Mann & Thompson (1988) call presentational, i.e. relations which do not hold on the propositional level. Asher & Lascarides (2003) label them **metatalk relations** and establish four of them. These relations also exist on the propositional level (Consequence, Explanation, Explanation$_q$, Result). An asterisk marks that this version of them holds on a different level:

> "*R*(α, β)* holds, where R is the content-level discourse relation (e.g. *Explanation* or *Result*), if and only if the content of one of the arguments (i.e., α or β) stands in the relation R to the fact that the speaker of the other utterance has the SARG of that utterance [...]"

> (Asher & Lascarides 2003: 335)

For a discourse like (130), for instance, SDRT assumes a relation Consequence*(α, β) with the semantics: "If α is true then S(β) has the SARG of β." (cf. Asher & Lascarides 2003: 470).

(130)   If you failed the test, then don't tell anyone.

So, if the information given in α is true, the speaker has the goal expressed in the second part, i.e. the addressee should not tell that information to anybody.

The inventory of pragmatic relations, as well as their description, is not worked out as much as the content-level relations in SDRT.

RST and SDRT cannot be compared easily since they set a different focus. RST primarily discusses the relations themselves and what structures can be composed with them. SDRT on the other hand is much more complex. It is a dynamic theory that does not only want to describe but also explain the organization of text and the building of a well-formed structure. SDRT includes anaphoric reference and its aim is to make a text as coherent as possible. In order to do so, SDRT has default assumptions (e.g. for NARRATION, see above). Compared to RST, SDRT provides a more formal and exactly defined set of relations. The definitions are based on truth-conditional semantics, they use the logic of non-monotonic reasoning to show what it is that an addressee interprets when processing the relationship between discourse segments. Some standard relations like CAUSE and RESULT are found in both classifications, but apart from that, the discourse relations of SDRT are – in contrast to those defined in RST – designed to cover dialogues as well, so there is a number of relations that do not have an equivalent in RST.

In general, Asher & Lascarides (2003) also want to explain what makes a discourse structure well-formed – a point that does also play a role in RST (e.g. with their notes on adjacency) but is not discussed as extensively. SDRT does not only consider the relations between sentences, they also focus on phenomena within the sentence to explain, for instance, the constraints on pronoun resolution within their framework. Since all SDRT definitions are based on construed examples, it remains to be proven whether the set of relations could be applied to naturally occurring data. SDRT is a theory with a wide scope and exact definitions. However, as a basis for the data analysis in the empirical part of this work, it proves to be too complex.

6.2.2.4. Kehler (2002): Connections among Ideas

In a number of publications, Kehler discusses the relationship between coherence, cohesion, and discourse relations. Kehler (2002) looks at linguistic phenomena that are cohesive ties: ellipsis, extraction[13], pronoun resolution

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[13]Kehler uses this notion for sentences like *This is the magazine which John bought*, where *magazine* is extracted out of its original position (Kehler 2002:101).

and tense interpretation, and shows that some of their characteristics are due to the discourse relations they occur in. Kehler (2002), as opposed to RST, establishes his relations on a general cognitive distinction (Kehler 2002: 3) which goes back to Hume's (1748) proposal mentioned already in section 6.2.2. Humes names three types of connections that hold between ideas: *Resemblance, Cause-Effect* and *Contiguity*. Kehler's (2002) "neoHumian" approach to coherence relations takes up the relations proposed by Hobbs (1985) and assigns them to the three cognitive categories of Hume. Kehler (2002) assigns six relations to the cognitive category of **resemblance** which is characterized as follows:

> "[...] to establish a Resemblance relation the hearer identifies a common relation p that applies over a set of entities $a_1, ..., a_n$ from the first sentence and a set of entities $b_1, ..., b_n$ from the second sentence, and performs operations based on categorization, comparison and generalization on each pair of parallel entities."

> (Kehler 2002: 20)

If there are corresponding entities within two sentences and commonalities or contrasts between them, the hearer – by reasoning – can establish a Resemblance relation. In figure 6.3, Kehler's (2002) six Resemblance relations are given, along with the constraints they impose and a typical conjunction. Kehler uses a_i and b_i for arguments, p for what he calls a relation, and q for properties. I will use a capital P and Q here instead, following the standard notation for predicates.

To illustrate this, let's consider an example for Exemplification:

(131)   Some former professional footballers start a career as coach later on. For instance, Diego Maradona trained the Argentinian national team for two years.

We take *some former professional footballers* as a_1 and *'Diego Maradona'* as a_2; P_1 denotes the predicate *'start a career as coach'* and P_2 refers to *'trained the Argentinian national team'*. The more general predicate P that

Relation	Constraints	Conjunctions
Parallel	$P(P_1)$ and $P(P_2)$, $Q_i(a_i)$ and $Q_i(b_i)$	*and*
Contrast	$P(P_1)$ and $\neg P(P_2)$, $Q_i(a_i)$ and $Q_i(b_i)$ $P(P_1)$ and $P(P_2)$, $Q_i(a_i)$ and $\neg Q_i(b_i)$	*but*
Exemplification	$P(P_1)$ and $P(P_2)$, $Q_i(a_i) \subset Q_i(b_i)$	*for example*
Generalization	$P(P_1)$ and $P(P_2)$, $Q_i(b_i) \subset Q_i(a_i)$	*in general*
Exception	$P(P_1)$ and $\neg P(P_2)$, $Q_i(a_i) \subset Q_i(b_i)$ $P(P_1)$ and $\neg P(P_2)$, $Q_i(b_i) \subset Q_i(a_i)$	*however*
Elaboration	$P_1 = P_2$, $a_i = b_i$	*that is*

Table 6.3.: Resemblance Relations according to Kehler (2002): 19

subsumes P_1 and P_2 might be paraphrased as *'work as football coach'*.[14] The predicate (property) Q for b_1 (Diego Maradona) is a subset of a_1.

All of the six Resemblance relations ask for the same kind of inferences: The hearer has to recognize that there are commonalities or contrasts between the predicates and entities mentioned in the first sentence and those mentioned in the second sentence. This requires world knowledge and context knowledge, but often the syntactic structure of the sentences also guides the hearer: "[...] it is common for clauses in Resemblance relation to wear their parallelism on their "syntactic sleeves" (Kehler 2002: 19).

The cognitive category **Cause-Result** is assigned four relations by Kehler (2012), in fact two types of relations but each additionally with reversed order of arguments: Result and Explanation one the one hand, and Violated Expectation and Denial of Preventer on the other hand.[15]

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[14]Note that Kehler uses the notion "relation" for what I call predicate here.

[15]In case of the Cause-Result relations, Kehler uses capital P and Q for proposition, which again I will modify. I use small p and q for propositions.

Relation	Presuppose	Conjunctions
Result	p → q	*and (as a result)* *therefore*
Explanation	q → p	*because*
Violated Expectation	p → ¬q	*but*
Denial of Preventer	q → ¬p	*even though* *despite*

Table 6.4.: Cause-Effect Relations according to Kehler (2002): 21

Kehler's (2002) Cause-Effect relations are characterized by a different type of inference the hearer has to draw. Here, it is a relationship between the constraints on the proposition p from sentence S_1 that is related with a proposition q from S_2. In the case of Resemblance relations, it was a set of entities. The hearer has to identify the propositions and "infer an implicational relationship between them" (Kehler 2002: 21). According to Kehler (2002), the fact that there is a causal relationship between p and q is presupposed. This presupposition may also be accommodated.

Finally, the class of **Contiguity** relations contains only one relation which is a slightly revised version of Hobbs' (1985) Occasion (see section 6.2.2.1 above):

> **Occasion (i):** Infer a change of state for a system of entities from *S1*, inferring the final state for this system from *S2*.
> **Occasion (ii):** Infer a change of state for a system of entities from *S2*, inferring the final state for this system from *S1*.
>
> (cf. Kehler 2002: 22)

Kehler (2002) states himself that this category is a bit "murky" as compared to his definition of Resemblance and Cause-Effect relations, the one for Occasion is very informal. The reason for that is that Occasion is applied for complex events or situations, it refers to different states of affairs of this

situation. The hearer then has to establish the right connection between them which requires "knowledge gained from human experience about how eventualities can enable (or otherwise set the stage for) other eventualities in the world" (Kehler 2002: 22). This type of knowledge, according to Kehler (2002) is difficult to pin down in precise constraints, and it is not even clear what kind of reasoning has to take place. An example for Occasion is given in (132):

(132)   George picked up the speech. He began to read.

In sum, Kehler assumes that discourse relations can be assigned to one of the three cognitive categories proposed by Humes: Resemblance, Cause-Effect and Contiguity. That means that the relation either comes about by commonalities or contrasts between the entities mentioned in the sentences, or by a causal relation between the propositions, or by a temporal relation between the state of affairs. Kehler (2002) takes up the relations that Hobbs (1985) uses, and although both approaches aim at a categorization that should reflect cognitive categories, they propose very different groups. Hobbs' groups Occasion, Evaluation, relation to Prior Knowledge and Expansion rather distinguish the relations according to what function one discourse unit has with respect to another one. So, Hobbs (1985) and Kehler (2002) depict different perspectives on the ordering of the same set of relations.

Kehler's (2002) approach has the advantage of categorizing the relations in a systematic way: He groups relations together which involve the same kind of reasoning which makes the definitions for the relations within one group very consistent. It is plausible that the three concepts of Hume are indeed a basic cognitive distinction. What remains open is whether these relations also are suitable to annotate a text with them. Comparing the relations to RST's set of relations, for instance, it is striking that relations like EVALUATION or INTERPRETATION are not part of Kehler's (2002) neoHumian classification, and it is not clear where they would fit in. The same holds for BACKGROUND or EVIDENCE. So, it would have to be tested whether the three groups of relations of Kehler would suffice for an annotation of a

text.

6.2.3. Intermediate Summary

In the first part of this chapter, it has been discussed that discourse is organized hierarchically and discourse units are connected recursively to form larger units. It is important to distinguish between subordinating and coordinating discourse relations, since these two types are essential categories. These are the main ingredients for describing discourse structure and they can be found in every discourse relation theory.

In the second part of this chapter, a selection of theories on discourse relations has been introduced. The theories differed with respect to on which aspect they focused on primarily: the underlying cognitive relation or the actual applicability to naturally occurring data. We have also seen different degrees of formalization in the definitions of discourse relations. Kehler (2002) as well as SDRT define them in terms of inferences the hearer has to draw, in the case of SDRT, truth-conditional logic is used. RST on the other hand describes constraints and effects in an informal way.

In this dissertation, I will use a set of discourse relations for the annotation of data which is derived from the relations proposed by RST (Mann & Thompson 1988, Taboada & Mann 2006). I modified the set slightly which will be discussed in section 9.2. I chose the RST relations as a basis for my set of relations because of their usability:

6.3. Discourse Structure and Implicit Questions

As a final note for this chapter, I want to point out that discourse relations are not the only way to describe the structure of discourse. There are also a number of approaches that account for discourse structure by describing what implicit question is answered by a discourse move. Consider (133) for illustration:

(133)   I will start my day off with a long breakfast. Afterwards I'll meet
          some friends to chat. In the afternoon I will do some sports. But

I don't want to be stressed.

This discourse can be described as answering the overall question: *How do you imagine a perfect day off?* It can be further structured by sub-questions to the main question, e.g. *What will you do in the morning? What will you do in the afternoon? What is it that you don't like on your day off?*

This general idea of implicit questions guiding discourse refers to the notion of discourse topic. It describes what a discourse is about and how the single parts of discourse contribute to the overall topic. But it also restricts how a discourse unfolds and in this way also makes predictions about its structure. One of the earlier approaches of this type is the **Quaestio theory** (Klein & von Stutterheim 1987). It accounts for coherence by elaborating the idea of implicit questions, i.e. quaestios. Information unfolds in discourse with every new utterance and the way in which this happens is determined by the main quaestio (called the 'text quaestio'). From this quaestio, restrictions arise which govern the structure of the text and the single utterances. In the case of (133), the main quaestio *How do you imagine a perfect day off?* guides the development of the text.

Specific text genres are structured by genre-typical questions. The report of an accident, for instance, will usually answer the questions *What caused the accident?*, *Who was involved?*, *What exactly happened?* and so on. Also, texts include pieces of information that do not contribute to answering part of the text quaestio, which Klein & von Stutterheim (1987) capture by their distinction between **main structure** ('Hauptstruktur') and **side structure**.

In other approaches, the notion of implicit questions is mainly used to account for phenomena of information structure, first and foremost Roberts (1996) with her notion of the **Question under Discussion** (QUD) which she uses to explain focus, contrasts and alternatives. Büring (2003) later on used the notion of QUD to explain contrastive topics, in the sense that different accent patterns due to different contrastive topics can be explained by different underlying QUDs. The work of van Kuppevelt (1995) is another example, for him "discourse derives its structural coherence from an internal, mostly hierarchical topic-comment structure" (van Kuppevelt 1995:

109). He claims that each discourse unit is associated with a topic and this topic is derived from an underlying explicit or implicit question. The relations that hold between different discourse units, then, result from the relations between the underlying questions. This idea can be seen as another approach to what discourse relations are and how they are established, even if this is not van Kuppevelt's (1995) main interest.

So, what is the position of the implicit question approaches with respect to those using discourse relations? They are two different perspectives on the structure of discourse. To determine which discourse relations holds between two units, one reconstructs an underlying question, which is also noted by Roberts 1996: 131:

> "Rhetorical relations can often, at least, be characterized in terms of questions and answers: e.g. the use of a *why*- question and its answer to characterize explanations, etc."

But the approaches are not completely parallel: Theories of implicit questions focus on the aim pursued with every discourse unit. Roberts (1996) establishes the notion of **strategies of inquiry** for the questions that the hearer tries to find answers to. This view on the one hand stresses the intentions of speaker and hearer, and on the other hand focusses on a specific aspect of discourse, i.e. to convey information. But discourse participants may also have other intentions than just exchanging information (cf. that this is what RST describes in its presentational relations). This limitation is also described by Roberts:

> "I suspect, however, that these relations often serve the goal, or question under discussion in another respect - the goal of discourse is only partly to offer more information, and partly to achieve consensus about the value of the information contributed. So some rhetorical structures are intended principally to convince one's hearers that the information offered is worth adding to the common ground, e.g. by showing how it follows from or explains other known facts, etc." (Roberts 1996: 131)

Theories of discourse relations and theories of implicit questions have different perspectives. For my purpose, theories using discourse relations are suited better because these theories are more informative: They capture more than just whether an utterance contributes to the overall discourse topic. Theories of discourse relations can also describe cases in which the speaker's intention is to motivate the hearer to do something or to mark the utterance as justified.

Overall, both perspectives of discourse are insightful, and the QUD approach proves valuable for explaining focus. For the purpose of this dissertation, discourse relations are to be preferred since they are more revealing with respect to the semantic relationships between discourse units. The question in which way these two types of theories overlap or can be combined cannot be discussed here.

7. A Hierarchy for Discourse Relations

7.1. The Classification of Discourse Relations: A Laundry List

In the preceding sections, it has been shown that discourse analysis with coherence relations has been worked out in various different ways. Often, the starting point and motivation for new proposals is to overcome weaknesses of former categorizations, as for instance the vagueness of RST's definitions of relations.

But apart from the individual problems that theories face, theories of discourse relations are also subject to general criticism. As shown above, the proposed sets of relations differ significantly – with respect to their number as well as their character. It seems as if there is hardly any agreement on what a set of discourse relations should look like. This leads to the so-called **Laundry List Complaint** (brought up by Kehler 2011) which addresses "unconstrained theories of coherence such as RST" (Kehler 2011: 8). Sets of discourse relations may often appear like long, unmotivated, tedious lists of arbitrary relations.

In general, discourse relations can be seen as a phenomenon similar to speech acts: Their existence is uncontroversial but in contrast to grammatical distinctions, they are not tied to formal aspects. As a consequence their classification is not constrained in any way. Probably everybody would agree that there are relations between parts of discourse. But how many of such relations should be assumed? How fine-grained should a distinction be? And how are they to be defined when they are not visible?

For speech acts, Searle (1976) and Vanderveken (1990) have proposed more formal analyses to get rid of the "intuitive flavor", and as we have seen above, this has also been attempted for discourse relations (cf. Asher & Lascarides 2003). Since discourse relations are not visible and not unambiguously attached to specific linguistic items[1], a classification faces special challenges: The proposed set of relations has to be well-motivated to avoid arbitrariness. For a good motivation, the parameters discussed in 6.2.2 play a role, e.g. the **function** that a set of relations has (i.e. is the aim of the author descriptive adequacy or cognitive reality). Concepts like 'addition' and 'contrast' play a role when relating ideas and thoughts. If discourse analysis is supposed to show how texts work, structural categories matter, e.g. something like 'introducing information', 'enumerating' or 'summarizing'.

Another factor that has to be considered is the **depth of analysis**. The set of discourse relations needed depends heavily on what the analyst is interested in. If an analyst is interested in whether information is recalled better if it is contrasted with other information – opposed to presentation of the two pieces of information side by side, it will be sufficient to broadly distinguish between additive and contrastive relations. Work of this type is that of Soria & Ferrari (1998) on the facilitating effect of connectors. For this type of investigation, they use a simple tripartite distinction between additive, contrastive and consequential relations which is completely sufficient for the topic. But if the research question for example concerns the behavior of a specific expression in contrasts, it may be interesting to look at different types of contrastive relations, a more fine-grained distinction would be needed.

Finally, depending on the aim of the respective theory, the **text type** plays a role: A newspaper article will contain other relations than a personal letter does, and a narration for children will have another discourse structure than a parliament speech. On a more general level: argumentative texts differ from narrative texts, so different sets of relations are required to analyze their structural properties.

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[1] As mentioned before, there are lists of linguistic cues for discourse relations, for example Marcu (2000) or Knott (1994), but the marking is optional.

This range of parameters (which is not exhaustive) shows the following: It is not possible and also not realistic to come up with one universal set of discourse relations. There is no such global set. Instead, every theory has to be put into the respective frame. For example, Theory A may propose a set of relations appropriate for describing the structure of narrative texts with respect to the use of expression x in temporal relations. Theory B, on the other hand, may introduce relations suitable for discussing strategies of speakers in argumentative texts with respect to building up the common ground. If these parameter are not set, this lets a set of proposed relations appear arbitrary and not suitable for other purposes. For a well-motivated classification, these issues have to be settled explicitly.

If the general frame and motivation for a discourse relations theory is determined, obviously the organization of the relations is crucial to avoid a laundry list. Additionally, the more clearly and consistently a relation is defined, the better is the agreement between annotators. Examples, cue words and minimal pairs of similar relations are a useful addition.

Even if all these desiderata are fulfilled, there are problems inherent to the analysis of discourse with relations which will remain. One such problem is that every analysis with discourse relations is subjective. Even with a set of relations perfectly appropriate for the respective type of text and purpose of analysis, a list of linguistic cues, exact annotation guidelines and definitions, one would probably find a divergence between different annotators. Every analysis of a discourse is the annotator's interpretation of it. A text can be understood in more than just one way. A speaker 'translates' his/her related thoughts into language but s/he cannot guarantee that the intentions, arguments and the links between them get to the reader as s/he planned them to. It is important to provide clear and concise definitions for all relations, as well as examples for illustration to reduce the room for subjectivity as much as possible but this problem cannot be overcome completely.

To sum up, discourse relations are a concept that often cannot be tied to specific linguistic items and therefore is not 'visible'. As a consequence,

their classification comes with certain inherent difficulties. The Laundry List Complaint reflects these weaknesses: Sets of discourse relations are prone to being not sufficiently motivated and therefore inconsistent and arbitrary. It has been shown, however, that these difficulties can be faced better when certain parameters are set explicitly.

Besides, there is the general problem of subjectivity for discourse analysis, which cannot completely be eliminated. It certainly strengthens a theory if the theory addresses this problem explicitly and finds a way to deal with it – rather than neglecting it.

7.2. Organizing Discourse Relations: Previous Proposals

It has already been stressed that an unordered list of discourse relations is difficult to handle for whoever analyzes discourse with this theory. There are ideas on how to structure a set of discourse relations in the existing literature but up to now, there is hardly any agreement on a reasonable classification. The most common categories will be summarized below.

7.2.1. Semantic vs. Pragmatic Relations

A popular and well accepted division of discourse relations in groups is the one into 'semantic' and 'pragmatic' relations (cf. van Dijk 1985, Mann & Thompson 1988, Sanders et al. 1992, etc., see also Sweetser 1991 for a proposal for different levels on which relations can hold), although, as will be shown below, the usage of these notions differs.

To start off with a distinction of this kind, Mann & Thompson (1988) divide their relations into **subject-matter relations** and **presentational relations**, as discussed in 6.2.2.2. A similar distinction can be found in Halliday & Hasan (1976) (semantic vs. pragmatic), as well as in Redeker (1990) who differentiates between **ideational and pragmatic relations**, and further distinguishes the pragmatic relations into **rhetorical and sequential relations**. Compared to the one of Mann & Thompson (1988)

– her classification is not so much based on the assumed intention of the speaker but on the linguistic level on which the relation holds, which is another side of the same coin:

> "Two discourse units are ideationally related if their utterance
> in the given context entails the speaker's commitment to the
> existence of that relation in the world the discourse describes."
> (Redeker 1990: 369)

According to this definition, relations like TEMPORAL SEQUENCE, ELABORATION, CAUSE or RESULT fall into this class.

If the relation does not refer to the content, Redeker (1990) calls it pragmatic or rhetorical and claims that the relation holds "between the utterances themselves or, to be more precise, between the beliefs and intentions motivating them" (Redeker 1990: 369). Although defined in a different way, this category contains the same relations as Mann & Thompson's (1988) presentational relations, i.e. ANTITHESIS, CONCESSION, EVIDENCE or JUSTIFY. Sanders et al. (1992) also distinguish relations along these line in their parameter **source of coherence** (semantic vs. pragmatic). It is one of the four 'cognitive primitives' they classify their set of relations by. Similar to Redeker (1990), they distinguish different types of relations by considering on which level two units are connected:

> "A relation is semantic if the discourse segments are related be
> cause of their propositional content. In this case the writer refers
> to the locutionary meaning of the segments. The coherence ex
> ists because the world that is described is perceived as coherent.
> [...]
> A relation is pragmatic if the discourse segments are related
> because of the illocutionary meaning of one or both of the seg
> ments. In pragmatic relations the coherence relation concerns
> the speech act status of the segments. The coherence exists be
> cause of the writer's goal-oriented communicative acts. [...] In
> a pragmatic relation it is of secondary importance what relation
> exists at the locutionary level." (Sanders et al. 1992: 7 & 8)

In this definition, the speakers' intentions are referred to, as well as the effect on different levels, i.e. he combines the perspectives of RST and those of Redeker (1990).

Another example of this bipartite distinction is van Dijk (1979) who distinguishes between semantic and pragmatic connectives. This essentially reflects the same semantic-pragmatic definition as the one by Redeker (1990) (who then assumes two types of pragmatic relations, however) and Sanders et al. (1992): He refers to relations between facts and between speech acts. Connectives, however, are not limited to one use (cf. van Dijk 1979: 449). The general idea to distinguish between semantic and pragmatic relations is popular and most papers agree on which relations belong to which category – although the distinction is sometimes based on the intentions of the speaker and sometimes refers to the level the unit refers to: proposition or speech act.[2]

7.2.2. Semantic Effect

Another possible categorization is one based on the semantic effect they have. If we look at a medium-sized set of relations like that of Mann & Thompson (1988), we could divide the relations into some basic categories with respect to their meaning: There are temporal relations, especially in narrative texts, e.g. SEQUENCE. There is a number of relations that contrasts information in the two discourse units, e.g. CONTRAST, CONCESSION, ANTITHESIS. There are relations that can be traced back to a *if – then* relationship, e.g. CAUSE, RESULT, CONDITION, ENABLEMENT. Some relations are used for building up discourse by adding information to

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[2]Sanders (1997):126 proposes a Basic Operation Paraphrase Test to determine whether a relation holds on the content or on the utterance level. This can be shown for the case of a causal relation where the following paraphrases should be used to find out on which level the relation holds:

1a) the fact that P causes S's claim/ advise/ conclusion that Q
1b) the fact that Q causes S's claim/ advise/ conclusion that P
2a) the fact that P causes the fact that Q
2b) the fact that Q causes the fact that P

that already given, e.g. ELABORATION, INTERPRETATION. These semantic features have also been used to classify discourse relations (cf. also Hume 1748, as mentioned before). Soria/Ferrari (1998), as mentioned in section 7.1, use the tripartite distinction **additive, contrastive and consequential**. The guideline for annotation used for the Penn Discourse Treebank proposes similar classes for the annotation of connectors on their top level, they categorize into **temporal, contingency, comparison and expansion** (Prasad et al. 2007). These are then further divided. Sanders et al. (1992) use the parameter 'basic operation' to capture the semantic effect and distinguish between two options: **additive and causal**.

7.2.3. Other Distinctions

In the preceding sections, the most common classifications have been discussed: One that refers to the level on which the relation holds (semantics vs. pragmatics) and one that is based on the semantic effect on the relation. Beside these two main directions, other criteria have been proposed in texts and some of them shall be mentioned here.

As described before, van Dijk (1985) distinguishes between connectors that relate material on the semantic level and those that operate on the pragmatic level. In addition to this distinction, he divides the relations, that hold on the level of local coherence, into two groups: **conditional and functional relations** (van Dijk 1985 also speaks of 'conditional' and 'functional' coherence). The first one refers to causal, conditional and consequential relations: "A sequence of propositions is conditionally coherent if it denotes a sequence of conditionally coherent facts" (van Dijk 1985: 110).

Functional coherence on the other hand is defined as follows:

> "the respective propositions have themselves a semantic function defined in terms of the relation with previous propositions. Thus a proposition may function as a specification, explanation, example, comparison, contrast, or generalization with respect to a previous proposition." (van Dijk 1985: 110).

So, in addition to the distinction between semantic and pragmatic relations, van Dijk (1985) also distinguishes whether a relation denotes facts in the

world that are conditionally related or whether a discourse unit has a specific function with respect to the other one. According to van Dijk (1985), these are the two classes that semantic discourse relations can be assigned to.

Sanders et al. (1992) assumes not only the parameters 'source of coherence' (semantic vs. pragmatic) and 'basic operation' (additive vs. causal), but also 'order of the segments' and 'polarity'. Order of segments can be **basic** or **non-basic** and refers to the normal order of the discourse segments and is a rather structural way to distinguish between different types of relations.[3] With polarity, they distinguish between **positive** and **negative** relations: "A relation is negative if not S_1 or S_2 but their negative counterparts, $not\text{-}S_1$ or $not\text{-}S_2$, function in the basic operation." (Sanders et al. 1992: 10). A relation induced by *although* would be an instance of a negative relation.

The distinctions reviewed here are just a part of those proposed in total. In table 7.1, some of the categories for relations are listed. The number and diversity of different groups shows again why theories of discourse relations face the Laundry List Complaint: New classes are introduced in every paper, sometimes identical to ones proposed earlier but with different names, sometimes they carry the same name as classifications in other theories but refer to something else. Again, it plays a role which perspective the author takes (descriptive adequacy or to account for discourse processing) and what is supposed to be analyzed.

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[3]It is questionable if this parameter is reasonable, as nearly all discourse relations are flexible with respect to their order, as discussed before. Therefore, it is difficult to determine what their "basic" order of segments should be.

Perspective	Proposed Distinction	Reference
structure of discourse	mononuclear vs. multinuclear	Mann & Thompson (1988)
	basic vs. non-basic order of segments	Sanders et al. (1992)
linguistic level	internal vs. external	Halliday & Hasan (1976)
	semantic vs. pragmatic	van Dijk (1985), Sanders et al. (1992)
	ideational vs. pragmatic	Redeker (1990)
	ideational vs. interpersonal vs. textual	Hovy et al. (1992)
	informational content vs. textual organization vs. interpersonal interaction	Bateman & Rondhuis (1997)
	content level vs. text structuring vs. cognitive level vs. divergent vs. metatalk	Asher & Lascarides (2003)
intention of speakers	semantic vs. pragmatic	Mann & Thompson (1988)
semantic effect	additive vs. adversative vs. causal vs. temporal	Halliday & Hasan (1976)
	occasion vs. evaluation vs. relation to prior knowledge vs. expansion	Hobbs (1985)
	conditional vs. functional	van Dijk (1985)
	additive vs. causal	Sanders et al. (1992)
	additive vs. causal vs. consequential	Soria & Ferrari (1998)
	temporal vs. contingency vs. comparison vs. expansion	Prasad et al. (2007)
	cause-effect vs. resemblance vs. contiguity	Kehler (2011)

Table 7.1.: Selection of proposed classifications in the literature

7.3. A Proposal for a Hierarchy of Relations

As I said before, I will use a set of relations derived from those proposed by RST for annotation in this dissertation. I will not attempt to solve the problem described by the Laundry List Complaint here, as this is a topic on its own. However, I will to sketch how these relations could be arranged in a hierarchy to facilitate their use for the annotation of discourse. I have presented different proposals for categorizations in the preceding section, most importantly the distinction between different levels and that between the semantic effects of the relations, and I will use these parameters in a slightly modified way.

The distinction between semantic and pragmatic cannot be drawn sharply in all cases and it is not clearly distinguished from the speakers' intentions. Additionally, not all relations that involve a more complex intention of the speaker are relations that hold between speech acts. I propose three levels instead of two which can be motivated be the following examples:

(134)   Peter will arrive late. His train was cancelled.

(135)   Peter will arrive late. Peter is the representative of the *Pen & Paper* company.

(136)   Peter will arrive late. Just so you know.

In (134), the relation between the two utterances is a relation between the states of affairs that are denoted by the propositions: The fact that Peter's train was cancelled is the reason for his being late. There it is a relation between events in the world that is the origin for the coherence between the two utterances. In the example in (135), it is not the fact the Peter is the representative of a certain company that causes that he is late, nor some other relation that holds between the facts.[4] Rather, the speaker informs the others about Peter's being late and with his second utterance gives background information that might be necessary to understand the

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[4]Note, however, that it is almost always possible to nevertheless get to such an interpretation, for instance the company *Pen & Paper* could be known for letting their employees leave late. In this case, the second discourse unit in (135) would be interpreted as an explanation.

first utterance in case someone does not know who Peter is. So, in this case it is not a relation between events in the world, but it is about the function of the discourse units, i.e. the proposition expressed by the second discourse unit helps to understand the proposition of the first discourse unit. This is similar to van Dijk's (1985) functional coherence: One proposition "does something" with respect to another one. I argue that relations like BACKGROUND are more appropriately placed on this propositional level because they are neither on the level of state of affairs or events nor on the level of speech acts.

The difference to relations which are clearly located on the level of speech acts becomes clear when comparing (135) to (136). The second discourse unit, or the satellite of (136), establishes a relation to the nucleus on a level higher than that of propositions. The fact that the hearer knows about it, stands not in relation with Peter's being late. Neither does the second proposition relate to the first in the sense that it adds information or adds a judgement. Instead, the second utterance is made by the speaker to justify the first utterance. This effect could be paraphrased as: "Why do I tell you that Peter will be late? I just wanted to let you know." In the case of (135), in contrast, information is added on the content-level.

These three levels, i.e. the level of events, the propositional level and the speech act level, prove to be sufficient to classify the set of relations used here, based on the RST set, as is shown in figure 7.1. In a further step, the relations can be grouped according to their semantic effect or function (e.g. causal vs. temporal, additive vs. contrastive). The classification in 7.1 is a proposal to facilitate the use of relations for annotation.
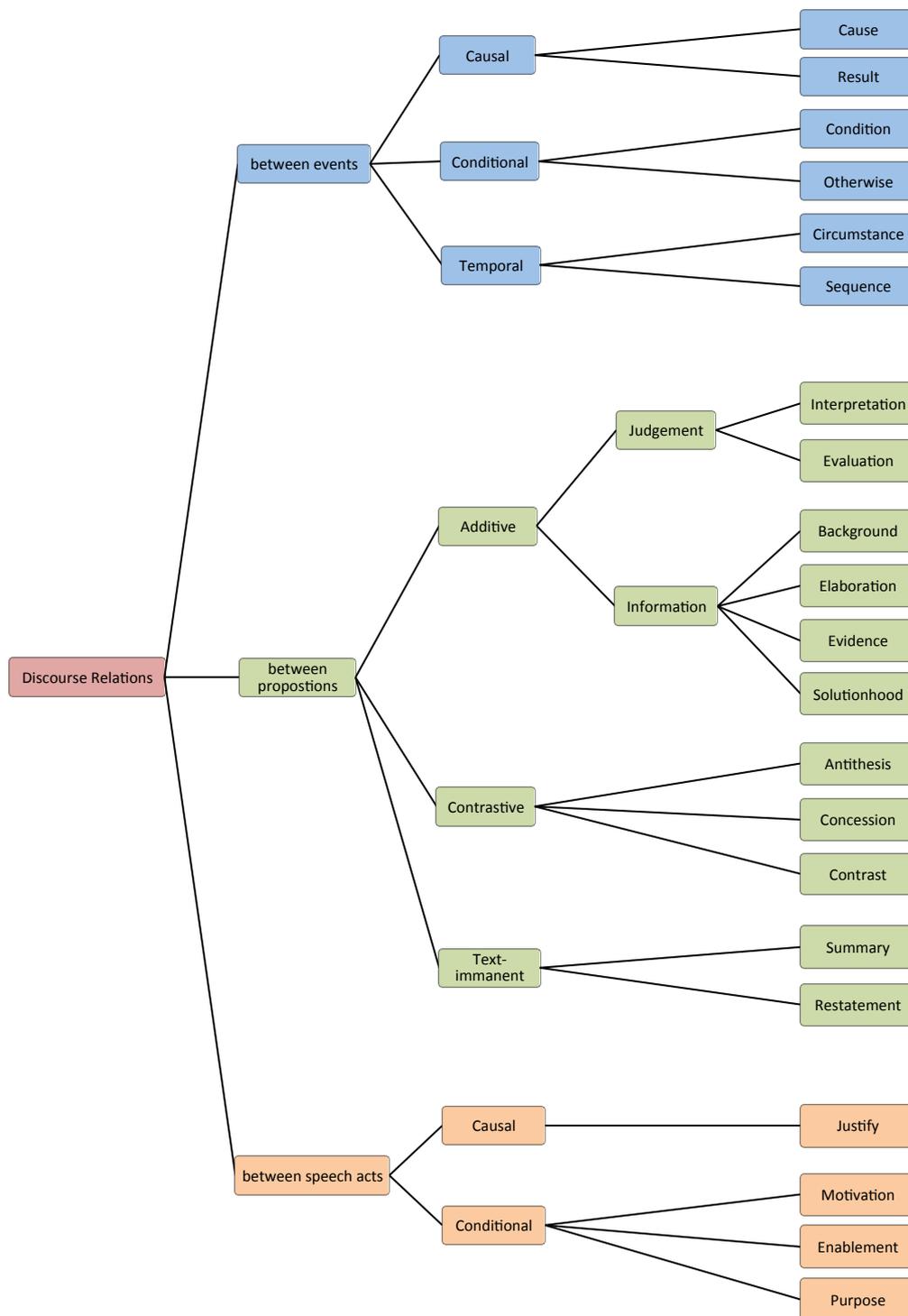
Figure 7.1.: Mononuclear RST relations grouped according to operation level and effect

8. The Interaction of Modal Particles and Discourse Relations: Predictions

Before I formulate predictions for the two quantitative studies, I want to point out how my model of common ground interacts with discourse and discourse structure. I argue that we have the two of them as individual components: The ground and the common ground capture what is accessible to all discourse participants. The discourse structure keeps track of how the propositions are related to each other and also what the speaker's communicative intentions were when introducing information into the discourse. I argue that SAL(c) is the interface between discourse and common ground: We can think of SAL(c) as the discourse tree that is currently built up. Information that is introduced new to the discourse, is related to what has been discussed before. When the discourse relation for two units is to be determined, the underlying question is: How does this assertion relate to what is already on the table or in the common ground? Relations can be presupposed but also stated explicitly, e.g. in the case of using *weil* ('because'). As we will see, the modal particles have specific effects in relating information and therefore interact with discourse structure. By using particles as instructions in communication, one can integrate an utterance into the current discourse context (also cf. Thurmair 1989).

With two quantitative studies, I investigate the interplay of modal particles and discourse relations in order to contribute to a better understanding of the role that the particles fulfill in the creation of discourse coherence. So far, such an interaction between particles and certain discourse relations has

only been hinted at by Karagjosova (2004) who claims that the meaning of some particles may mark the relation between discourse units:

> "MPs are also assumed to signal discourse relations. More closely, we will argue that *doch* indicated contrast, *eben/halt* and *auch* an inferential relation of cause or explanation."

> (Karagjosova 2004: 49)

In chapter 9 and 10, it will be shown that the interaction between particles and discourse relations is more complex than that. Particles do not only mark a certain type of relation, they can also be used by the speaker to enhance coherence and strengthen his/her argumentation.

Based on the analysis of *ja*'s and *doch*'s effect for common ground management, we can draw conclusions for their function in discourse. With both particles, the speaker brings up information in discourse which is already known (or in terms of Smith & Jucker 2000: information which is not newsworthy) and – with *ja* and *doch* – s/he signals that s/he is aware that it is not new. It has to be for a specific reason that the speaker re-mentions something that is already shared knowledge: With such a discourse move, the speaker makes sure that the information is present in the addressee's mind – for instance because it serves as basis for other information to be discussed. Thurmair (1989) claims that by using *ja*, it often is the speaker's aim to activate the knowledge that a proposition holds – but then leave it in the background.

By expressing that the proposition is already known or uncontroversial, *ja* and *doch* are likely to occur in discourse units that the speaker uses to set the stage for what follows. The BACKGROUND relation has such a function: The satellite of BACKGROUND provides information which makes it easier for the addressee to process and understand the information given in the nucleus of a relation. Very often this will be known or at least uncontroversial information. Vice versa, *ja* and *doch* should not be compatible with new information, this is not compatible with their meaning. Therefore, it is unlikely for them to occur in a relation like ELABORATION where the

satellite provides additional (and usually new information) for what is said in the nucleus. The two particles should also not occur in the context of the CONDITION relation since it involves non-factive information. *Ja* and *doch* have a factive component, they presuppose the truth of the proposition they occur with, therefore they should be not compatible with the function of CONDITION. *Doch* has additionally the meaning component that the proposition under discussion is compatible with the current table, often there is an inconsistent discourse commitment of the addressee. This 'incompatibility' aspect of *doch*'s meaning suggests a frequent use of the particle in one of the three contrastive discourse relations of RST: CONTRAST, CONCESSION and ANTITHESIS. While CONTRAST is a multinuclear relation which opposes two items without a judgement, ANTITHESIS and CONCESSION both involve a preference of the speaker for one of the two positions or items. In cases in which a speaker presents the position of someone else and opposes it with his/her own, I expect to find the use of *doch*. These prediction will be tested in chapter 9.

For *eben* and *halt*, it is straightforward to predict that they occur in causal relations since causality is a component of their meaning. Therefore the discourse units involved in CAUSE and RESULT are likely to contain *eben* and *halt*. The use of the particles can emphasize the causality that is to be expressed. Due to this meaning, *eben* and *halt* are not expected in contrastive relations, since this contradicts their component to hint to an inferential relation. It is unlikely for them to occur in CONTRAST, CONCESSION or ANTITHESIS.

I argued that *eben* and *halt* do not express that the proposition they occur with is in the common ground already, unlike *ja* and *doch*. Still, I do not expect *eben* and *halt* in the ELABORATION relation, but for a different reason: As we have seen above, these particles provoke a causal interpretation and – in the case of a neutral relation like ELABORATION – this would trigger an interpretation of the relation as causal.

With the meaning of *wohl* and its function in common ground management proposed above, it is difficult to predict where in discourse it is likely to be used. Irrespective of the discourse relation, a speaker may always need to mark that s/he is not certain or that s/he is lacking evidence.

The behavior of *wohl* with respect to the common ground does not lead to a prediction where in discourse structure it could be occur most often. However, it is unlikely for a speaker to signal uncertainty if s/he wants to convince the addressee of something. Mann & Thompson (1988) define the group of presentational relations to be of this type: With the relations in this group, the speaker wants to achieve an effect on the addressee, e.g. increase his/her readiness to accept information or increase his/her belief in something. I therefore do not expect a frequent occurrence of *wohl* in ANTITHESIS, BACKGROUND, CONCESSION, EVIDENCE, JUSTIFY or MOTIVATION. The meaning of *wohl* is not incompatible with the function of these relations, but it is not likely that the particle is used here often, as it will probably generally not be used very frequently in an argumentative text type like the parliament speeches analyzed here.

Turning to *schon*, I have discussed that it has also been described as concessive and therefore I assume that it is used support the function of the discourse relation CONCESSION by indicating that something holds despite possible restrictions. *Schon* might also emphasize the effect of the JUSTIFY relation, affirming the need to make an utterance. Finally, it is plausible that *schon* is used in the context of judgements (i.e. EVALUATION or INTERPRETATION) because the speaker can use the effect of the particle to affirm the judgement.

In the following section, quantitative evidence from a corpus study will be presented to test the formulated predictions for the occurrence of the modal particles.

9. Corpus Study

9.1. Motivation for the Corpus Study

As a first step towards answering the question whether modal particles show an interaction with discourse relations, a corpus study has been conducted. In general, there has been hardly any quantitative research on modal particles. Most analyses are based on introspection and on construed minimal examples of one or two sentences, in most cases dialogues (but consider Thurmair 1989 for a work which includes much corpus data). There are two reasons which might make a corpus analysis for modal particles difficult: On the one hand, modal particles most frequently in texts which involve a speaker-hearer interaction which is not the case for narrative texts – a text type over-represented in corpora. One the other hand, modal particles cannot be annotated automatically in corpora because of their homonyms. In the following, I will show that it is nevertheless possible and worthwhile to use corpora for analyses of modal particles, as long as the text type is suitable.

The aim of the corpus study in this work is not only to look at naturally occurring data, but also to take a broader context into consideration, i.e. to not only analyze the sentence the particle occurs in, but the relation to the surrounding sentences. The corpus study serves to investigate the interplay of modal particles and discourse relations in naturally occurring discourses. My main hypothesis is that modal particles help to create discourse coherence and I formulated predictions for their occurrence in discourse in section 4. A corpus study is an adequate empirical source to approach the question because it allows to analyze exactly those parts of discourses which contain modal particles by using already existing texts. As compared to eliciting

data, this procedure has the advantage that the data is not primed by the underlying question.

9.2. Corpus Choice and Corpus Annotation

9.2.1. Choice of Corpus

The corpus chosen for the study (126.112 word tokens) contains the official transcripts of 28 speeches by Helmut Kohl, who was chancellor of Germany from 1982 to 1998. The speeches were given in the German parliament (Bundestag) in the period from 1996 to 1999. This corpus has been chosen for several reasons. First of all, it contains contributions to individual topics which were sufficiently long so that it was possible to analyze the discourse structure. Second, although the texts are the transcripts of the speeches, we can regard the data as conceptually spoken language (for the concept of written and spoken language cf. also Koch & Oesterreicher 2008). This is crucial in the case of modal particles since they are often considered a phenomenon typical for spoken language. The final argument for choosing this corpus is that important that the speeches are directed at an actual, concrete audience, even though there is no direct answering involved (except hecklings and interjections). This is crucial as some of the particles refer to the addressees' knowledge (cf. section MPs). When compared to other monologic text types (such as novels, newspaper texts etc.), the data, therefore, is more dialogic. I did not use dialogues, however, because classical RST is not designed for dialogic texts.

Parliament speeches in general are available via the German Bundestag[1], the corpus used here is a subcorpus of a large corpus of parliament speeches from various speakers (> 36 million tokens), which has been annotated for part of speech (POS) by the Department of German Studies and Linguistics at Humboldt-University and is freely available via a corpus search interface (CQP web interface)[2]. I will to the large parliament corpus as PARL COR-

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[1]http://www.bundestag.de/protokolle

[2]https://www.linguistik.hu-berlin.de/en/institut-en/professuren-en/korpuslinguistik/korpora/cqp

PUS. From this large corpus, the speeches of Helmut Kohl, KOHL CORPUS in the following, have then been extracted. It has to be noted that in the transcripts, slips of the tongue, interjections or truncations were removed by the official transcribers (cf. Rostock 1980 for a detailed description of how the transcripts of parliament speeches are edited). An exemplary comparison of an audio file and the respective manuscript shows that some of the originally contained modal particles were removed, too. The remaining number of particles, however, is sufficient for a meaningful analysis.

9.2.2. Data annotation

As mentioned above, the corpus has been automatically analyzed by Tree-Tagger (Schmidt 1994) using the Stuttgart Tübingen Tagset (STTS) (Schiller et al. 1999) for a part of speech annotation. In the STTS, modal particles are assigned the label ADV, which also subsumes adverbs and other particles, like focus particles and intensifiers (cf. Hirschmann 2015: 201). As a first step before the actual annotation, therefore, modal particles needed to be distinguished from homographic (and in some cases homonymous) adverbs, answer particles and conjunctions. *Eben* and *schon* for example have homographs which are temporal adverbs and which are more frequent than the modal particles. The particles were assigned the feature 'MP' manually. Particles occurring in hecklings or interjections have not been considered for the analysis. In total, the sum of the six modal particles analyzed in the KOHL CORPUS adds up to 574 instances. The distribution is as follows:

MP	Number	Proportion
ja	115	20.0
doch	392	68.3
halt	1	0.2
eben	19	3.3
wohl	5	0.9
schon	42	7.3
Total	**574**	**100**

Table 9.1.: Distribution of modal particles in the KOHL CORPUS

table 9.1 shows that there are many occurrences of the particles *ja* and *doch*, while the other four particles occur do not occur as frequently. This distribution can be seen as representative for the corpus of parliament speeches (PARL CORPUS) in general: A count in a sample of 5 million tokens in PARL CORPUS revealed the same distribution of the six particles.

The particles *eben*, *halt*, *wohl* and *schon* occur less frequently than *ja* and *doch*. In order to make a reliable claim about their occurrence, therefore, further occurrences in PARL CORPUS (i.e. not only speeches by Helmut Kohl) have been included. These further occurrences have been selected randomly to arrive at a representative number of occurrences for each particle. As will be shown later, it has been controlled that the distribution of discourse relations in the KOHL CORPUS equals that in the PARL CORPUS (i.e. including other speakers) (see table 9.3). Table 9.2 shows how many occurrences of the particles *eben*, *halt*, *wohl*, and *schon* have been analyzed in total (the rightmost column) after additional annotation in the complete parliament corpus, PARL CORPUS:

MP	Kohl Corpus	Parl Corpus	Total
eben	19	115	**134**
halt	1	109	**110**
wohl	5	103	**108**
schon	42	144	**186**

Table 9.2.: Composition of data for *eben, halt, wohl* and *schon* included in the analysis

The second step was the annotation of the discourse relations for the discourse units containing one of the chosen modal particles (EDU_{MP}) in the Kohl Corpus. For this purpose, 23 discourse relations derived from those proposed in Rhetorical Structure Theory (Mann & Thompson 1988) were used as a tag set (cf. **??**). As described above in section 6.2.2.2, RST offers a medium-sized set of relations, which has been developed on the basis of corpus work and therefore is appropriate for the given task. For the annotation, the discourse relations' definitions provided by Mann & Thompson (1988) and provided online by Mann & Taboada (2005-2016)[3] served as a guideline. I made a slight modification: For the present analysis, I did not distinguish between volitional and non-volitional Cause and Result, but only between Cause on the one hand, and Result on the other. The reason for this decision was that volitionality is not relevant for the current question. A first analysis including volitionality showed that it does not play a role for the distribution of the particles, so the more general relations Cause and Result proved to be sufficient. As compared to Mann & Thompson (1988), my set of relations also contains the multinuclear List relation for enumerations, which was later added to the set of original RST relations (cf. Mann & Taboada 2006).

The annotation of discourse structure with relations poses a number of challenges. First of all, there is no one-to-one correspondence between linguistic cues and discourse relations (except for certain conjunctions, e.g. *because* in

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[3]http://www.sfu.ca/rst/

most cases signals a CAUSE relation). So we cannot automatically scan for markers and then select the respective relation. Therefore, a close inspection of the surrounding context is necessary to assign the appropriate relation. The underlying question for the annotation was: Which discourse relation holds between the minimal discourse unit containing the modal particle (EDU_{MP}) and another discourse unit? In order to answer this question, a step-wise procedure was applied. First, it was determined which relation – if any – the discourse unit containing the particle, EDU_{MP}, had with its adjacent units. If there was no relation with an adjacent unit, the wider context was considered. The nearest minimal or non-minimal discourse unit with which the EDU_{MP} had a discourse relation was the one that was annotated. 'Near' here is to be understood in terms of hierarchical closeness. In addition to the discourse relation, each EDU_{MP} was also annotated for its function as the nucleus or the satellite of the respective discourse relation. In the statistical analysis of the data that I will report below, only one discourse relation was counted for each EDU_{MP}.

Consider the example in (137) – the placement of *doch* will be discussed below. Here, the EDU_{MP} stands in an EVIDENCE relation with its immediate left neighbor and only this relation is counted. In the respective structure in figure 9.1, each discourse unit stands in a relation to its adjacent unit: [3] is connected as a satellite to [2] in an ELABORATION relation and the unit consisting of [2] and [3] is the satellite in an EVIDENCE relation with [1].

(137)   [1] Die Arbeitslosenzahlen sind angestiegen. [2] Das zeigen
          the unemployment rates   are   increased   this show
         doch aktuelle Studien. [3] Diese Studien wurden von der
         DOCH recent   studies   these studies   have-been from the
         Regierung in Auftrag gegeben.
         government commissioned
         'The unemployment rates have increased. Recent studies show
         that clearly. These studies have been commissioned by the gov-
         ernment.'
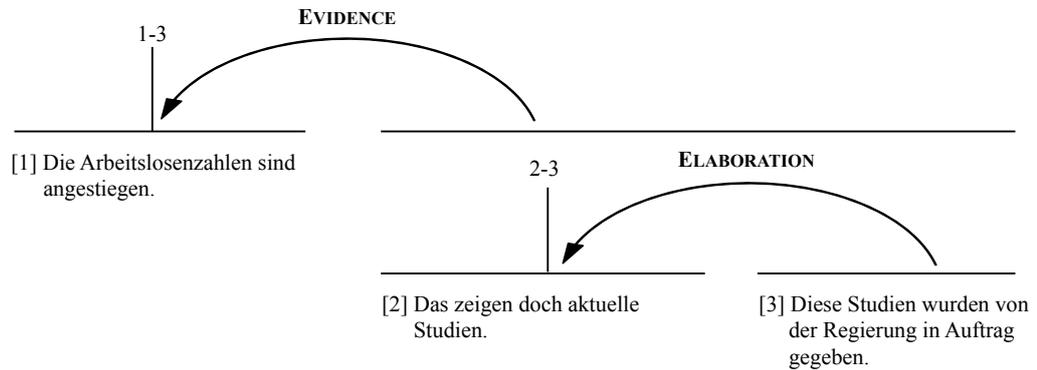
Figure 9.1.: Discourse structure for (137)

In contrast, a discourse as depicted by the tree in 9.2 is a case in which there is a unit "in between" two related units: [2] gives evidence for [1], before [3] and [4] are connected via CAUSE to [1]. If an annotator wants to find the unit that [3] stands in a relation with, it is necessary to look further back to unit [1], not only to its immediate left neighbor [2].
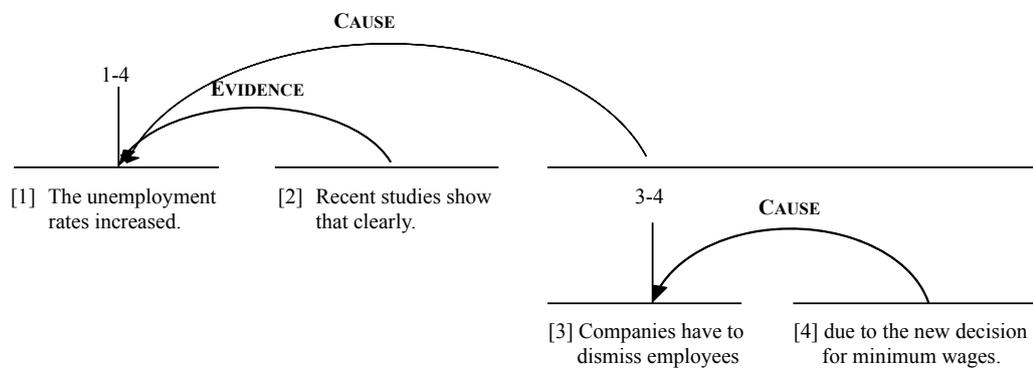
Figure 9.2.: Relations between non-adjacent units

Another challenge for the annotation of discourse relations is that one discourse unit can be involved in more than one discourse relation, as has been discussed above in 6.2.2.2. This is the case for discourse unit [3] in 9.2, and Figure 9.3 illustrates this with another example: Here, [2] is the nucleus

both for [1] and for [3].
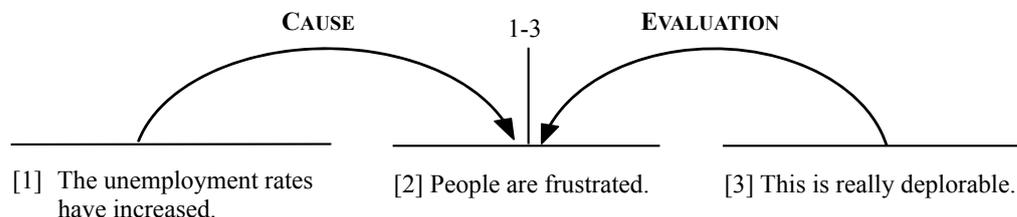
Figure 9.3.: Discourse units involved in more than one relation

As will be seen in the next chapter, in the majority of cases, the relation that was annotated for EDU_{MP} was the relation in which the EDU_{MP} was the satellite (or part of it, in cases of satellites consisting of more than one EDU), i.e. in the structure in 9.1 above this is the EVIDENCE relation. There would have been the choice to annotate ELABORATION, too, as the EDU_{MP} is the nucleus there. The reasoning behind the decision for EVIDENCE is that the aim of the analysis is to find out what function the particle in the respective discourse unit has. By extension this leads to the question what function this discourse unit itself has in relation to other units. In this sense it is more 'informative' that [2] with the particle *doch* offers EVIDENCE for [1], as compared to the fact that the information given in it is further elaborated on in [3].

9.2.3. Data analysis

Counting the frequency of occurrence of modal particles in certain relations is not informative if there is no baseline to compare it to. Not all discourse relations occur with the same frequency in all text types. Narrative texts will show a different distribution of relations from political speeches, i.e. argumentative texts, which are analyzed here. Therefore, a baseline is needed to assess the frequency of occurrence of the modal particles relative to the overall distribution of the discourse relations. Since the annotation of discourse relations is extremely time-consuming, a sub-corpus of the KOHL

CORPUS was used to create this baseline: three of the speeches (27.000 tokens) were annotated in their entirety for discourse relations. Discourse units containing one of the modal particles to be analyzed were ignored to avoid double annotation. This sub-corpus will be referred to as the *Kohl reference corpus* (REFKOHL). The distribution of relations in the comparison corpora is given in Figure 9.4.

As discussed above, the data for *eben*, *halt*, *wohl*, and *schon* were produced by also analyzing other speakers than Kohl to obtain enough material. Data from these other speakers cannot be analyzed by comparing it to the REF KOHL which only contains speeches by Kohl. In order to have an appropriate reference corpus for this data, too, I also annotated ten speeches by different speakers in the PARL CORPUS for their discourse relations (1008 relations). I will refer to this reference corpus as REFPARL. Table 9.3 gives the numbers and proportions of the discourse relations in the two reference corpora[4]:

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[4]REFKOHL contains only three speeches but more discourse relations (and respectively more discourse units) than REFPARL which contains 10 speeches. This is due to the fact that Helmut Kohl as the German chancellor had larger proportions of speech time, so that his speeches are longer than those of other speakers.
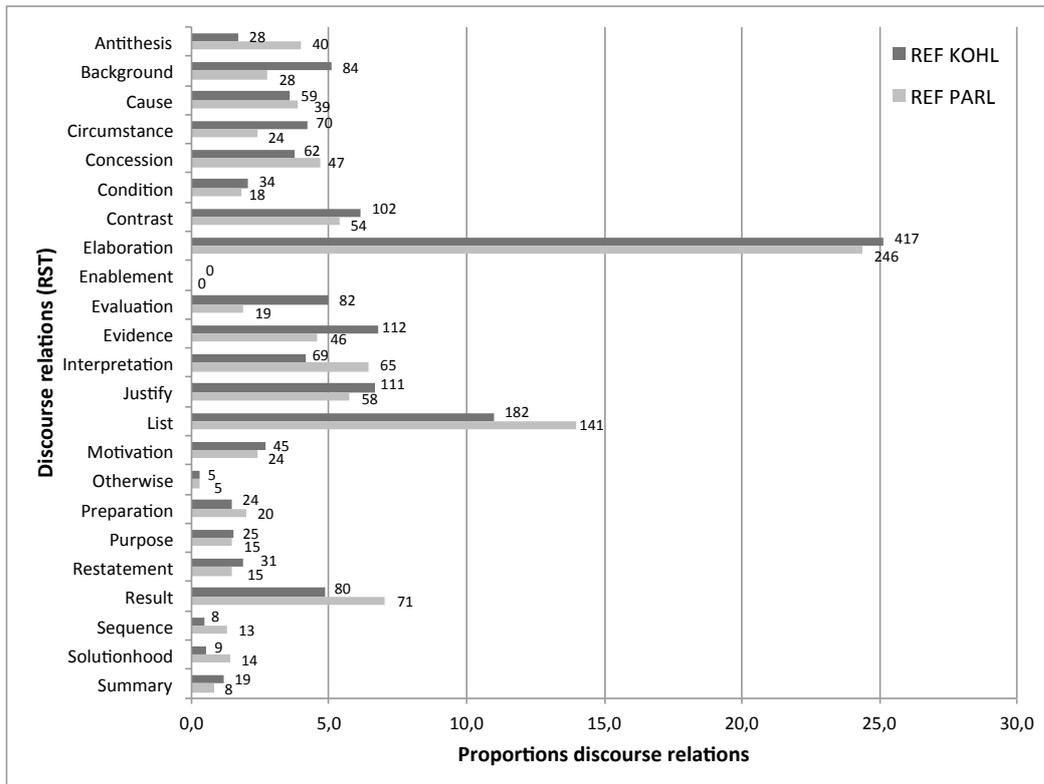
Figure 9.4.: General distribution (proportions) of relations in both reference corpora, based on the analysis of three speeches in RefKohl (1658 discourse relations) and 10 speeches in RefParl (1008 discourse relations). The numbers at the end of each bar are the raw frequencies.

Discourse Relation	RefKohl		RefParl	
	Count	Proportion	Count	Proportion
Antithesis	28	1.7	40	3.9
Background	84	5.1	28	2.8
Cause	59	3.6	39	3.9
Circumstance	70	4.2	24	2.4
Concession	62	3.7	47	4.7
Condition	34	2.1	18	1.8
Contrast	102	6.2	54	5.4
Elaboration	417	25.2	246	24.4
Enablement	0	0.0	0	0.0
Evaluation	82	4.9	19	1.9
Evidence	112	6.8	46	4.6
Interpretation	69	4.2	65	6.5
Justify	111	6.7	58	5.8
List	182	10.9	141	13.9
Motivation	45	2.7	24	2.4
Otherwise	5	0.3	3	0.3
Preparation	24	1.5	20	1.9
Purpose	25	1.5	15	1.5
Restatement	31	1.9	15	1.5
Result	80	4.8	71	7.0
Sequence	8	0.5	13	1.3
Solutionhood	9	0.5	14	1.4
Summary	19	1.2	8	0.8
Total	1658	100.0	1008	100.0

Table 9.3.: Comparison of RefKohl und RefParl

For simplicity, I will refer to RefKohl during the following discussion about the general distribution of relations. The diagram in 9.4 illustrates that there are no major differences in the distribution of relations when compared to RefParl.

It is obvious that the relations overall are not distributed equally. What is most striking is the extremely frequent occurrence of Elaboration: Almost a quarter of the relations annotated in the reference corpora are Elaboration relations. This is not necessarily due to the text type of the parliament speeches, but rather it is a consequence of the fact that Elaboration is defined in a very general way in RST (cf. section 6.2.2.2): A satellite presents additional information for a nucleus. Mann & Thompson (1988) propose that adding information can take many forms so that nucleus and satellite in an Elaboration relation constitute pairings like *generalization – specific, process – step, object – attribute*, among others. This very general discourse relation obviously appears frequently in texts, irrespective of the text type. Other relations, e.g. Sequence, in contrast, are hardly used in the corpora which is likely due to the text type: The relation describes a temporal order of events (*first X happened, then Y*), and is more likely to occur in narratives than in argumentative texts. A similar explanation holds for Enablement, a relation that is not found at all in the reference corpus. An Enablement relation holds if the information in the satellite is necessary for the addressee to be able to perform an action described in the nucleus. A relation like this is most likely to be found in instructions, but not in parliament speeches.

With respect to the distribution of modal particles relative to the distribution of discourse relations the null hypothesis is that modal particles occur equally often in all relations. If for instance 25.2% of all relations occurring in this text type are Elaboration, the null hypothesis is that 25.2% of the occurrences of *ja* are involved in an Elaboration relation. The expected frequency n_{exp} of occurrence of a particle in a discourse relation is thus the number of occurrences of the discourse relation in the corpus relative to the overall number of discourse relations in the corpus multiplied by the number of occurrences of the respective particle in the corpus (e.g. $n_{ja} = 115$), e.g.:

(138)   Expected frequency of occurrence n_{exp} for *ja* in the Background relation:

$$n_{exp,(ja/B)} = n_B/n_{total} \times n_{ja} = 84/1658 \times 115 = 5.83$$

The data for every particle have been tested with the Fisher's exact test since the sample sizes for some relations are too small for the Chi Square test (e.g. *doch* occurred in 12 of the 24 relations less than ten times). Since 23 relations have been considered, the *p*-values have also included Holm-Bonferroni corrected α-levels for multiple comparisons.

9.3. Predictions

Based on the annotation of the two reference corpora RefKohl and Ref-Parl, I have an expected frequency as a baseline for the analysis of the occurrence of modal particles. This is based on the general distribution of the discourse relations in the text type at hand, i.e. parliament speeches. The null hypothesis is:

Null hypothesis H_0: The discourse relation that holds between a discourse unit containing a modal particle (EDU_{MP}) and another discourse unit does not influence the occurrence of modal particles.

The null hypothesis suggests that we will find a distribution of relations for the discourse units containing a modal particle parallel to the one in the reference corpora. On the one hand I test against this null hypothesis. On the other hand, I formulated predictions for the occurrence of the single particles based on their semantics and their effect on common ground management (cf. chapter meine theorie-chapter). I will summarize these predictions below at the beginning of each section before I present the results and discuss them.

9.4. ja and doch

9.4.1. Predictions

In chapter 8, I formulated predictions for the occurrence of *ja* and *doch* based on their meaning. I argued that *ja* and *doch* are likely to occur in discourse units involved in a BACKGROUND relation since the particle express that information is already known and the satellite of BACKGROUND provides information which makes it easier for the addressee to understand the information given in the nucleus of a relation. Vice versa, I do not expect *ja* and *doch* in relations which involve the introduction of new information (ELABORATION) or non-factive information (CONDITION) since this is not compatible with their meaning. *Doch* with its additional contrastive meaning component is predicted to occur frequently with one of the three contrastive discourse relations CONTRAST, CONCESSION and ANTITHESIS.

9.4.2. Results

The statistical analysis of the observed frequency of occurrence of *ja* and *doch* in the different discourse relations in the KOHL CORPUS (compared to the expected frequency based on REFKOHL) revealed that they are not equally distributed (for *ja*: $\chi^2 = 205.33$, $p < .0001$; for *doch*: $\chi^2 = 366.53$, $p < .0001$). The null hypothesis H_0 therefore can be rejected.

To take a closer look on the individual results, I first present the data for *ja*, and then for *doch*. Table 9.4 shows the expected and the observed frequencies of occurrence for *ja*, the descriptive statistics[5], the direction of the effect (where ↑ indicates that the particle was found significantly more often than expected, and ↓ that it was used less frequently than expected), and the numbers for the occurrence in the satellite of the relation. The table

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[5]Note that the data for *ja* in ENABLEMENT seems not logical. The reason for this is that the relation ENABLEMENT did not occur in the REFKOHL corpus (which is a part of the complete KOHL CORPUS), but considering the complete KOHL CORPUS for the analysis of *ja*, I found two occurrences in ENABLEMENT. A statistical analysis for this data point is not possible. Therefore the odds ratio shows the value "Inf" for *ja* in the case of ENABLEMENT.

The value "n.a." for the occurrence in the satellite of an relation is assigned for multinuclear relations since these do not have a satellite.

shows the p-values of the Fisher's Exact Test for the single relations on the one hand, and it contains the Holm-Bonferroni corrected p-values on the other hand. The odds ratio as well as the confidence intervals for all results are given in the appendix in section C.

With the corrected α-level for multiple testing, we get the following significant results: *ja* occurs significantly more often than expected in BACK-GROUND ($or = 7.670$, $p < .0001$) and EVIDENCE ($or = 2.845$, $p < .01$). The particle shows significantly lower observed frequencies than expected for the relations ELABORATION ($or = 0.085$, $p < .0001$) and LIST ($or = 0$, $p < .0001$). In all mononuclear relations, the modal particle occurs exclusively or almost exclusively in the satellite (cf. the two rightmost columns in table 9.4).

Relation	n.exp	n.obs	odds ratio	p (Fisher Exact)	p.corr	direction of effect	n_{obs} in Sat	$prop_{obs}$ in Sat
ANTITHESIS	1.9	1	0.525	1	1	-	0	-
BACKGROUND	5.5	32	7.67	1.9×10^{-14}	4.3×10^{-13}	→	32	1.0
CAUSE	4.0	10	2.655	0.009	0.176	-	10	1.0
CIRCUMSTANCE	4.7	0	0	0.02	0.323	-	0	-
CONCESSION	4.1	5	1.244	0.601	1	-	4	.8
CONDITION	2.3	0	0	0.269	1	-	0	-
CONTRAST	6.9	3	0.42	0.151	1	-	-	n.a.
ELABORATION	27.5	3	0.085	8.9×10^{-10}	1.9×10^{-8}	←	3	1.0
ENABLEMENT	0.0	2	Inf	0.004	0.075	-	2	1.0
EVALUATION	8.8	7	0.777	0.714	1	-	7	1.0
EVIDENCE	7.5	19	2.8445	0.001	0.009	→	19	1.0
INTERPRETATION	2.8	7	2.563	0.032	0.474	-	7	1.0
JUSTIFY	7.3	15	2.218	0.011	0.186	-	15	1.0
LIST	12.3	0	0	6.3×10^{-6}	0.0001	←	-	n.a.
MOTIVATION	2.8	5	1.797	0.217	1	-	4	.8
OTHERWISE	0.3	1	2.975	0.325	1	-	1	1.0
PREPARATION	1.6	0	0	0.397	1	-	0	-
PURPOSE	1.7	0	0	0.4	1	-	0	-
RESTATEMENT	2.1	0	0	0.258	1	-	0	-
RESULT	5.3	1	0.18	0.058	0.809	-	1	1.0
SEQUENCE	0.5	0	0	1	1	-	-	n.a.
SOLUTIONHOOD	0.6	0	0	1	1	-	0	-
SUMMARY	1.3	1	0.777	1	1	-	1	1.0

Table 9.4.: Results for *ja*: Expected and observed frequencies in the corpus, *p*-values retrieved by the Fisher Exact test and after Holm-Bonferroni correction, distribution in the satellite of the relations

The diagram in 9.5 shows again the comparison of expected and observed frequency for the occurrence of *ja* for the single relations and marks the significant results:
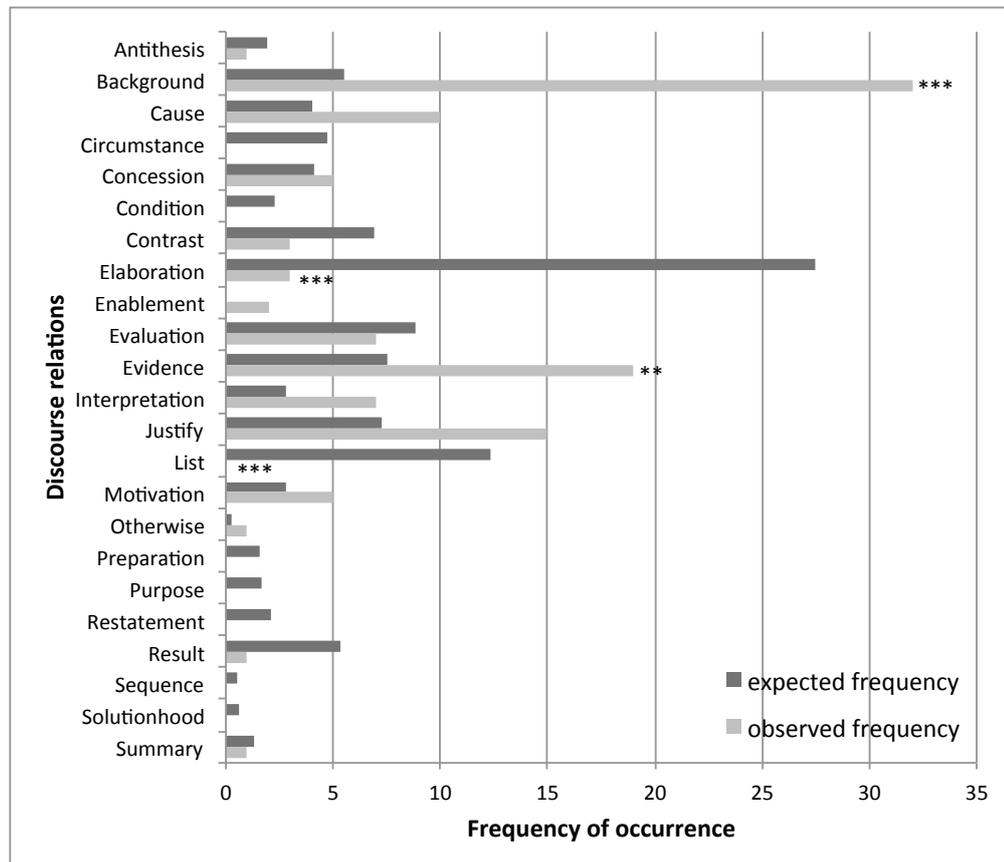
Figure 9.5.: Expected and observed frequencies of *ja* in the discourse relations. (* = α-level <.05, corrected; ** = α-level <.01, corrected; *** = α-level <.001, corrected)

For *doch*, the Fisher's Exact tests conducted for each discourse relation (again with Holm-Bonferroni corrected α-levels for multiple comparisons) revealed significantly higher observed frequencies than expected for the relations EVIDENCE ($or = 2.053$, $p < .01$), INTERPRETATION ($or = 3.809$, $p < .0001$), JUSTIFY ($or = 4.471$, $p < .0001$) and MOTIVATION ($or = 7.383$, $p < .0001$), and there is a tendency for the relation CONCESSION ($or = 2.036$, $p < .1$).

Significantly lower observed frequencies can be found for the relations CIR-CUMSTANCE ($or = 0$, $p < .0001$), CONDITION ($or = 0$, $p < .05$), CONTRAST ($or = 0.298$, $p < .01$), ELABORATION ($or = 0.141$, $p < .0001$), EVALUA-TION ($or = 0.429$, $p < .05$) and LIST ($or = 0$, $p < .0001$).

table 9.5 shows that in the relations ANTITHESIS and CONCESSION, *doch* occurred more often in the nucleus than in the satellite. All results are summarized in table 9.5 and illustrated in the diagram in 9.6:
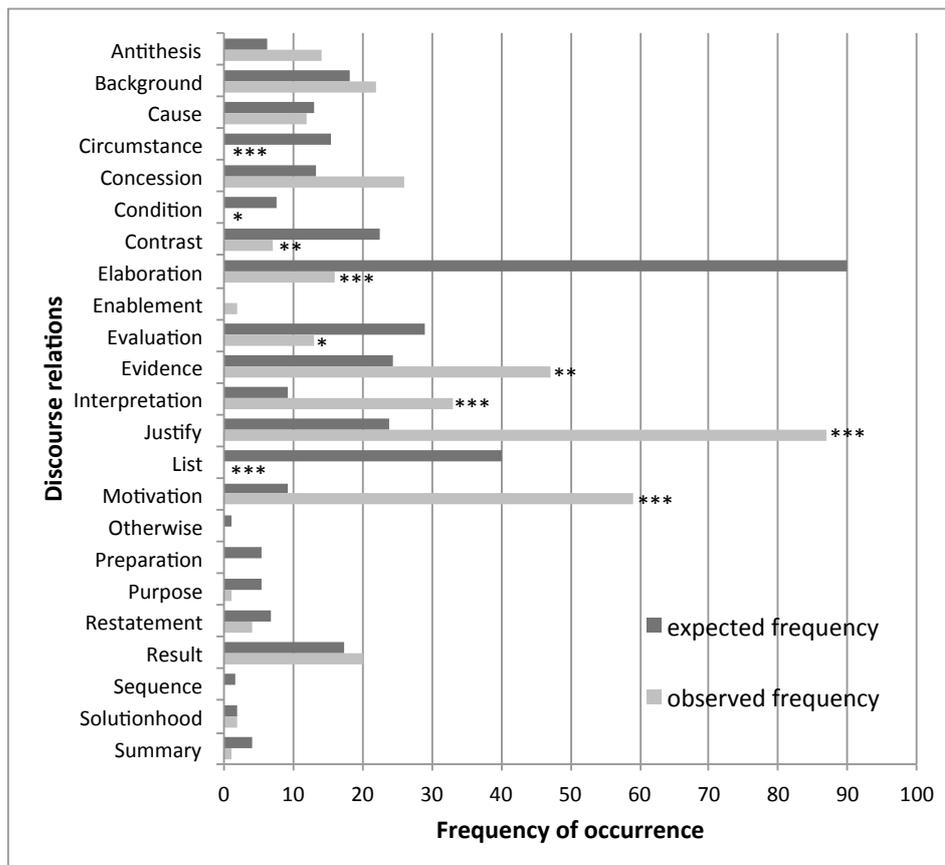
Figure 9.6.: Expected and observed frequencies of *doch* in the discourse re-lations. (* = α-level $<.05$, corrected; ** = α-level $<.01$, cor-rected; *** = α-level $<.001$, corrected)

Relation	n.exp	n.obs	odds ratio	p (Fisher Exact)	p.corr	direction of effect	n_{obs} in Sat	$prop_{obs}$ in Sat
ANTITHESIS	6.2	14	2.314	0.014	0.167	-	4	
BACKGROUND	18.1	22	1.229	0.432	1	-	21	.9
CAUSE	13.0	12	0.919	0.876	1	-	10	.8
CIRCUMSTANCE	15.5	0	0	1.5×10^{-6}	2.7×10^{-5}	→	0	-
CONCESSION	13.2	26	2.036	0.006	0.076	←	4	.2
CONDITION	7.5	0	0	0.002	0.035	→	0	-
CONTRAST	22.5	7	0.298	0.0005	0.008	→	-	n.a.
ELABORATION	89.8	16	0.141	2.9×10^{-22}	6.9×10^{-21}	→	16	1.0
ENABLEMENT	0.0	2	Inf	0.033	0.326	x	2	1.0
EVALUATION	28.9	13	0.429	0.002	0.035	→	13	1.0
EVIDENCE	24.5	47	2.053	0.0002	0.004	←	47	1.0
INTERPRETATION	9.3	33	3.809	1.0×10^{-7}	1.9×10^{-6}	←	33	1.0
JUSTIFY	23.8	87	4.471	8.2×10^{-20}	1.7×10^{-18}	←	87	1.0
LIST	40.2	0	0	3.6×10^{-17}	7.3×10^{-16}	→	-	n.a.
MOTIVATION	9.3	59	7.383	1.0×10^{-20}	2.3×10^{-19}	←	13	.2
OTHERWISE	1.1	0	0	0.592	1	-	0	-
PREPARATION	5.3	0	0	0.014	0.167	-	0	-
PURPOSE	5.5	1	0.179	0.069	0.625	-	1	1.0
RESTATEMENT	6.8	4	0.58	0.38	1	-	3	.8
RESULT	17.4	20	1.155	0.592	1	-	20	1.0
SEQUENCE	1.8	0	0	0.364	1	-	-	n.a.
SOLUTIONHOOD	2.0	2	1.007	1	1	-	2	1.0
SUMMARY	4.2	1	0.236	0.153	1	-	1	1.0

Table 9.5.: Results for *doch*: Expected and observed frequencies in the corpus, *p*-values retrieved by the Fisher Exact test and after Holm-Bonferroni correction, distribution in the satellite of the relations

9.4.3. Discussion

The corpus analysis showed that the frequency of occurrence of the modal particles varies with the discourse relation in which the elementary discourse unit containing the particle, EDU_{MP}, occurs. To summarize the findings from above, I found that *ja* occurs more often than expected in BACKGROUND and in EVIDENCE relations. On the other hand, it is used less often than expected in ELABORATION and LIST relations. For *doch*, I found that it occurs significantly more often than expected in EVIDENCE, INTERPRETATION, JUSTIFY and MOTIVATION relations, and with marginal significance in CONCESSION. *Doch* is used less often than expected in CIRCUMSTANCE, ELABORATION and LIST relations, as well as CONDITION, CONTRAST, and EVALUATION relations. Some of these findings confirm the predictions (cf. chapter 8). There are, however, also results that have not been predicted. The single findings will be discussed in the following.

For both *ja* and *doch* it was predicted that due to their function to indicate that the proposition they scope over is already in the common ground, they should occur particularly often in the satellite of the BACKGROUND relation because that is likely to contain information which is already given. This prediction was confirmed for *ja* but not for *doch*. (139) shows a typical example for a BACKGROUND relation with *ja* from the corpus:

(139) [1] Wenn man sich   in diesen Tagen an den 50. Geburtstag
       When you yourself in these   days   at the 50th birthday
       der D-Mark erinnert – [2] das wird **ja** am   kommenden
       of-the D-Mark remembers   that will   JA at-the following
       Samstag der Fall sein – [3] und sich   noch einmal in
       saturday the case be   and yourself again   in
       Erinnerung ruft, wie das Land damals aussah, [...] [4] dann
       memory   calls how the country back-then looked   then
       kann man mit Fug und Recht sagen: Es hat sich in diesen 50
       can one with justification   say   it has itself in these 50
       Jahren auch für uns Deutsche [...] vom   Schlimmen zum
       years also for us Germans   from-the bad   to-the
       Guten gewendet.
       good   turned

'If we remember the 50th birthday of the D-Mark these days – this will be next Saturday – and recall what the country looked like back then, then we can say that things turned from bad to good for us Germans, too.'

(Kohl Corpus, Speech 23, #121850)

The parenthesis in (139) stands in the satellite in a Background relation to the sentence before. In the nucleus of this Background relations ([1]), the 50th birthday of the D-Mark is mentioned. The satellite, the sentence containing *ja*, then provides information on this 50th birthday which is not central or new, but only serves to increase the understanding of the nucleus. *Ja* marks the information, i.e. that the birthday is on this day, as already known or uncontroversial. I propose that the effect of *ja* is to place the proposition in a particular position in the discourse: It shows that the proposition is not central. The fact that the sentence is a parenthesis supports this, too. Although the information, i.e. that the anniversary is on the following Saturday, is not central, the speaker still considers it to be important that it is uttered. I suggest that the motivation for this utterance is that it facilitates the understanding and processing of the nucleus, so the speaker helps the addressee to process the main point more easily: I argued in section 3.1.3 that *ja* has the effect that a proposition which is already in the common ground, becomes salient again. The addressee, therefore, can retrieve the information more easily and as a consequence also comprehend the information in the nucleus better - as this is the effect of the satellite in Background.

It seems surprising at first that *doch* does not show the same preference for Background although it also involves the meaning component that the proposition it scopes over is already known. Although the particles are so similar in meaning, they differ in their use. There might be two reasons for why *doch* does not occur as frequently in the Background relation as *ja*. The first reason is that *ja* is preferred over *doch* in this relation because *ja* only has the reminding/retrieval function whereas *doch* is more complex and involves an additional meaning component, i.e. that there is

an inconsistency between the proposition containing the particle and another proposition. If the intention of the speaker is merely to remind the addressee that the proposition holds, it is sufficient to use *ja* to express this intention. Arguably, if there is contrast, the discourse relation changes.

The second reason for why *doch* does not occur in BACKGROUND so frequently might be the precise nature of this additional meaning component. The satellite in BACKGROUND merely serves the easier comprehension of the nucleus. The conflict that is indicated by *doch*, however, might also be reflected in the type of discourse relation involved, so the presence of *doch* might lead to the interpretation of a discourse relation as involving a conflict or apparent conflict like ANTITHESIS or CONCESSION. Therefore, *ja* is preferred since it only has the uncontroversiality component. A possible objection to these explanations is that we also find examples with *doch* where it merely seems to signal uncontroversiality, and the contrastivity plays no role (e.g. in (141) below). However, the component of *doch* that expresses contrast or incompatibility is what distinguishes it from *ja*, so I assume that *ja* is the particle of choice to occur in the satellite of a BACKGROUND relation because its function perfectly contribute to the relation's function.

Another prediction was that the reminding function of *ja* and *doch* is incompatible with discourse relations that by definition provide new information or present non-factive content. This information is not part of the common ground yet and therefore it is not possible to remind the addressee of it. The corpus analysis revealed that, as predicted, the two particles occur less frequently than expected in the ELABORATION relation. In ELABORATION, the speaker provides additional information for an aspect, it usually introduces new information. So the semantics of the particles is not compatible with the function of the specific discourse relation.

I also expected to not find the particles in CONDITION, which is confirmed by the significantly less frequent use of *doch* in this relation. For *ja*, there is no significant result for CONDITION. However, the expected number of occurrences for *ja* in CONDITION was four, and the observed number of occurrences was zero (cf. table 9.4). Thus, it can be argued that the statistical null effect is a floor effect. The raw number represents the lowest number

possible.

Thus, the frequent occurrence of *ja* in Background and the opposite in Elaboration have been confirmed. However, the corpus analysis also revealed that *ja* frequently occurs in discourse units involved in an Evidence relation, which is a result that has not been predicted. Consider (140) for an example:

(140)   [1] Die Repräsentanten der   Gewerkschaften wie auch Sie im
        The representatives   of-the unions   like also   you in-the
        Hause haben in Wahrheit **doch** erkannt – [2] das zeigt die
        house   have   in truth   DOCH realized   that shows the
        Debatte heute –, [1] daß [...] die   große   Mehrheit unserer
        debate   today   that   the great majority of-our   fellow citizens
        Mitbürgerinnen und Mitbürger längst erkannt hat, daß um der
        long-ago   realized has   that for the
        Sicherung der   Zukunft willen Veränderungen [...] notwendig
        security   of-the future   PR   changes   necessary
        sind. [3] Wolfgang Schäuble hat **ja** die neuesten Umfragedaten
        are   Wolfgang   Schäuble has JA the latest   survey data
        bekanntgegeben.
        announced
        'In fact, the representatives of the unions and you here in this house
        have realized – this shows today's debate – that the majority of
        our fellow citizens realized long ago that changes are necessary to
        secure the future. Wolfgang Schäuble has announced the latest
        survey data.'

        (Kohl Corpus, Speech 4, #10690)

While in Background the satellite is supposed to increase the addressee's ability to understand the information that is given in the nucleus, the purpose of the satellite in Evidence is to increase the addressee's belief in the information conveyed in the nucleus: In (140), the speaker provides evidence, i.e. that Wolfgang Schäuble announced relevant results of a survey. This may serve as proof for what is said in the nucleus, i.e. that the citizens consider changes to be necessary. By using *ja*, this piece of evidence is, or

is signaled to be, already in the common ground. As a consequence, the addressee might accept it more readily, so that its effect as proof might be more efficient. Remember that a proposition with a CG label on the table does not result in an update of the common ground, but it causes the respective proposition to be moved to SAL(c) again. A proposition that is in the set of salient and mutually known propositions can be firmly anchored in the discourse structure that is currently built up. It is unlikely that it is rejected by one of the discourse participants. I suggest that the speaker exploits the meaning of *ja* to strengthen his argument in (140). Something that is presented as already known can serve as a very good argument for whatever the speaker wishes to say in the nucleus.

So the EVIDENCE relation involves a satellite that increases the chance that the addressee accepts the proposition denoted by the nucleus so that that proposition can enter the common ground. In essence, it has the same function as BACKGROUND but fulfills it in a different way. In general we may assume that the marking of a piece of evidence as uncontroversial might be based on the speaker's assumption that this is genuinely the case, or the speaker might just pretend that it is the case. A speaker can easily suggest that something is already shared knowledge. Just like in the case of presuppositions, this inferred information is difficult to reject. The speaker can use this mechanism to make a piece of information 'stronger' or hardly assailable (e.g. by presenting it as shared knowledge). I argue that this is crucial to explain some of the findings from the corpus study. The speaker may use the effect of a modal particle to make a satellite unassailable (by suggesting that it is common knowledge). In the presentational relations, the satellite supports the nucleus in different ways (e.g. by increasing the addressee's readiness to accept the information in the nucleus). Therefore, by making the satellite unassailable, the speaker makes its function with respect to the nucleus stronger and the intended effect is more likely to be achieved. I call this use of modal particles **manipulative**: The speaker supports the acceptance of the nucleus indirectly by suggesting that the satellite is unassailable.

I propose that this what happens in the case of (140): We do not know whether the addressees already knew about the survey results or if the

speaker just introduces them to make the information in the nucleus more convincing.

In (141), we can see that *doch*, which also occurs significantly more often in Evidence, works in the same way: The speaker strengthens his claim that more regulations will be necessary for foreign and safety policy by highlighting that everybody can feel the need for more community regulations. This serves as evidence. *Doch* again marks this information as uncontroversial. Note that the contrastive component of *doch* seems to play no role in this case.

(141)   [1] Die gemeinsame Währung wird mit Sicherheit die
        The shared   currency   will   certainly   the
        Notwendigkeit zu weiteren Gemeinschaftsregelungen verstärken.
        necessity   for more   community regulations   reinforce
        [2] Das gilt in besonderem Maße – [3] jeder   spürt es **doch**
            this holds in special   degree   everybody feels it DOCH
        in diesen Wochen – [2] auch für den Bereich der   Außen- und
        in these   weeks   also for the field   of-the foreign and
        Sicherheitspolitik.
        corporate safety policy
        'The shared currency will certainly reinforce the necessity for more regulations for community. This is especially true for the field of foreign and corporate safety policy - everybody notices that.'

        (Kohl Corpus, Speech 24, #120110)

Another obvious finding for *ja* and *doch* is the low number of occurrences in the List relation. List is defined as a simple enumeration of discourse units and it is not the case that one of the discourse units carries an argumentative function or has an effect on the other one. The same holds for Contrast and Sequence. *Ja* and *doch* occur significantly less often in these relations. A possible explanation can be that in this multinuclear relation, a discourse unit with *ja* or *doch* cannot easily fulfill its role of enhancing the acceptance of another proposition. This is because the two discourse units that are involved are of equal importance in a multinuclear relation, so there is no hierarchical relationship as in the case of mononuclear

ones: Multinuclear relations are symmetric. The common ground managing function of *ja* or *doch*, however, seems to rely on an asymmetric discourse relation. The multinuclear relations LIST, CONTRAST and SEQUENCE do not involve any kind of argumentation, by using them, the speaker does not intend to increase the addressee's belief in a proposition or argue for something. Instead, s/he just lists or contrasts items or reports a temporal succession, without marking one unit as more important or more central than the other. Due to this characteristic, multinuclear relations seem to be unlikely to contain an expression of the speaker's attitude and thus modal particles. I will take up this aspect of the non-occurrence of the particles in multinuclear relations in the general discussion in chapter 11.

As a next step, I will consider the contrastive relations that I predicted to find a preference of *doch* for. RST contains three contrastive relations, the multi-nuclear CONTRAST and the mononuclear relations CONCESSION and ANTITHESIS. As I noted above, for the multinuclear CONTRAST, we see that *doch* even occurs significantly less frequently than expected. In CONTRAST, there are similarities and differences between the two nuclei. It is not the case that it would not be possible to have *doch* in a discourse unit which stands in a CONTRAST relation to another unit, consider (142):

(142)   A: Peter ist sehr groß. Das ist kein Wunder bei seinen Eltern.
              Peter is very tall. that is no wonder with his parents
              'Peter is very tall. This is not really surprising, looking at his
              parents.'

         B: Warum? [1] Peters Vater ist groß, [2] aber seine Mutter ist
              why   Peter's father is tall   but his   mother is
              doch klein.
              DOCH short
              'Why? His father is tall but is mother is short.'

But is a connector which is typical for CONTRAST. We see that *doch* can occur in CONTRAST. Note, however, that the contrast expressed by the relation does not correspond to the contrast or conflict that *doch* signals: *Doch* indicates that the second unit, i.e. that Peter's mother is small, is in contrast with something speaker *A* insinuated before, namely that both of

Peter's parents are tall – which B expected A to know. Without the context, B's second utterance would be an infelicitous discourse. This failure of *doch* to point to the same contrast as the discourse relation is probably due to the fact that CONTRAST is multinuclear again. There is no satellite whose function can be enhanced or highlighted by *doch*, as it for example is the case in BACKGROUND where the satellite enables the addressee to understand the nucleus better. This explanation is parallel to the one for the incompatibility of the particles with LIST: Modal particles cannot easily occur in multinuclear discourse relations because their function seems to require asymmetric relations.

Turning to the other two contrastive relations, the results for *doch* show that the particle occurs more often than expected in CONCESSION but not in ANTITHESIS. (There is a tendency for *doch* to occur more often than expected in ANTITHESIS before the Holm/Bonferroni correction is applied. Afterwards it is no longer significant.) In CONCESSION *doch* occurred more often in the nucleus than in the satellite – contrary to what I observed for most of the other relations. For instance, in (143) the discourse unit [1] is the satellite of the CONCESSION relation with unit [2], the nucleus, which contains *doch*. In a CONCESSION relation the speaker acknowledges that there is a potential or apparent incompatibility between nucleus and satellite but considers the satellite no real obstacle for accepting the nucleus. This means that the speaker, Helmut Kohl, commits to the proposition corresponding to the nucleus, even though there may be reasons not to do so. The particle *doch* expresses that the proposition it occurs with is shared knowledge, but that it is not salient. Often the speaker assumes that it is not salient because the addressee added an incompatible proposition to the table. When the speaker uses the particle in the nucleus, this seems to be an efficient way of dismissing the argument presented in the satellite because, again, *doch* marks the proposition as unassailable in the sense that the proposition is presented as uncontroversial.

In (143), the speaker, Helmut Kohl, states in the nucleus that something cannot remain as it is even though he does approve of the current practice for the moment. The particle in the nucleus emphasizes that the proposition

holds despite of what is said in the satellite. *Doch* strengthens the speaker's claim that what is said in the nucleus holds.

(143) [1] Wenn ich es auch bejahe, dass wir es im   Augenblick tun,
         If   I   it also approve that we it at.the moment   do
       [2] so kann es aber langfristig **doch** nicht so bleiben.
         so can   it but long-run   DOCH not   so stay

       '[1] Although I approve of our current practice, [2] things cannot
       stay like this in the long run.'

                          (KOHL CORPUS, Speech 22, #109358)

This example, and overall finding for CONCESSION, shows that it is not generally the case that the particles always "do their work" in the satellite of a discourse relation. Rather, this seems to depend on the precise discourse semantics of the relation and the intentions of the speaker. Sometimes a particle can have a greater effect when used in the satellite, and sometimes in the nucleus.

In the non-corrected values of the results, we see that *doch* is used significantly more often in ANTITHESIS. Although this is no longer significant when adapting the α-level, I will shortly illustrate that *doch* is used here in the same way as in CONCESSION. Consider first (144). Discourse unit [2] is the nucleus for two satellites (for [1], and for [3]), both relations being ANTITHESES. The respective structure is given in figure 9.7. Again, *doch* marks the proposition denoted by the nucleus as uncontroversial and highlights the incompatibility with the conflicting satellite(s). I assume that this increases the hearer's acceptance of [3].

(144) [1] Ich habe noch in Erinnerung, wie es 1982 war, als   Sie
         I   have still in memory   how it 1982 was when you
       vom   Verrat der Freien Demokraten sprachen. [2] In
       from.the betrayal the Free   Democrats   spoke   In
       Wirklichkeit haben **doch** Sie selbst Helmut Schmidt gestürzt
       reality   have DOCH you self   Helmut Schmidt   overthrown
       [3] und niemand sonst.
         and no-one   else

'I still remember how it was in 1982 when you were talking of
the betrayal by the Free Democrats. In reality, it was you who
overthrew Helmut Schmidt and no one else.'

(KOHL CORPUS, Speech 14, #63475)
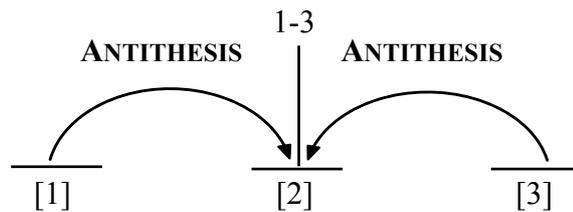
Figure 9.7.: Schema for example (144)

Note that here the speaker himself places the proposition that he takes to
be the addressee's opinion ('The Free Democrats are responsible for over-
throwing with Helmut Schmidt') on the table in order to then argue that
it is not true, but instead his own position holds. With the use of *doch* in
[3], the speaker signals that it is true that the addressee overthrew with the
former chancellor Schmidt and that he is not aware of it. Here, it is impor-
tant to note again that it is not necessarily the case that the addressee in
fact holds an incompatible belief. The speaker can simply suggest this by
using *doch*. As I discussed for the occurrence of *ja* in EVIDENCE, by using
doch in the satellite of a relation like EVIDENCE, the speaker in turn also
makes the information in the nucleus hard to object. This is what I called
a manipulative use of modal particles. I will show more instances of this in
the following.

Next, consider (145), where *doch* occurs in the satellite of the ANTITHESIS
relation between [1] and [2]. Like all the other occurrences of *doch* in the
satellite of an ANTITHESIS relation, the satellite [2] contains a negation. I
propose that in these cases, *doch* is used to indicate that it is known and
therefore uncontroversial (but not salient) that what the satellite rejects
should indeed be rejected. *Doch*, therefore, highlights the contrast between

the two discourse units again.

(145)   [1] Wir sind **doch** nicht in der Abteilung Wahrsagerei, [2]
        We   are   DOCH not   in the section   fortune-telling
        sondern im   Deutschen Bundestag.
        but   in-the German   parliament.
        'We are not in the department of fortune-telling but in the German
        parliament.'

(Kohl Corpus, Speech 16, #75067)

For Antithesis, then, we see that *doch* may occur in the nucleus or in the satellite. This is illustrated in 9.8:
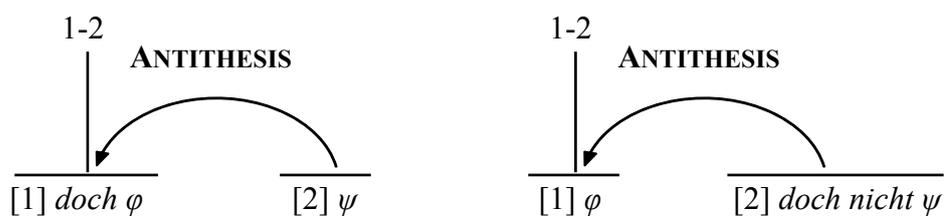
Figure 9.8.: *Doch* in the nucleus or in the negated satellite of Antithesis

In both positions *doch* fulfills the same function: It marks the respective discourse unit as already being in the common ground and makes it salient again. If it is the nucleus, [1], that contains the particle, the respective proposition φ might be more easily accepted. If it is the negated satellite, [2], that contains the particle, also the proposition denoted by the nucleus, φ will be more easily accepted – as it is marked as known that the proposition ψ corresponding to the opposed position does not hold. In both cases, the contrast is enhanced in favor of the proposition denoted by the nucleus.

I will now turn to the discourse relations for which there were no predictions with respect to *doch* but which the corpus analysis revealed to be relevant for the distribution of the particle. Of these, Interpretation, Justify

and MOTIVATION occurred more frequently than expected. EVIDENCE has already been discussed above: I proposed that *doch* essentially has the same function as *ja*, i.e. the evidence that is presented in the satellite is marked as uncontroversial so the speaker enhances the chance that the proposition denoted by the nucleus is more easily accepted.

INTERPRETATION is a relation in which the satellite offers a judgement on the situation expressed in the nucleus. The judgement can be an explanation, a comparison or some other kind of subjective perspective on or understanding of the state of affairs presented in the nucleus. Consider (146), where the speaker interprets the interest of his Japanese colleague as a sign of appreciation of the success of the reforms:

(146)   [1] Mein japanischer Kollege Hashimoto hat mich gebeten,
           My   Japanese   colleagues Hashimoto has me   asked
        Experten aus unserem Land   nach Japan zu schicken [...], [2]
        experts   from our   country to   Japan to send
        um   dort zu erläutern, wie die Deutschen vorgegangen
        in-order-to there to explain   how the Germans   proceeded
        sind. [3] Das ist **doch** ein Zeichen dafür, dass diese Reform
        have   this is DOCH a   sign   for.this that this   reform
        großartig gelungen ist.
        excellently succeeded is

        'My Japanese colleague Hashimoto has asked me to send experts from our country to Japan to explain how the Germans proceeded. This shows clearly that this reform is a great success.'

        (KOHL CORPUS, Speech 14, #69498)

By the use of *doch* the speaker in (146) marks the interpretation of the nucleus given in the satellite as shared information, which we may interpret as being intended to increase the chance that this interpretation gets accepted. Again, *doch* also points to a potential inconsistency, i.e. the speaker implies that the audience might consider this not to be great success or was not aware of it.

The relation that *doch* most frequently occurs in is JUSTIFY, a causal relation on the pragmatic level: In the satellite the speaker explains why he

made the utterance in the nucleus, he justifies it. For instance, in (147) the speaker expresses that he wishes to be honest and this is the justification for uttering the first sentence as he does.

(147) [1] Da   ist es nicht nur eine Frage   des   Geldes, sondern auch
       There is it not   only a   question of-the money but   also
       des   guten Willens oder andernfalls des   totalen Versagens. [2]
       of-the good will   or   else   of-the complete failure
       Das muss man **doch** einmal klar   und deutlich sagen.
       That must one   DOCH PART   clearly and distinctly say

       'It is not only a question of money but also of good will or else of
       complete failure. We should say this very clearly.'

       (Kohl Corpus, Speech 16, #76760)

The Justify relation often involves meta-discursive utterances. The analysis of my data revealed that 64.5% of the Justify relations I annotated (in the reference corpora, as well as in Kohl Corpus and Parl Corpus) are meta-discursive in the sense that they involve an anaphoric reference to something mentioned in discourse (e.g. *das* ('that') in (147)). Here, the contrastive meaning component of *doch* is useful: In (147), *doch* serves to contrast the speaker's decision to put the proposition in the nucleus [1] on the table with the decision of the audience to remain silent. Note again that it is only insinuated by the speaker that the audience wanted to remain silent, it is not necessarily true. Since the addressee cannot easily reject this, the speaker can imply by *doch* that it is uncontroversial that the discourse move of the nucleus is necessary, and also that the addressee would have taken it as not justified or necessary. The former, again, makes the intended effect on the nucleus stronger, i.e. that the addressee accepts the speaker's right to present the information in the nucleus. So, the reminder/retrieval function of *doch* can be used by the speaker in a manipulative way.

Finally, *doch* occurred more frequently than expected in the Motivation relation. The nucleus in Motivation is a request by the speaker, and the satellite provides information which is supposed to increase the addressee's

wish to perform the requested action. As with the mononuclear contrastive relations discussed above, *doch* occurs in the MOTIVATION relation more often in the nucleus than in the satellite. 80 % of these nuclei, i.e. those where *doch* appears, are imperatives. (148) is a typical example:

(148)   [1] Hören Sie **doch** überhaupt mal zu!   [2] Es hat
         Listen you DOCH at all   PART VERB.PART   It has
        keinen Sinn, dass Sie hier im   Saal sitzen [3] und sich   einfach
        no   sense that you here in-the room sit   and yourself simply
        nach dem Muster verhalten: Weil   der das sagt, ist es falsch.
        after the   pattern behave   because he that says it is wrong

        'You should actually listen to me! It does not make sense to sit in this room and simply behave like: It is him who says it, so it has to be wrong.'

(KOHL CORPUS, Speech 5, #22919)

Note that for JUSTIFY, the action (i.e. an utterance) is to be performed by the speaker, while it is the addressee who is supposed to perform an action in MOTIVATION. In both cases, reasons are given why the action should be performed. In JUSTIFY, the particle occurs in the satellite of the relation to make the justification for an utterance uncontroversial. In MOTIVATION, *doch* in most cases occurs in the nucleus, although its function should be useful in the satellite, too – parallel to JUSTIFY (and as we will see below, there are also cases where *doch* is used to mark the satellite as uncontroversial). This preference of *doch* to occur in the nucleus of MOTIVATION is due to the nature of the structure of the MOTIVATION relation: The nucleus by definition is the part which contains the directive. As I discussed before, *doch* often occurs in imperatives. Usually, when a speaker orders or advises an addressee to do something s/he assumes that the addressee was not going to perform the action anyway. In imperatives, this has been claimed to be a presupposition (cf. Kaufmann 2012), it is also the felicity condition of the speech acts of directives (cf. Searle 1969) (see section 4.1 for this discussion). I assume that similarly to the JUSTIFY case, *doch* occurs as marking the contrast between performing an action and not performing an

action.

As I already noted, there are also some instances of Motivation in which *doch* occurs in the satellite, as in (149). For these uses, it can be argued again that the speaker uses *doch* to mark the information as uncontroversial, which in turn makes it more probable that the addressee performs the action requested in the nucleus. In (149), both the nucleus and the satellite of Motivation contain a *doch*, and this shows very well the different functions the particle fulfills. In the nucleus, the speaker suggests to the addressee to think about adding money to the redemption fund. In the satellite, as a motivation for his audience to think about the suggestion, he notes that the name "redemption fund" already suggests what the fund is meant for (i.e. to wipe out these burdens). By using *doch*, the speaker presents it as uncontroversial that this is the function of the redemption fund which is supposed to increase the readiness of the addressee to think about the speaker's suggestion.

(149)   [1] Irgendwo sollten wir **doch** auch in diesem Hause [...] die
          Somewhere should   we   DOCH also   in this   house   the
          Überlegung anstellen, ob   es nicht berechtigt ist, daß das,
          thought   make   whether it not   justified   is   that this
          was wir seit Einführung der   D-Mark über Generationen
          what we since introduction of-the D-Mark over generations
          erarbeitet haben [...] dem Erblastentilgungsfonds zugeführt
          achieved   have   the redemption fund   brought-to
          wird. [2] Der Name "Erblastentilgungsfonds" zeigt **doch**,
          is   the   name   redemption fund   shows DOCH
          worum   es eigentlich geht.
          about-what it actually   goes
          'In this house, we should also think about whether it is justified to add what we achieved over generations since the introduction of the D-Mark to redemption fund for inherited burdens. The name "redemption fund for inherited burdens" shows what it actually is meant for.'

(Kohl Corpus, Speech 10, #45574)

I will now turn to the remaining relations in which *doch* occurred less fre-

quently than expected (ELABORATION, LIST, CONDITION and CONTRAST have already been discussed above). One of them is CIRCUMSTANCE, in which the satellite delivers a 'framework' for the interpretation of the nucleus, for instance it may mention the time and place of an event that is reported in the nucleus. From a discourse point of view it is not evident why *doch* should not occur in CIRCUMSTANCE. The reason for the infrequent occurrence seems to be a formal one: In REFKOHL, 90.4% of the satellites in the CIRCUMSTANCE relation are embedded temporal clauses (e.g. introduced by *wenn* or *als* ('when')), only 9.6% are main clauses. The embedded temporal clauses cannot occur with modal particles (cf. Coniglio 2007, 2011 for a discussion of modal particles in embedded clauses). Coniglio (2007) argues that temporal adverbial clauses have a reduced structure and therefore cannot host modal particles (cf. Coniglio 2007: 129). (150) shows that particles like *doch* or *ja* indeed are not felicitous in such an environment.

(150)   Die Entscheidung wurde getroffen, als   #**doch** gar nicht
         The decision   was   made   when DOCH   not
         alle   anwesend waren.
         everybody present   was
         'The decision was met when not everybody was present.'

Doch occurs also less frequently than expected in EVALUATION. This result is interesting since *doch* occurs more often than expected in INTERPRETATION which in fact has a similar function: In both cases, the satellite provides some kind of judgement on the information given in the nucleus. In the case of EVALUATION, it expresses a positive or negative attitude of the speaker, while the INTERPRETATION relation is used for other types of assessments. In the case of INTERPRETATION, the speaker seems to use *doch* to emphasize that his interpretation of a state of affairs holds and is not controversial. The fact that *doch* is not used in EVALUATION possibly can be explained when taking a closer look at the text type: Positive or negative evaluations are very subjective and in a political debate, it is not likely that these are shared by the addressee. The goal of the speaker is to make a judgement public, but not to signal that the addressee is likely to agree. As I will show below in section 9.6.3, another particle contributes

in a useful way to the Evaluation relation: *Schon* occurs significantly more often than expected in Evaluation. *Schon* can strengthen the validity of the speaker's evaluation, but this is not done by indicating that the addressee should share it.

9.5. eben and halt

9.5.1. Predictions

Before I present the results for *eben* and *halt*, again I want to summarize the predictions formulated in chapter 8. Because of their function to indicate that there is an evident causal relationship between two propositions, I predict that they will be used in the context of the Cause and Result relations. *Eben* and *halt* are not expected in contrastive relations as Contrast, Concession or Antithesis, since this contradicts their component to hint to an inferential relation.

9.5.2. Results

The results for *eben* and *halt* show that there are significant differences in the occurrence of the two particles, which in the literature often are claimed to be identical in meaning (cf. the discussion of the literature in section 4.2. Table 9.6 and 9.7 show all results for the particles *eben* and *halt*.

Relation	n.exp	n.obs	odds ratio	p (Fisher Exact)	p.corr	direction of effect	n_{obs} in Sat	$prop_{obs}$ in Sat
ANTITHESIS	5.3	28	6.375	1.2×10^{-10}	2.6×10^{-9}	↑	21	.8
BACKGROUND	3.7	1	0.263	0.241	1	-	1	1.0
CAUSE	5.2	30	7.144	3.9×10^{-12}	8.9×10^{-11}	↑	30	1.0
CIRCUMSTANCE	3.2	0	0	0.101	1	-	0	-
CONCESSION	6.2	13	2.195	0.022	0.368	-	2	.2
CONDITION	2.4	0	0	0.255	1	-	0	-
CONTRAST	7.2	10	1.424	0.317	1	-	-	n.a.
ELABORATION	32.7	14	0.362	0.0002	0.004	→	14	1.0
ENABLEMENT	0.0	0	0	1	1	-	0	-
EVALUATION	2.5	2	0.789	1	1	-	2	1.0
EVIDENCE	6.1	2	0.317	0.11	1	-	2	1.0
INTERPRETATION	8.6	5	0.563	0.255	1	-	5	1.0
JUSTIFY	7.7	0	0	0.001	0.023	-	0	-
LIST	18.7	8	0.391	0.009	0.169	→	-	n.a.
MOTIVATION	3.2	1	0.308	0.348	1	-	1	1.0
OTHERWISE	0.4	0	0	1	1	-	0	-
PREPARATION	2.7	0	0	0.155	1	-	0	-
PURPOSE	2.0	1	0.498	0.71	1	-	1	1.0
RESTATEMENT	2.0	0	0	0.24	1	-	0	-
RESULT	9.4	19	2.179	0.009	0.169	-	19	1.0
SEQUENCE	1.7	0	0	0.384	1	-	-	n.a.
SOLUTIONHOOD	1.9	0	0	0.393	1	-	0	-
SUMMARY	1.1	0	0	0.607	1	-	0	-

Table 9.6.: Results for *eben*: Expected and observed frequencies in the corpus, *p*-values retrieved by the Fisher Exact test and after Holm-Bonferroni correction, distribution in the satellite of the relations

Relation	n.exp	n.obs	odds ratio	p (Fisher Exact)	p.corr	direction of effect	n_{obs} in Sat	$prop_{obs}$ in Sat
ANTITHESIS	4.4	3	0.679	0.793	1	-	2	1.0
BACKGROUND	3.1	1	0.321	0.351	1	-	1	1.0
CAUSE	4.3	31	9.710	3.4×10^{-15}	7.7×10^{-14}	→	31	1.0
CIRCUMSTANCE	2.6	1	0.376	0.502	1	-	1	1.0
CONCESSION	5.1	13	2.737	0.006	0.105	-	0	-
CONDITION	2.0	0	0	0.245	1	-	0	-
CONTRAST	5.9	3	0.496	0.358	1	-	-	n.a.
ELABORATION	26.8	2	0.057	2.9×10^{-10}	6.5×10^{-9}	←	2	1.0
ENABLEMENT	0.0	0	0	1	1	-	0	-
EVALUATION	2.1	3	1.459	0.470	1	-	0	-
EVIDENCE	5.0	0	0	0.019	0.335	-	0	-
INTERPRETATION	7.1	11	1.611	0.163	1	-	11	1.0
JUSTIFY	6.3	6	0.945	1	1	-	6	1.0
LIST	15.4	1	0.056	5.9×10^{-6}	0.0001	←	-	n.a.
MOTIVATION	2.6	2	0.759	1	1	-	0	-
OTHERWISE	0.3	0	0	1	1	-	0	-
PREPARATION	2.2	0	0	0.249	1	-	0	-
PURPOSE	1.6	0	0	0.386	1	-	0	-
RESTATEMENT	1.6	1	0.608	1	1	-	1	1.0
Result	7.7	28	4.497	3.0×10^{-8}	6.3×10^{-7}	→	27	.9
SEQUENCE	1.4	1	0.702	1	1	-	-	n.a.
SOLUTIONHOOD	1.5	3	1.989	0.230	1	-	3	1.0
SUMMARY	0.9	0	0	1	1	-	0	-

Table 9.7.: Results for *halt*: Expected and observed frequencies in the corpus, *p* values retrieved by the Fisher Exact test and after Holm-Bonferroni correction, distribution in the satellite of the relations

We see that *eben* occurs significantly more often than expected in An-tithesis (*or* = 6.375, *p* < .0001) and Cause (*or* = 7.144, *p* < .0001). *Eben* occurs significantly less often than expected in Elaboration (*or* = 0.362, *p* < .01) and as a tendency also less often in Justify (*or* = 0, *p* < .1)

Halt occurs significantly more often than expected in Cause (*or* = 9.710, *p* < .0001) and Result (*or* = 4.497, *p* < .0001). It occurs significantly less often than expected in Elaboration (*or* = 0.057, *p* < .0001) and List (*or* = 0.056, *p* < .0001). Table 9.6 and 9.7 also show the proportions of occurrences in the satellite of the single relations. As can be seen, the particles occur almost exclusively in the satellites of the relation, with one exception: *Eben* occurs in 80% of the Concession cases in the nucleus of the relation. This will be discussed in the next section.
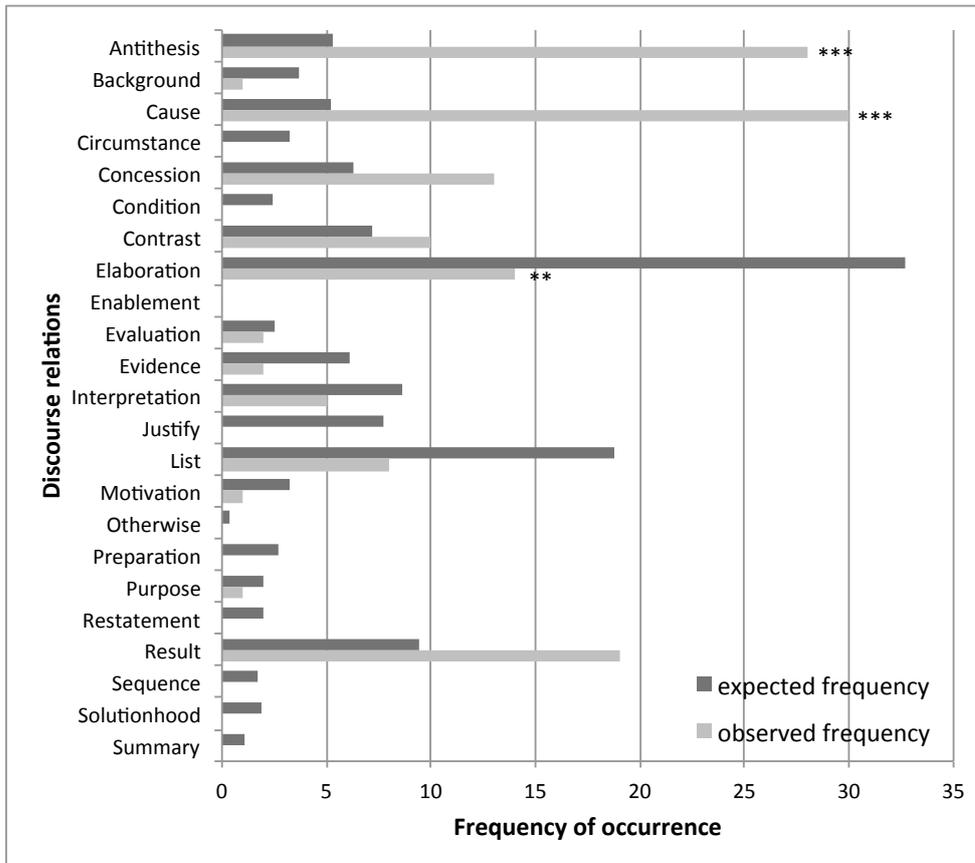
Figure 9.9.: Expected and observed frequencies of *eben* in the discourse relations. (* = α-level <.05, corrected; ** = α-level <.01, corrected; *** = α-level <.001, corrected)
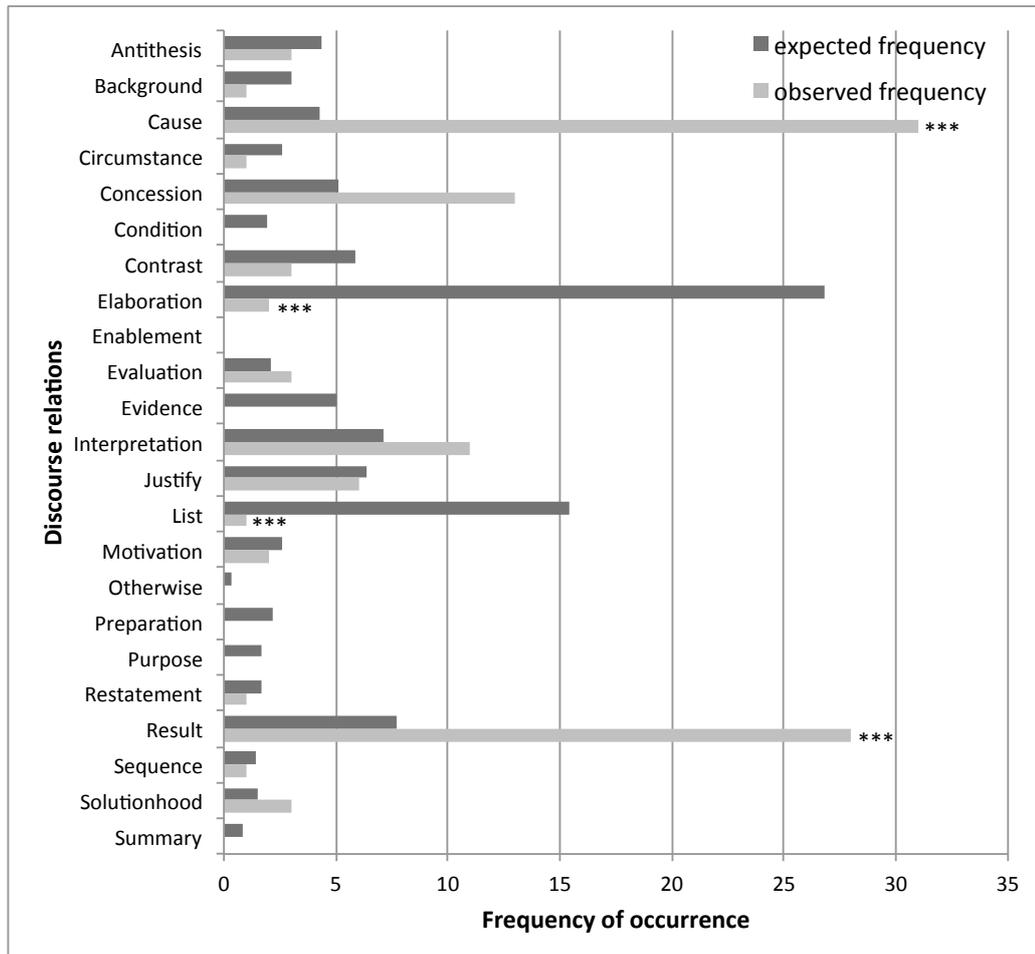
Figure 9.10.: Expected and observed frequencies of *halt* in the discourse relations. (* = α-level <.05, corrected; ** = α-level <.01, corrected; *** = α-level <.001, corrected)

9.5.3. Discussion

The results presented above show an interesting difference between *eben* and *halt*. It has been claimed in the literature that the two particles are nearly synonymous in meaning (cf. the discussion of the literature in section 4.2) and therefore no differences in their distribution was predicted. The data, however, show that although both particles often occur in causal relations as predicted, *eben* additionally can be found significantly more of-

ten than expected in discourse units involved in an ANTITHESIS relation. This finding suggests that there is a difference between the two particles which is reflected in the different uses in discourse. Before I turn to the non-predicted occurrences of *eben*, the use of both particles in causal relations will be discussed.

As I discussed in section 4.2, *eben* and *halt* express that there is a causal relationship between the proposition the particle occurs with and a proposition from a preceding utterance, and that this causal relationship is evident. Therefore I predicted a frequent occurrence in CAUSE and RESULT. This prediction is confirmed by the results for both relations in the case of *halt*. *Eben* only occurs significantly more often in CAUSE. Only in the non-corrected results, a preference for RESULT is visible. The examples below illustrate the use of *eben* and *halt* in the two causal relations:

(151)   [1] Natürlich weiß ich aus Erfahrung, daß die Frage,   ob
           Of-course   know I   from experience   that the questions whether
        man etwas mehr Überstunden fährt [...] in vielen Betrieben von
        one a-little more overtime   drives   in many companies from
        beiden Seiten wie folgt   – [2] weil   es **eben** weniger
        both   sides   as follows   because it EBEN less
        kompliziert ist – [1] beantwortet wird: Wir fahren lieber
        complicated is   answered   is   we drive   rather
        Überstunden, als neue Leute einzustellen.
        overtime   than new   people to-employ
        'Of course I know from my own experience that in many companies the question whether one works more hours is answered as follows by both sides – because it is just less complicated: We rather drive overtime than employing new people.'

                                              (KOHL CORPUS, Speech 8, #37245)

The parenthesis *'weil es eben weniger kompliziert ist'* ([2]) in (151) constitutes a discourse unit on its own which interrupts the larger unit [1][6]. The discourse unit [2] containing *eben* stands in a CAUSE relation with [1]: The

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[6]Cases like these in which an EDU is divided into two or more parts have been annotated by applying a semantically empty schema SAME UNIT to ensure a coherent tree structure.

reason why the companies approach this problem with overtime is that it is less complicated. The structure is given in figure 9.11:
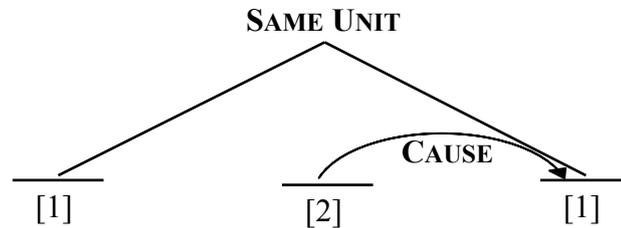
Figure 9.11.: Schema for example (151)

The EDU$_{MP}$, [2], contains a causal conjunction (*weil*) which signals the relation, but *eben* also contributes to this reading. Omitting *weil* would not change the clear causal relation between the units, *eben* equally indicates the causality between the proposition that *eben* scopes over and that of the first sentence. One could argue that *eben* should be redundant here as the causality is already marked by *weil*. But since *eben* also expresses that the causal relation is evident, there is a benefit in using it: I propose that *eben* in this case facilitates the recognition of the discourse relation that is present. If it is evident that a proposition follows from another one, it can be removed from the table more quickly. In (152), *halt* is shown in the satellite of a CAUSE relation and (153) shows that it can also occur in the other part of a causal relation, i.e. in the satellite of a RESULT relation:

(152)   [1] Die CDU hatte in Hamburg eines ihrer   schlechtesten
            The CDU had   in Hamburg one   of-their worst
        Wahlergebnisse [2] und stellt   jetzt den Ersten Bürgermeister.
        election results   and appoints now   the First   Mayor
        [3] Das hängt **halt** mit der Koalitionsfreiheit   zusammen.
            This is due HALT with the freedom of association V.PART
        'The CDU had one of the worst election results in Hamburg and now appoints the First Mayor. This has to do with the freedom of association.'

(PARL CORPUS, #18611214)

(153) [1] Er streicht satte Rabatte ein,   [2] und wenn ihm Anbieter
        He receives full   discounts V.PART   and if   him vendor
Hinz trotzdem noch zu teuer   ist, [3] dann geht er **halt** zu
Hinz nevertheless still   too expensive is   then   goes he HALT to
Kunz.
Kunz
'He [the business customer] receives full discounts and if vendor A
is still too expensive for him, then he simply goes to vendor B.'

(PARL CORPUS, #2725181)

The effect of *eben* and *halt* in these causal relations can be explained
straightforwardly: On the one hand, the particles indicate that there is
a causal relation between the proposition they occur with and a proposition
previously mentioned, i.e. they underline the discourse relation which is
independent of the particle. On the other hand, *eben* and *halt* indicate that
this relation is evident, i.e. part of the common ground: either because of
world knowledge or because it is contextually salient or has been discussed
before. As argued for *ja* and *doch* before, the speaker can make his/her
point difficult to object by marking it as already part of the common ground.
Eben and *halt* can also be used to make an argument stronger. They make a
causal relation more explicit and they indicate that this causal relationship
is evident, and therefore uncontroversial. The expression of causality is so
central for the meaning of *eben* and *halt* that it is not possible to exchange
them for *ja* or *doch*, which also make reference to the common ground but
miss the causal component. Again, the function of *eben* and *halt* can be
exploited by the speaker to suggest that something is evident, even if the
addressee might not share this judgement. If used in a monologic text type
like the one at hand, the consequence [3] in (153) becomes unassailable if
the speaker conveys that it clearly follows from the proposition expressed
by [2].

Interestingly, we do not find *eben* significantly more often in RESULT, while
halt occurs more often than expected in both causal relations. The assign-
ment of CAUSE and RESULT during the annotation with discourse relations
depends on the interpretation of the annotator who decides which of the

related discourse units is more central to the overall argumentation of the speaker, i.e. which is the nucleus and which is the satellite. There is no obvious explanation for this finding. It has to remain open for now, further investigations are necessary.

In the following, I will focus on the interaction of *eben* with ANTITHESIS, which has not been predicted to be a typical context for *eben*. As mentioned before, ANTITHESIS is a relation which presents two positions - of which the speaker has positive regard for one but not the other. See (154) for an example:

(154) [1] Europa wird **eben** nicht an einem Reißbrett   entworfen, [2]
        Europe   is   EBEN not   at a   drawing-board designed
        sondern muß sich aus   den Gegebenheiten der   einzelnen
        but   must itself out-of the   conditions   of-the single
        Länder entwickeln.
        countries develop
        'Europe just is not designed at the drawing board but it has to emerge from the conditions of the single countries.'

                                    (KOHL CORPUS, Speech 12, #59374)

We can see that in the discourse in (154), *eben* is used in discourse unit [2] which presents the position the speaker does not support (when the negation is subtracted) which by the definition of Mann & Thompson (1988) is the satellite of the relation: The position that Europe is being designed at the drawing board is rejected, the opinion of the speaker is given in the nucleus, i.e. that Europe has to emerge from the conditions within the single countries. Thus, *eben* indicates that it is evident that the drawing board position is not true.

There are also cases in which *eben* occurs in the nucleus of an ANTITHESIS relation: The particle then marks the information that corresponds to the speaker's position as evident, see (155):

(155) [1] Zukunft für unser Land   läßt sich **eben** nur mit Mut,   mit
        Future   for   our   country let   itself EBEN only with courage, with
        Grundsatztreue und Weitsicht gewinnen. [2] Mit Ängstlichkeit
        truth-to-principles and   vision   achieve   with anxiety

und Opportunismus läßt sich auch in Deutschland keine
and opportunism   lets itself also   in Germany   no
Zukunft gewinnen.
future   achieve

'Future for our country can only be achieved with courage, remaining true to principles and vision. You cannot achieve a future for Germany with anxiety and opportunism.'

(KOHL CORPUS, Speech 18, #89542)

The first clause corresponds to the nucleus unit: The speaker believes that it takes courage and vision for the future of the country, and not anxiety and opportunism as it is put in the second clause, the satellite which again is negated.

Interestingly, 75.2% of the occurrences of *eben* in ANTITHESIS are cases in which the particle stands in a negated satellite, i.e. it accompanies the negation of the position the speaker does not share (as in (154), but unlike (155)). The question that arises from this finding is: Why does *eben* occur so frequently in ANTITHESIS in the first place? And why is it used in the negated satellite in most cases? In section 9.4.3, I showed that the particle *doch* also appears in ANTITHESIS frequently, but mainly in the nucleus. I argued above that *doch* increases the contrastiveness of the two positions expressed and it also marks the position supported by the speaker as uncontroversial. In the case of *eben*, however, no contrastive meaning component is present. It expresses that the given information is obvious. In most of the ANTITHESIS cases, *eben* indicates that it is obvious that the information given in the satellite does not hold. This is a rhetorical move which increases the acceptance for the position presented in the nucleus. In the specific text type at hand, in most cases the position of the speaker and his/her party is opposed to that of a political opponent. The latter is then marked as evidently not true. *Eben* marks it as evident that the information in the satellite does not hold (or, as in 24.8% of cases, as evident that the position in the nucleus holds).

The question that arises is why we do not find *halt* in ANTITHESIS. This finding is crucial, as it shows clearly that there is a different between *eben*

and *halt* – a finding which only can be found with an analysis of the discourse structure. There are two possible explanations. First of all there could be an idiomatic combination of *eben* and *nicht*. As described above, 75.2% of the occurrences of *eben* in Antithesis are in the negated satellite. An analysis of all instances of *eben* in a sample of Parl Corpus (more than 4 million tokens, different speakers) reveals that 30.1% of them are directly followed by *nicht* - irrespective of the discourse relation present. Of all occurrences of *halt* in Parl Corpus, only 7.5% are followed by negation. It seems to be the case that *eben* is preferred in the presence of *nicht*. Table 9.8 summarizes this distribution:

eben			*halt*		
total	*eben nicht*	%	total	*halt nicht*	%
595	179	30.1	401	30	7.5

Table 9.8.: Percentage of *eben* and *halt* with adjacent negation, based on the analysis of 36 million tokens for *halt*, and <4 million tokens for *eben*

Another reason for the frequent combination of *eben* and *nicht* could be the potentially focus-sensitive reading of *eben* that was mentioned in section 4. The example is repeated below:

(156)   **Eben** [DIESE Diskussion]$_F$ wollte ich vermeiden.
         EBEN   this   discussion   wanted I   avoid
         'It is exactly this discussion I wanted to avoid.'

(156) shows that *eben*$_{foc}$ can occur in the prefield together with the associated DP, which is not possible for the modal particle *eben*. In the middle field, however, they occupy the same position and therefore, when dealing with written text, it is sometimes not possible to distinguish between the two readings when *eben* occurs with *nicht*. A context for *eben*$_{foc}$ and negation is given in:

(157)   A: We received an offer from the company of your father.
          B: Well, so then you could cooperate with them!

    A: Nein, das will ich ja **eben** NICHT.
        No   that want I   JA exactly not
    'No, this is exactly what I do NOT want.'

In a case like this, it cannot be resolved unambiguously whether *eben* is $eben_{foc}$ or $eben_{MP}$ if the data is written language, the stress of the sentence is crucial to decide this. With the substitution test with *genau*, mentioned in section 4.2, we see that *eben* could be replaced by *genau* if *nicht* is focused, but not if *nicht* is not stressed. Since $halt_{foc}$ does not exist, this might be a reason for the fact that we find the combination *eben nicht* more often than *halt nicht*. However, in the case of ANTITHESIS, two positions - that of the current speaker and another one - are opposed. For instance, in (154), 'designed at the drawing board' is contrasted with 'has to emerge from the conditions', therefore it is unlikely that *nicht* was stressed in this context, it is not the context of a VERUM focus. When considering those occurrences in the corpus where *eben* is combined with *nicht* in the satellite of ANTITHESIS, I find that in 66.7% of these cases it is obvious that the focus cannot be on *nicht* because there is a clear contrast between the two positions in the nucleus and in the satellite. A VERUM interpretation is not available. The remaining 33.3% of *eben nicht* in the satellite of ANTITHESIS are such that it would in general be possible to have a focus on *nicht*. These could only disambiguated with audio recording of the speeches.

However, it has to be noted that I do not find *halt* without negation, i.e. in the nucleus of ANTITHESIS, either. The negation therefore cannot be the main factor for this difference between *eben* and *halt*. The reason for the occurrence of *eben* in ANTITHESIS probably is a different one. As Thurmair (1989) pointed out, although sharing in general the same meaning, *eben* is stronger than *halt*. It conveys that something is evident, while *halt* expresses plausibility. If a speaker wants to make an utterance more convincing, it is more effective to mark it as evident instead of merely plausible. The same holds for the negated satellite: To say that information is evidently not true is stronger than to say that it is plausible that it is wrong. So the reason

for the non-occurrence of *halt* in the relation ANTITHESIS can be explained best by different degrees of strength of the particles *eben* and *halt*.

The results also show that both, *eben* and *halt*, occur less frequently than expected in ELABORATION. For *ja* and *doch*, I assumed that the particles are not compatible with new information introduced in ELABORATION because the particles express that information is already known. *Eben* and *halt* express that there is an evident causal relation between pieces of information, which should be compatible with ELABORATION. I argue that they are not used in this relation because their causal meaning component would trigger the relation to be interpreted in a causal way. See (158) for an example where the relation without the *eben* would be an ELABORATION, but the addition of *eben* triggers a causal interpretation, which is difficult to get for this example and therefore *eben* seems to be not acceptable.

(158)   [1] Anna zieht im   nächsten Monat um.   [2] Das wird
           Anna   moves in-the next   month   VERB.PRT   this   will
           (#**eben**) Ende des   Monats stattfinden.
           (EBEN)   end   of-the month   take-place
           'Anna will be moving next month. This will take place at the end
           of the month.'

Halt neither occurs in LIST (there is just one occurrence), which can be traced back to the nature of symmetric, multinuclear relations like LIST. As for *ja* and *doch*, I assume that symmetric relations do not involve argumentation and therefore are not likely to contain modal particles. For *eben*, however, there is a tendency that it occurs less often than expected in JUSTIFY. This is surprising. Just like *doch*, *eben* could contribute to this relation well by marking the justification of an utterance as evident, and therefore difficult to object. A possible explanation for this finding could be that *eben* establishes a causal relationship on the propositional level. JUSTIFY, in contrast, expresses a causal relationship on the level of speech acts. Possibly this is the reason why *eben* is not used for this relation.

To sum up, this discussion of the results for *eben* and *halt* shows that they exhibit a different distribution even though they are so similar, nearly identical, in their meaning. This is an interesting finding and it suggests that

there is indeed a difference between the particles, unlike what most previous descriptions of these particles proposed. The observed difference can be traced back to a different degree of strength, as already hinted at by Thurmair (1989). Additionally, it may be the case that in a small number of cases *eben* in fact is not used as a modal particle but as a focus particle – a use that does not exist for *halt*. While there are no ambiguous cases of *eben* in the nucleus of ANTITHESIS, there are a few cases of *eben nicht* in the satellite of ANTITHESIS in which it cannot be unambiguously resolved, as discussed above.

9.6. wohl and schon

9.6.1. Predictions

To repeat the predictions for the occurrence of *wohl* and *schon* in discourse, I argued in chapter 8, that it is difficult to predict where *wohl* could occur since a speaker may always need to mark that s/he is not certain about information, irrespective of the discourse relation. We can only predict that *wohl* probably will not be used very often in this text type of argumentative texts because the speaker wants to convince the addressee of something, especially in presentational relations like ANTITHESIS, BACKGROUND, CONCESSION, EVIDENCE, JUSTIFY or MOTIVATION.

The affirming and at the same time restricting meaning of *schon*, in contrast, is predicted to occur with the CONCESSION relation to express that something holds despite possible restrictions. *Schon* might also occur in the JUSTIFY relation, affirming the need to make an utterance. Finally, it is also likely that *schon* is used for judgements (i.e. EVALUATION or INTERPRETATION) because the speaker can use the effect of the particle to affirm a judgement.

9.6.2. Results

table 9.9 and 9.10 present the observed and expected frequencies for the two particles *wohl* and *schon* (again they were evaluated against the REFPARL

reference corpus with different speakers, since the data for *wohl* and *schon* also are not exclusively by Kohl, but also from PARL CORPUS), as well as the statistics.

Wohl occurs significantly more often than expected in INTERPRETATION ($or = 0.157$, $p < .0001$) and significantly less often than expected in LIST ($or = 5.687$, $p < .01$).

Schon occurs significantly more often than expected in EVALUATION ($or = 0.038$, $p < .0001$), INTERPETATION ($or = 0.298$, $p < .0001$) and JUSTIFY ($or = 0.376$, $p < .01$). *Schon* occurs significantly less often than expected in ELABORATION ($or = 6.343$, $p < .0001$) and LIST ($or = \inf$, $p < .0001$). Tables 9.9 and 9.10 also show the distribution of the particles with respect to the nucleus and satellite of the relations. It shows that *wohl* and *schon* are distributed evenly on nucleus and satellite in CONCESSION. Also, *wohl* occurs more often in the nucleus of ANTITHESIS than in the satellite, but this finding has to be handled with care because there are only four occurrences of *wohl* in this relation in total. In all other relations, the particles occurred almost exclusively in the satellite.

Relation	n.exp	n.obs	odds ratio	p (Fisher Exact)	p.corr	direction of effect	n_{obs} in Sat	prop$_{obs}$ in Sat
ANTITHESIS	4.3	4	1.074	1		-	1	.3
BACKGROUND	3.0	6	0.486	0.132	1	-	6	1.0
CAUSE	4.2	9	0.443	0.042	0.842	-	9	1.0
CIRCUMSTANCE	2.6	2	1.292	1	1	-	2	1.0
CONCESSION	5.0	10	0.48	0.06	1	-	4	.4
CONDITION	1.9	1	1.945	1	1	-	0	-
CONTRAST	5.8	1	6.051	0.036	0.755	-	-	n.a.
ELABORATION	26.4	19	1.512	0.123	1	-	19	1.0
ENABLEMENT	0.0	0	0	1	1	-	0	-
EVALUATION	2.0	5	0.396	0.074	1	-	5	1.0
EVIDENCE	4.9	1	5.112	0.078	1	-	1	1.0
INTERPRETATION	7.0	33	0.157	2.9×10^{-12}	6.7×10^{-11}	→	33	1.0
JUSTIFY	6.2	3	2.136	0.265	1	-	3	1.0
LIST	15.1	3	5.687	0.0002	0.005	←	-	n.a.
MOTIVATION	2.6	0	Inf	0.159	1	-	0	-
OTHERWISE	0.3	0	Inf	1	1	-	0	-
PREPARATION	2.1	0	Inf	0.248	1	-	0	-
PURPOSE	1.6	0	Inf	0.386	1	-	0	-
RESTATEMENT	1.6	0	Inf	0.386	1	-	0	-
RESULT	7.6	9	0.834	0.56	1	-	9	1.0
SEQUENCE	1.4	0	Inf	0.627	1	-	-	n.a.
SOLUTIONHOOD	1.5	2	0.747	0.662	1	-	2	1.0
SUMMARY	0.9	0	Inf	1	1	-	0	-

Table 9.9.: Results for *wohl*: Expected and observed frequencies in the corpus, *p*-values retrieved by the Fisher Exact test and after Holm-Bonferroni correction, distribution in the satellite of the relations

Relation	n.exp	n.obs	odds ratio	p (Fisher Exact)	p.corr	direction of effect	nobs in Sat	propobs in Sat
ANTITHESIS	7.4	9	0.813	0.548	1	-	0	-
BACKGROUND	5.2	1	5.282	0.071	0.998	-	1	1.0
CAUSE	7.2	1	7.439	0.014	0.237	-	1	1.0
CIRCUMSTANCE	4.4	0	Inf	0.04	0.636	-	0	-
CONCESSION	8.7	13	0.651	0.199	1	-	6	.5
CONDITION	3.3	0	Inf	0.094	1	-	0	-
CONTRAST	10.0	2	5.203	0.007	0.133	-	-	n.a.
ELABORATION	45.4	9	6.343	2.4×10^{-11}	5.0×10^{-10}	→	9	1.0
ENABLEMENT	0.0	0	0	1	1	-	0	-
EVALUATION	3.5	63	0.038	1.1×10^{-38}	2.4×10^{-37}	←	63	1.0
EVIDENCE	8.5	4	2.175	0.163	1	-	4	1.0
INTERPRETATION	12.0	35	0.298	4.1×10^{-7}	8.2×10^{-6}	←	35	1.0
JUSTIFY	10.7	26	0.376	0.0002	0.004	←	26	1.0
LIST	26.0	0	Inf	1.3×10^{-11}	2.9×10^{-10}	→	-	n.a.
MOTIVATION	4.4	9	0.48	0.083	1	-	0	-
OTHERWISE	0.6	0	Inf	1	1	-	0	-
PREPARATION	3.7	0	Inf	0.058	0.875	-	0	-
PURPOSE	2.8	1	2.793	0.491	1	-	1	1.0
RESTATEMENT	2.8	0	Inf	0.147	1	-	0	-
RESULT	13.1	12	1.099	0.876	1	-	12	1.0
SEQUENCE	2.4	0	Inf	0.239	1	-	-	n.a.
SOLUTIONHOOD	2.6	1	2.604	0.49	1	-	1	1.0
SUMMARY	1.5	0	Inf	0.618	1	-	0	-

Table 9.10.: Results for *schon*: Expected and observed frequencies in the corpus, *p*-values retrieved by the Fisher Exact test and after Holm-Bonferroni correction, distribution in the satellite of the relations
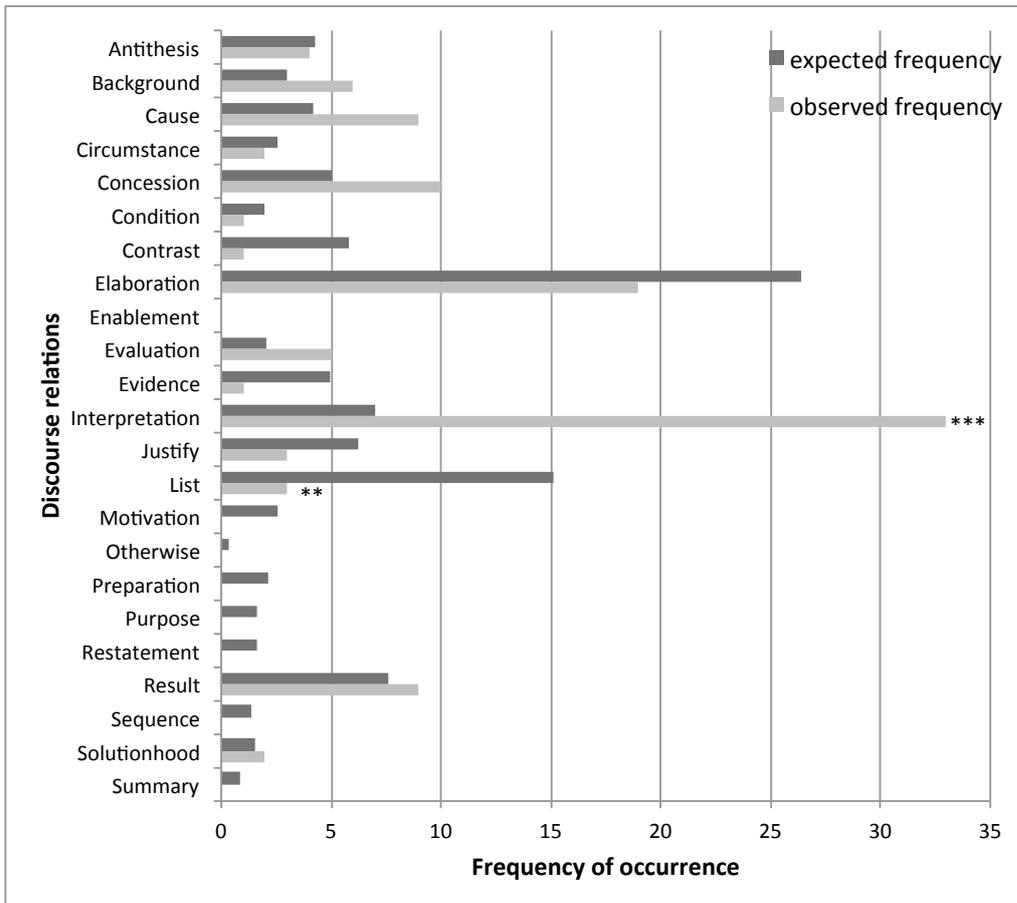
Figure 9.12.: Expected and observed frequencies of *wohl* in the discourse
relations. (* = α-level <.05, corrected; ** = α-level <.01,
corrected; *** = α-level <.001, corrected)
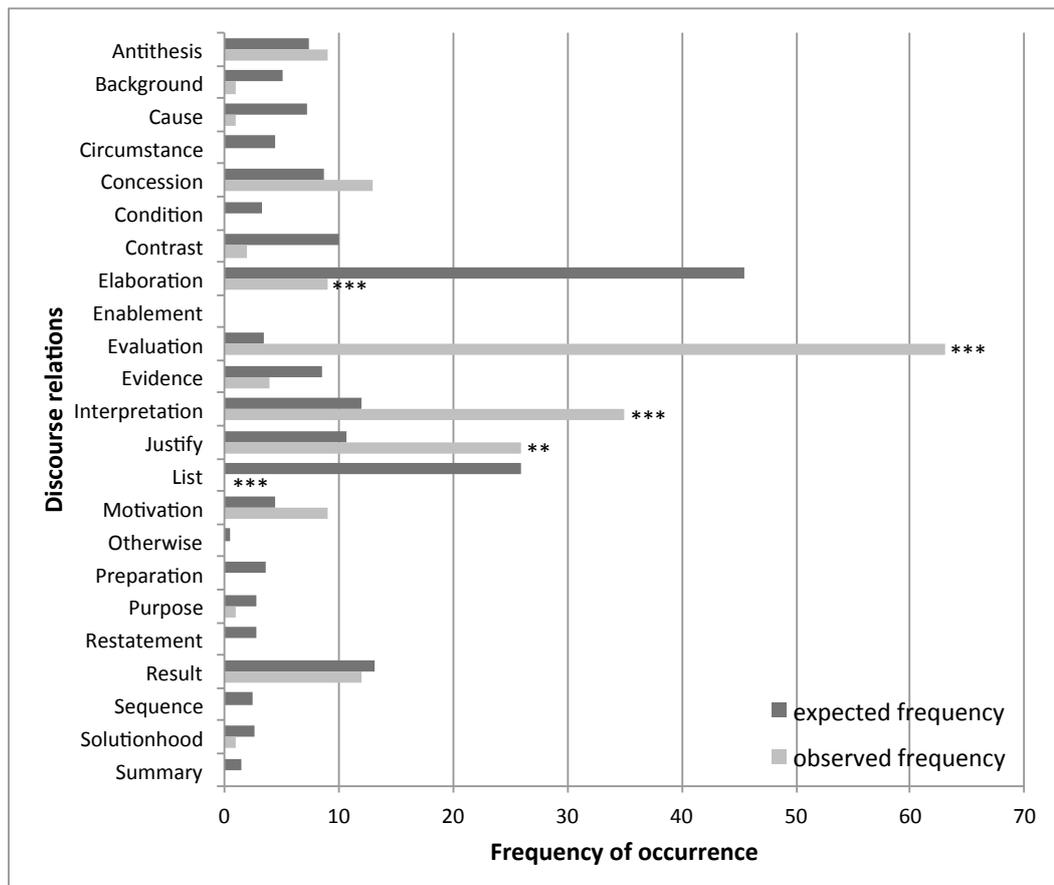
Figure 9.13.: Expected and observed frequencies of *schon* in the discourse relations. (* = α-level <.05, corrected; ** = α-level <.01, corrected; *** = α-level <.001, corrected)

9.6.3. Discussion

As discussed in section 4.3, the particle *wohl* expresses a weakened commitment of the speaker towards the proposition. The speaker is not sure whether the proposition is true. The effect of the speaker's use of *wohl* is that the utterance is less assailable: The speaker does not guarantee for its truth anyway. While *ja, doch, halt* and *eben* make a discourse move unassailable by presenting it as uncontroversial, *wohl* can do so by anticipating that it might be not true.

The corpus results show that there is exactly one relation in which *wohl* occurs more often than expected and this is SMALL CAPS INTERPRETATION. An example for this use of *wohl* is given in (159):

(159) [1] Daß Sie das dort nicht getan haben, unterstellt, daß Sie
       that you this there not done have implies that you
       Jelzin für keinen Demokraten halten; [...] [2] In Wirklichkeit
       Jelzin for no democrat hold in reality
       bedeutet das eine Einschätzung, daß Jelzin in vielen Punkten
       means that an interpretation that Jelzin in many points
       in bezug auf demokratische Verhaltensweisen zweifelhaft ist, [3]
       with respect to democratic behavior doubtful is
       was **wohl** eine realistische Einschätzung wäre.
       which WOHL a realistic interpretation would-be
       'The fact that you have not done this implies that you do not see
       Jelzin as a democrat. In fact it is an interpretation that Jelzin in
       many aspects is questionable with respect to a democratic behavior, which presumably is a realistic interpretation.'

(PARL CORPUS, #251324)

In (159), the speaker evaluates the fact that the addressee did not meet Jelzin on a trip to Russia. The EDU_{MP} [3] is the satellite of an INTERPRETATION relation with [2] which in turn also offers an interpretation of the state of affairs described in [1]. The respective discourse structure is given in 9.14 for illustration:
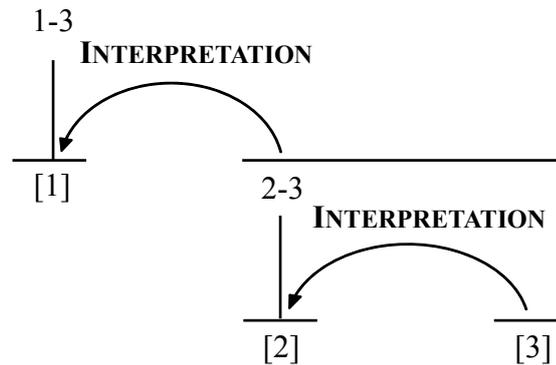
Figure 9.14.: Discourse Structure for example (159)

The use of *wohl* in INTERPRETATION is not surprising. With the particle, the speaker can express that his/her utterance does not present an uncontroversial fact but constitutes a personal interpretation of a state of affairs and *wohl* can emphasize that the speaker does not guarantee for its truth. It is interesting that *wohl* as well as *doch* occur often in the satellite of INTERPRETATION relations, since both have opposing functions: While *doch* strengthens a point and marks a strong commitment to the proposition, *wohl* does the opposite, it signals a low commitment of the speaker. This illustrates very well how speakers make use of particles to influence how their utterance is interpreted by the addressee. If the speaker had used *doch* instead of *wohl* in (159), the strength of the interpretation would have been different. With *doch*, the Evaluation in [3] would be presented as a shared judgement. So by choosing different particles, the speaker can present a subjective interpretation as an uncontroversial truth or as a careful evaluation. Depending on his/her aim in discourse, both can be useful.[7]

Finally, it has to be noted that in general I did not predict to find many uses of *wohl* in the specific text type at hand (i.e. parliament speeches) because

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[7]Note that *doch* and *wohl* can also be combined. However, the meaning of particle combinations is a complex subject on its own (cf. Thurmair 1989, 1991, Lemnitzer 2001). In most cases, the meaning of a combination of two particles is not the sum of the individual meaning, but one particle takes scope over the other one. I will not discuss this here, but only note that the combination of *doch wohl* seems to contain more than just the meaning of the two individual particles.

speakers will rather not admit uncertainty in an argumentative text type. Therefore, it fits my predictions to only find *wohl* in a relation that expresses a subjective evaluation. I predicted that *wohl* is especially unlikely to be used in relations with a certain intended effect. When distinguishing between subject-matter relations and presentational relations, however, no difference – and this no preference of *wohl* could be found. Just like the other particles discussed, *wohl* occurs significantly less frequently in LIST, which again is due to the symmetric character of this relation which makes it unlikely that one unit contains a speaker attitude while the other does not.

A question that arises is why *wohl* does occur so frequently in INTERPRE- TATION but not in EVALUATION, which is also a relation that expresses a judgement of the speaker. I propose that the function of the particle *wohl* is not helpful for expressing a positive or negative evaluation. Consider the examples below for a comparison of *wohl* in the satellite of an INTERPRE- TATION in (160) and of an EVALUATION relation in (161):

(160)   Die Opposition enthält sich bei dieser wichtigen Frage. Das ist
        the opposition   abstains itself at   this   important question This is
        wohl eine Taktik.
        WOHL a   tactic
        'The opposition abstains from voting in this important question.
        This is presumably a tactic.'

(161)   Die Opposition enthält sich bei dieser wichtigen Frage. Das ist
        the opposition   abstains itself at   this   important question This is
        wohl ein verwerfliches Verhalten.
        WOHL a   condemnable   behavior
        'The opposition abstains from voting in this important question.
        This is presumably a condemnable behavior.'

Indeed, *wohl* seems to be not as good in (161) as in (160). The reason is that it is simply not plausible to express an evaluation of a state of affairs and then signal that one is not sure whether it holds. Especially if the evaluation reflects a strong positive or negative judgement of the speaker, *wohl* does not match this relation. For the occurrence of *wohl*, therefore, the type of judgement is crucial: INTERPRETATION does not reflect a positive or

negative judgement of the speaker and here, *wohl* is useful to indicate that the speaker's interpretation is not necessarily true. If a speaker expresses a positive or negative attitude towards a state of affair as in EVALUATION, uncertainty is not compatible, since the speaker knows about his/her own attitudes.

Turning to *schon*, the results from the corpus analysis show that the particle occurs more often than expected in EVALUATION, INTERPRETATION and JUSTIFY. To start, I will discuss the occurrence in the two relations which give a judgement of the speaker. Consider first (162) for *schon* in EVALUATION and the respective structure in figure 9.15:

(162)   [1] Theo Waigel hat ja eben erwähnt, wie oft er mit seinen
         Theo Waigel has JA just mentioned how often he with his
        französischen Kollegen zusammen ist. [...] [2] Innerhalb einer
        French   colleagues together   is   within   one
        Woche; [3] jedenfalls ist er mit ihnen häufiger zusammen als
        week   anyway   is he with them more often together   than
        mit dem Bundeskanzler, [4] was ich **schon** für sehr schlimm
        with the   chancellor   which I   SCHON for very bad
        halte.
        take
        'Theo Waigel just mentioned how often he meets his French colleagues. [...] Within one week; anyway, he meets them more often than he meets the chancellor which I consider very bad.'

                            (KOHL CORPUS, Speech 20, #104286)
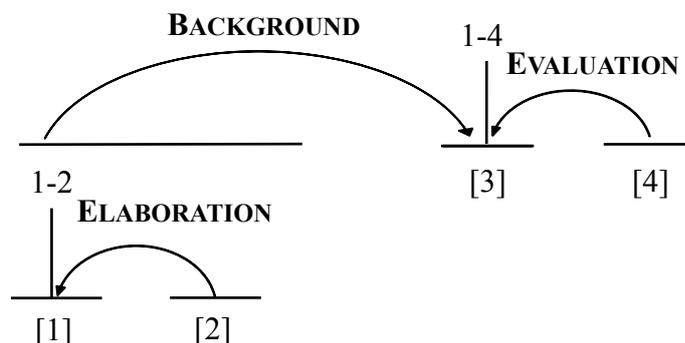
Figure 9.15.: Schema for example (162)

In (162), *schon* is clearly stressed. The speaker criticizes the frequency with which minister Waigel meets up with his colleagues from France compared to how often he meets up with the German chancellor. Kohl indicates with the use of *schon* that his negative evaluation holds although it is based on the consideration of only one week. Using *schon* is a rhetorical move of the speaker to show that he is aware of possible counter-arguments to his utterance (i.e. that his criticism has to be limited to the period of the one week considered) and then state that his evaluation holds despite of these. In section 4.3, I proposed that *schon* indicates that a question $?\varphi$ is on the table and the speaker with his *schon*-utterance affirms that φ, but leaves room for objections. The particle signals that the proposition holds but there may be counter-arguments to it. Depending on whether the affirming or the restrictive component are more foregrounded, it can strengthen or weaken a claim. In the case of (162), it is more affirmative: The speaker's evaluation holds despite the fact that just one week is considered.

With respect to common ground management, evaluations are special. The addressee can either agree with the evaluation of a speaker or indicate that his/her own evaluation differs, but s/he cannot reject A's utterance. Therefore, what is placed on the table in a discourse like (162) is something like '*A* dislikes the fact that Waigel meets his French colleagues more often than the chancellor' and not 'It is bad that Waigel meets his French colleagues more often than the chancellor'. In the case of (162), the choice of *ich halte*

es für ('I take it to be') also underlines that this is merely the speaker's evaluation, he could have used *es ist* ('it is') to present it as more generally valid. Placing a subjective statement like that in EVALUATION on the table, it is not necessary for the addressee to share this evaluation in order for it to be moved to the common ground. Instead, it will be added to the common ground that the speaker has a negative attitude towards a certain fact. Still, a speaker might want to present an evaluation as well grounded and therefore aims at making it convincing. With the use of *schon* the speaker signals that his/her attitude is justified, even though it is limited to the consideration of the meeting within only one week.

Next, *schon* in INTERPRETATION will be discussed. The example in (163) illustrates this use of *schon*:

(163)   [1] Natürlich kann man sich   irren.   [2] Daß Sie jetzt aber
         Of course can   one   himself be mistaken   that you now but
         so in den Klassenkampf verfallen, [3] ist **schon** eine ganz
         so in the class conflict   fall   is SCHON a   very
         ungewöhnliche Mutation.
         unusual   mutation
         'Of course one can be mistaken. But that you fall into a class
         conflict now this much, is a very unusual mutation.'

         (KOHL CORPUS, Speech 5, #19552)

Here the speaker interprets the behavior of the addressee in a certain way, i.e. as an unusual mutation. It is not an evaluation in terms of positive or negative[8], therefore the relation is annotated as INTERPRETATION. By using *schon*, the speaker leaves room for restrictions to a claim, one is also made explicit in the preceding sentence: It is normal to make mistakes. But still, the speaker takes the addressee's behavior as unusual. The effect for discourse here is that the speaker intentionally signals that restrictions or objections are possible. S/he anticipates potential objections and expresses that the interpretation holds nevertheless. This is the concessive component described in section 4.3. By doing so, again, the speaker avoids that

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[8]It may be controversial whether *mutation* has a negative connotation.

the proposition in case of objections has to be negotiated on the table until these are solved.

The above discussion has shown that both, *wohl* and *schon* occur with IN-TERPRETATION. The two particles stand for different strategies in discourse: *Schon* can 'protect' the proposition it occurs with against objection by explicitly leaving room for them. By doing so, the speaker can increase the probability that the proposition is quickly removed from the table. *Wohl*, without this concessive component, merely weakens the commitment towards the proposition but it has a similar effect: The speaker makes sure that s/he is not held responsible for the truth of the proposition.

Schon is after *doch* and *wohl* the third particle that occurs with INTERPRE-TATION more often than expected and its effect is closer to that of *doch* than to that of *wohl*: *Schon* makes it difficult to object the speaker's argument.[9] Not by marking it as uncontroversial (as *doch* does) but by anticipating counterarguments. This shows how particles are related to different strategies a speaker might use in discourse.

Beside in EVALUATION and INTERPRETATION, *schon* is also used in JUS-TIFY, just like *doch* is. Consider (164) for illustration:

(164)　　[1] Es ist unerträglich und infam　　– [2] das muß ich Ihnen
　　　　　　 it　is　unbearable　　and　infamous　　　that must I　you
　　　　schon sagen –, [1] wie Sie von der Union mit dem
　　　　SCHON tell　　　　how you from the　CDU　 with the
　　　　Bundesverfassungsgericht umspringen.
　　　　Federal Constitutional Court　treat
　　　　'It is unbearable and infamous how you from the CDU deal with
　　　　the Federal Constitutional Court, I have to tell you that.'

(PARL CORPUS, #659683)

The discourse unit which constitutes the satellite of the JUSTIFY relation, i.e. the parenthesis, is the same type of meta-discursive utterance as in the cases of *doch* discussed in section 9.4.3. The effect is similar to the one of *doch*. For *doch*, I argued that the particle has the effect to indicate that

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[9]Note again that *schon* can also occur in the part that expresses a restriction of one is made explicit. As I mentioned before, this puzzle has to remain open for now.

there is a contrast between the speaker's belief that it is necessary to place the proposition denoted by the nucleus on the table and the decision of the audience not to place the proposition on the table. The speaker uses *doch* to insinuate that the addressee did not want to talk about the topic in question, even though this might not have been the case. Again, *doch*'s meaning is directed backwards in discourse: It signals that it was uncontroversial but not salient before that a certain utterance is justified. With *schon*, in contrast, the speaker affirms the necessity to make a certain utterance but allows for the possibility that not everybody agrees. *Schon* in (164) could be replaced by *doch* but the stress then would not be on the particle anymore, but on any other word of the sentence.

Schon implies that there might be objections whether the information in the nucleus should be uttered, i.e. it points to a potential discrepancy. Like for *doch*, this discrepancy is not on the content level but on the pragmatic level, i.e. different views on whether it is necessary to place information on the table or not. With the satellite containing *schon*, the speaker expresses that s/he is aware of potential objections but that it is nevertheless justified to place the proposition on the table. In most of these cases of *schon* in JUSTIFY, these objections are not explicit. The speaker only insinuates that the addressee could have them. So in all three relations that *schon* preferably occurs with, it has the same function: It signals that the proposition it takes scope over holds but leaves room for possible objections.

Interestingly, despite the concessive component of *schon*, the particle does not occur significantly more often than expected in the CONCESSION relation. A first explanation could be redundancy since the function of the particle equals that of the relation. Note, however, that this did not prevent the occurrence of a particle in other cases, as for example for *eben* in CAUSE which also should be redundant. Example (165) below shows that *schon* is perfectly acceptable in the satellite as well as in the nucleus of a CONCESSION relation. The question why speakers do not frequently use it in this context is a puzzle that needs to be solved in future work.

(165)   Anna mag Portugal (**schon**), obwohl es (**schon**) auch Dinge
         Anna likes Portugal (SCHON) although it (SCHON) also things
         gibt, die   ihr nicht gefallen.
         gives which her not   please
         'Anna likes Portugal although there are also things she does not
         like about it.'

Finally, *schon* occurs significantly less frequently than expected in Elabo-ration and List. The latter has also been observed for all other particles and discussed before. For Elaboration, I did not have predictions in the case of *schon*. The particle's semantics in general is compatible with new information. The reason that it is hardly used in the context of these relations probably is that the contribution of *schon* influences the interpretation of the relation, as I also argued in the case of *eben*. I will come back to this point in the general discussion.

To sum up this section, it can be seen that a corpus study proves as highly useful to investigate the interaction of modal particles and discourse relations: The results show clearly that the occurrence of the particles is not independent from the discourse relation present. We also saw that some of the findings were as predicted, while others have not been predicted on the basis of the particles' meaning, especially for *ja* and *doch*. These unexpected findings show that it is highly valuable to analyze the interaction between modal particles and discourse structure.

To assure these tendencies, I also conducted an experimental study which concentrates on *ja* and *doch*. In this experiment, participants choose the particle themselves depending on the discourse relation. This study will be discussed in the next section.

10. Experimental Evidence from a Forced Lexical Choice Task

10.1. Motivation

The corpus study described in the previous section reveals clear tendencies for particles to occur in certain discourse relations. These results are based on the analysis of data of just one speaker, i.e. Helmut Kohl.[1] In order to generalize and corroborate these findings from the corpus, I conducted an experimental study. The experimental study can be seen as a replication of the results of the corpus study. So far, there is hardly any experimental work on modal particles or discourse relations (consider e.g. Caspers & van der Wouden 2013, but Bergmann 2016). However, the fact that the judgements on a phenomenon like modal particles are subtle, quantitative studies of different kinds are a good way to approach them and are to be preferred to single intuitive judgments.

The aim of the experiment is to test whether speakers, when faced with an explicit choice between particles for a given context, are sensitive to the discourse relation that holds between the target sentence and the previous discourse unit. With the method chosen, this does not require that the participants analyze and name the discourse relation. In contrast to the corpus study, the forced lexical choice experiment concentrated on a small subset of the discourse relations presented above. For these, naive speakers made decisions on which modal particles fits in the given context more naturally. The two discourse relations that were tested in the experiment were BACK-

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[1]For the particles *eben*, *halt*, *wohl*, and *schon*, a larger corpus was considered, also including speeches from different speakers. For *ja* and *doch*, however, the data is exclusively from the KOHL CORPUS.

GROUND and JUSTIFY. These relations have been chosen because the corpus study revealed that BACKGROUND is most highly correlated with the use of *ja*, and *doch* occurs significantly more frequently than expected in JUSTIFY (cf. section 9.4.3). From the results of the corpus analysis, we can derive predictions for the experimental study: When presented with a discourse containing BACKGROUND, I predict speakers to choose *ja* and respectively *doch* in discourses with a JUSTIFY relation. While *ja* and *doch* were the focus of the experiment, I added the particle *schon* as a distractor to the choice of particles for the participants.

10.2. Method

Participants. The participants of the experiment were forty-eight German native speakers, the mean age was 29.7 years with a range from 19 to 54 years. 16 of them were male, 32 female. All of the participants lived in the Berlin/Brandenburg region in Germany. They participated after giving informed consent. None of the participants was a student of linguistics or in any other way familiar with this discipline. They were paid 7 Euros for the participation.

Stimuli and design. The design of the experiment was an one-factorial design where the factor DISCOURSE RELATION (DR) had the two levels BACKGROUND and JUSTIFY. The experimental material consisted of 32 three-sentence discourses on two different topics which are considered controversial in a German context. The first topic was all-day schools, the second topic was the pro and cons of wind farms. I chose controversial topics like these because I considered modal particles in argumentative text types in the corpus study of parliament speeches, so a similar text type is tested in the experimental study. This text type is likely to contain the expression of attitudes of the speakers. The discourses in the experiment expressed a personal opinion on the respective subject. In the first discourse unit of each discourse, a claim was made for which the second discourse unit either provided background information or a justification, and in the third unit another claim was made. This pattern is illustrated in (166)

in which the effect of wind farms on residents is discussed. The factor DISCOURSE RELATION was manipulated by using different sentences as the target sentence in the discourses. The target sentence is the sentence in which the modal particle is added (the position for the particle is indicated by the gap in example (166) below), and in this experimental design, it is always the second of three sentences. The first and the third sentence always remained the same. The relation between the first and the second sentence thus varied between BACKGROUND and JUSTIFY, which is shown as [B] for BACKGROUND and [J] for JUSTIFY in (166):

(166)   [1]   Für Anwohner im näheren Umkreis von Windkraftanlagen könnte der Geräuschpegel ein Problem werden.
'For people living near wind farms the noise could become a problem.'

[2B]   Die Motoren in den Anlagen sind ___ riesig   und
the generators in the turbines are   ___ enormous and
verursachen entsprechend Lärm.
cause   respective   noise
'The generators in the turbines are enormous and produce the commensurate noise.'

[2J]   Das können wir ___ nicht einfach als lächerlich abtun.
that can   wie ___ not   simply as ridiculous   dismiss
'We cant just dismiss this as absurd.'

[3]   Die Häuser müssen also eventuell mit Lärmschutzfenstern ausgerüstet werden.
'So possibly soundproof windows must be fitted in the homes.'

The discourse unit [2B] states that the generators in wind turbines are very big and therefore very noisy, which is something most people would take to be uncontroversial and not new. So the discourse unit [2B] provides background information for the claim made in [1]. In the other experimental condition, the speaker uttering [2J] expresses that the claim made in the previous sentence concerns an aspect that cannot be ignored and therefore is important. By this, the speaker defends the previous speech act. There is a JUSTIFY relation between [1] and [2]. A further example is given in (167). In (167), again the relation between the first and second discourse

units changes with the different versions of the target sentence. The third discourse unit in this case is an EVALUATION of the first unit.

(167)   [1]   Wenn Ganztagsschulen eingeführt werden, verlieren Musik-
              schulen und Sportvereine viele Mitglieder.
              'If all-day schools are introduced, music schools and sports
              clubs will lose members.'

         [2B] In Musikschulen machen Kinder ___ die größte Gruppe der
              in music-schools make   children ___ the biggest group   of-the
              Mitglieder aus
              members   V-PART
              'Children make up the majority of students in music schools.'

         [2J] Dieser Aspekt muss ___ mal in den Vordergrund gerückt
              this   aspect   has-to ___ once in the foreground   moved
              werden.
              become
              'This aspect needs to be emphasized.'

         [3]   Ein solcher Mitgliederschwund ist für diese Einrichtungen ver-
              heerend.
              'For these institutions, this loss of members is highly damag-
              ing.'

In the experiment, BACKGROUND and JUSTIFY were implemented in a consistent way. In general, background information may come in different forms, it often provides non-new information on the nucleus, but it may also contain new information as for example in definitions. For the experimental items, in discourses in which a BACKGROUND relation holds, the second sentence always conveyed obvious and uncontroversial information which can be assumed to be generally known and is supposed to help the addressee to understand and follow the argumentation of the speaker. The JUSTIFY relation was implemented by using meta-discursive utterances, i.e. utterances in which the speaker justifies or defends the previous speech act. These often contained an anaphoric reference to the preceding unit, as *'das'* in (166) and *'dieser Aspekt'* in (167). As we saw in section 9.4.3, 64.5% of the satellites in JUSTIFY relations in the corpus are meta-discursive and therefore can be clearly distinguished from relations like ELABORATION,

BACKGROUND, etc.

As mentioned above, the gaps indicated by the underscore in (166) and (167) in [2B] and [2J] mark the position in which a modal particle may occur. In the experiment, participants were presented with a choice of three modal particles (*ja*, *doch*, *SCHON* ('admittedly')) in a drop down menu to fill the gap with the particle they thought would fit in most naturally. If used as a modal particle, *SCHON* is in most cases accented (cf. 4.3). This was indicated by capital letters in the experiment and explained to the participants before. Unaccented *schon* is usually an adverb with the temporal meaning of English 'already'. The choice of particle was the dependent variable.

As discussed above, to change the discourse relation, I always manipulated the discourse unit containing the modal particles (the target sentence), i.e. what is the satellite in my data. Theoretically, there are two possibilities to manipulate the discourse relation: Either the target sentence is manipulated, while the two context sentences remain the same, or the target sentence remains the same and the context is manipulated. When always sticking to a structure where the nucleus precedes the satellite, as a consequence the other option was to manipulate the nucleus in such a way that one and the same satellite sentence can be interpreted as either BACKGROUND or JUSTIFY. Here, the first option was chosen for two reasons. First, it is extremely difficult to find contexts in which one and the same sentence can provide either background information or constitute a justification for the previous discourse unit because what is given in the satellite of a BACKGROUND relation usually refers to the content level while the satellites of JUSTIFY often are on a pragmatic level. Second, using a meta-discursive move as an implementation for the JUSTIFY relation is a clear criterion for distinguishing the discourse relations because it leaves little room for a misinterpretation of the relation by the participants. The meta-discursive moves cannot be interpreted as expressing a BACKGROUND relation. Therefore, the chance that participants interpreted the two discourses as containing different discourse relations was very high. Of course, by implementing the two relations as just described, I limit the scope of the findings to only this type of BACKGROUND and JUSTIFY. But considering that there has been virtually no experimental testing of discourse relations

so far, even findings with a limited scope for BACKGROUND and for JUS-
TIFY are welcome.

The 32 experimental items were distributed over two lists in a Latin square
design so that each participant would see each discourse in only one ver-
sion - either with a BACKGROUND or with a JUSTIFY target sentence. In
addition to the experimental items there were 40 filler discourses. These
dealt with the topics of death penalty and nuclear power, also controversial
topics, and contained mainly discourse relations like CONTRAST, CAUSE,
EVALUATION or ELABORATION. These were clearly distinguishable from
BACKGROUND and JUSTIFY. An example for a filler context is given in
(168):

(168) [1] Wissenschaftler haben herausgefunden, dass in den vergan-
            genen Jahren die globale Temperatur um 2°C gestiegen ist.
            'Scientists have found out that the global temperature in-
            creased by 2°C in the last years.'

       [2] Das zeigt ___ , dass der Versuch, den CO_2-Ausstoß zu
            this shows ___   that the attempt   the CO_2 emission to
            minimieren, gescheitert ist.
            minimize   failed   is
            'This shows that the attempt to minimize the CO_2 emission
            has failed.'

       [3] Man kann nur hoffen, dass auf der nächsten Klimakonferenz
            verbindlichere Ziele festgelegt werden, damit endlich etwas
            passiert.
            'We can only hope that more binding goals will be settled at
            the next climate conference.'

In this case, the target sentence offers an explanation for the speaker's per-
ception of what is presented in discourse unit [1], i.e. an INTERPRETATION
relation holds between [1] and [2]. All discourses, the experimental ones as
well as the fillers were designed in a way that all of the three modal particles
would in general be acceptable in them. In the corpus study, *schon* does not
occur more often – and also not less often than expected – in BACKGROUND
in JUSTIFY. However, a survey of the intuition of five speakers of German

showed that the meaning of *schon* in general is perfectly compatible with the discourse relations BACKGROUND and JUSTIFY. The order in each list of items was pseudo-randomized.

Procedure. The participants saw the contexts on a computer screen in a quiet room. They were shown one discourse at a time, presented with MS Excel in a questionnaire. As mentioned before, the target sentence contained a dropdown menu at the gap site, offering the particles *ja*, *doch* and *SCHON* as a choice. Participants were told to choose the modal particle for which they thought that it would fit the discourse most naturally. They were informed that *SCHON* would occur in capitalized form to indicate that it was accented. There was no time limit.

10.3. Results

The data of all participants were included in the analysis. Table 10.1 gives the mean proportions averaged over participants for the choice among the three particles in the two discourse relations.

Particle	Background	Justify	All discourse relations
ja	.652 (0.165)	.296 (0.150)	.474 (0.238)
doch	.233 (0.157)	.457 (0.160)	.345 (0.193)
SCHON	.115 (0.085)	.247 (0.125)	.181 (0.125)

Table 10.1.: Mean proportion of particle choice for each discourse relation and for the entire set of discourses. Averaged over participants, standard deviation in brackets.

The box-and-whiskers plot in Figure 10.1 illustrates the overall distribution of the choice between all three particles over the two discourse relations for the single participants. It shows that the distractor *SCHON* was used least frequently in both discourse relations and also overall. The data shows that choice of the particle depended on the condition the item occurred in.
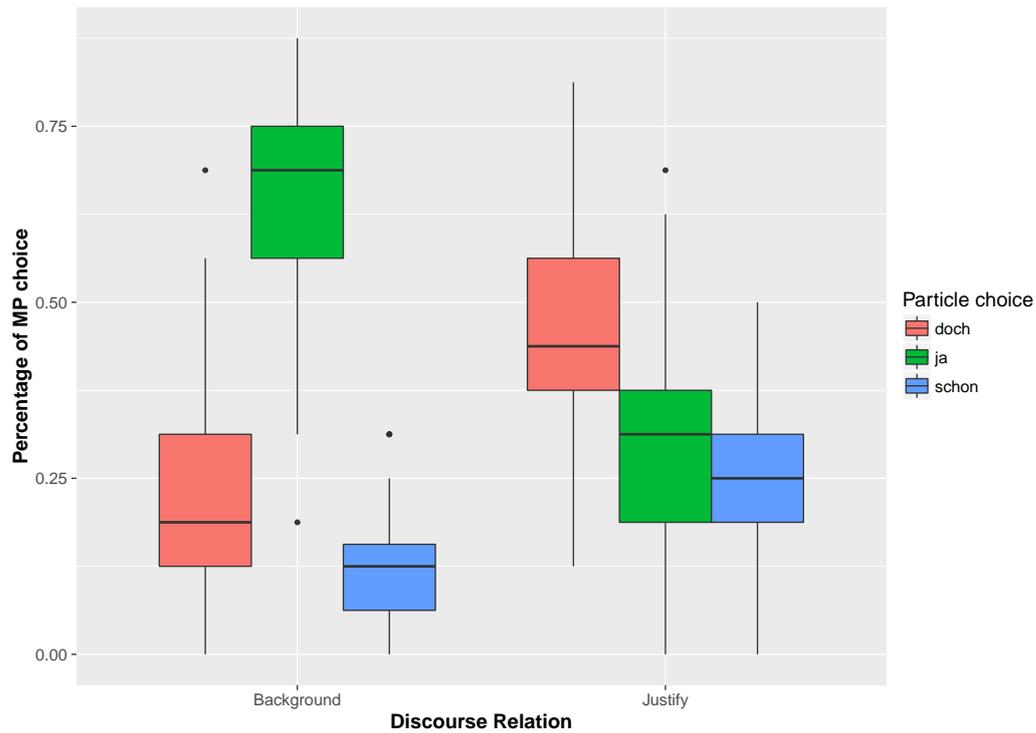
Figure 10.1.: Proportion of particle choice per discourse relation (BACKGROUND and JUSTIFY), participant means

In 10.2, the the overall distribution of the choice between all three particles over the two discourse relations for the single items is illustrated. The plot shows outliers: Two for the choice of *doch* in BACKGROUND items and four outliers for the choice of *ja* in JUSTIFY items. These outliers were ignored for the statistical analysis, but I will discuss these items below. The outliers for the use of *schon* will not be discussed, since this is not relevant here.
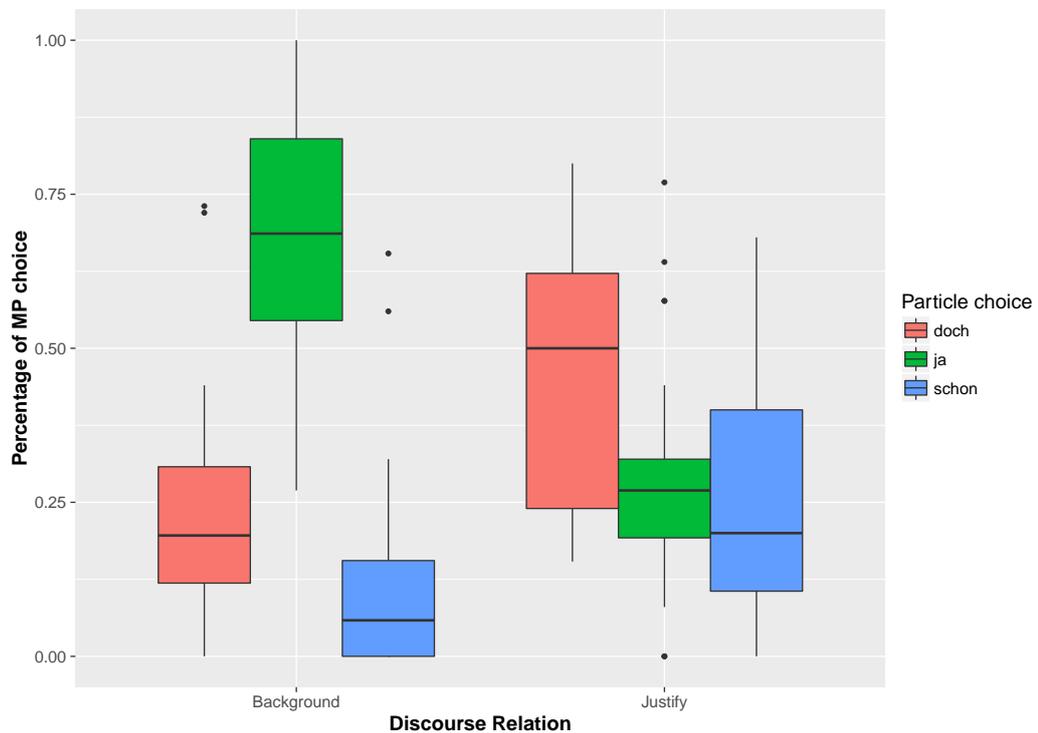
Figure 10.2.: Proportion of particle choice per discourse relation (BACKGROUND and JUSTIFY), item means

For the statistical analysis, only the data for *ja* and *doch* were considered. I applied general linear mixed effect models with a binomial logit function (R package lme4, Version 1.1-10, Bates, Maechler, Bolker & Walker 2015), and tested the use of *ja* and *doch* dependent on the fixed factor 'DISCOURSE RELATION'. Participant was a random factor, items was not because previous model comparison revealed that it is better to treat the items as different depending on the condition they occur in (BACKGROUND or JUSTIFY). The best model – determined via model comparisons based on AIC – included random intercepts for participants and items and random slopes for participants for 'DISCOURSE RELATION'. The random slope for participants does not improve the model, but to use the full random correlation structure (cf. Barr 2013), I included it.

The model parameters are given in table 10.2 and 10.3 for *ja* and *doch*

respectively:

	estimate	se	z-value	p-value
Justify - Background	-1.9972	0.2556	-7.814	5.55×10^{-15}

Table 10.2.: Parameter estimates and standard errors for fixed effects for *ja*

	estimate	se	z-value	p-value
Justify - Background	1.5008	0.2474	6.066	1.31×10^{-9}

Table 10.3.: Parameter estimates and standard errors for fixed effects for *doch*

The analysis revealed that the factor DR had a highly significant effect on the choice of *ja* and *doch*: Participants chose *ja* more often in the Background relation than in the Justify relation, and they chose *doch* more often in the Justify relation than in the Background relation.

10.4. Discussion

The experiment showed that when given a choice of modal particles, naive speakers choose the particle depending on the discourse relation that holds between the discourse unit with the particle and the preceding unit. I found that *ja* is preferred in the satellite of a Background relation while *doch* is preferred in the satellite of Justify, which is what I predicted on the basis of the meaning of *ja* and *doch* as well as the findings from the corpus study. As mentioned before, I found outliers in the items. Two of the items in the Background condition seem to be different from the others, in that the great majority of participants chose *doch* for them. The respective items are given in (169) and (170):

(169) [1] Wenn Eltern ihre Kinder zu Hause selbst   unterrichten,
       When parents their children at home   themselves teach
       kann niemand die Lehrinhalte kontrollieren. [2] Die
       can   nobody   the content   control   the
       Schulausbildung legt __ den Grundstein für das Wissen   des
       school-education   lays   the foundation   for the knowledge of-the
       Menschen. [3] So etwas   kann völlig   unbemerkt in die
       human   such something can   completely unnoticed   in the
       falsche Richtung laufen.
       wrong   direction   go
       'When parents teach their children at home, nobody controls the
       content of teaching. The education in school lays the foundation
       for the human knowledge. Something like this can go wrong com-
       pletely unnoticed.'

(170) [1] Unternehmen, die Solaranlagen herstellen, beklagen, dass
           companies   that solar plants   build   criticize   that
       Windkraftenergie viel mehr gefördert werden. [2] Solarenergie
       wind power   much more   funded   is   solar power
       ist __ ebenfalls 'saubere Energie'. [3] Wie es immer so ist:
       is   also   clean   energy   as it always so is
       Alle   streiten um Subventionierungen von der
       everybody battles   for subsidization   of   the
       Bundesregierung.
       government
       'Companies that build solar pants criticize that wind power re-
       ceives much more funding. Solar power is also clean power. It is
       as usual: Everybody battles for the subsidization of the govern-
       ment.'

On closer inspection, it becomes clear that in both, (169) and (170) a con-
trastive component is involved. The target sentence in (169) is most likely
interpreted as a reminder, because the first sentence suggests that these
people do not have in mind how important the education in school is. In
(170), it is even more obvious that a contrast is implied: The first sentence
implies that wind power receives more funding because it is better, which
is then contradicted in the target sentence. Both cases, therefore, include
a correction or inconsistency and I assume that this makes the participants
prefer *doch* over *ja*. Although this was not intended and the items turn out

to be outliers which are ignored in the statistical analysis, it is neverthe-
less revealing, since it shows again that the contrastive component of *doch*
makes it appropriate for different utterances.

There are also four items in the JUSTIFY condition for which most partici-
pants chose *ja* instead of *doch*. Two of these four items are given below:[2]

(171) [1] Viele Eltern würden auch gar kein Internat   für ihre
            many parents would   also   no   boarding school for their
       Kinder wollen, weil   sie Angst haben, dass ihnen ihr eigenes
       children want   because they fear   have   that them their own
       Kind fremd wird.   [2] Von dieser Seite muss man es ___ auch
       child stranger becomes   from this   side   has-to one it   also
       mal betrachten. [3] Das ist von Familie zu Familie komplett
       PRT see   this is from family   to family   completely
       unterschiedlich.
       different
       'Many parents would not want a boarding school for their children
       anyway because they are afraid that their own child becomes a
       stranger for them. One has also to see it from this perspective.
       This depends on the family.'

(172) [1] Bei Ganztagsschulen ist gewährleistet, dass alle Kinder
            with all-day schools   is   guaranteed   that all   children
       mittags eine vollwertige Mahlzeit bekommen. [2] Als Eltern liegt
       at noon an   adequate   meal   get   as parents lies
       uns das ___ auch am Herzen. [3] Das ist ein Pluspunkt, gegen
       us that   also at heart   this is a   plus   against
       den wohl   wirklich niemand etwas   einzuwenden haben
       the presumably really   nobody something object   have
       dürfte.
       should
       'I all-day schools, it is guaranteed that all children get an adequate
       meal for lunch. As parents, this is also important to us. This is a
       plus that probably nobody would object.'

It is not clear why in these JUSTIFY items, *ja* was chosen so often. For
(172), we could argue that the satellite of the JUSTIFY relation is not a typ-
ical meta-discursive utterance as defined before. Therefore, maybe, there

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[2]The other two outliers are of the same pattern and can be found in the appendix in
   section B, i.e. item 4 and 20.

was no preference for *doch*. The target sentence in (171), however, is meta-discursive. In these two examples, the target sentence also contains *auch*, but this is also the case for other Justify items, so this cannot explain the observations. For these outliers, I cannot identify definitely what makes them more appropriate for *ja*. I assume that they might be not as clearly meta-discursive as other items.

To sum up, the experimental study shows that the findings of the corpus study can be corroborated with a different methodology. This also proves that the discourse relations were implemented in a way that speakers recognized the intended relation. The relation clearly influenced which modal particle the participants considered to be more appropriate.

11. General Discussion

11.1. Summary of what has been observed

The aim of this dissertation was to look at the class of modal particles from a discourse perspective to see what this shows us about their meaning and their use. This new perspective reveals that modal particles have functions much more complex than simply adding nuances of the speaker's attitude to an utterance. Modal particles are used to make discourse more coherent, to organize discourse, advise an addressee how to file incoming information and facilitate the processing of information. This will shortly be discussed in more general terms here.

In the previous two chapters 9 and 10, I presented evidence from a corpus and an experimental study. The results of both clearly show that the occurrence of modal particles interacts with the discourse relation present, i.e. modal particles are not distributed randomly over the relations. Some of the results conform with the predictions for the occurrence of the particles that I formulated on the basis of the particles' meaning (cf. chapter 8), and some do not. There are also general patterns of distribution in the data which needed to be explained. The findings can be assigned to three questions: **1. What is the modal particles' effect on the interpretation of discourse?** Essentially, their main functions is to increase the coherence of a discourse and to facilitate the processing and integration of information. As a consequence, particles help to structure (from the speaker's point of view) and understand (from the addressee's point of view) the discourse in an economic and natural way. This interaction tell us something new about modal particles, more specifically about their core meaning and about their prototypical use: Not only are modal particles speech act operators

which modify the interpretation of a given proposition, but they also have discourse-structural functions. This will be discussed in section 11.2. **2. How do different modal particles operate in discourse?** The results from the quantitative studies also shows us that different modal particles are associated with different strategies for discourse (see section 11.3). **3. Where do modal particles achieve their effect?** An important finding of the corpus study is that even though there seem to be manipulative uses of the particles, particles certainly cannot be placed ad libitum in any position in the discourse. The structural nature of the discourse poses restrictions for the distribution of the individual modal particles. This will be discussed in section 11.4.

11.2. What is the Modal Particles' Effect on the Interpretation of Discourse?

Modal particles in general can be used to facilitate the processing and integration of information and as a consequence make discourse more coherent and effective. A part of the results of the corpus study can be interpreted in the following way: The meaning of the modal particle emphasizes the function that a given discourse relation has. 'Emphasize' means here that the particle helps to recognize the intended discourse relation. In these cases, the meaning of the modal particle and the function of the discourse relation complement one another (as in Mann & Thompson's 1988 content level relations).[1] This is the case if the particle's meaning matches the effect of the relation.

Ja's strong preference to occur in the Background relation is a typical example. As discussed in section 4.1, *ja*'s primary function is to mark a proposition as already known, which, as a consequence, means that the proposition is not controversial. In RST's Background relation, the satel-

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[1]The speaker's intended effect in Mann & Thompson's (1988) presentational relations is more complex, e.g. to increase the addressee's ability to understand information given in the nucleus or to increase the addressee's readiness to follow his/her argumentation. Here, a modal particle often does more than just to help to recognize this relations, often it helps to achieve the pursued goal. This will be discussed separately in 11.3.

lite gives information which is intended to facilitate the understanding of
what is uttered in the nucleus. Naturally, such a relation will usually be
uncontroversial: Information which is given as background information is
unlikely to be new or controversial. And vice versa, information that is
marked as known and not controversial, is likely to be interpreted as back-
ground information – unless it is marked for some other type of relation.
Therefore, *ja* can be used to emphasize that information introduced by a
speaker serves as background for another utterance.

As BACKGROUND is a presentational relation, *ja* not only facilitates the
recognition of the relation, but also helps to achieve the intended effect (i.e.
to increase the understanding of the information in the nucleus). This will
be discussed in the next part.

The same interplay of particles and discourse relations can be observed for
eben and *halt* in causal relations. As has been introduced in section 4.2, both
particles express that there is a causal relationship between the utterance
containing the particle and a preceding one. Moreover, they signal that it
is evident that this causal relation holds. Therefore, it was not surprising
to find *eben* and *halt* frequently used in causal relations such as CAUSE
and RESULT: The particles underline the causality which is present in the
relation anyway, and help to identify the relation.

This effect of *eben* and *halt* is so strong that they can influence how a relation
between two discourse units is interpreted, even if no further formal means
indicate causality. In general, the meaning of modal particles is too subtle
so that they cannot really serve as markers for discourse relations. But when
used in non-causal contexts, *eben* and *halt* bring in a reading of causality
(cf. also Bergmann 2016). This is illustrated by (173):

(173)   [1] Das Buch ist ausverkauft. [2] Der Laden ist **eben** neu.
              the book is sold-out   the shop   is   EBEN new
         'The book is sold out. Well, the shop is new.'

Without *eben*, the two discourse units in (173) would most probably be
interpreted as connected by a simple LIST relation, an enumeration of two
facts: The book is sold out and the book shop is new. Typically, the fact

that a shop is new is no reason for books to be sold out. But with the addition of the particle *eben*, the addressee interprets discourse unit [2] as giving the reason for what is said in [1], even if this is not immediately plausible and requires the addressee to make additional assumptions to make this relation work, such as that there were many people in the book shop since it is new and because of that, many people bought the respective book on this day.

A similar phenomenon can be found for the particle *schon*. In general, the effect of *schon* is to affirm information, but the affirmation is not the strongest affirmation possible on a scale from affirmation to rejection. This specific contribution of the particle can add a subjective reading to utterances because the speaker commits to the truth of a proposition, but leaves room for a restriction or different opinions. Analyzing the data in the corpus, it showed that in some cases, the meaning of *schon* influences the way the discourse is interpreted. This is illustrated by the example in (174): Without *schon*, discourse unit [4] would most likely be interpreted as a simple ELABORATION of the preceding discourse unit: It is additional information on the 40000 tons of chemical agents in Russia. With the use of *schon*, however, the addressee tends to understand this discourse unit as a judgement of the speaker. The speaker seems to consider the expenditures for the storage of these Russian chemical agents as enormous. The reason for that is that with *schon*, the speaker affirms that the expenditures are enormous only to a certain degree.

(174)   [1] Die Technologien der Vernichtung sind vorhanden. [2]
         the technologies   of   annihilation   are   present
         Natürlich sind sie   teuer;   [3] aber das sollte [...] kein
         of course   are   they expensive   but   this should   no
         Hindernis für ihre Vernichtung sein. [4] 40000 Tonnen
         obstacle   for their annihilation   be   40000   tons
         chemischer Kampfstoffe allein in Russland sind eine Altlast,
         chemical agents   only   in Russia   are   a   legacy
         deren Lagerung und Sicherung **schon** enorme Aufwendungen
         whose   storage   and protection SCHON huge   expenditures
         verursachen.
         cause
         'The technologies for annihilations exist. Of course they are ex-

pensive; but this should not be an obstacle for their annihilation. 40000 tons of chemical agents only in Russia are a legacy which causes huge expenditures.'

(PARL CORPUS, #636347)

In cases like (174), *schon* does not cause a crucial difference in interpretation, but it adds a subjective component which is likely to influence the interpretation of the discourse relation between the two units. So, if a speaker wants to indicate that a discourse contribution has the character of a subjective judgement, s/he may make use of a particle like *schon* to do so.

So, although modal particles do not contribute to the descriptive meaning and just change the reading of a sentence in a subtle way, they facilitate the recognition of a discourse relations and in some cases. A modal particle can even signal which discourse relation is intended by the speaker. In these examples, the modal particle can be interpreted as a marker for a certain relation, just as *afterwards* marks a SEQUENCE relation or *because* a CAUSE relation.

So, modal particles can increase coherence by emphasizing the discourse relation present, but also they facilitate the processing of information in discourse in general. In this dissertation, I accounted for the meaning and function of modal particles within a theory of common ground management. I proposed in section 3.1.3 that with every utterance made, the corresponding proposition(s) are placed on the table. The table then stores everything that is currently at issue and not solved yet. The main aim of discourse participants in communication is to empty the table, i.e. solve open issues, and enhance common ground. So, whenever a speaker places a new proposition on the table, it can be moved to the common ground as soon as the addressee confirmed or at least accepted it. In the case of disagreement, however, this process stagnates and there is the risk of a conversational crisis. Then, discourse participants have to negotiate about the items on the table until agreement is found. At the same time, discourse participants

build up a discourse structure. What is added to the table has to be related to information discussed immediately before for a coherent discourse.

I assume that the propositions on the table are labeled and contain information about the strength of commitment of the speaker, and the common ground status (i.e. already part of the common ground or not). The effect of modal particles can in many cases be described as adding such a label for meta-information to a proposition. This meta-information helps the discourse participants to integrate information appropriately. If a proposition φ on the table is marked as already shared knowledge but inconsistent with another proposition ψ, by using a particle like *doch*, for example, the speaker signals to the addressee that a conversational crisis could arise because of the incompatibility of the two propositions. The discourse move with *doch* is a move to avoid such a crisis: The speaker reminds that addressee that φ is already in CG(c) and s/he ensures that it becomes part of SAL(c) again. With this move, the speaker makes sure that s/he can build up on φ in what follows in discourse and at the same time, asks the addressee to remove ψ from the table.

All of the six modal particles can be interpreted as instructing the addressee how to file the respective proposition: As already known, as evident cause for another proposition, as not certain or as valid despite potential counter-arguments. With these functions, the modal particles help to avoid inconsistencies and resulting conversational crisis and they signal that some propositions do not require further discussion. The different ways how the single particles achieve this aim will be discussed in the next section.

11.3. How do different modal particles operate in discourse?

11.3.1. Marking Information as uncontroversial or evident: ja, doch, eben and halt

The particles *ja*, *doch*, *eben* and *halt* all make a statement about the common ground status of the proposition they occur with: *Ja* and *doch* mark

φ as uncontroversial or known, *eben* and *halt* signal that the proposition is evident, where the source of this evidence may be world knowledge or something obvious in the context. In general, it should be a redundant discourse move to utter something that is already known or completely evident. If a speaker does so, it is necessary to signal that s/he is aware of the fact that the information is not newsworthy, otherwise the addressee would object. This is what *ja*, *doch*, *eben* and *halt* can be used for. The fact that a speaker does utter information which is already known – and thus places the respective proposition on the table again – has a certain effect in discourse and the speaker has an intention to do so.

For *ja* and *doch*, I argued that their reminder or retrieval function discussed in section 4.1 makes them well-suited for the avoidance and resolution of conversational crises. Remember that Farkas & Bruce (2010) introduced the notion of 'conversational crises' for scenarios in which incompatible propositions are on the table. Discourse participants aim at increasing the common knowledge in communication and they want to do so in an economic way and avoid conflicts. So, they want to move propositions from the table to the common ground as quickly and effectively as possible, they try to resolve inconsistencies and avoid crises. A discourse move with *ja* or *doch* does not result in an updating of the common ground as the proposition was already contained, but it moves φ up to SAL(c) again. With this, the speaker can make sure that the respective information is available and s/he can further build up the discourse on it. As mentioned above, this is done in the case of the BACKGROUND relation: An uncontroversial satellite increases the chance that the addressee understands and therefore also accepts more easily what is conveyed in the nucleus. In other words, by using particles like *ja* or *doch*, the speaker can cause the addressee to more easily accept the addition of the proposition in the nucleus to the common ground – either this effect arises since the supporting satellite is presented as uncontroversial or the speaker marks the nucleus directly as uncontroversial. This will be discussed in 11.4.

The same strategy can be found for *eben* and *halt*. They do not mark the proposition they occur with as uncontroversial, but they present it as evident that a proposition ψ follows from φ. The effect is the same: They

signal that φ as well as ψ do not have to remain on the table for discussion since it is evident that one follows from the other. Utterances with *eben* and *halt* as well as with *ja* and *doch* can be seen as moves to clear the table more quickly. Since not only the discourse unit the particles occur in can be filed faster but eventually also those connected to EDU_{MP} by a discourse relation, this increases effectiveness, facilitates processing, and avoids redundancy (see section 11.4).

11.3.2. Anticipate Counter-Arguments: schon

Marking propositions as part of the common ground is not the only way to facilitate the processing of information. Another way to empty the table faster is to anticipate potential counter-arguments. A speaker places a proposition on the table for discussion. If the addressee does not agree with it but adds a counter-argument to the first proposition to the table, the discourse participants have to negotiate about the truth of the propositions until they find consensus, or if they do not, agree to disagree (i.e. the proposition itself is not added to the common ground, but only the speakers' commitments). This causes a delay in discourse where participants actually want to increase the common ground as effectively as possible. If a speaker foresees that the addressee might have objections to the validity the proposition that was proposed to be added to the common ground, s/he can anticipate this to avoid a discussion. Of the discussed modal particles, *schon* has this effect. It indicates that the proposition it occurs with holds, but the affirmation with *schon* is not the strongest affirmation possible and therefore leaves room for a restriction of the validity. The speaker is aware of the fact that the addressee might come up with counter-arguments so that the proposition containing *schon* would have to remain on the table until agreement is found. By leaving room for counter-arguments but affirming that φ nevertheless holds, the speaker can possibly avoid a discussion about the utterance and therefore make φ_{MP} move to the common ground faster. Note that the effect of *doch* is similar to that of *schon* but it is directed backwards: *Doch* indicates that there is a proposition ψ on the table or in the common ground which might be inconsistent with the proposition

φ_{MP}. However, φ is presented as part of the common ground and thus uncontroversial, so the speaker stresses that φ holds, and ψ does not. In that, *doch* does not anticipate potential forthcoming counter-arguments but refers to something already uttered. *Schon*, on the other hand, indicates that φ holds but leaves room for restrictions or objections, so that a not completely compatible proposition ψ could hold at the same time. I will come back to a comparison of *doch* and *schon* below.

11.3.3. Indicate Low Commitment: wohl

A speaker can also use modal particles to mark his/her commitment towards the truth of a proposition as low. Although it does not seem straightforward, indicating uncertainty is also a strategy that can be useful for guiding discourse. Committing to the truth of a proposition means that the speaker is held responsible for it. If it turns out that the proposition in fact is not true, s/he can be accused of lying and being not cooperative in the sense of Grice (1975). If the speaker lacks evidence but still wants to make a contribution to discourse, s/he can signal that s/he is not fully committed by using a particle like *wohl*. We can see this strategy in the case of the frequent occurrence of *wohl* in INTERPRETATION. The speaker offers an interpretation of a state of affairs but seems to assume that the addressee possibly does not share it. Using *wohl*, s/he can avoid a conflict because s/he already indicated that his/her commitment to the proposition is not very strong. So, again, this strategy can avoid conversational crises, although it is very different from the other two strategies (i.e. marking information as shared knowledge or anticipating objections).

11.3.4. Manipulation

In the previous sections, I described different strategies with which modal particles can make a discourse more 'smooth' and effective: Particles can mark information as uncontroversial, they can point to potential inconsistencies, anticipate potential objections, and they can also signal that the speaker is not sure about the truth of the proposition. These functions of

modal particles help the speaker to structure the discourse in an intended way and help the addressee to understand the discourse in that way. In my model, I interpret the common ground as a mental representation taking salience into account so that the propositions in the common ground have different activation levels. If a speaker places a proposition φ on the table which is already in the common ground, it can be the case that it is not salient and therefore, the addressee thinks it is not part of the common ground. In this case, the addressee might place a proposition ψ on the table which is inconsistent with φ. As discussed before, such an inconsistency can cause a conversational crisis and so the speaker may use a discourse move with *ja* or *doch* to instruct the addressee to accommodate the fact that φ is already part of the common ground. Another scenario is that the speaker does not know what the addressee's knowledge about the status of the common ground is. In this case, s/he can just pretend that the proposition is uncontroversial and again, the addressee will accommodate the information. The speaker's intention in such trial-and-error scenarios is the same as in the default case: Discourse coherence is increased by pre-empting a conversational crisis.

However, in the corpus I found many examples in which the speaker exploits these functions of the particles for a certain effect, which I called a 'manipulative use'. In the discussion of the results above, I suggested that speakers may use modal particles in discourse situations where it is not so clear that the conditions for the use of the particles are actually met.

Of course, every attitude expressed can be 'pretended'. A speaker can be express to be happy about a state of affairs although s/he is not or signal low commitment despite being very sure. What I refer to by 'manipulative', however, are cases in which the speaker claims that information is shared by the addressee – even though s/he maybe sure that this is not the case – and with that, also hedges information related to it. This manipulative use can be found for *ja, doch, eben*, and *halt*, i.e. the four particles which imply that information is shared knowledge. The meaning and function of *wohl* and *schon* is not suited to be used manipulatively because they do only refer to the speaker's knowledge. Also, I only find manipulative uses for what Mann & Thompson (1988) call presentational relations, so relations

which have a certain intended effect.

The manipulative use of modal particles can be observed best with *ja* and *doch.* Both mark the proposition as uncontroversial, but *doch*, additionally, points out that there is a conflict in the set of beliefs of the addressee: The proposition that *doch* scopes over seems to be incompatible with something that the addressee already believes. With these attitudes conveyed, the speaker can reduce the chance of an objection of his/her discourse move by the addressee: Something that is presented as uncontroversial, is hard to object. At the same time, the speaker enhances the chance that the addressee readily retracts a discourse commitment which the speaker considers to be inconsistent with the common ground. As in presentational relations the satellite serves to increase the acceptance of the nucleus, this effect on the satellite is particularly helpful.

One example for this mechanism is the frequent occurrence of *ja* and *doch* in the EVIDENCE relation. The speaker uses the reminding function of the particles to mark the evidence given in the satellite as uncontroversial. With this discourse move, in turn the argument made in the nucleus is strengthened, too. The corpus study showed that the uses of modal particles in relations where one of the two discourse units is a meta-discursive speech act also often have to be interpreted as manipulative. One such example is the JUSTIFY relation, where *doch* often occurs in the satellite. Note that this is also the relation for which *doch* showed the strongest preference. The satellite of a JUSTIFY relation often anaphorically relates to the immediately preceding speech act, as is illustrated again in (175) again for the pattern of a typical JUSTIFY relation. Therefore, it is unlikely that the proposition expressed in the satellite of JUSTIFY is already part of the common ground:

(175)   The number of unemployed is increasing. We have to be honest about that.

If *doch* occurs in a meta-discursive satellite of JUSTIFY like that in (175), it signals that this information is a shared assumption, even if it has not been discussed explicitly before and the speaker maybe knows that it is not shared knowledge. Since the satellite gives the reason why the nucleus had

to be uttered, the information in the nucleus in turn becomes unassailable. So the reminding function of *doch* does not only affect the discourse unit containing the particle, but in turn also acceptance of the information in the nucleus.

It is not only the claim about uncontroversiality that makes *doch* suitable for JUSTIFY. Again, the contrastive meaning component of the particle seems to be crucial. In the corpus, *ja* unlike *doch* did not occur often in JUSTIFY, and the experimental results clearly show that *doch* is preferred over *ja* in discourses with a JUSTIFY relation. I assume that the contrastive function of *doch* is used to avoid a protest of the addressee about the previous speech act by dismissing (potentially) conflicting assumptions. With *doch* in JUSTIFY, the speaker can also insinuate that the addressee would not have uttered the information in the nucleus – but the speaker does so and justifies the necessity of this utterance. This mechanism seems to be particularly attractive in the text type of political speeches, as it suggests that the speaker utters a truth that others would have kept back.

As discussed before, the satellite of JUSTIFY relations does also often host *schon*. I argued that the effect of *schon* is in a way similar to *doch*: Both point to an incompatibility, but *doch* does so with respect to a proposition already on the table or in the common ground, and *schon* can also anticipate potential counter-arguments. Moreover, *doch* does reject the truth of the inconsistent proposition while *schon* allows both propositions to hold. Both functions are well-suited for the JUSTIFY relation because both particles signal that it is necessary to utter the information although there may be reasons not to or others would not have uttered it. The use of *schon*, however, cannot be interpreted as manipulative because the particle only refers to the knowledge of the speaker. *Schon* involves only an affirmation of information by the speaker, so it cannot be used to impute an attitude to the addressee.

The manipulative use of modal particles is not a rare phenomenon, in fact it can be found frequently. This shows in an interesting way that modal particles as a device to manage common ground can be used actively to achieve discourse goals. They can be used to make sure or insinuate that

relevant assumptions are salient and present relevant information as based on shared assumptions. Of course, the text type analyzed in this work, i.e. parliament speeches, are particularly well-suited for speakers to exploit the functions of particles because the addressee in general cannot directly object to the speaker's utterances and the aim of the speaker is to convince the audience of his/her own position.

It should be noted, however, that it is not possible to really verify the intentions or assumptions of a speaker in a corpus study or in an experiment. I cannot be proven if participants of the experiment really accommodated the common ground status of the proposition expressed by the satellite EDU when they chose *ja* for an item in the Background condition. But these mechanisms – explaining speaker-hearer interaction in terms of common ground management – seem to be plausible to account for the findings of the two quantitative studies.

11.4. Where do Modal Particles achieve their effect?

Beside the preferences of single particles for different relations, we also see more general patterns of use. On the one hand, we see in the significant results that the particles occur rather in presentational than in subject-matter relations. I also find a pattern of distribution with respect to nucleus and satellite of relations. On the other hand, I find that there are positions in discourse in which particles do not occur. These results can be explained either with the particles' semantics or also with more general structural restrictions. Both of these general patterns – of the presence and absence of modal particles – will be discussed below, starting with the distribution in subject-matter and presentational discourse relations.

11.4.1. Subject-matter and Presentational Relations

The slightly adapted set of relations I used for the annotation of my corpus of parliament speeches contains 13 subject-matter relations and ten pre-

sentational relations. In total, the occurrences of the six analyzed modal particles is distributed nearly evenly on subject-matter and presentational relations (51.5% of all modal particle occurrences I analyzed appear in one of the 13 subject-matter relations, 48.8% in one of the ten presentational relations). If we take a closer look at the statistically significant results, however, we see that *ja* and *doch* almost exclusively reveal significant results for presentational relations. For the other four particles, the results are more balanced. This leads to the question what makes *ja* and *doch* more appropriate (or more useful) for presentational relations and also what makes them different from the other four particles.

With subject-matter relations, the speaker wants the addressee to recognize the intended relation between the discourse units. In presentational relations, in contrast, the intended effect is more than that: The speaker wants to increase the addressee's readiness to accept the information presented in the nucleus or to increase the willingness to perform an action described in the nucleus.

The reason for the interaction between *ja* and *doch* and presentational relations can be derived from what I described above: The modal particles, in different ways, facilitate the addition of propositions (φ_{MP} but also those related to it) to the common ground. *Ja* and *doch* do so in that they signal that the respective proposition already is shared knowledge of speaker and addressee. In contrast to the other particles, *ja* and *doch* make a direct reference to the addressee's knowledge. As I also discussed above, the particles usually occur in the satellite of a discourse relation. When the satellite of a presentational relation is marked as uncontroversial – which is the effect of *ja* and *doch* – , this supports the intended effect on the nucleus. Naturally, this effect is much stronger and more useful in presentational relations. If the speaker marks the satellite of a CAUSE (i.e. a subject-matter relation) as uncontroversial, this leads not to a strengthening of the intended effect, i.e. that the addressee recognizes the causal relation more easily. This general pattern of distribution shows us again that – particularly in the case of *ja* and *doch* – speakers make use of modal particles to achieve goals in discourse. It could be argued that *eben* and *halt* could also serve this purpose very well as they signal that information is evident. However, *eben* and

halt also bring in a reading of causality (as described in section 4.2). This may also influence the interpretation of the discourse relation. Therefore, *ja* and *doch*, without this component, are more convenient for fulfilling the intention of the speaker.

11.4.2. Nucleus vs. Satellite

The previous section directly leads over to the distribution of particles in nucleus and satellite of relations. As I just discussed, *ja* and *doch* mainly occur in the satellite of presentational relations because this helps the speaker to achieve the intended effect. Due to the nature of many relations, a modal particle placed in the satellite of the relation can also affect the acceptance of the nucleus. This is for example obvious in EVIDENCE, where the information in the satellite, when marked as uncontroversial, can increase the addressee's readiness to believe the information in the nucleus much more. In relations like INTERPRETATION, however, only the speaker's personal judgement is marked as uncontroversial by a particle like *doch*, but this does not in turn affect the nucleus of the relation.

However, not all modal particles achieve their effect in the satellite. As I mentioned before, this is also a question of annotation. In section 9, I showed that one discourse unit can be the satellite in a relation to another unit, but at the same time the nucleus of another relation. To find out what the function of the particle is, however, it is more informative to take a closer look at the relation for which EDU_{MP} is the satellite since it is always the satellite which has a certain function with respect to the nucleus. Although this biases the annotation, there are also findings where – unlike the general tendency – the modal particle preferably is placed in the nucleus of the relation. This was the case for *doch* in mononuclear contrastive relations (ANTITHESIS and CONCESSION) and in the MOTIVATION relation. *Eben* also occurs more frequently in the nucleus than in the satellite of CONCESSION. See (143), repeated here as (176), again for an example of an CONCESSION relation with *doch* in the nucleus:

(176)   [1] Wenn ich es auch bejahe, dass wir es im   Augenblick tun,
            If   I   it also   approve that we it at the moment   do
        [2] so kann es aber langfristig **doch** nicht so bleiben.
            so can   it but   long-run   DOCH not   so stay

'Although I approve of our current practice, things cannot stay like this in the long run.'

(Kohl Corpus, Speech #22, 109358)

In the case of contrastive relations like Antithesis and Concession, the effect of placing *doch* in the nucleus on the one hand enhances the contrastivity of the relation and on the other hand highlights the uncontroversiality of the nucleus. Both of these effects are likely to increase the chance that the nucleus gets accepted by the addressee and that the satellite gets dismissed. Therefore, in this case, the particle can support the intention of the speaker better when it is placed in the nucleus of the relation.

In a Motivation relation, in contrast, the preference for *doch* to occur in the nucleus is caused by the sentence type the relation usually is associated with: The nucleus of a Motivation relation describes an action that the addressee is supposed to perform and therefore often takes the form of an imperative sentence. As discussed in section 4.1, *doch* occurs often in imperative sentences because it highlights the contrast with the non-performance of the action requested. For these structural reasons, I find *doch* much more frequently in the nucleus of a Motivation relation than in the satellite, although *doch* could also contribute well in the satellite by making it unassailable.

11.4.3. Restrictions for the Occurrence of Particles

In the preceding sections, I discussed different patterns of distribution of modal particles in discourse relations. The corpus study shows also that there are positions in discourse where certain particles or particles in general cannot be placed. These are restrictions due to the semantics of the particles, but also restrictions of structural nature. It is not surprising that

the semantics of the particles is not compatible with every type of discourse relation: The discourse units in the relations have a certain function and therefore are often associated with a certain type of sentence. As I have shown in chapter 4, modal particles cannot occur in all types of sentences. This is for example the reason why the particles *ja* and *doch* hardly (or not at all) occur in discourse relations where the satellite usually conveys new information (ELABORATION), or must be non-factive content (CONDITION). It is important to stress that a speaker could also not use the particles in a manipulative way here: The particles' meaning and the function of the relation are just not compatible. For ELABORATION, I find that also *eben*, *halt* and *schon* occur significantly less frequently than expected, i.e. all particles that involve a factive meaning component. This incompatibility is not a matter of grammaticality, but of plausibility.

In the case of CIRCUMSTANCE, I find that *wohl* and *halt* hardly, and *ja*, *doch*, *eben* and *schon* never occur in this relation. Here, this absence of particles is due to the type of clause that is usually involved in this relation: The satellite in CIRCUMSTANCE provides a temporal framework for the interpretation of the nucleus and therefore in most cases is expressed by a temporal subordinate clause. These do not license modal particles (cf. 9.4.3).

While it is not surprising that modal particles are not compatible with all kinds of utterances, I also find a very general pattern: There is a difference between the occurrence of particles with respect to mononuclear and multinuclear relations. This shows us that in some cases, it is the structure of discourse which does not facilitate the use of a modal particle. None of the six particles analyzed does frequently occur in multinuclear, i.e. symmetric, relations. The multinuclear relations for which we would have expected the occurrence of particles (based on the two reference corpora) are LIST and CONTRAST. For CONTRAST, I find that all particles hardly occur in this relation, *doch* even is significantly less frequently used. In the case of LIST, almost all particles (*ja*, *doch*, *halt*, *schon* and *wohl*) occur significantly less frequent than expected. Below in (177), I illustrate the coordination of a sentence with a modal particle with one sentence without particle in a LIST relation, compared to the coordination of two sentences with a particle. The

same is illustrated for CONTRAST in (178):

(177)   a.   [1] Anna kommt aus Portugal und [2] Maria wurde **ja** in Italien geboren.

          b.   [1] Anna kommt **ja** aus Portugal und [2] Maria wurde
                     Anna   comes   JA from Portugal and   Maria was
             eben in Italien geboren.
             EBEN in Italy   born
             'Anna is from Portugal and Maria was born in Italy.'

(178)   a.   [1] Anna kommt aus Portugal, [2] aber ihre Schwester wurde **ja** in Deutschland geboren.

          b.   [1] Anna kommt **ja** aus Portugal, [2] aber ihre Schwester
                     Anna   comes   JA from Portugal   but   her   sister
             wurde **eben** in Deutschland geboren.
             was   EBEN in Germany   born
             'Anna is from Portugal but her sister was born in Germany.'

These examples show that it is in general possible to use the particles in multinuclear relations. For both, (177) and (178), both variants seem to be completely acceptable, including the (a) variants in which one discourse unit contains a modal particle and the other one does not. Still, I do not find these uses in the corpus, which suggests that speakers tend to avoid the combination of an EDU_{MP} with an EDU without particle. What is the reason for this pattern? Maybe there are restrictions to coordination we were not aware of. One possible answer to this question could be that EDUs have to have the same information status when they are coordinated. This would mean that it is not preferred to coordinate information which is introduced as new information and information that is marked as already known. Another argument along the same lines could be that speakers want to avoid a coordination of descriptive content and expressive content. However, with respect to discourse structure, it seems likely that the addition of a modal particle in many cases adds a subjective component to the meaning of a discourse unit which may influence the interpretation of the relation present. The precise mechanisms of this effect, however, need to be explored in future research.

12. Conclusion and Outlook

As described in chapter 2, the previous research on modal particles is extensive, with different foci. To give examples, the modal particles' effect on the speech act type has been addressed often, as well as their expressive nature and their common ground managing function. However, all of these observations remain in a narrow frame: They seek to explain what the contribution of a particle to a sentence is, but, concentrating on the sentence, they neglect the effect modal particles have on organizing discourse, mutual knowledge, and expectations. This side of modal particles is brought out by the perspective on the interaction of modal particles with discourse structure presented in this dissertation. Moreover, this perspective reveals that the meaning of particles can be exploited by the speaker to strengthen an argumentation. These findings show that we potentially underestimate the effect of modal particles if we just consider their function within the sentence boundaries.

Overall, my investigation of the interplay of modal particles with discourse structure has shown that the particles systematically interact with discourse structure. Different particles have different functions and the six particles observed can be divided into two groups: *Ja*, *doch*, *eben*, and *halt* in general intensify a claim and make a reference to the knowledge of the addressee or a group of speakers. *Wohl* and *schon* rather weaken the strength of a claim and only make reference to the speaker's knowledge.

In discourse, then, modal particles like *ja*, *doch*, *eben*, and *halt* on the one hand enhance the function of a satellite in relation to that satellite's nucleus by presenting information as shared by the addressee. In the case of presentational relations, this increases the readiness of the addressee to accept information in the nucleus. I called these uses 'manipulative'. On the other hand, the particles can mark the nucleus, which is the more im-

portant unit in a discourse relation, as uncontroversial (as in the case of *ja* and *doch*). Both functions support the coherence of the discourse as conversational crises can be avoided or quickly resolved.

With *wohl* and *schon*, the speaker can also avoid conversational crises, but by a different strategy: With the use of these particles, the speaker signals that his/her commitment is low or that s/he leaves room for objections. *Wohl* and *schon* are not used in a manipulative way – as it is defined in this work.

I have provided a detailed discussion of how the particles fulfill their function in individual discourse relations and I have illustrated how they perform their common ground managing function.

These new insights do not contradict what has been proposed by previous accounts to modal particles, but it complements the picture. The new findings are well compatible with former approaches from the perspective of sentence-semantics and pragmatics, but it points out that modal particles also have have discourse structuring functions, which should not be neglected.

The results from the quantitative studies presented in this dissertation also demonstrate the general importance of quantitative evidence for a topic like modal particles: The studies enable us to gain insights which we cannot get by purely introspective analyses. So far, hardly any quantitative research has been conducted on modal particles, instead, their meaning has been approached via minimal constructed examples and introspection. Although both phenomena – modal particles and discourse structure – are often argued to be difficult to capture, the corpus study (chapter 9) as well as the experiment (chapter 10) yield clear results for the interaction of modal particles and discourse relations.

The new findings gained in this dissertation also bring up puzzles and questions that have to be addressed in future work – both for the single particles' meaning and function and on a general level. For *schon*, a close inspection of its occurrences in discourse shows that it can perform its affirmative function not only in the sentence that contains the proposition φ to be affirmed – but also in a sentence which actually expresses the restriction to the validity of φ. This is surprising as I argued that *schon* signals that there is

an underlying question $?\varphi$ in the context. Obviously, *schon* can also signal this when it does not occur in exactly this sentence that expresses φ. The precise mechanism of this has still to be explored.

Another finding that asks for further research is the observed difference between *eben* and *halt* with respect to their occurrence in discourse structure: Although their meaning is taken to be nearly identical and both occur in causal relations, it was revealed that *eben*, in contrast to *halt*, occurs significantly more often in ANTITHESIS, too. This clearly shows that there is a difference between the meaning and effect of these two particles. It should be analyzed whether this is really a difference in strength, as proposed by Thurmair (1989), or something else.

On a more general level, it would be very interesting to look at true dialogic texts. While RST is not designed for dialogues, there are other theories with discourse relations that are. In dialogues, one could see how discourse participants really manage upcoming conversational crises and how addressees react if speakers use modal particles in a manipulative way. For the common ground model that I proposed, it would be very interesting to test how well it can account for naturally occurring dialogic data.

A. Set of Relations used for the Corpus Annotation

Below, the relations I used for the annotation of the corpus (see chapter 9) as well as prototypical examples in German and English are given. The description of nucleus and satellite for each relation are from an introduction to RST provided by Bill Mann 1999 on the RST website.[1]

Relation Name	Nucleus	Satellite
Mononuclear Relations		
ANTITHESIS	ideas favored by the author	ideas disfavored by the author
N ← S S → N	Wir sollten die Löhne an die steigenden Lebenskosten anpassen.	Sie wollen immer nur die Steuern erhöhen.
	The salaries have to be raised.	You only want to increase the taxes.
BACK-GROUND	text whose understanding is being facilitated	text for facilitating understanding
N ← S S → N	Es geht nun darum, über die Reform bei den Krankenkassen abzustimmen.	Die Reform basiert auf einem Vorschlag der letzten Bundesregierung.
	We have to discuss the reform of the health insurance system.	The reform was proposed by the government last month.

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[1] http://www-bcf.usc.edu/~billmann/rst-previewatusc/rintro99.htm

Cause	a situation	another situation which causes that one
	Die neuen Zahlen vom Arbeitsmarkt sind alarmierend,	weil die Reformen der letzten Bundesregierung nicht wirken.
	The unemployment rate increases	because companies have to cut jobs.
Circum-stance	text expressing the events or ideas occurring in the interpretive context	an interpretive context of situation or time
N ← S S → N	Wir haben dieses Thema ausgiebig diskutiert,	als letzte Woche der amerikanische Präsident zu Besuch war.
	We discussed this topic at length	when the President of the United States was here last week.
Con-cession	situation affirmed by author	situation which is apparently inconsistent but also affirmed by author
N ← S S → N	Die Wähler laufen Ihnen davon,	obwohl Sie ihnen großartige Versprechen machen.
	The voters let you down	although you overwhelm them with promises.
Condition	action or situation whose occurrence results from the occurrence of the conditioning situation	conditioning situation
N ← S S → N	Wir werden dem Gesetzentwurf zustimmen,	wenn die Klausel zum Mindestlohn enthalten ist.

	We will agree to the draft	if it includes the clause for minimal wages.
ELABORATION	basic information	additional information
N ← S	Die Wahl findet schon in zwei Monaten statt.	In zwei Bundeslndern wird auch noch regional gewhlt.
	The election will be in two months.	In two states, there are also regional elections.
ENABLEMENT	an action	information intended to aid the reader in performing an action
N ← S S → N	Wir stimmen nun über den Gesetzenswurf ab.	Für die Abstimmung sind die vorgesehenen Karten zu verwenden.
	We will now vote on this draft.	To vote, use the card provided.
EVALUATION	a situation	an evaluative comment about the situation
N ← S S → N	Sie wiederholen seit Monaten immer nur die gleichen leeren Floskeln.	Das ist wirklich ärgerlich.
	You repeat the same argument over and over.	This is really annoying.
EVIDENCE	a claim	information intended to increase the reader's belief in the claim
N ← S	Die Aktionen der Regierung haben nichts bewirkt.	Die Arbeitslosenzahl ist im März weiter angestiegen.

	The government's campaigns failed.	The unemployment rates increased further.
INTERPRE-TATION	a situation	an interpretation of the situation
N ← S	Jetzt wollen Sie die Familien als Wähler ansprechen.	Das ist eine neue Taktik.
	You want to address families now.	This is a new tactic.
JUSTIFY	text	information supporting the writer's right to express the text
N ← S S → N	Beim Thema "Gesundheitsreform" haben Sie und Ihre Partei versagt.	Das muss man klipp und klar sagen.
	The goverment failed to solve the problem	We have to be clear about that.
MOTIVA-TION	an action	information intended to increase the reader's desire to perform the action
N ← S S → N	Lassen Sie uns endlich die Reform für den Arbeitsmarkt verabschieden!	Die Menschen werden davon profitieren.
	Please explain your position on this point!	It will help us to find a solution.
OTHERWISE	action or situation whose occurrence results from the lack of occurrence of the conditioning situation	conditioning situation

N ← S	Sie müssen sich in diesem Punkt endlich einigen!	Sonst scheitert die Regierung.
	The parties have to find consensus.	Otherwise the whole project will fail.
PREPARATION	text to be presented	text which prepares the reader to expect and interpret the text to be presented
S → N	Es folgen nun die Ergebnisse des Berichts.	Es wurde festgestellt, dass...
	In the following, the results of the survey are presented.	The institute observed...
PURPOSE	an intended situation	the intent behind the situation
N ← S	Die Renten müssen erhöht werden,	damit sich die Menschen im Alter einen vernünftigen Lebensstandard leisten können.
	We have to raise the pensions	to ensure a good standard of living for everybody.
RESTATEMENT	a situation	a re-expression of the situation
N ← S	Da können wir nichts machen,	da sind wir machtlos.
	We can't do anything about it.	We are powerless.
RESULT	a situation	another situation which is caused by that one
	Die Wirtschaft schwächelt,	darum steigen die Arbeitslosenzahlen.
	Economy remains weak	therefore the number of unemployed increases.

SOLUTION-HOOD	a situation or method supporting full or partial satisfaction of the need	a question, request, problem, or other expressed need
N ← S	Es kann sein, dass wir in diesem Punkt keine Einigkeit erreichen.	Dann müssen wir die Ziele neu formulieren.
	Maybe we will not find consensus.	In that case we have to reformulate our goals.
SUMMARY	text	a short summary of that text
N ← S	Die Regierung will die Tabaksteuer anheben, um damit Reformen in der Gesundheitspolitik zu ermöglichen. Gleichzeitig sollen auch im Sektor Bildung mehrere Reformen durchgeführt werden.	Das ist der Plan der Regierung.
	The government wants to raise the tobacco tax to fund reforms in the health care sector. At the same time, reforms in the education systems are intended.	That is the current plan of the government.
Multinuclear Relations		
CONTRAST	one alternate	the other alternate
	Die SPD will die neue Steuer,	die CDU ist strikt dagegen.
	One group wants to reform the law on minimal wages,	the other group wants to abolish it.
LIST	an item	a next item

	Sie wollen nicht nur Steuer-erhöhungen,	Sie wollen auch die Rente nach unten korrigieren.
	We want to raise the pensions	we will invest in the education of young people.
SEQUENCE	an item	a next item
	Wir entscheiden über den Vorschlag.	Danach kümmern wir uns um die Umsetzng.
	We will decide on this proposal.	Afterwards we will discuss the realization.

B. Experimental Items

B.1. Target Items

1. Wenn Eltern ihre Kinder zu Hause selbst unterrichten, kann niemand die Lehrinhalte kontrollieren.
   [B] Die Schulausbildung legt ___ den Grundstein für das Wissen des Menschen.
   [J] Die daraus entstehende Gefahr müssen wir ___ im Auge behalten.
   So etwas kann völlig unbemerkt in die falsche Richtung laufen.

2. Kinder, die zu Hause unterrichtet werden, haben wahrscheinlich nicht dasselbe Wissen wie Kinder, die zur Schule gegangen sind.
   [B] In Schulen gibt es ___ einen einheitlichen Lehrplan.
   [J] Das ist ___ ein Punkt, der für ihren beruflichen Werdegang eine Rolle spielt.
   Auf dem Arbeitsmarkt haben sie dann später womöglich Nachteile.

3. Die soziale Kompetenz von Kindern bleibt auf der Strecke, wenn sie nicht mit Gleichaltrigen zur Schule gehen.
   [B] Beim Unterricht zu Hause sind sie ___ vor allem mit ihren Geschwistern zusammen.
   [J] Darauf ___ auch immer Wert gelegt.
   Arbeitgeber achten heutzutage auf solche Fähigkeiten wie soziale Kompetenz.

4. Ein wichtiger Punkt bei der Debatte über Homeschooling ist, dass Kinder in der Schule Konkurrenz kennenlernen.
   [B] Kinder in diesem Alter messen sich ___ mit ihren Mitschülern.

[*J*] Auch das spielt ___ eine Rolle.

Spätestens im Arbeitsleben wird jeder mit Konkurrenz konfrontiert.

5. Ich finde, Arbeitsgemeinschaften in der Schule kommen bisher zu kurz in der öffentlichen Diskussion.

   [*B*] AGs werden ___ freiwillig nach dem Unterricht belegt.

   [*J*] Diesen Punkt muss man hier ___ mal einwerfen.

   Die Kinder werden in AGs auf verschiedenen Ebenen gefördert, und zwar in der Schule.

6. Wenn Ganztagsschulen eingeführt werden, verlieren Musikschulen und Sportvereine viele Mitglieder.

   [*B*] In Musikschulen machen Kinder ___ die größte Gruppe der Mitglieder aus.

   [*J*] Dieser Aspekt muss ___ mal in den Vordergrund geholt werden.

   Ein solcher Mitgliederschwund ist für diese Einrichtungen verheerend!

7. Wenn Eltern ihre Kinder auf ein Internat schicken, hören sie oft den Vorwurf, dass sie nur ungestört ihre Karriere verfolgen wollen.

   [*B*] Mitarbeiter, die Kinder haben, sind beruflich ___ weniger flexibel als die ohne Kinder.

   [*J*] Solche Vorwürfe kennen ___ mittlerweile viele Eltern.

   Dabei wollen die Eltern nur das Beste für ihre Kinder.

8. Man kann auch argumentieren, dass Kinder, die nicht zur Schule gehen, in Sportvereinen oder Musikschulen Kontakte knüpfen können.

   [*B*] Beim Homeschooling haben sie ___ kaum Gleichaltrige um sich.

   [*J*] Das Argument ist ___ nicht von der Hand zu weisen.

   Die Frage ist nur, ob sie von ihren Eltern tatsächlich in Sportvereinen angemeldet werden.

9. Windräder sind umstritten, weil manche Leute kritisieren, dass sie den Anblick der Landschaft zerstören.

   [*B*] Windräder sind ___ sehr groß.

   [*J*] Wir müssen uns ___ auch mit den Kritikpunkten befassen.

Aber bevor Windräder gebaut werden, wird auch von Stadtplanern alles genau überprüft.

10. Bei der Energiegewinnung durch Windräder wird kein Kohlenstoffdioxid erzeugt, darum ist sie so attraktiv.
    [B] Man nennt Windenergie ___ oft 'saubere Energie'.
    [J] Das ist ___ der Punkt, um den es vor allem geht.
    Für den Klimaschutz ist das ein zentraler Punkt, darum wird Windenergie auch so unterstützt.

11. Für Anwohner im näheren Umkreis von Windkraftanlagen könnte auch der Geräuschpegel ein Problem werden.
    [B] Die Motoren in den Anlagen sind ___ riesig und verursachen entsprechend Lärm.
    [J] Wir müssen die Sorgen dieser Leute ___ anerkennen.
    Die Häuser müssen also eventuell mit Lärmschutzfenstern ausgerüstet werden.

12. Für Grundstückbesitzer in der Nähe eines neu gebauten Windrads sind auch die sinkenden Immobilienpreise ein Grund zum ärger.
    [B] Eventueller Lärm beeinträchtigt ___ den Wert eines Grundstücks.
    [J] Das ist ___ völlig offensichtlich.
    Die Anwohner haben leider wenig Möglichkeiten, gegen den Bau eines Windrads vorzugehen.

13. Naturschützer kritisieren Windräder vor allem wegen der Gefahr, die sie für Vögel und Fledermäuse darstellen.
    [B] Vögel können ___ in die Rotorblätter geraten.
    [J] Dieses Thema wurde bisher ___ völlig vernachlässigt.
    Wissenschaftler und Techniker suchen aber nach einer Lösung für dieses Problem.

14. Rund um die Windenergieanlagen ist ein großer Arbeitsmarkt entstanden, nicht nur in der Bauphase.
    [B] Nach dem Bau muss ___ eine Anlage auch noch gewartet werden.
    [J] Das müssen wir ___ im Hinterkopf behalten.

Da braucht man nicht nur schwindelfreie Servicetechniker, sondern auch qualifizierte Gutachter.

15. Der Wirtschaftszweig 'Erneuerbare Energien' in Deutschland boomt und jetzt will jeder etwas davon abhaben.
[*B*] Es gibt ___ neben der Windenergie noch weitere Bereiche.
[*J*] Es ist ___ wahr.
Das spiegelt sich jetzt in den Diskussionen und Streitigkeiten wieder.

16. Im Winter können Windräder sogar gefährlich werden, weil sich an den Rotorblättern Eis bilden kann.
[*B*] In dieser Höhe ist es ___ noch kälter.
[*J*] Das ist ___ so!
Durch die Bewegung der Rotorblätter wird das Eis sogar geschleudert.

17. Ich finde es falsch, wenn arbeitende Mütter als Rabenmütter bezeichnet werden, nur weil mittags nicht pünktlich das Essen auf dem Tisch steht.
[*B*] Die Zahl der berufstätigen Mütter ist in den letzten Jahren ___ gestiegen.
[*J*] Das muss man ___ mal ganz deutlich sagen.
Ganztagsschulen könnten dieses Problem mit Sicherheit ein wenig abmindern.

18. Viele Eltern würden auch gar kein Internat für ihre Kinder wollen, weil sie Angst haben, dass ihnen ihr eigenes Kind fremd wird.
[*B*] Die meisten Internatskinder sehen ihre Eltern ___ eher selten.
[*J*] Von dieser Seite muss man es ___ auch mal betrachten.
Das ist von Familie zu Familie komplett unterschiedlich.

19. Viele finden, dass ein Teil des Geldes, das jetzt für Ganztagsschulen geplant ist, besser für andere Einrichtungen zur Verfügung stehen sollte.
[*B*] Es gibt ___ auch noch Horte, Jugendeinrichtungen, Tagesmütter, und so weiter.
[*J*] Der Punkt gehört ___ zu unserer Diskussion dazu.

Man sollte diese Einrichtungen auch weiter unterstützen und ausbauen.

20. Besonders für alleinerziehende Eltern, die berufstätig sind, ist die Einführung von Ganztagsschulen natürlich ein Segen.
    [B] Die haben normalerweise ___ Schwierigkeiten, Beruf und Kinderbetreuung zu vereinen.
    [J] Dieser Aspekt ist ___ im Moment ganz aktuell.
    Durch Ganztagsschulen müssten diesen Eltern keine zusätzliche Kinderbetreuung organisieren.

21. Es gibt sogar Familien, die in ein anderes Land auswandern, um ihre Kinder zu Hause unterrichten zu dürfen.
    [B] In Deutschland ist Unterricht zu Hause ___ verboten.
    [J] Solche extremen Fälle darf man ___ nicht ignorieren.
    An solchen Beispielen sieht man, wie wichtig es manchen Eltern ist, ihre Kinder selbst zu unterrichten.

22. Ich persönlich finde, das Thema "Internat" wird hier in Deutschland viel emotionaler geführt als in anderen Ländern.
    [B] In einigen Ländern sind Internate als Schulform ___ völlig normal.
    [J] Das muss man ___ ehrlicherweise einräumen.
    Hier bei uns gehen bei diesem Thema die Meinungen oft komplett auseinander.

23. Zum Glück haben Internate hier in Deutschland inzwischen einen viel besseren Ruf als noch vor einigen Jahren.
    [B] Früher hatten Internate ___ eher den Beigeschmack einer Bestrafung für das Kind.
    [J] Diese Entwicklung muss man sich ___ wirklich mal vergegenwärtigen.
    Heute nimmt die öffentlichkeit es auch oft als Privileg wahr, wenn ein Kind aufs Internat geht.

24. Bei Ganztagsschulen ist gewährleistet, dass alle Kinder mittags eine vollwertige Mahlzeit bekommen.

[*B*] Ein gemeinsames Mittagessen ist ___ Teil des Ganztagskonzeptes.

[*J*] Als Eltern liegt uns das ___ auch am Herzen.

Das ist ein Pluspunkt, gegen den wohl wirklich niemand etwas einzuwenden haben dürfte.

25. Besonders in Deutschland ist Windenergie, und allgemein erneuerbare Energie, ein Thema, das höchst aktuell ist.

    [*B*] Es wurde ___ gerade eine Reform des Erneuerbare Energie-Gesetzes beschlossen.

    [*J*] Das muss man ___ klipp und klar sagen.

    Seit Monaten wird es in der öffentlichkeit diskutiert.

26. Ich habe gelesen, dass in den nächsten Jahren noch viel mehr Windräder in Deutschland gebaut werden sollen.

    [*B*] Erneuerbare Energien ___ werden von der Bundesregierung gefördert.

    [*J*] Das ist uns ___ allen bekannt.

    Die meisten Menschen wünschen sich eigentlich nur eine günstigere Stromrechnung.

27. Wenn ein Landbesitzer ein Grundstück in einem Gebiet hat, wo Windräder gebaut werden dürfen, dann kann er damit reich werden.

    [*B*] Er erhält ___ jährlichen Pachtzahlungen dafür.

    [*J*] Das muss man ___ mal mit Nachdruck so sagen.

    Für den Besitzer ist das eigentlich vergleichbar mit einem Sechser im Lotto.

28. Neben dem Lärm durch die Motoren kritisieren Anwohner auch den Schattenwurf der Windräder in der Umgebung.

    [*B*] Durch die drehenden Rotorblätter wechselt der Schatten ___ ständig.

    [*J*] Dieser Punkt wird ___ immer wieder genannt.

    Windräder können sich aber abschalten, damit niemand durch Schatten gestört wird.

29. Offshore-Anlagen, also Windräder im Meer, sind deshalb so beliebt, weil auf dem Meer gleichmä

    ß

ige Windverhältnisse herrschen.

[B] 'Offshore' heißt ___ übersetzt 'offene See'.

[J] Diesen Vorteil müssen Sie ___ anerkennen.

Außerdem gibt es im Meer so gut wie keine Bodenhindernisse hat.

30. Bis jetzt ist es noch sehr schwierig, Windräder auf hoher See zu bauen, schon allein wegen des Salzwassers.

    [B] Salzwasser greift ___ Metall an und führt zu Schäden.

    [J] Das erklärt ___, warum Windanlagen auf dem Meer auch nicht perfekt sind.

    Außerdem ist es nicht leicht, die Wartung zu garantieren, besonders bei widrigen Wetterbedingungen.

31. Unternehmen, die Solaranlagen herstellen, beklagen, dass Windkraftanlagen viel mehr gefördert werden.

    [B] Solarenergie ist ___ ebenfalls 'saubere Energie'.

    [J] Das ist ___ die Wahrheit.

    Es ist wie immer bei solchen Sachen: Alle streiten um das Geld. und Subventionierungen.

32. Ein schwieriges Thema bei Wind- und Solarenergieanlagen ist, dass sich nicht planen lässt, wann diese Anlagen Strom produzieren.

    [B] Man kann nicht planen, wann Wind kommt.

    [J] Das haben Sie ___ vorhin selbst gesagt.

    Hier wird aber große Hoffnung auf unterschiedliche Speicherkonzepte gesetzt.

B.2. Filler Items

1. Die Todesstrafe gibt es inzwischen schon seit über 1000 Jahren und schon lange wird sie immer wieder diskutiert. So eine Strafe ist ___ schwer mit den Menschenrechten vereinbar. Viele Staaten haben sie aus diesem Grund abgeschafft, einige haben sie aber immer noch.

2. Viele Staaten verhängen die Todesstrafe nur bei besonders schweren Verbrechen und finden es vertretbar. Aber auch in diesen Ländern

gibt es ‗‗‗ relative viele Hinrichtungen. Was ein schweres Verbrechen ist, wird natürlich auch immer unterschiedlich definiert.

3. In einigen Ländern ist es auch so, dass die Todesstrafe zwar noch existiert, aber nicht mehr vollstreckt wird. Das ist ‗‗‗ zum Beispiel in Hessen der Fall, das weiß in Deutschland fast niemand. Da Bundesrecht aber vor Landesrecht geht, wird sie natürlich nie verhängt.

4. Wir reden immer darüber, dass es hier in Deutschland keine Todesstrafe gibt und sind stolz darauf. Im Kriegszustand kann sie ‗‗‗ theoretisch auch hier bei uns verhängt werden. Damit könnten dann Fälle von Hochverrat bestraft werden, das kann man sich aber nur schwer vorstellen.

5. Die Befürworter der Todesstrafe argumentieren in den meisten Fällen mit dem Prinzip der "Vergeltung". Das widerspricht ‗‗‗ komplett der Idee der Resozialisierung. Gegner finden, dass Straftäter lieber wieder integriert werden sollten als dass Rache geübt wird.

6. Die Unterstützer der Todesstrafe vergessen, dass Vergeltung nicht das Gleiche ist wie Gerechtigkeit. Die Todesstrafe kann ‗‗‗ das geschehene Unrecht nicht rückgängig machen. Letztendlich hilft es den Opfern und Hinterbliebenen auch nicht, wenn der Täter mit dem Tod bestraft wird.

7. Oft sind bei Diskussionen über die Todesstrafe die Standpunkte sehr extrem. Das liegt ‗‗‗ daran, dass es eine so krasse Form der Bestrafung ist. Da kann man gar nicht neutral bleiben, fast jeder hat eine Meinung zu dem Thema, wenn man ihn fragt.

8. Manche Leute argumentieren, dass durch die Todesstrafe die Gesellschaft endgültig vor dem Täter geschützt werden kann. Dabei erfüllen lebenslange Freiheitsstrafen ‗‗‗ genau den gleichen Zweck. Heutzutage sind die Gefängnisse so sicher, dass es selten zu Ausbrüchen kommt, also ist dieses Argument nicht haltbar.

9. Immer wieder hört man auch, dass die Todesstrafe der Abschreckung für andere Kriminelle dienen soll. Das wurde ___ untersucht und ist bisher in keinem Land empirisch nachgewiesen worden. Ich habe gelesen, dass häufig sogar der umgekehrte Effekt zu beobachten ist.

10. Das Hauptargument gegen die Todesstrafe sind die Menschenrechte, die jedem Menschen zustehen. Darauf stützen sich die Gegenargumente ___ zum großen Teil. Die Befürworter umgehen diesen Punkt, indem sie Straftätern die Menschenrechte absprechen.

11. Wenn Todesstrafe der Abschreckung dienen soll, dann wird der Täter theoretisch für zukünftige Verbrechen anderer mitbestraft. Das widerspricht ___ der allgemeinen Rechtsauffassung. Schon im 19. Jahrhundert wurde dieser Punkt immer wieder als Gegenargument gegen die Todesstrafe benutzt.

12. Ein besonders makabres Argument ist, dass die Todesstrafe billiger sei als ein Aufenthalt im Gefängnis. Das hat ___ irgendeine Studie ausgerechnet. Meistens ist es nicht unbedingt eine Frage des Geldes, sondern eher des Platzes in den Gefängnissen.

13. Wenn ein Land zur Todesstrafe greift, kann es sich offensichtlich nicht anders behelfen. Meiner Meinung nach ist das ___ ein Armutszeugnis. Ein zivilisiertes Land sollte wirklich andere Mittel haben, um Verbrecher für ihre Tat zu bestrafen.

14. Nach schlimmen Verbrechen wird häufig eine Wiedereinführung der Todesstrafe gefordert. Das ist ___ eine schwierige Situation. Diese Forderung wird oft bei Gewalt gegen Kinder erhoben, weil dies eine besonders schlimme Art von Verbrechen ist.

15. Viele Nichtregierungsorganisationen kämpfen seit Jahren mit viel Einsatz gegen die Todesstrafe. So ein Engagement ist ___ sehr wichtig. Nur dadurch kann irgendwann vielleicht die generelle Abschaffung der Todesstrafe erreicht werden.

16. Wird ein Mensch hingerichtet, hat er keine Möglichkeit, seine Taten zu bereuen und wiedergutzumachen. Diese Endgültigkeit ist ___ erschreckend. Kritiker haben deshalb auch den Leitsatz "Jeder hat eine zweite Chance verdient".

17. In den USA wird immer noch oft die Todesstrafe verhängt, obwohl viel auf Demokratie und Menschenrechte gegeben wird. Das ist ___ ganz schön paradox. Es gibt aber auch in den USA sehr große Unterschiede zwischen den einzelnen Bundesstaaten.

18. Die Diskussion über die Todesstrafe wird so oft geführt, dass manche Leute genervt reagieren. Aber es ist ___ gut und wichtig, dass wir darüber sprechen. Sonst wird sich wahrscheinlich nie etwas ändern in den Ländern, die die Todesstrafe nach wie vor zulassen.

19. Bei jedem Bericht über eine Hinrichtung wird die Todesstrafe neu diskutiert und Gegner und Befürworter streiten. Es ist ___ kein einfaches Thema. In extremen Fällen wird die Todesstrafe sogar von Teilen der Bevölkerung unterstützt.

20. Was gar nicht so oft angesprochen wird, sind die Auswirkungen auf die Psyche der Beamten, die die Strafe vollziehen müssen. Ich vermute, dass das ___ eine große psychische Belastung ist. Bisher ist noch gar nicht richtig untersucht, was für einen Einfluss das auf diese Menschen hat, wenn sie einen Fremden umbringen müssen.

21. Wissenschaftler haben herausgefunden, dass in den vergangenen Jahren die globale Temperatur um 2C gestiegen ist. Das zeigt ___, dass der Versuch, den CO2-Ausstoß zu minimieren, gescheitert ist. Man kann nur hoffen, dass auf der nächsten Klimakonferenz verbindlichere Ziele festgelegt werden, damit endlich etwas passiert.

22. Das Argument der Atomkraftgegner ist klar: Atomenergie stellt eine ernsthafte Bedrohung für die Menschheit dar. Wie ernsthaft die Gefahr ist, sieht man ___, wenn Unfälle geschehen. Bei den Unfällen von Tschernobyl und Fukushima sind unzählige Menschen gestorben. Brauchen wir denn noch mehr von solchen Katastrophen?

23. Als Endlager für Atommüll eignet sich nach aktuellen Untersuchungen am ehesten Gorleben in Niedersachsen. Der Standort erfüllt ___ die dafür relevanten Bedingungen. Außerdem scheint es im Moment gar keine Alternative zu Gorleben zu geben, zumindest wird es so immer vermittelt.

24. Das Problem bei den Debatten über Atomkraft ist, dass die meisten Menschen nicht viel über Kernenergie wissen. Sie haben ___ oft nur eine vage Vorstellung von den komplizierten Prozessen. Um besser über Atomkraft urteilen zu können, muss man auch besser informiert sein, denn so steht nur eine unbestimmte Angst im Vordergrund.

25. Es werden wahrscheinlich noch viele Jahre vergehen, bis erneuerbare Energien Kohle und Kernkraft ersetzen können. Bis dahin muss man___ bei der Energiegewinnung weiterhin auf Atomkraft setzen. Die Bundeskanzlerin hat deshalb auch gesagt, dass Atomkraft als "Brückentechnologie" dienen soll.

26. Es gibt einen ganz einfachen Grund, warum die Energiedebatte auch für die Außen- und Wirtschaftspolitik eine große Rolle spielt: Der Verzicht auf Atomkraft würde ___ Deutschland abhängig von Energieimporten machen. Denken Sie nicht auch, dass das eine extrem ungünstige und unangenehme Situation für Deutschland wäre?

27. Bei Reaktoren in Atomkraftwerken steht die Sicherheit zwar an erster Stelle. Trotzdem würde ___ ein gar nicht so raffinierter Terroranschlag genügen, um einen Super-GAU hervorzurufen. Von Sicherheit kann hier also absolut keine Rede sein, da gibt es viel Nachholbedarf.

28. Einige Wissenschaftler sehen in Kernenergie ein Hindernis für die erneuerbaren Energien. Andere sehen in ihr ___ eher einen Wegbereiter für alternative Methoden der Energiegewinnung. Da sieht man schon, dass die Meinungen bei diesem Thema weit auseinander gehen, auch unter Wissenschaftlern.

29. Ich finde, im Moment ist die Position gegen Kernkraft die einzige politisch korrekte Haltung. Sogar die Union hat ___ aktuell die Rich-

tung gewechselt. Die Katastrophe von Fukushima hat da anscheinend deutliche Spuren hinterlassen.

30. Unterstützer vom Atomkraft finden die Massenhysterie nach der Fukushima-Katastrophe komplett überzogen und unbegründet. Schließlich befindet sich Deutschland ‿‿ geologisch einfach nicht in einem erdbebengefährdeten Gebiet. Es ist also sehr unwahrscheinlich, dass die deutschen AKWs von Erdbeben oder ähnlichem betroffen sind.

31. Um die Welt mit Elektrizität zu versorgen, müsste man in den nächsten Jahrzehnten mehr Energie erzeugen als je zuvor. Allein durch erneuerbare Energie lässt sich dieser ‿‿ kaum abdecken. Mit der steigenden Bevölkerungszahl wird der Bedarf an Energie auch noch ansteigen, so argumentieren Unterstützer von Atomkraft.

32. Die Angst vor Atomkraft ist berechtigt, denn nukleare Katastrophen sind von einer ganz anderen Dimension als Verkehrsunglücke und ähnliches. Zum Beispiel sind die Folgen der Tschernobyl-Katastrophe ‿‿ noch heute in weiten Teilen Europas zu spüren. Hier geht es um eine Bedrohung für die gesamte Menschheit und mehr!

33. Gegner der Atomenergie riskieren bei der Demonstration gegen den Kastortransport ihr Leben, wenn sie sich an die Gleise ketten. Das ist ‿‿ ein starkes Zeichen seitens des Volkes. In einer Demokratie darf die Stimme des Volkes nicht einfach ignoriert werden, darum müssen Politiker das ernst nehmen.

34. Obwohl die Vertreter der Atomkraftwerke von guten Sicherheitsbedingungen sprechen, haben die aktuellsten Stresstests etwas anderes gezeigt. Gerade für die Bewohner in den betroffenen Regionen ist das ‿‿ sehr beunruhigend zu wissen. Dass sie gegen Kernenergie sind, kann man ihnen wirklich nicht übel nehmen.

35. Einige Menschen scheinen Atomenergie regelrecht zu verteufeln. Eine solche Vereinfachung ist ‿‿ problematisch und unangebracht. Besonders bei so einem Thema muss man die Sachverhalte differenzierter sehen, das Thema hat so viele Aspekte.

36. Viele Menschen befürchten einen Anstieg des Energiepreises, wenn alle Kernkraftwerke abgeschaltet werden. Diese Sorge ist ___ verständlich und irgendwo auch berechtigt. Allerdings hängen die Energiepreise nicht nur von Angebot und Nachfrage ab.

37. Wenn wir mehr Forderungen der Kernkraftunternehmen nachkämen, würden wir praktisch unsere Umweltpolitik von ihnen diktieren lassen. So eine Vorstellung ist ___ sehr erschreckend. Spätestens hier muss die Verbindung zwischen Politik und Wirtschaft aufhören!

38. Alle reden von erneuerbarer Energie, protestieren aber lautstark gegen Windparks vor ihrer Haustür. Einstellungen dieser Art sind ___ ein wenig heuchlerisch. Woher soll der Strom kommen, auf den wir alle nicht verzichten können?

39. Die deutsche Politik muss endlich einen klaren Weg in Sache Atomenergie festlegen. Ein Hin und Her wie der "Ausstieg aus dem Atomausstieg" ist ___ fragwürdig. Das sorgt nämlich auch reichlich für Verunsicherung in der Wirtschaft.

40. Die aktuellsten Statistiken haben ergeben, dass ein bedeutender Teil der Energie durch Atomkraft erzeugt wird. Zu glauben, man könne jetzt auf Atomkraft verzichten, ist ___ relativ utopisch gedacht. Dafür müssten erneuerbare Energien viel schneller ausgebaut werden.

C. Odds Ratio and Confidence Intervals

In the following, the odds ratio as well as the confidence intervals from the statistical analysis of the corpus results are given. It was analyzed for *ja*, *doch*, *eben*, *halt*, *wohl*, and *schon* whether their observed frequency differed from the predicted frequency.

Relation	ja					doch				
	n.exp	n.obs	or	confint.u	confint.o	n.exp	n.obs	or	confint.u	confint.o
ANTITHESIS	1.9	1	0.525	0.013	3.236	6.2	14	2.314	1.114	4.6
BACKGROUND	5.5	32	7.67	4.646	12.482	18.1	22	1.229	0.72	2.021
CAUSE	4.0	10	2.655	1.175	5.435	13.0	12	0.919	0.445	1.750
CIRCUMSTANCE	4.7	0	0	0	0.781	15.5	0	0	0	0.236
CONCESSION	4.1	5	1.244	0.382	3.162	13.2	26	2.036	1.214	3.331
CONDITION	2.3	0	0	0	1.69	7.5	0	0	0	0.512
CONTRAST	6.9	3	0.42	0.084	1.297	22.5	7	0.298	0.116	0.643
ELABORATION	27.5	3	0.085	0.017	0.256	89.8	16	0.141	0.078	0.235
ENABLEMENT	0.0	2	Inf	2.794	Inf	0.0	2	Inf	0.852	Inf
EVALUATION	8.8	7	0.777	0.299	1.707	28.9	13	0.429	0.22	0.772
EVIDENCE	7.5	19	2.845	1.580	4.907	24.5	47	2.053	1.397	2.98
INTERPRETATION	2.8	7	2.563	0.948	5.946	9.3	33	3.809	2.302	6.26
JUSTIFY	7.3	15	2.218	1.155	4.008	23.8	87	4.471	3.237	6.165
LIST	12.3	0	0	0	0.275	40.2	0	0	0	0.083
MOTIVATION	2.8	5	1.797	0.544	4.67	9.3	59	7.383	4.790	11.468
OTHERWISE	0.3	1	2.975	0.062	26.926	1.1	0	0	0	4.949
PREPARATION	1.6	0	0	0	2.464	5.3	0	0	0	0.746
PURPOSE	1.7	0	0	0	2.356	5.5	1	0.179	0.004	1.101
RESTATEMENT	2.1	0	0	0	1.867	6.8	4	0.58	0.148	1.655
RESULT	5.3	1	0.18	0.004	1.055	17.4	20	1.155	0.66	1.937
SEQUENCE	0.5	0	0	0	1.8	1.8	0	0	0	2.654
SOLUTIONHOOD	0.6	0	0	0	7.561	2.0	2	1.007	0.105	4.893
SUMMARY	1.3	1	0.777	0.019	4.980	4.2	1	0.236	0.006	1.497

Table C.1.: Odds ratio (or) and lower and upper boundary of confidence interval for *ja* and *doch*

Relations	eben					halt				
	n.exp	n.obs	or	confint.u	confint.o	n.exp	n.obs	or	confint.u	confint.o
ANTITHESIS	5.3	28	6.375	3.63	11.088	4.4	3	0.679	0.132	2.189
BACKGROUND	3.7	1	0.263	0.006	1.621	3.1	0	0.321	0.008	1.984
CAUSE	5.2	30	7.144	4.103	12.364	4.3	13	9.71	5.538	16.948
CIRCUMSTANCE	3.2	0	0	0	1.238	2.6	6	0.376	0.009	2.355
CONCESSION	6.2	13	2.195	1.058	4.27	5.1	3	2.737	1.311	5.366
CONDITION	2.4	0	0	0	1.705	2.0	0	0	0	2.082
CONTRAST	7.2	10	1.424	0.630	2.919	5.9	2	0.496	0.097	1.57
ELABORATION	32.7	14	0.362	0.188	0.645	26.8	3	0.057	0.007	0.215
ENABLEMENT	0.0	0	0	0	Inf	0.0	0	0	0	Inf
EVALUATION	2.5	2	0.789	0.088	3.33	2.1	1	1.459	0.272	5.076
EVIDENCE	6.1	2	0.317	0.037	1.238	5.0	0	0	0	0.744
INTERPRETATION	8.6	5	0.563	0.174	1.419	7.1	1	1.611	0.742	3.208
JUSTIFY	7.7	0	0	0	0.473	6.3	0	0.945	0.325	2.259
LIST	18.7	8	0.391	0.161	0.818	15.4	1	0.056	0.001	0.327
MOTIVATION	3.2	1	0.308	0.007	1.924	2.6	11	0.759	0.086	3.13
OTHERWISE	0.4	0	0	0	18.284	0.3	3	0	0	22.291
PREPARATION	2.7	0	0	0	1.515	2.2	2	0	0	1.851
PURPOSE	2.0	1	0.498	0.012	3.288	1.6	1	0	0	2.559
RESTATEMENT	2.0	0	0	0	2.095	1.6	0	0.608	0.014	4.023
RESULT	9.4	19	2.179	1.195	3.816	7.7	31	4.497	2.641	7.522
SEQUENCE	1.7	0	0	0	2.47	1.4	28	0.702	0.016	4.762
SOLUTIONHOOD	1.9	0	0	0	2.267	1.5	0	1.989	0.361	7.286
SUMMARY	1.1	0	0	0	4.425	0.9	1	0	0	5.401

Table C.2.: Odds ratio (or) and lower and upper boundary of confidence interval for *eben* and *halt*

Relations	wohl					schon				
	n.exp	n.obs	or	confint.u	confint.o	n.exp	n.obs	or	confint.u	confint.o
ANTITHESIS	4.3	4	1.074	0.377	4.216	7.4	9	0.813	0.38	1.939
BACKGROUND	3.0	6	0.486	0.191	1.47	5.2	1	5.282	0.862	217.118
CAUSE	4.2	9	0.443	0.203	1.072	7.2	1	7.439	1.242	302.8
CIRCUMSTANCE	2.6	2	1.292	0.313	11.437	4.4	0	Inf	1.125	Inf
CONCESSION	5.0	10	0.48	0.23	1.099	8.7	13	0.651	0.338	1.34
CONDITION	1.9	1	1.945	0.301	81.783	3.3	0	Inf	0.817	Inf
CONTRAST	5.8	1	6.051	1.018	245.625	10.0	2	5.203	1.351	44.444
ELABORATION	26.4	19	1.512	0.892	2.684	45.4	9	6.343	3.2	14.318
ENABLEMENT	0.0	0	0	0	Inf	0.0	0	0	0	Inf
EVALUATION	2.0	5	0.396	0.139	1.386	3.5	63	0.038	0.021	0.066
EVIDENCE	4.9	1	5.112	0.854	208.176	8.5	4	2.175	0.78	8.42
INTERPRETATION	7.0	33	0.157	0.095	0.263	12.0	35	0.298	0.187	0.48
JUSTIFY	6.2	3	2.136	0.676	10.842	10.7	26	0.376	0.225	0.642
LIST	15.1	3	5.687	1.851	28.389	26.0	0	Inf	7.988	Inf
MOTIVATION	2.6	0	Inf	0.649	Inf	4.4	9	0.48	0.211	1.194
OTHERWISE	0.3	0	Inf	0.044	Inf	0.6	0	Inf	0.076	Inf
PREPARATION	2.1	0	Inf	0.53	Inf	3.7	0	Inf	0.919	Inf
PURPOSE	1.6	0	Inf	0.384	Inf	2.8	1	2.793	0.425	118.225
RESTATEMENT	1.6	0	Inf	0.384	Inf	2.8	0	Inf	0.665	Inf
RESULT	7.6	9	0.834	0.399	1.956	13.1	12	1.099	0.576	2.274
SEQUENCE	1.4	0	Inf	0.325	Inf	2.4	0	Inf	0.564	Inf
SOLUTIONHOOD	1.5	2	0.747	0.168	6.857	2.6	1	2.604	0.392	110.722
SUMMARY	0.9	0	Inf	0.182	Inf	1.5	0	Inf	0.315	Inf

Table C.3.: Odds ratio (or) and lower and upper boundary of confidence interval for *wohl* and *schon*

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