DANDELION

Discourse Functions and Discourse Representation:
An Empirically and Linguistically Motivated,
Interdisciplinarily-Oriented Approach to Natural Language Texts

ESPRIT Basic Research Project 6665

Report R1.1.3b

Causal and Contrastive Connectives

E. Oversteegen

May 31, 1995

—— CLS Tilburg/Nijmegen ——
— University of Edinburgh GMD-IPSI Darmstadt Universität Saarbrücken —
—— Universidad Complutense Madrid ——

Document ID	:	Report R1.1.3b: *Causal and Contrastive Connectives*
Issue date	:	May 31, 1995
Responsible	:	CLS Tilburg/Nijmegen
Version	:	final
Status	:	public
WP number	:	WP1: Empirical studies
Distribution	:	DANDELION Consortium, CEC
Keywords	:	connectives, causality, contrast, discourse theory, coherence relations

Causal and Contrastive Connectives

E. Oversteegen

CLS Tilburg/Nijmegen

Abstract:

This paper contains a proposal for analysing connectives The causal and contrastive connectives studied appear to have several interpretations, corresponding to their primarily contributing to the ideational structure, to the rhetorical structure or to the attentional structure of the discourse. An analysis of the usage potential of eight connectives, *omdat*, *want*, *zodat*, *opdat*, *doordat*, *maar*, *terwijl* and *hoewel*, resulting in a set of conditions on context for each individual interpretation is presented. A representation mode for connectives is proposed, expressing a perspective on their relationship to coherence relations.

Contents

1 Introduction **1**

2 Connectives **4**
2.1 Connectives in the literature 4
2.2 Aspects of connectives 5
2.2.1 Directive status 5
2.2.2 Argumentative orientation and topoi 8
2.2.3 Perspective (*Omdat* versus *want*) 10
2.2.4 Thematization 12

3 A view on connectives (and coherence relations) **13**
3.1 A causal-contrastive relation 14
3.1.1 The use of negation 15
3.1.2 Kind of implication 15
3.1.3 Generalizations 16
3.1.4 Defeasibility 16
3.2 Causal Contrastive Connectives and Presupposed regularities 16
3.3 Pragmatics and Connectives 18
3.3.1 Pragmatic Relations 18
3.3.2 Other pragmatical interpretations of *although* 19
3.4 Presuppositions for *omdat* 24
3.4.1 Conditionality and causality 25
3.5 Coherence without Connectives 27

4 Causal versus contrastive (in argumentation) **29**
4.1 Directness tested 29
4.2 Conjectures (as hidden argumentation) 35
4.3 Contrastives and Context 37

5 Questioning the corpus **39**
5.1 Coding the corpus 39
5.1.1 Properties encoded 39
5.1.2 Selecting the codes 42
5.2 Hypotheses 45

6 Representing the data **48**
6.1 Two systems 53
6.2 54

1 Introduction

The purpose of this paper[1] is to give a specification of the meaning and function of several Dutch causal and contrastive connectives. Connectives are described in the literature as a way of linguistically expressing coherence relations.[2] As was argued, among others, by Van Dijk (1979), Lavid and Maier (1992), Martin (1992), Redeker (1992), Sweetser (1990), and Sanders, Spooren and Noordman (1992), coherence relations and their linguistic expressions can be used to establish relations on several "levels" of the discourse or be interpreted as expressing different meta-functions of the discourse.[3] An example the use of the connective *since* on three different levels is given in Sweetser (1990) and quoted here as (1a,b,c). [4]

(1) a. Since John wasn't there, we decided to leave a note for him

b. Since John isn't here, he has (evidently) gone home

c. Since we're on the subject, when was George Washington born ?

In terms of Systemic Functional Grammar, a connective may be used to express an ideational, an interpersonal or a textual meta-function in different contexts. In the research on Dutch connectives reported here, interpretations were found corresponding to these different meta-functions. But it is not an exclusive option: each occurrence of a connective is evaluated in three ways: with respect to its contribution to content, with respect to its place in the intentional structure and with respect to its place in the focus structure (the so called "Parallel Component Model", Redeker, 1992[5] Redeker defines the three types of structuring as follows: "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 described by the discourse.(....). Two discourse units are rhetorically related if the locutionary force of one unit is subservant to that of the other.(....). Sequential transitions are paratactic or hypotactic relations between ideationally and rhetorically only loosely or indirectly related adjacent discourse segments. (...)" See also McKeown and Elhadad, 1991). Taken both trichotomies together, it would be adequate to say that each instantiation of a connective functions at these three levels at the same time, but the interpretations of a connective may vary with respect to the discourse structure they contribute to mostly. If an interpretation contributes mostly to content, it will primarily fulfil an ideational meta-function; if it contributes mostly to the intentional structure, it will primarily fulfil an interpersonal meta-function and if it contributes mostly to the attentional structure, it will primarily fulfil a textual meta-function. This perspective boils down to a relativization of the trichotomy in SFG: connectives usually are not restricted to realizing only one meta-function. Their meaning and function is gradient

[1] Research reported in 3 was carried out in collaboration with Luuk Lagerwerf. I would like to thank him for his consent to incorporate it in this report.

[2] Coherence relations in fact have two faces. They are structure builders and they are the glue between two contents. Most approaches to coherence relations focus on either of these two aspects, but show awareness of both. In this paper both aspects are taken into account to a certain extent, in the fashion of the study on coherence relations by Bateman and Rondhuis (1994)

[3] The term "levels" should be taken very broadly: some of the authors have in mind different domains of interpretation, others have in mind different types of text structuring.

[4] In the words of Sweetser, the connective establishes a relation in the content domain, cf. (1a), in the epistemic domain, cf. (1b) or in the speech-act domain, cf. (1c).

[5] .

instead of being exclusively connected to one of the meta-functions. [6]

With respect to aspects of use of connectives, the work by McKeown and Elhadad, embodying a synthesis of insights from Halliday (1985) - and Systemic Functional Grammar in general - and Ducrot (et al., 1980), offers a rich descriptive apparatus. In the work of McKeown and Elhadad, connectives are described by a set of features, like the perspective from which the constituent clauses are presented, the argumentative orientation of the propositions expressed in the clauses and the directive act of the complex clause. Descriptively adequate as these features may be, McKeown and Elhadad fail to give an account for the way these features are interrelated or how they can be related to levels of interpretation or meta-functions.

This paper tries to fill the gap between approaches to connectives as linguistic markers of coherence relations and accounts of the properties of the meaning and use of (a limited set of) connectives. In order to make the meaning and use of seven Dutch connectives transparent, for each of them so called basic scheme will be proposed. This basic scheme represents information presupposed by, implied by or inferrable from the connective in a systematic way. Similar proposals can be found in Koenig (1986), G. Lakoff (1971) and Hobbs (1990/3?)). Furthermore, extensions and modifications on the basic scheme are offered, characterizing the specific interpretations of the connective. These modified basic schemes can be classified as ideational, interpersonal or textual.

Connectives and their individual interpretations are defined here in terms of basic schemes and complementary pragmatic features. Both the modifications of the basic schemes and the pragmatic features can be classified as ideational, interpersonal or textual. Since the three meta-funstions are primarily distinguished for coherence relations, they are instrumental in gaining insight in the relation between connectives and coherence relations. With respect to this relation, this paper builds on a DANDELION report on coherence relations (Bateman and Rondhuis, 1994). In order to solve long-standing problems with coherence relations and their expression, Bateman and Rondhuis propose a splitting up in in a higher system, covering rhetorical relations as discussed in work by Mann and Thompson (1988) and Hobbs (1990), and a lower system for connectives, as is presented in Martin (1992). Contrary to Martin and Bateman and Rondhuis, I do not consider it necessary to have two systems for connectives (an "internal" system and an "external" system) on top of the above mentioned division into a higher and a lower system.

Apart from the ingredients mentioned thusfar, the individual interpretations of connectives will be defined in terms of local constraint on context. The interpretations appear to be partly distinguishable by the requirements they put on tense use, agency etc. in the connected clauses. As an intended side-effect, the combination of constraints on context may be used to formulate just in what cases a connective may be deleted - or in other words: in what cases a corresponding coherence relation may be inferred. In those cases - but not in other - connectives are optional. The data in (2) demonstrate such a difference in inferencing potential.

(2) a. We kunnen gaan omdat Ena klaar is (We can go because Ena is ready)

b. We kunnen gaan. Ena is klaar (We can go. Ena is ready)

[6] This view is congenial but not identical to the multiple relations view taken in Lavid and Maier (1992). See also Bateman and Rondhuis (1994) on this issue.

(3) a. Ena is klaar hoewel de opdracht moeilijk was (Ena is ready although the task was difficult)

b. ? Ena is klaar; de opdracht was moeilijk (Ena is ready; the task was difficult)

On the basis of a combination of basic schemes, pragmatic features and local constraints like tense use, agency and event type in and order of the connected clauses, the possible interpretations of seven Dutch connectives are represented in a systemic network. Moreover, this system is linked by means of co-constraints to the higher system of rhetorical relations. The connectives reported on are: *omdat* (*because*), *want* (*because*), *hoewel* (*although*), *zodat* (*so that*), *opdat* (*in order to*), *doordat* (*by* and the contrastive *maar* (*but*) and *terwijl* (*while*). [7] Not all these connectives will receive the same amount of attention. Moreover, the set of connectives is not by far complete; for example, the entire class of conditional connectives is left out. This is, of course, not a matter of principle but a matter of time available.

In short, this paper builds on two traditions in the literature: the first analyses connectives in terms of pragmatic features, the second focuses on their realizing coherence relations in their various functions of discourse structuring devices. Taking these traditions as a starting point, it tries to establish systematic relations between pragmatic characterizations and levels of discourse structuring. Moreover, it develops a way of defining connectives in a way that accounts for

- the fact that they have a central, ideational meaning
- the way their various interpretations depend on specific correlations to the meta-functions
- the way context determines what interpretation(s) an occurrence of a connective may get
- the fact that connectives may be deletable in certain contexts, because the inference of a coherence relation can still be made

The characterizations of the seven Dutch connectives are obtained by means of a corpus analysis. Given the multifunctionality of (some of) the connectives, it is imperative to assemble a large enough collection of interpretations of connectives in different contexts. This collection was available in the form of the *de Volkskrant*-corpus, a large corpus of news reports. Still, some (interpretations of) connectives hardly occurred in the analyzed part of the corpus. The indications that these gaps differ according to text type are convincing. Follow-up research will be performed on causal and contrastive connectives in narrative texts.

The structure of the paper is as follows:

In 2 the pragmatic features of McKeown and Elhadad (1989, 1991) are introduced and discussed. McKeown and Elhadad claim that each connective is characterizable by a fixed combination of features. It will be argued that this can not be correct: distinct interpretations of one connective have to be chracterized differently. The relevant features are transformed

[7] *Zodat* is of interest because it appears to be more or less the inverse of *omdat* and *opdat* was chosen for its strong intentional meaning. *Maar* obviously is the "basic" contrastive connective; there are extensive studies on *maar* (Spooren, 1989) en *but* (Elhadad and McKeown, 1989). *Terwijl* resembles *maar* but is, like all connectives in the selection except *maar*, a subordinating connective; some work on contrastive *terwijl* is presented in Oversteegen (1993).

into questions to be put to the corpus in **??**.

In 3 the notion of basic scheme (henceforth BS) is introduced. For a Dutch connective, *hoewel* (*although*), a primary BS is defined and for all possible interpretations of this connective modifications of this BS are offered. The BS of a causal connective is defined in terms of a defeasible implication. This choice is defended in 3.4.1. Finally, in 3.5, I discuss the deletability of this connective, thus questioning the link between connectives and coherence relations.

In 4 a comparison is made between connectives expressing a causal relation and connectives expressing a contrastive relation. The latter type is supposed to have a strong argumentative force. A restricted study into the relation between surface utterances containing either type of connective and their BSs is recorded in 4.1.
In 4.2 the argumentative force of causal *want* (*because*) is questioned.
In **??** the argumentative character of contrastive connectives is shown to put constraints on context.

Finally, in **??**, some results from the corpus analysis are presented. The questions resulting from the previous sections were put to the corpus. Twenty-two properties of connectives and their context were encoded and a set of hypotheses was formulated, concerning the relation between causal and contrastive meaning, the interrelations of pragmatic features and the deletability of connectives.

In 6 results from the corpus analysis are presented in the form of two interrelated system networks, subject to cooccurrence constraints. Moreover, local constraints on context are attached to the paths through the lower system: the system of connectives.

2 Connectives

2.1 Connectives in the literature

By "connectives" is to be understood: both subordinating and co-ordinating expressions of the syntactic type conjunction [8]. This syntactic criterion is taken rather than a discourse-functional for simplicity's sake; if discourse-functional criterion had been chosen, there would have been many candidates from the class of adverbs and interjections, which behave very much like our group of connectives (e.g. as cue-phrases)

The set of connectives as intended invites the construction of taxonomies: they convey nice, pairwise differences and, being "function words", they appear to function at a variety of levels. Complete or partial classifications of connectives have been proposed, among others, by van Dijk (1979), Bree and Smit (1984), Halliday (1985), Martin (1992), Knott and Dale (to appear) and Knott (1993). Studies concentrating on a small set of connectives, are tantamount; they will be cited at the relevant places. Special attention will be given here to the studies by McKeown and Elhadad (1989; 1991). They present a systematic discussion of the possible functions that a connective can fulfil, based on the one hand on the work of Halliday - on the other hand on the work of Ducrot (especially Ducrot 1983). For the pragmatic meaning of connectives, McKeown and Elhadad will prove to be a rich source.
Elhadad and McKeown (1989) argue in favour of an intermediate representation between deep and surface representation. If the selection of an appropriate connective is left to the deep component, because connectives interact with the structure of text (cf. Rhetorical predicate

[8] Temporal connectives are not discussed in this paper; they are in Oversteegen (1993)

- approach), we put "the entire burden of connective generation on the deep component. Furthermore it [this approach, EO] sidesteps the problem of defining criteria for connective selection." (Elhadad and McKeown (1989, p.2). If, on the other hand, the choice for a proper connective is left to the surface component, the input to decide upon will be a weak description send up from the deep component. This input will in all probability not lead to a correct result. Therefore Elhadad and McKeown propose an intermediary representation: the interpretative format (IF).

The two constitutive propositions of a complex proposition containing a connective are represented by means of IFs containing a set of features. The connective is described as a set of constraints on these features. These features are of a propositional type (or ideational, in systemic-functional terms), of a speech act type, or pragmatic. Pragmatic features include: 1. argumentative orientation (sub-features: scale, proposition, projector); 2. functional status (sub-features for [move] (as contrasted to [exchange]): directive/subordinate, and subordinate can be either argument, or preparation, or presequence); 3. polyphonic features (sub-features: name, type, link-locutor); 4. thematization procedure (referring to propositional content, argumentative derivation, functional status, speech act and utterance act. The four main types of features will be discussed in separate subsections.

2.2 Aspects of connectives

2.2.1 Directive status

The directionality question is strikingly similar to both the nucleus-satellite distinction in RST (Mann and Thompson in several publications) and dominance of intentions as in Grosz and Sidner (1986). In both cases the relative importance of the one text part over the other text part is at issue. Moreover, in both cases the relation is recursive: a nucleus-satellite pair can be the satellite to another nucleus just as the intention dominating another intention can be embedded under a third intention. Matthiessen and Thompson (1988) draw attention to the close similarity between the nucleus-satellite distinction resembles the intention hierarchies:

> We take it (the nucleus-satellite distinction, EO) to reflect the fact that in any multi-unit text, certain portions realize the *central goals* of the writer, while others realize *goals which are supplementary* or ancillary to the central goals. (Matthiessen and Thompson, 1988, p.289)

In RST and related theory, there is a strong emphasis on the role the subservant parts (nucleus and satellite) play with respect to the function of the combined text part:

> (...) that is, the nuclear part is the one whose function most nearly represents the function of the text span 'covered' by that relation." (Matthiessen and Thompson, 1988, p.290).

Consequently, we can often delete a satellite without damaging the main story- or argumentation line (Mann and Thompson, 1986).

Another notion that is developed to describe the relative importance of a text span and its position with respect to text goals, is directionality, or directive act. It is "the property of (part of) a text to be directed toward a 'goal'" (Van Kuppevelt, 1994), or "it indicates whether the the unit is directive (i.e. makes the primary point of the complex clause) or subordinate." (McKeown and Elhadad, 1991).[9] Again, deletability of a clause or (larger text part) is a signal for its functional position: only clauses that are not directive acts can be deleted while "preserving the coherence and intention of the text" (Van Kuppevelt, 1994). In order to be able to describe the functional contribution of a clause, it is necessary to know its place in this directionality hierarchy. The work of Mann and Thompson (1988), Grosz and Sidner (1986), Hovy (1993), Lavid and Maier (1992) and others, describe such hierarchies for texts, as well as cue words for recognizing what place a certain clause takes in such a hierarchy. One of the questions of relevance to this paper is the question whether connectives can be granted a systematic role as a cue word.

It is suggested in the literature, both implicitly and explicitly, that connectives may determine the directionality of the clause they appear in. For instance, Matthiessen and Thompson (1988) try to demonstrate that hypotaxis can be seen as grammaticalization of hierarchic (nucleus-satellite) relations in discourse. These relations, as was said before, exist at the sentential level and at the supersentential level. Hypotaxis should not be thought of as being equal to nuclearity: hypotaxis is typically a characterization of subclauses with respect to each other - two juxtaposed sentences maintaining a nucleus-satellite relation could not be related hypotactically. But, conversely, hypotaxis should be dealt with in terms of discourse relations. The central question, therefore, is: what discourse function motivates the grammar of hypotaxis? (Mann and Thompson, 1988: p. 276). The answer to this is formulated in terms of the following argument. Clauses introduced by a connective typically are hypotactic clauses; hypotaxis is to be seen in terms of discourse relations; ergo, connectives code (typically) satellites (Mann and Thompson, 1988: p. 304). [10] Matthiessen and Thompson find support for their case in an apparent counterexample from Jespersen (1924). In (4) the main clause does not express the "principal" (read: nuclear) part of the sentence.

(4) This was because he was ill

But the clause introduced by *because* is subordinate (a case of embedding) - not hypotactic. Thus the claim that connectives introduce clauses with a specific, "assisting" function in the discourse, is not damaged.

In McKeown and Elhadad (1991) explicit claims can be found with respect to the relation between connectives and directivity. For *p but q*, they claim that *q* is the directive act; for *although p q*, the directive act is *q* and for *p because q*, the directive act is *p*.[11]. This has the advantage that it provides some explicit hypotheses: researchers employing text hierarchies are often criticized for the implicitness of their heuristics. We are still in need of a method to test the hypotheses, however. In order to establish hierarchical relations between clauses, I propose to use an ancient method, revitalized by Van Kuppevelt. This method is based on topical questions, and on our ability to distinguish between satisfactory answers to questions and partial answers to which a supplementary answer must be given. I will employ the apparatus Van Kuppevelt describes in a general way, ignoring its more subtle applications.

[9] I will consider the concepts of nuclearity and directivity as being more or less interchangeable. The nucleus in the one approach, equals the directive act in the other approach.

[10] It may be that Matthiessen and Thompson (1988) want to restrict there claims to a certain type of connectives, i.e. those, which introduce "enhancing hypothetic clauses" (p. 283) and express circumstantial relations (p. 277). If this is the case, the entire argument seems circular to me, since these relations are subordinating by nature.

[11] McKeown and Elhadad point out that directivity is not straightforwardly related to taxis; for example, *but* does not occur in a hypotactic construction, but it does involve directivity

Van Kuppevelt (1994) defines functional prominence and directionality relative to the topic forming question that can de added to (part of) a discourse. Let u1 and u2 be two related discourse units. Let Q be the relevant topic forming question to which u1 and u2 together form an answer. Then the unit which gives a satisfactory answer to Q, u1 or u2, is functionally prominent.[12] If the functionally prominent unit follows other parts of the answer, we have forward directionality (see (5a) taken from Van Kuppevelt, 1994); if the functionally prominent unit precedes other parts of the answer, we have backward directionality (see (5b), taken from Van Kuppevelt, 1994).

(5) a. At this telephone company we assume you enjoy a good natter
¡what do you mean?¿
[...]we've come up with an offer to make your ears prick up (u1).
¡What does this offer imply?¿
It means that with this company, you can now phone all your family and friends in the UK for only 30 cents a minute, 24 hours on Saturday and Sunday. No matter how fast they multiply in number (u2). (The Guardian, April 10, 1994,p.9)

b. ¡Which countries have bad records with respect to air safety?¿
China, india, Central Africa and the republics of the former Soviet Union [...] are the worlds most dangerous locales for air travel[...] (u1).
¡Why?¿
These countries are especially plagued by hazards such as undertrained pilots, poor air-traffic-control systems, inadequately maintained aircraft, lax airport security and political unrest (u2).

In (5a), the question Q (What do you mean by saying :"At this telephone company we assume....") is satisfactorily answered in u2 - not yet in u1. In (5b) it is the other way around: u1 is a satisfactory answer, can only be evaluated as such when support has been provided (in u2).

This method will be applied to complex sentences in order to find out if, indeed, a connective does act as a cue phrase for this type of discourse structuring. If it does, it should be impossible to construct both a discourse in which the clause introduced by the connective plays the satellite part (or is not equal to the directive act) and a discourse in which the clause introduced by it plays the nucleus part (or is equal to the directive act). The explicit prediction for *because* is that it would introduce the satellite part (McKeown and Elhadad (1991)). In the following examples, this claim is checked for the Dutch counterpart of *because*: *omdat*.

(6) Waarom is Theo uitgeput?

a. Theo is uitgeput omdat hij hard gelopen heeft

(7) Weet jij wat er met Theo aan de hand is?

a. Theo is uitgeput omdat hij hard gelopen heeft

(8) Why is Theo exhausted?

[12] There is a third option of u1 and u2 together being the answer to Q. I will not be concerned with that possibility here.

a. Theo is exhausted because he had to run

(9) Do you know what is the matter with Theo?

a. Theo is exhausted because he had to run

In (6), the relevant unit in the answer must be formed by the *omdat* clause; the main clause consists of old information and we have forward directionality. Consequently - and contrary to the expectations triggered by the hypotheses formulated in McKeown and Elhadad (1991) - the nucleus or directive act is the clause introduced by the connective.
In case of (7a), we have backward directionality: the question is satisfactorily answered by the main clause.[13].

The conclusion so far must be: a connective does not unequivocally mark either the main clause or the subclause it combines with as the directive act. One single connective may give rise to both possibilities, depending on the context it occurs in. If the relation expressed is ideational, no intrinsic information with respect to directive act can be attributed to the connective. The topic of the immediately preceding context is decisive for the location of the directive act. It appears that only the main clause can express the directive act if the relation expressed is of the evidence type, as would be *Theo is exhausted because he is gasping for breath* as an answer to (9). Note that it could not be an answer to (8). This fits in with the subservant nature of the subclause, and suggest a (partly) fixed relation between a feature and a metafunction. In section in 2.2.3 we will provide further evidence for this.

McKeown and Elhadad claim that there are two possibilities: the connective may introduce a directive act and thus work as a pop. On the other hand, it may introduce a subordinate act and work as a push.[14] Thus, connectives are attributed a discourse structuring function - as may be obvious from their occurrence as cue-words. However, the attractively simple hypothesis by McKeown and Elhadad to the effect that each connective has only one unambiguous role in structuring the discourse cannot be right, as the examples above demonstrate. [15]

With respect to the pragmatic feature directive act, which figures prominently in a theory of discourse structure and consequently is of crucial relevance for a view on the discourse structuring role of connectives, the following questions should be posed to the immediate context of occurrences of connectives in the corpus :

- is the directive act realized by the main clause, the subclause or neither?
- is the subclause deletable? Is the main clause deletable if the subclause is turned into a main clause?
- how does the preceding context influence the choice of directivity

2.2.2 Argumentative orientation and topoi

Ducrot (1983) and Anscombre and Ducrot (1983) were the first to relate connectives to the concept of "topos" - an idea which has been retained and developed by several other

[13] The same seems to hold for the English examples.

[14] Pops and pushes as defined in Grosz and Sidner (1986).

[15] Another method for recognizing the nucleus of a complex sentence could be derived from the distinctive use of *this* and *that* when referring back to an entire clause (cf. Dahlgren)

people since. The Aristotelian concept of topoi is used "as conventional argumentative scales underlying communication" (McKeown and Elhadad, 1991). It is argued that we often need to compute or infer implicit propositions in order to construct a contrast (cf. Anscombre and Ducrot, 1983; Kay, 1987; Spooren, 1989; Nolke, 1992), in particular for *but* (and *maar*), but also, for instance, for the contrastive connective *although* (and *hoewel*). Thus, the component propositions in an utterance like (10) are not immediately contrasting.

(10) The house is beautiful but it is expensive

The contrasting propositions can be found by stipulating a set of conclusions compatible with each utterance-part. If one of each set of conclusions (called "argumentative orientation" in McKeown and Elhadad, 1991) forms a contrasting pair on some generally accepted scale, the topos, the relation is established. For (10), the topoi could be: "the more beautiful something is, the more desirable it is" and "the more expensive something is, the less desirable it is". Nolke (1992) says:

> If the involved topoi match reality, which normally means that they are accepted by the listener, the argumentation is understood. But if the speaker invokes unacceptable topoi, his utterances will be difficult to understand. (Nolke, 1992, p.192).

Topoi are thought to have a gradual nature. They have a form like: "the more/less X, the more/less Y". It is not quite clear that this should be necessary. The regularities underlying (10), might as well be formulated as "if something is beautiful, it is desirable" and "if something is expensive, it is not desirable". It is clear, however, why argumentation theory would want them to be gradual: in cases like (10), the second clause is envisaged as being argumentatively stronger than the first clause. An analysis of graduality can explain this as follows: the absolute value of the first clause on the topos-scale is larger than the absolute value of the second clause on its topos scale.

Note that graduality might be relevant for the analysis of causal relations as well. Consider (11) and (12) below.

(11) a. Oscar is gezakt voor zijn examen omdat hij drie vijven heeft
(Oscar failed his exam because he scored three times a five (out of ten))

b. Oscar is geslaagd voor zijn examen omdat hij twee vijven heeft
(Oscar passed his exam because he scored two times a five (out of ten))

(12) a. Ze kunnen niet met de auto gaan omdat ze met zijn zevenen zijn
(They cannot go by car because there are seven of them)

b. Ze kunnen met de auto gaan omdat ze met zijn vijven zijn
(They can go by car because there are five of them)

The regularity underlying (11a) can be paraphrased as: "if one scores x times a five (out of ten), one will pass the exam" and the regularity underlying (11b) as "if one scores over x times a five (out of ten), one will fail the exam". The precise relations between a proposition containing a certain quantifier and a proposition expressing some other event typically have the gradual nature of topoi. In 3 the issue of topoi will be discussed in relation to the representation for connectives proposed there.

2.2.3 Perspective (*Omdat* versus *want*)

A certain form of perspective is discussed in Ducrot (1983) under the label "polyphony". Polyphony implies that a distinction is made between a locutor, the immediate source of the utterance, and the utterers, the sources presented as responsible for the utterance. Thus we can attribute the responsibility for an assertion to the locuter himself, as will defaultly be the case in an utterance like "Dana spoke too loudly" - or to a character other than the locutor, as in "Dana thought that *she always failed to be of any help*". Distinctions between sources of utterances are very common in narrativity theory (see for example Bal (1990), Banfield (1982), Bronzwaer (1979), Caenepeel (1989) and Sanders (1994)).

These distinctions are usefull in a theory on the use of connectives. For example, the English connective *because* is considered to be monophonic: it generally connects clauses that are presented from the same perspective. The connective *since*, on the other hand, is considered polyphonic: the main clause is presented from another perspective than the subclause is. The subclause in (13) will be read as being a kind of quote by the locutor of an utterance made by the person adressed as "you".

(13) Since you are tired, you must sleep

McKeown and Elhadad consider polyphony as providing a formalism for describing **given** information. They state that "it defines "given" as information that is mentioned by another utterer". Here, polyphony will be interpreted slightly differently: *since* does not require a subclause to contain information that is (presented as) already **mentioned** by some utterer; it requires information that is presented as belonging to the common ground of locutor and other utterers. Therefore, as we will see, Dutch *want*, resembling *since* in crucial aspects, usually introduces a clause expressing a **fact**. Because of this difference of opinion, I will use the more global term "perspective".

Perspective forms a link with argumentation theory. Anscombre and Ducrot (1977) state three properties of the construction *p but q* that are used in Snoeck Henkemans (to appear) for an argumentation analysis. These properties are:

- q is presented as a stronger argument than p
- the locutor expresses some acceptance of p
- the conclusion from p is not accepted by the locutor

Especially the second property is relevant here. [16]. It can be realized by several situations: either the locutor accepts the propositional content of p but rejects its argumentative potential (i.e. p is true from his perspective but p is not a strong argument from his perspective), or there is a marked perspective shift between p and q (as in *He is supposed to be a good actor, but I find him rather mediocre*, or p and q are uttered by different locutors in a dialogue. The last case is not considered in this paper; in this case *but* is not functioning as a connective.

Spooren (1989) contains a strong hypothesis on the relation between this contrastive connective and perspective.

> "By interpreting *but*-coordinations (more generally: contrastive coherence relations) the hearer will construct structures of the following type: P1(A) and P2(¬A)." (Spooren, 1989: p.40)

[16] Snoeck Henkemans elaborates and 'puts into perspective' the properties distinguished by Anscombre and Ducrot (1977)

P1 and P2 refer to two non-identical perspectives.

Interpersonal meaning is meaning that cannot be defined without reference either to the locutor or to the hearer/reader or to both. Therefore, argumentation is a type of language use with a strong interpersonal metafunction: there is an intention of a locutor to influence the opinion of a hearer/reader. Perspective plays an important part in argumentation. Consequently, we might expect connectives requiring perspective in one or both of its subclauses to fulfil an interpersonal metafunction.

Concluding, three types of perspective connected with different sources will be distinguished here: the locutor (or speaker/writer) perspective, some other character's perspective (which could be an utterer), or a neutral perspective. The last option is realized if the clause under investigation contains merely information which the locutor considers to be part of the common ground. This is the case if it concerns information or assesments that the locutor considers to be accepted and shared by the hearer/reader. A clause presented from the locutor perspective, by contrast, always contains elements which the writer does not expect to be part of the common ground.

Arguments for this tripartition can be found in the comparison of Dutch *omdat* and *want*. Spooren and Jaspers (1990) contains a comparative analysis of these two connectives. The paper reports the results of an analysis of forty-six occurrences of *omdat* and eighty-five occurrences of *want*.
1 example omdat
1 example want

They conclude: "In a prototypical *want* sequence, an opinion in S1 is connected to a fact in S2", where S2 is the clause intruduced by the connective. This factuality is conversely related to perspective, that is: the perspective that is considered here as locutor perspective or another characters perspective. In other words: *want* often seems to instantiate the rule for contrastives formulated by Spooren (1989). This would explain the following observation. The reasons given in (14a) and (14b) are attributed to different sources.

(14) Plannen genoeg. Horneman vulde zijn tijd met brieven schrijven tot en met postzegels plakken

a. omdat er geen geld voor een secretaresse was

b. want geld voor een secretaresse was er niet

(Plenty of plans. Horneman spent his time writing letters and even stamping letters

a b because there was no money to spend on a secretary)

In (14a) the locutor will usually be interpreted as the source of the reason given. In (14b), however, the sequence is interpreted as coming from another utterer: Horneman. Obviously this source is left implicit: there is no quote marking. The reason for this perspective can be reconstructed as follows: although the clause introduced by the connective expresses a fact, the other clause is not given from the locutor point of view: the perspective is neutral. If the locutor relates what Horneman has told him, the choice of connective does make sense. Horneman would have said something like: "I have to do every little thing myself, even stamping letters, because there is no money to spend on a secretary". In such a sequence, the first clause would put forward a claim and the second clause would give a fact for a reason.

Another example of the explanatory force of Spooren's hypothesis can be found in (15).

(15) Dan is er ook niemand meer aan te spreken op een beslissing.

a. De adviseur niet, omdat die slechts adviseert,

b. en degene die het advies overneemt niet, want die neemt geen besluit.

(In that situation nobody is responsible anymore for decisions.

c. The advisor is because (s)he only gives advise,

d. and the person who follows the advise is not, because (s)he is not the one who decides)

Th *omdat* clause is presented as a reason from the perspective of the locutor - but the *want* clause sounds ironical. It is as if the locutor does not want to take the responsibility for the argument. This is an effect of using *want*: the reason is presented as if being uttered by the persons following the advice.

Spooren and Jaspers (1990) report 19 cases out of 85 of *want* sequences in which the first clause **explicitly** expresses the opinion of the locutor. There are another 29 cases in which this opinion is expressed **implicitly**. At this point two conclusions are possible: 1. the perspective is not a characteristic of the contexts in which *maar* and *want* appear; it is the function of *maar* and *want* as opposed to *omdat* to create an opposition between perspectives; and 2. perspectivization (of the main clause) is a condition on context for the use of *want* but not for *omdat*. A fine-grained notion of perspectivizer is needed. In Sanders (1994) and Wiebe (1994) several notions of perspective are treated along with linguistic expressions and constructions signalling those different kinds of perspective facilitating the recognition of embedded vision and embedded voice and other forms of perspective.[17]

In conclusion, the following questions must be added to the questionnaire constructed for the corpus of connectives in context:

- Is any form of perspective expressed explicitly in a. SC, b. MC?
- Is a any form of perspective expressed implicitly in a. SC, b. MC?

2.2.4 Thematization

Connectives may express different kinds of relations between two pieces of discourse, and these relations may belong to different types of text structures, as we saw. What kind of 'material' relation should two such pieces of discourse maintain in order to qualify as 'arguments' of a connective ? McKeown and Elhadad opt for a rather narrow relation:

> "The most basic constraint on the use of all connectives is, that the two related propositions say something about the same "thing". It must be possible to find

[17] A list of perspective introducing factors should contain: perception verbs, world creating verbs, exclamations, quotes, elements that express evaluation or judgement, elements that express lack of knowledge, kinship terms, evidentials, certain cue-phrases, conditional clauses, comparative *like*, habituals, Pluperfect in the main clause and Progressive in the main clause.

> a discourse entity that is mentioned in both P and Q for a connection PcQ to be acceptable. We call the set of discourse entities mentioned in an utterance the *theme* of a proposition. The constraint is that the themes of P and Q intersect."[18].

Let us call the shared entity referred to by McKeown and Elhadad the *topic*. At first sight, it seems to be easy to construct counterexamples to this claim, as is illustrated by 14), for example. The topic may also be an abstract entity constructed with the help of the two utterances connected (cf. (16). In the latter case one might wonder if the topic does not become empty and the requirement trivial.

(16) I am going for a walk because it has stopped raining

In cases like (16) it is not clear at all what could serve as common topic - unless concepts like time and place can serve the function.

Kehler (1994) too has a requirement concerning topicality, but his notion of "topic" is a different one (the one Hobbs (1990) uses) and besides, a distinction is made between sentences cohering because they maintain a Common Topic relation (they "require the identification of parallel entities and relations as arguments to the constraints", Kehler, 1994, p.7) or ones cohering because they maintain a Coherent Situation relation. The latter

> "requires that a path of inference be established between the situations (i.e. events or states) described in the participating utterances as a whole, without regard to any constraints on parallelism between sub-sentential constituents.", Kehler, 1994, p.7).

The relations that qualify as a Coherent Situation are Result, Explanation, Violated Expectation and Denial of Preventer (as in Hobbs et al. (1993)). In fact, this proposal is very similar to the one I will present in section 5.1.1 (including the assumption of a set of presuppositions). In the two pieces of discourse related by a causal connectives, however, there seems to be no immediate requirement with respect to shared content. Again, empirical research will have to show whether a stronger requirement (like Common Topic) holds for contrastive connectives. Therefore, the following question must be added to the questionnaire:

- Do the main clause and the subclause share a discourse entity or a relation?
- How can we classify the the class of connectives that require a common topic in the two clauses connected

3 A view on connectives (and coherence relations)

This section has two interrelated purposes. The first purpose is providing a means for representing that part of meaning of a connective which is not asserted so much as presupposed or implied. Especially causal relations are supposed to presuppose some other relation. In this section a format of this presupposed relation will be argued and its presuppositional status

[18] This is often not simply a participant in the process described by the proposition: in many cases "...the connection is made through some *discourse* entity and not through propositional content." McKeown and Elhadad, 1989, p.6

will be defended. As an intended by-product of the view on connectives presented in this section, predictions with respect to the relation between coherence relations and connectives.

The second purpose is to give a rather detailed analysis of a specific connective: *hoewel* (*although*). The analysis results in the formulation of a presupposed relation common to various interpretations of *hoewel* and several variations on this formula for the individual interpretations. The connective *hoewel* is chosen because of its mixed causal - contrastive nature. It will invite questions about the fundamental difference between causal and contrastive relations and connectives expressing them.

3.1 A causal-contrastive relation

A first impression of the interpretation of the Dutch connective *hoewel* (*although*) can be obtained from an example text in Sanders, Spooren and Noordman (1993), and the spontaneous reactions to it reported there. The example text appeared in an obituary for Greta Garbo, in the Dutch newspaper *de Volkskrant.* [19]

(17) D (Zij was al een legende tijdens haar leven en haar mythe groeide door haar volstrekt geïsoleerde bestaan in een flat te New York. In 1951 werd zij Amerikaans staatsburger, drie jaar later kreeg zij een ere-Oscar.) Hoewel Greta Garbo de maatstaf genoemd werd van schoonheid, is zij nooit getrouwd geweest.

E (She was already a legend during her life and her myth grew by her completely isolated existence in a New York apartment. In 1951 she became an American citizen, three years later she received an Oscar of honour.) Although Greta Garbo was called the yardstick of beauty, she never married.

Several letters were sent in, criticising the journalist for assuming that beauty causes mariage and beautiful women will always marry. No reader questioned that the journalist had asserted this, although it is not stated explicitly in the text. In (17), the use of *hoewel* is crucial to obtain this effect: it is not deletable in this context. So readers judge this connective as also expressing a causal relation. We refer to this relation as an 'underlying implication'. For the time being we will not elaborate on the nature of the relationship, but in section 5.1.1, and the sections thereafter, we will discuss it in more detail.

In (17E), one could have *If a woman is called the yardstick of beauty, she marries* as an underlying implication. This underlying implication has several properties.

1. A negation element has to be recognized in one of the conjuncts compared to the surface utterance..

2. The underlying relation has the form of an implication.

3. The antecedent and consequent of the underlying implication are interpreted as more general than the conjuncts of the utterance itself

4. There seems to be a contradiction between the utterance and the underlying implication.

Lakoff (1971), Van Dijk (1977), Sidiropoulou (1992), Sanders, Spooren and Noordman (1993) all point to the implicational character of *although.* We will compare their approaches in terms of the four properties listed above.

[19] In the examples, (D) the indicates Dutch original text fragment or example, whereas (E) marks the English paraphrase. Note that the claims made concern the Dutch examples, not their English paraphrases - unless this is indicated explicitly.

3.1.1 The use of negation

In analyzing *although* or *but*, all theories assume the introduction of a negation element on one of the conjoined segments to account for the contrastive interpretation. In principle, there are two choices to be made. First, do we place negation on the underlying level? And second, do we place it in a certain fixed position within the proposition that is expressed at the chosen level? Table 1 shows that the authors have different views on this:

Negation	arbitrary position	not in *although*-segment
underlying level	Sanders, Spooren and Noordman	Lakoff
utterance level	Sidiropoulou	Van Dijk

table 1

Lakoff (1971) has a negation in the consequent of her presupposition (or expectation). However, both presupposition and proposition are captured in the same syntactic tree representation. This gvies rise to the problem of contradiction: in the underlying implication $\neg q$ is stated, whereas in the utterance the same proposition q is asserted. Lakoff is aware of this problem, and argues that to avoid it, the expectation must be viewed as a general tendency, not as a rigid law.

Van Dijk (1977) has the negation in the utterance part, the asserted part of his definition, in his words the postcedent. The problem is that, just as as in the case of Lakoff's proposal, presupposition and denial are both in one representation.

Van Dijk's presuppositions are part of an information base i, that contains only true statements about the actual world $\emptyset$ (Van Dijk 1977:48). The necessity of truth in the information base forces Van Dijk to put his negation in the rightmost part of his definition, to prevent inconsistencies within the information base. However, it cannot be neglected that *although* does not require a negation in the utterance itself, witness a sentence like "Although Greta Garbo was called the yardstick of beauty, she died in misery".

In Sidiropoulou (1992), negation in the utterance has the effect of a violation of the 'background assumption'. Such a violation is logically possible only if we take the negation to apply to the consequence of the background assumption. But the position of the negation in the utterance seems to be irrelevant in Sidiropoulou (1992).

In short, negation should be contained in the underlying implication, and negation should concern the consequent of this implication. According to table 1, we are in agreement with Lakoff (1971) on this point. But Lakoff's proposal should be adjusted in two respects to avoid the risk of contradiction. In section 5.1.1 a proposal will be put forward that meets these demands.

3.1.2 Kind of implication

In all four theories outlined above, an underlying implication is assumed: Lakoff (1971) presupposes an expectation, Sidiropoulou (1992) bases herself on background assumptions, Van Dijk (1977) has presuppositions as intensional implications, referring to general knowledge statements in an information base and Sanders, Spooren and Noordman (1992,1993) define causality and contrast at a level of 'basic operation and 'basic order'. Only Sanders, Spooren and Noordman, however, make a specific claim about the nature of the underlying implication. In their approach, the 'causal' relationship is causal in a very general way: it generalises over causal and conditional implications. In addition to this, semantic causal relations are said to differ from pragmatic causal relations, as is also the case in Sidiropoulou's approach. Both analyses refer to a certain 'normal state of affairs' which a semantic causal relationship may refer to (SIC or Shared Implicature Concession in Sidiropoulou (1992)), but also a pragmatic causal one (SAC or Speaker Attitude Concession as in Sidiropoulou (1992)).

3.1.3 Generalizations

Generally speaking, the underlying implication contains propositions that are more general than the propositions in the utterance. For example, in (17), the underlying implication concerns 'beautiful women', not just Greta Garbo.
van Dijk (1977) shows awareness of this property of *hoewel* by relating the presuppositional part to an information base i in which general knowledge statements are stored. Presuppositions that are related to i are generalised propositions that express necessary knowledge. But note that if we assume *Necessarily, if women are very beautiful, they will marry* as a regularity underlying (17), we still end up with a contradiction if we find an instantion of *beautiful women* that did not marry. Greta Garbo would be such an instantiation.

3.1.4 Defeasibility

Lakoff formulates an expectation (instead of a general rule), and König (1986:234) formulates his presupposition as $if\ p,\ then\ normally\ \neg q$. (For Sidiropoulou's (1992) background assumptions, violation has - apparently - no consequences for the tacitly assumed shared knowledge.) The underlying implication must be defeasible. Obviously, only if it is represented as defeasible an account can be given for the observation concerning (17), that the rule that all beautiful women marry is still accepted as part of the statement readers attribute to the writer (and are supposed to share with him), although a clear counterexample to this rule is given. A proposal will be made that accounts for this observation.

3.2 Causal Contrastive Connectives and Presupposed regularities

At this stage, we may conclude both on the basis of the literature and on the basis of our own observations that an analysis of causal contrastive connectives should account for the following facts. At some level other than the surface level some kind of implication relation holds between two propositions which are related to the surface sentences; the relation between the underlying relata and the surface relata generally is not one of identity but rather a kind of part-whole relation; negation is involved in the underlying relation, as contrasted to the surface form; and consequently that there is a danger of contradiction that should be sidestepped. Our proposal then, is to assume that the use of *although* triggers a presupposed regularity, in the form of an implication as in (18). I will refer to the presupposed relation as the *basic scheme*.[20]

(18) *although p,q* triggers $P > \neg Q$, where P and Q are generalised derivations of p and q respectively[21]

[20] The counter argument to a presuppositional approach given by Dascal and Katriel (1977), is not adequate: they demonstrate that a complex sentence does not obey the negation test for presuppositions. But they choose the coordinating connective *but* for their counter-example and such a sequence can not be entirely in the scope of the negation to begin with.

[21] $P > Q$ is a defeasible implication (i.e. *Normally, if P, then Q*). See Asher and Morreau (1991)

This interpretation is usually referred to as denial of expectation, (Spooren, 1989; Blakemore, 1987; Koenig, 1986), but it is also referred to as SIC (Shared Implicature Concession, Sidiropoulou, 1992) and Denial of Preventer (Kehler, 1994). Widely accepted criteria for presuppositions concern their behaviour with respect to negation and modal operators. If we add the possibility operator or the negation operator to (18b), we should still be able to conclude that the presupposed statement holds. In (19), the defeasibility of the presuppositional implication is crucial. While maintaining some general law, it is possible to express an exception to it. The proposition involved in this exception, q, is a specific instance of Q. The defeasibility of the presupposition ensures that there will not be a contradiction.

(19) D Hoewel de zon schijnt, is het koud $\models$ Normaal gesproken, als de zon schijnt is het niet koud

E Although the sun shines, it is cold $\models$ Normally, if the sun shines, it is not cold

(20) D Het is niet zo dat hoewel de zon schijnt, het koud is $\models$ Normaal gesproken, als de zon schijnt is het niet koud

E It is not the case that although the sun shines, it is cold $\models$ Normally, if the sun shines, it is not cold

(21) D Het is mogelijk dat hoewel de zon schijnt, het koud is $\models$ Normaal gesproken, als de zon schijnt is het niet koud

E It is possible that it is the case that although the sun shines, it is cold $\models$ Normally, if the sun shines, it is not cold

Example (21) gives no trouble: indeed the presupposition holds for a presupposing sentence of the type described if a modal expression is added. In (20) the exception expressed is negated. The most straightforward interpretation of this example seems to be: "the sun shines but it is not cold (as you seem to suggest)". This time, the statement is in accordance with the presupposition; no covert contradiction is involved while the presupposition is still present. The presuppositional status of the basic scheme is only claimed for clausal relations. [22]

Besides, it is possible for presupposed information to be new, but still it will be information that has to be accepted (or accommodated) before the presupposing expression makes sense. Similarly, the presupposed regularities should be 'accommodated'.

We conclude that *p although q* only makes sense if its presupposition is accepted. The defeasible implication $>$ warrants that no contradiction arises even in case P and Q are equal to p and q [23].

[22] In the next section it is argued that the basic scheme of a contrastive connective has a different status. I am aware that the presuppositional status of a causal basic scheme is not uncontroversial. Counter-examples can be given - especially for the causal connective *omdat*. There seems to be agreement, however, on the fact that someone using a causal connective in general expects the reader/hearer to share the regularity expressed in the basic scheme (cf. the abduction procedure described in Hobbs et al. (1993)). (Exceptions will be discussed in 4.1) Therefore, I will consider the basic scheme of a causal connective to be a presuppositional regularity.

[23] For applications of defeasible reasoning see Asher and Morreau (1991), Lascarides and Oberlander (1992); Lascarides and Asher (1991).

3.3 Pragmatics and Connectives

3.3.1 Pragmatic Relations

As is known from the literature (...), connectives can express semantic (ideational) or 'pragmatic' relations [24]. The following examples are taken from Sanders, Spooren & Noordman (1993). Their paper is on coherence relations rather then their linguistic realizations: the connectives.

(22)a^E. Theo was exhausted because he had to run to the university

a^D. Theo was uitgeput omdat hij naar de universiteit had moeten rennen

b^E. Theo was exhausted because he was gasping for breath

b^D. Theo was uitgeput $\left\{ \begin{array}{l} \text{omdat hij naar adem hapte} \\ \text{want hij hapte naar adem} \end{array} \right\}$ [25]:

The difference between the two examples in (22) is generally thought of as a difference between the relata involved in the relations. In (22a) a causal relation between two propositions is expressed. In (22b), however, the causal relation expressed with the help of *because/omdat* holds between a propositional content (Theo was gasping for breath) and **the uttering** of another proposition (Theo was exhausted). In other words, the relation would hold between a locution and an illocution, or between a proposition and a speech act (cf. Sanders, Spooren and Noordman (1992), Martin (1992), Hovy, Lavid, Maier, Mittal and Paris (1992)). However, this analysis is unsatisfactory.The relation in (22b) can be paraphrased as follows: "I say/conclude that Theo was exhausted because he was gasping for breath"[26]. It is obvious that the hearer will have to imagine some relation between being exhausted and gasping for breath, before (s)he will be willing to accept the paraphrased sentence. Accepting this relation is a preliminary condition for accepting (22b), witness the oddity of (23) below.

(23) ? Theo was exhausted because he was feeling fine

Two sentences connected by a pragmatically used *because/omdat* or *want* are acceptable if and only if a relation can be assumed between the two propositions expressed in those sentences. The second relatum in (22b) seems to function as evidence or as an argument warranting the conclusion presented in the first relatum. If the occurrence of some event e1 may serve as evidence for some other event e2, it seems to be true in general that events like e2, say E2, somehow lead to events like e1, say E1. This does not mean that we can validly conclude the occurrence of e2 from the occurrence of e1 - it merely appears to be plausible that we would infer a cause from its effects (by abduction). So we have the sequence of relations:

- P > Q
- Q > P (by abduction)

[24] Shortly, the notion of pragmaticality in this context will be illuminated

[25] Intuitions differ with respect to the pragmatic use of the Dutch *omdat*. Some native speakers use the specifically pragmatic connective *want* instead of *omdat*.

[26] In section (3.3.2) we argue that *conclude* is appropriate here rather than *say*.

- p *want* q

The possibility of an evidence interpretation is the end seems to depend on the regularity $P > Q$. Of course, this regularity will have to mirror our real world knowledge and, as a rule, we acknowledge such a regularity in one direction only. This is what Mackie (1965) calls **causal priority**:

> "..it seems that there is a relation which may be called **causal priority** and that part of what is meant by *A caused P* is that this relation holds in one direction between *A* and *P*, not the other". (Mackie 1965)

This claim can easily be shown to make sense. Usually, *e2 causes e1* is defined as implying $e2 \prec e1$ (cf. Lascarides and Asher (1991)). Consequently, if the relation was to hold in two directions, we would have $e1 \prec e2$ and $e2 \prec e1$ simultaneously - which is impossible.

But returning to (22a) and (22b), the reasoning from $q > p$, the presupposition of the former, to $p > q$, underlying the latter, is not a valid one, and for this reason the relation expressed in (22b) has an air of restricted truth, of subjectivity. The hearer assumes someone who does the reasoning: the speaker. The speaker concludes the proposition expressed in the main clause on the basis of evidence expressed in the subclause. This evidence relation is rooted in a generally acceptable implication of the form $q > p$. If such a relation is not generally acceptable, the subclause cannot be envisaged as evidence. The subjective nature of the relation expressed in the presupposition is made explicit by means of a B(elieve)-operator as in (24).

(24) $P > BQ$[27]

And again, there is a presupposed regularity attached to an interpretation of the connective.

3.3.2 Other pragmatical interpretations of *although*

In the literature pragmatical relations have been described under different labels (epistemic, speech act, external, interpersonal, rhetorical). It is not only a matter of labels though: there does not seem to be a universal use of the concept 'pragmatical relation'. Different "sources" for being pragmatical can be discerned in the literature. They seem to agreement, however, on the fact that the validity of pragmatical relations must be relativized . It may be relativized with respect to the situation the utterance refers to (domain-boundedness) or with respect to some (implicit) evaluating or reasoning party (non-intersubjectivity) or, finally, because the relation does not concern (one of) the propositions involved, but the fact that they are uttered (speech act cases).

Examples of what we call a non-intersubjective relation were given in the previous section and are given in Sweetser (1990) when she illustrates relations in the **epistemic** domain. We assume that epistemic relations fall under our heading 'non-intersubjective', since they are members of "a class of causal-conjunction uses in which the causality is that between premise and conclusion *in the speaker's mind*". The following example with *although* illustrates this:

(25) Although he came and saved me, he hadn't heard me calling for help

[27] It is the speaker's belief that is conveyed by the presupposition; the hearer may derive it and disagree. In that case (s)he will not accept the surface utterance.

As Sweetser puts it: "The **fact** that he didn't hear me is true in spite of the **fact** that he came, which might reasonably have led me to **conclude** that he had heard me". How does the epistemic subtype of pragmatical *although* behave compared to pragmatical *because*? We argued that the choice for interpreting *because* either semantically or pragmatically is invoked by the way the surface relation mirrors the 'natural course of events'.

(26) a. Theo was exhausted because he had to run to the university

b. Theo had to run to the university because he was exhausted

(27) a. Theo was not exhausted although he had to run to the university

b. Theo did not have to run to the university although he was exhausted

It is obvious that the distribution of facts and conjectures is similar for both connectives in the parallel interpretations. It is quite acceptable that running causes one to be exhausted but it is not in harmony with our real world knowledge that being exhausted causes one to run. Because of this asymmetry we decided that (26a) instantiates a semantic relation, whereas (26b) is an example of a pragmatic relation in which the two propositions expressed are not immediately related to each other; a belief operator was added at the presuppositional level.

Does one of the examples under (27) express a semantic relation and the other one a pragmatic relation with a suppressed belief operator too? If we apply our description of semantic *although* to (27a), we obtain a presupposition of the form $P > \neg Q$ (*Theo was not exhausted* = q and Q generalizes q; *Theo had to run to the university* = p and P generalizes p). If we apply the same definition to (27b), we get the presupposition $Q > \neg P$. The mechanism at work here is similar to the one we assumed for (26): one direction of the surface relation corresponds to our real world knowledge, the other does not. Consequently, sentence (27a) is semantic, and sentence (27b) is pragmatic because it is based on an evidence relation. The presupposition contains a belief operator: *although* and *because* are parallel in their pragmatic evidence interpretation[28]. We represent the presupposition of (counter-)evidential *hoewel* as in (28).

(28) $p > B \neg q$

Sweetser (1990) states that there is a clear difference in the relations expressed between the two sentences below:

(29) a. He doesn't love me, although he proofread my thesis (adapted from Sweetser 1990)

b. Mary loves you very much, although you already know that (Sweetser 1990:80)

Whereas in (29a), an evidential *although* sentence, a conviction is related to a fact, in (29b) the uttering of a statement is related to a fact. We could also formulate the difference between (25) and (29a) on the one hand, and (29b) on the other hand as follows: "(I say) q

[28] According to the intuitions of native speakers, it is harder to distinguish the semantic and the pragmatic interpretation of *although* then those of *because*. This could be explained by the difference in 'causal strength' of both connectives.

although the facts point towards not q" for the former and "I say q although you know already q" for the latter. However, the fundamental difference between (25) and (29a) on the one hand, and (29b) on the other hand consists in the fact that the addition of the speech act is optional for the former, but obligatory for the latter. Although "I say" need not be explicitly present, it is an obligatory part of the *although* relation - and of the presupposition attached to it. Note moreover that (25) and (29a) belong to the class of non-intersubjective cases, whereas (29b) may well be intersubjective (in fact, adding an explicit "I say that" phrase to it would render a semantic relation).

Another example of a pragmatic speech act interpretation of the causal/contrastive connective (in Dutch) is given in (30):

(30) D Hoewel het transferbedrag nimmer officieel bekend werd gemaakt, schommelde de prijs die Ajax voor hem op tafel moest leggen rond de 200.000 gulden

E Although the amount of the transfer officially was never made public, the price which Ajax had to pay for him fluctuated around 200,000 guilders

This type of example fits into the following scheme: "I say q although q is (generally) not known."

The following schematic representation of examples (29b) and (30)illustrates the differences and similarities between them:

(31) a. I say q although p
p = You know already q
Therefore, I say q although you know already q

b. I say q although p
p = q is not generally known
Therefore, I say q although q is not generally known

Two observations can be made with respect to these schemes. The first is that q itself occurs in p in both cases. The second is that both contain some knowledge predicate[29]. These observations should be accounted for.

Whereas the speech act does not play a visible role at utterance level, it must be present at the presuppositional level: if we make the speech act take part in the presupposition, the utterance will be enriched with the interpretation of the speech act.

(32) $p > \neg Sq$ [30]

[29] Only in (29a) it should be applied to the hearer, whereas in (30b) it applies to the speaker.

[30] However, the speech act can be modified differently for (31a) and (31b). The impact of p in (29b) is that it is not necessary to tell q, whatever q may be, because the addressee already knows it. For (30) something similar holds. But this time the impact is that we cannot tell something which we don't know. So, instead of the utterance of q not being necessary, it is in general not possible. The specific presuppositions of (29b) and (30) are given below.

(33) a. $p > \neg\Box Sq$

b. $p > \neg\Diamond Sq$

In fact, we can be more specific about (33a) and (33b) because of the anaphoric nature of (29b) and (30). Since p contains q in some form in both cases, we can reformulate (33) a and b as:

Note that this presupposition deviates from the basic presupposition scheme for *although* - but it still follows the general pattern. If we abstract away from the speech act operator, which is an addition for a specific interpretation, we get the basic pattern back.

There is a fourth interpretation for both *hoewel* and *although*. Compare sentence (34) from Sidiropoulou (1992).

(34) Although he is Viennese, he doesn't like music

Sidiropoulou (1992) argues that it is not necessarily the case that there is an implicit assumption with respect to the relation between being Viennese and liking music; the speaker may be "simply 'looking for' or 'interested in' Viennese people who like music" (Sidiropoulou 1992:206). Therefore, Sidiropoulou assumes a SAC (Shared Attitude Concession). Consequently, not every background assumption needs to be a general statement about the world; sometimes extra contextual information is required in order to get a correct interpretation (this is what we called domain-bounded).

There is an indirect relation between the propositions expressed by the clauses in examples like (34) above and (35) below (taken from Lagerwerf and Oversteegen, 1994). The latter is a Dutch example of the same type as (34).

(35) D Hoewel de slavernij onmenselijk was, was het toch een economisch efficiënt systeem.

E Although slavery was inhuman, economically it was an efficient system.

Some kind of implicational relation in the basic scheme may be assumed between the two contrastively evaluated relata - not an immediate implicational relation, though. If anything is judged 'inhuman', we would expect it to be evaluated negatively on the whole. In that sense there is a sort of denied expectation here - albeit not immediately between the two propositions expressed, as is the case for semantic uses of *although*. Again, some addition to this scheme (in this case A) is responsible for the relativized validity of the bare scheme, as was the case for the evidence interpretation (B added) and for the speech act interpretation (S added)

Since there is no straightforward relation between inhumanity and efficiency, a way must be found to construct the contrast. A so called "tertium comparationis" forms the link. This third relatum usually can be found in the context. As was the case for (33), context may demonstrate that denial of expectation is not the relation intended:

(36) D Het duurde lang voordat men de slavernij afschafte. Hoewel slavernij onmenselijk was, was het toch een economisch efficient systeem.

E It took a while before slavery was abolished. Although slavery was inhuman, economically it was an efficient system.

((i)) a. $K(q) \ > \ \neg\Box Sq$

b. $\neg K(q) \ > \ \neg\Diamond Sq$

In words, (33a) states that knowing q makes it not necessary to say q, and (33b) that not knowing q makes it not possible to say q. The knowledge operator is used here because (in (32a)) the assertion of p as such does not have any relation with the possibility of saying it. If the assertion of p implies the knowing of q, the speaker also has the possibility to say it. This kind of reasoning is only involved in speech act interpretation with propositional anaphors. The presupposition has to be completed with a speech act (and sometimes modality) operators to give the utterance any sense.

Examples like these were described already in 2.2.2 and they are known as *concessions*: in the first clause the speaker concedes to a proposition (possibly defended by another discussant), but in the second clause he expresses a proposition which inference is contradictory to an inference that can be drawn from the first clause. The inferences would be something like: "something inhuman is something negative" and "something economically efficient is something positive". The tertium comparationis could be stated as: *slavery was positive* Formulated in a gradual fashion, these inferences equal the topoi mentioned in 2.2.2. In most of the cases of *hoewel* expressing a concession, the inferences have an evaluative character. Supposedly, this is why Sidiropoulou calls these concessives "Shared Attitude Concessions" (SACS). From an argumentative point of view, in concessions two contrasting arguments are given.

Via the tertium comparationis, the relation between the clauses in a concessive utterance can be formulated as follows. From the first clause of a concession an inference can be made that is the negation of an inference of the second clause. [31]

In general, concessions are typically interpersonal relations - as will be discussed later. The relata in the basic scheme are not immediately related to the surface utterance - they are (evaluative) inferences. The basic scheme could be represented as in (37a) - but the symmetrical relation in (37b) is more adequate.

(37) a. $Q\ >\ \neg P$

b. $Q\ <->\ \neg P$

Again, this scheme can be envisaged as a variation on the original basic scheme representing the regularity underlying the semantic relation or, in other words, the denial of expression interpretation.

Apart from Denial of Expectation and Consession, a third interpretation for contrastive connectives is distinguished in the literature (Spooren, 1989: section 3.5.1). It is weak form of contrast called Semantic Opposition. Generally, in a Semantic Opposition different properties are attributed to two different entities (see also 4). *Hoewel* can not be used to express a Semantic Opposition: in (38) and (39) *hoewel* is compared to *maar* and in a context that does allow for a semantic opposition but not for another contrastive relation, *hoewel* is excluded whereas *maar* is acceptable (cf. the (b)-cases). In a context that allows for a Denial of Expectation, both are acceptable (cf. the (a)-cases). Consequently, *although* appears to presuppose more than mere opposition.

((i)) a (Kim and Annie are sisters.) Although Kim is tall, Annie is small

[31] In Lagerwerf and Oversteegen (1994) the presupposition is written as in (a), where A stands for 'attitude' and the defeasible implication is entirely within the scope of this attitude.

(a) $A[p\ >\ \neg q]$

p and q can be further specified.

$p\ =\ R(topic)\ and\ q\ =\ R'(topic)$ and
$if\ evaluation\ of\ R(topic)\ =\ positive,\ then$
$evaluation\ R'(topic)\ =\ negative$
$(and\ evaluation\ \neg R'(topic)\ =\ positive)$

b (Kim and Annie are neighbours.) ?Although Kim is tall, Annie is small

((ii)) a (Kim and Annie are sisters.) Kim is tall but Annie is small

b (Kim and Annie are neighbours.) Kim is tall but Annie is small

The sentences between brackets influence the interpretation of the target sentences. An immediate blood-tie between Kim and Annie invokes an expectation with respect to hereditable properties. Such an expectation cannot be represented by means of a Semantic opposition. A spatial relation does not trigger such an expectation. In the (b)-sequences a conjunctive relation is expressed - and *although* is excluded.

Resuming, the causal-contrastive connective *hoewel* may receive one out of four different interpretations. The first interpretation, denial of expectation, a relation considered to be semantic (ideational) has the 'root' form of the basic scheme as a presupposed regularity. The belief variant and the speech act variant both result in adding an operator to the basic scheme. Finally, the concession variant leads to a more fundamental change of the basic scheme. In this case, the implication relation in the basic scheme becomes a real contrast between inferred propositions. This last interpretation is the strongest contrastive interpretation of *hoewel*.

3.4 Presuppositions for *omdat*

This short section attempts to give some substance to the claim that the case of *hoewel*, as discussed in 3.3.2 is not an isolated case. The connective *omdat* (*because*), for example, has a set of interpretations that is for an considerable extant overlapping the set of interpretations of *hoewel*. Some of them we already saw. Two presuppositions for different interpretations of *omdat* were introduced already. For *hoewel* four presuppositions were introduced. One of these presupposition types is also characteristic for an interpretation of *omdat* whereas the other, being typical for a contrastive connective, is not applicable to any interpretation of *omdat*.

The parallel for speech act *hoewel* is illustrated in (37), taken from Sweetser (1990:78).

(38) Omdat we het er toch over hebben, wanneer is George Washington geboren?
(Since we're on the subject, when was George Washington born)

This type of p *omdat* q would get a presupposition as in (39)

(39) $q > Sp$

So for *omdat* the preliminary conclusion must be that there is a basic presupposition scheme (as was the case for *hoewel*) and three specific instantiations of the scheme: the "semantic" interpretation, with a presupposition that is a generalization of the basic scheme; the evidence interpretation, with a B(elief operator) added to the basic scheme; and the speech act interpretation with a speech act operator added to the basic scheme. Note that in examples with this type of *omdat* several types of speech act can be used:

((i)) Ga je mee? - omdat het al laat is

Are you coming? -because it's getting late

((ii)) Hou op! - omdat ik het beu ben

Stop it! because I've had it

This pattern of a general basic scheme with specific instantiations corresponding to specific interpretations of the connective, I assume to be the general pattern for causal connectives. Three out of four types of interpretation, characterized by a presuppositional scheme, are shared by *hoewel* and *omdat*. The fourth interpretation of *hoewel* seems to be due to its being contrastive as well; other contrastives apparently share this type of interpretation.

3.4.1 Conditionality and causality

In the philosophical literature there has been a debate about the relation between causality and conditionality. As is argued in Mackie (1965), a causal relation is systematically linked to an implication relation. The question posed here concerns the direction of the implication: A cause P might imply A > P or P > A. Attempting to solve the problem of the direction of the implication relation linked to a causal, Mackie (1965) defines a notion vague enough to allow for both, but rich enough to lead to an answer to the problem. He defines a so called INUS condition (INUS for "insufficient but necessary" and "unnecessary but sufficient") as a characteristic for a cause in a causal relation. This INUS condition is defined as follows:

> A is an INUS condition of a result P if and only if, for some X and for some Y, (AX or Y) is a necessary and sufficient condition of P, but A is not a sufficient condition of P and X is not a sufficient condition of P. (Mackie 1965:p.17).

The utterance of a causal sequence expression is suggested to make the claim (among others) that A is **at least an INUS** condition of P, so there is a necessary and sufficient condition for P of one of these forms: (AX or Y), (A or Y), AX, A. To say that A is at least an INUS condition, means that it may be that

> there is only one minimal sufficient condition, say AX. Again, there may be cases where A is itself a minimal sufficient condition, the disjunction of all minimal sufficient conditions being (A or Y); again, there may be cases where A itself is the only minimal sufficient condition, and is itself both necessary and sufficient for P.

Mackie believes in the sufficiency thesis rather than the necessity thesis. This conviction is in accordance with our position in this paper; in terms of the INUS condition, we will treat the conditions attached to causals as if they all were of the form (A or Y), where again (A or Y) is the disjunction of all minimal sufficient conditions. The presupposed defeasible implications have a singular antecedent - albeit not one that is identical to the causal antecedent.[32]
How do we account for the cases where A in itself is not a minimal sufficient condition, so the cases were the condition should rather have the form (AX or Y) (or AX if we think the condition may be necessary, as Martin (1992) does)? [33] It often appears to be the case, especially for pragmatically interpreted causal connectives (as we will see in 3), that an attached implication is not generally valid but valid only in a restricted domain of discourse. Mackie reports similar findings about the conditions linked to causals. He labels the phenomenon of

[32] I am aware of the difference between Mackie's conditional relation and the one proposed here in terms of defeasibility. The weakening that my option boils down to does not crucially affect Mackie's proposal, however.

[33] Martin (1992) describes *because* as a causal expressing necessity or obligation. It is contrasted to *by*, expressing sufficiency rather then necessity.

restricted validity as *causal field*. The causal field is, in my words, a subclass of all possible situations, in which the cause may cause its effect. Let us give an example of a causal field for a concrete expression as described in Mackie (1965). The question: "Why did this man develop skin cancer?" may have several interpretations depending on the causal field they are applied to. For example, the question may be interpreted as: "Why now and not before?" or, alternatively, it may be interpreted as: "Why him and why not his colleagues who worked under the same conditions?". In the former interpretation, the causal field consists of the life (or career) of the man in question. In the latter, the causal field consists of the men and women who have been working together with the man in question. What happens in both cases is that within this broader causal field, a distinction has to be made between those elements for which the cause has the effect and those elements for which it does not.
On the basis of Mackie's example, let us construct a discourse with a causal connective:

(40) a. This man developed skin cancer because lately he has been in the sun too often

b. This man developed skin cancer because he did not wear a mask

It appears that (40a) would be interpreted more easily with respect to the causal field consisting of the life of the man, whereas (40b) would match the causal field consisting of him and his colleagues. The validity of the presupposed implication is in both cases relativized with respect to the causal field. In general, one would expect context to give enough cues for constructing a suitable causal field but I will keep an open eye to cases were it does not.

There is an intimate relation between the causal field and the antecedent in the causal relation - and consequently between the causal field and the antecedent in the INUS condition. There is, in fact, a trade-off between them with respect to the information narrowing down the validity of the defeasible implication. About the relation of X in the INUS condition and the causal field, Mackie says:

> "It is in general an arbitrary matter whether the particular feature is regarded as a condition (that is, as a possible causal factor [that is: part of X, EO]) or as part of the field, but it cannot be treated in both ways at once." (Mackie 1965:23).

In order to see whether context plays a part in narrowing down the relation to the intended domain, it seems adequate to formulate the kind of proposition the antecedent should be strengthened with and subsequently check whether such a proposition occurs in the preceding context. If such an additional proposition is required, as in (41a), I will call the relation *gappy in context*. If such a required proposition occurs in the context as is the case in (41b), I will call the relation *gappy*, following Mackie (1965).

(41) a. Max left the party because it was eleven o'clock

b. The babysitter had to leave at eleven thirty. Max left the partye because it was eleven o'clock

With respect to causal relations, the following questions for the corpus should be added to the collection of questions assembled so far:

- Is the implication underlying the causal relation a complete and acceptable regularity, or is it gappy ?

- If the implication underlying the causal is gappy, is the missing proposition supplied by context or not ?

.

3.5 Coherence without Connectives

It is claimed here that coherence can be established without connectives -even ones containing a negation element in their basic schemes, like *although* - if certain conditions on the context are satisfied. The connective *because* can easily be deleted. Without context, a causality relation will be inferred rather than an evidence interpretation. In what follows, we give a number of examples where *although* is left out. Some of these cases are acceptable in adequately enriched context - others are not. It appears that this difference in acceptability depends on the kind of presupposition involved. The presuppositions for some of the interpretations for *although* can easily be satisfied by context; for others they cannot.

To begin with, semantic interpretation of the causal contrastive relation (i.e. denial of expectation) should be established by adding the alleged presupposition as an assertion to the context.

(42) D Mooie vrouwen trouwen normaliter. Greta Garbo was de standaard van schoonheid. Ze is nooit getrouwd

E Beautiful women marry normally. Greta Garbo was the standard of beauty. She never married

In this context, the coherence relation inferred between *Greta Garbo was the standard of beauty* and *She never married* is undoubtedly that of causal contrast. Examples like these may be restricted to certain text types. Nevertheless, the example shows that leaving semantic *although* out of a discourse while maintaining its meaning is possible.

Secondly, we will consider the evidence interpretation of *although*. One of the properties of the evidence interpretation was its relative validity, brought out by the belief-operator. Leaving out the presupposition makes it impossible to infer the right relation, as in (43).

(43) D Theo hapte naar adem. Hij had niet hard gerend

E Theo was gasping for breath. He had not been running fast

Should we assume an explanation here, or an elaboration? Or should we conclude incoherence? In (44) we add the presupposition proposed in (27) to the sequence.

(44) D Als je naar adem hapt moet je wel hard gerend hebben. Theo hapte naar adem. Hij had niet hard gerend

E If you are gasping for breath you must have been running fast. Theo was gasping for breath. He had not been running fast

The resulting example (44) is quite acceptable in its contrastive interpretation. The belief is expressed by means of the modal expression *moet je wel* (*must*). Since the presupposition does not express generally accepted real world knowledge, in the form of the most straightforward relation between the two propositions, it is obligatory. Leaving out the presupposed proposition renders the sequence unacceptable. Thirdly, we will consider the concessive interpretation. Consider example (45). The 'standard' with respect to which the clauses are evaluated, is made explicit. If one is looking for music-loving Viennes, both being music-loving and being Viennese are considered positive properties in this specific context.

(45) D Ik zoek Weners die van muziek houden. Irene is Weens. Ze houdt niet van muziek

E I am looking for Viennese who love music. Irene is Viennese. She doesn't love music

In general, the indirect nature of the comcession relation makes it hard to leave out the connective in this interpretation. This is in accordance with the analysis, as will become clear in 4.

Finally, consider the speech act interpretation of *although*:

(46) D Marie houdt van je. Dat weet je best

E Mary does love you. You are perfectly aware of this

It is striking that we don't have to add a presupposition to the context here in order to be able to infer the required coherence relation. But given our analysis for this case that shouldn't be a surprise.The presupposition for this interpretation would follow immediately from the Gricean cooperation principle. By the maxim of quantity, if something is known, there is no need to say it. So if the hearer knows "Mary loves you" (and this is exactly what the presupposition says), it should not be said. Hence the cooperative principle makes the addition of the presupposition to the context superfluous.
[34] In discussing an approach to the relation between connectives and coherence relations, many properties of connectives were discussed as exemplified by the causal contrastive connective *hoewel* and the causal *omdat*. Results of this narrow "pilot study" can be used in the broader research planned; these results can be transformed into questions for a broad corpus of connectives in context. According to the results found for *hoewel* and *omdat*, the following questions are relevant:

- does the relation expressed hold between two locutions or is one (or more) illocution involved?
- is subjectivity expressed, i.e. either evaluation or perspective?
- what is the relation between the information expressed and the previous context: inferrable/contrasting/no relation. If there is no relation, is the information expressed part of real world knowledge?
- can the connective be deleted without any serious loss of meaning?

[34] The following excerpt from the novel "Smilla's sense of snow" contains an example of an inferred causal/contrastive:

> Certain people don't seem to match their voices. I can still remember my own surprise when, for the first time, I stood face to face with Ullorianngu aq Christiansen, who had delivered the news for twenty years on Greenland Radio. His voice had created expectations of a god. He turned out to be merely a human being, only slightly taller than I am. [Peter Hoeg (1994, p.166/167)]

The causal/contrastive relation is 'prepared' by the first sentence.

Of interest are systematic relations between values on different features; the reductions of the feature system. Systematic relations would confirm our interpretation of the Parallel Components Model: the model suggests a clustering of feature values in three regions. The first clustering is typical for ideational meaning; the second clustering for rhetorical meaning; and the third clustering for sequential meaning.
The operators introduced so far can be thought of as the expression of clusters of feature values. This claim can be substantiated by comparing the results for *omdat* presented here in terms of schemes and operators with the results of Degand (to appear) based on the feature-system of Iordanskaja (1993). Iordanskaja introduces two features (descriptive versus rhetorique and illocutive versus non-illocutive) for French and argues that the interpretations of *parceque* correspond to the four logically possible feature combinations. Degand argues that Dutch causal connectives only realize three of the combinations possible; the combination [descriptive; illocutive] is not realized. Our results are compatible with Degand's findings: [descriptive; non-illocutive] is the ideational interpretation (a generalization of the basic scheme); [rhetorique; non-illocutive] is represented by the B operator and [rhetorique; illocutive] is represented by the S operator.

Intuitively, the operators can be attached to the three components in the Parallel Component Model (A and B to the rhetorical structure, S to the sequential structure). Clusters of feature values are connected to the three components, and so are their expressions, the operators.

4 Causal versus contrastive (in argumentation)

4.1 Directness tested

In this section, I will tentatively connect two classes of connectives, causals and contrastives, to the metafunctions. The previous section contained an analysis of a causal-contrastive connective and it is insinuated there that there might be fundamental differences between connectives that primarily express a causal relation and connectives that express primarily a contrastive relation. The previous section also illustrates the fact that a connective does not necessarily express the one or the other type of meaning exclusively. In this section the two types of meaning will be compared.

Intuitively, causality is part of organization of the real world. An event E1 may cause another event E2 to occur. Contrast, on the other hand, reflects a way of perceiving. Real contrasts cannot exist within one utterance since they imply incompatibilty. Perceived contrasts can exist and contrasts between opinions can exist - even within the borders of the utterance. This makes contrastive meaning a matter of argumentation rather than ideation. Or, in other words, contrastive connectives would by this reasoning characteristically have an interpersonal metafunction, whereas causal connectives may have a purely ideational metafunction. To put it yet in another way, contrastive connectives have the function of instructions more than causal connectives do. The reader is invited to construct an opposition that is not to be found immediately in the experienced world. The relation described by a causal connective can be checked immediately against the real world knowledge of the reader. For this reason, contrastive connectives can be used more freely then causal connectives can, witness (47) to (50).

(47) a. Het hotel is goedkoop maar het is comfortabel

b. The hotel is cheap but it is comfortable

(48) a. Het hotel is duur maar het is comfortabel

b. The hotel is expensive but it is comfortable

(49) a. Het hotel is comfortabel omdat/want het is duur

b. The hotel is comfortable because it is expensive

(50) a. ?? Het hotel is comfortable omdat /want het is goedkoop

b. The hotel is comfortable because it is cheap

In order to check this preliminary hypothesis, a small corpus analyse was performed on the large DE VOLKSKRANT corpus. The connectives used for this purpose are the primarily causal connectives *omdat* and *want* (both translated as *because* and the primarily contrastive connective *maar* (*but*). For both causal and contrastive connectives, three types of interpretation and a corresponding basic scheme are distinguished. As argued before, for the causal connectives I distinguish an unmodified basic scheme, a Belief variant of the basic scheme and a Speech act variant of the basic scheme. In (51), (52) and (53) below, examples of these three cases are given successively.

(51) a. Bart verliet het feestje omdat hij zich niet goed voelde

b. Bart left the party because he wasn't feeling well

(52) a. Kennelijk beviel het bankieren hem matig want vorig jaar nam hij alweer ontslag voor een functie bij Treuhand.

b. Evidently, he didn't really like banking since he quit last year already in order to take up a function at Treuhands.

(53) a. Ik ben werkelijk blij met je aanwezigheid - omdat je dat uit jezelf toch niet gelooft

b. I am really glad you are here - since you won't belief that on your own account

For the contrastive *maar* three different possible basic schemes are distinguished, two of which were already introduced in the analysis of *hoewel*. The third possible interpretation, that was mentioned already in 3.3.2, is known as **semantic opposition**. Spooren defines a semantic oppositon as follows:

> "A relation between two conjuncts each having different subjects, to which properties are attributed that are mutually exclusive in the given context." (Spooren, 1989: p.31)

As characteristic properties of semantic oppositions, Spooren indicates as favoured option: there are two entities in the domain of discussion. Both of them are candidates to fulfil a certain role in that domain. In 5, reporting on a larger corpus analysis, more options will appear but for the current purpose it will suffice. Constructed examples of the three types of (partly) contrastive connectives are in (54): semantic opposition; (55) denial of expectation; and (56): concession.

(54) a. Amsterdammers houden van haring maar Rotterdammers prefereren zalm

b. Inhabitants of Amsterdam like herring but inhabitants of Rotterdam prefer salmon

(55) a. Amsterdammers houden van haring maar ze eten het zelden

b. Inhabitants of Amsterdam like herring but they seldom eat them

(56) a. Amsterdammers houden van haring maar er is zelden verse te krijgen

b. Inhabitants of Amsterdam like herring but fresh ones seldom can be found

The presupposed regularity linked to a causal connective may be "gappy", as I argued in 3.4.1. An *omdat* sequence like (57) does not have a presupposed regularity, like (58), attached to it that can be considered common knowledge. Either we need to have more information about Bart's habits or we need to get more information about the circumstances that explain the early departure as predictable. If the context contains information to the effect of (59), the presupposed regularity becomes available.

(57) a. Bart verliet het feestje omdat het elf uur was

b. left the party because it was eleven o'clock

(58) a. Het is elf uur > men verlaat het feestje waar men vertoeft

b. It is eleven o'clock > one leaves the party one is attending

(59) a. De babysit moet uiterlijk half twaalf naar huis

b. Ones babysitter has to leave at eleven thirty

If we take all complex sentences containing a connective to be of the form *p con q*, the occurrences of the connectives under investigation were analyzed on the following issues:

- *type* of connective: *omdat*, *want* or *maar*
- *scheme*: options:
  - q' > p' (unmodified basic scheme)
  - q' > Bp' (believe-variant)
  - q' > Sp' (speech-act variant)
  - q' > – < p' (semantic opposition)
  - q' > ¬ p' (> – < p) (denial of expectation)

– (p'=) r > – < ¬ r (=q') (concession)

The basic shemes have p' and q' instead of p and q - as in the utterances themselves. As was argued before, the relata in the basic scheme of a causal may be generalizations of the surface relata. Moreover, in case of a contrastive connective expressing a concession, the relata in the basic scheme may be rather weakly related to the surface relata: by inference. In fact, four options were distinguished: the relation between the surface utterance and the basic scheme could be anyone of the options under (60). The links between the surface utterance and the basic scheme are as under (61):

(60)
- identity
- generalization
- implication
- inference

$$\begin{array}{ccc} p & con & q \\ \downarrow & & \downarrow \\ p' & R & q' \end{array}$$

The occurrences were attributed two scores for the "directness" of the relation between surface utterance and basic scheme. It is not necessarily the case that the same relation holds between the left-hand relata (in the utterance and the basic scheme) as the one that holds between the right-hand relata (in the utterance and the basic scheme). **Identity** received the lowest score, followed by **generalization** and **implication** - and finally by **inference**. Generalization and implication were treated on a par since they both are considered part of the linguistic theory. Inferences, by contrast, require real world knowledge. The scale underlying the scores is given in (61).

(61) identity< generalization/implication < inference

If a basic scheme relation was gappy with respect to the underlying regularity, the score was increased because gappiness decreases directness. The hypothesis is expressible in terms of directness. If the score is low, the relation between surface utterance and basic scheme is direct and less reasoning, based on real world knowledge, is required from the reader. If the score is high, the connective is an instruction for the reader to do same reasoning in order to get to the intended basic scheme. As such, directness can be seen as a measure for the interpersonal metafunction.

In order to avoid the risk of a false impression of the directness of the relation between utterance and basic scheme, the occurrences of the (causal) connectives were also checked on gappiness. The relation in the basic scheme could be:

- complete
- gappy but complete in context
- gappy in context

On the second option, the relation between antecedent and consequent in the basic scheme was gappy, but the context provided the additional information required.

In order to give an impression of the way the analysis was carried out, a few pieces of discourse will be analysed on the issues mentioned above as examples.

(62) D Deze episoden zouden kennelijk in de ogen van de auteur zelfs voor een fictieve Engelsman iets te veel van het goede zijn, *want* merkwaardigerwijs wordt deze tijdelijk van zijn vertellersplicht ontslagen.

E Evidently, to the eyes of the author these episodes would have been too much even for a fictive English gentleman, *because* peculiarly he is temporary excused from his task of telling the story.

The basic scheme in (62) is the belief variant of the defeasible implication. The regularity underlying the *want* sequence would be something like: 'if an author judges X to be an unbelievable source for certain episodes, the author will not attribute the episodes to X'. By abduction, the inverse relation can be obtained and a Belief operator is added. In this case a trace of the Belief operator is visible in the surface utterance in the word *kennelijk* (*evidently*). The relata in the basic scheme, both left and right, are generalizations of the relata in the surface utterance. There is no gapiness: the underlying regularity seems to be 'complete'.

In (63), *want* is used in another interpretation. The basic scheme corresponding to (63) is the speech act variant of the defeasible implication: the reason why the speaker makes a statement about Milosevic and United Serbia is that he knows this statement to be relevant to the negotiations with Vance and Owen.

(63) D Milosevic zal zijn streven naar een Groot-Servie nooit opgeven - *want* dat zullen Vance en Owen hem moeten vragen. Wie gelooft er nog in wonderen op de Balkan?

E Milosevic will never forget about his ideal of a United Serbia - *because* that is what Vance and Owen will have to ask of him. Who is still believing in miracles in the Balkan?

An example with the contrastive connective *maar* is given in (64).

(64) D De weglopers komen op de politietelex te staan, maar ze duiken onder in de grote stad en slaan aan het zwerven

E The runaways appear on the telex of the police, but they disappear in the big city and start wandering

The basic scheme is that of a contradiction, the relata are rather loosely connected to the surface utterance. From the first clause one may infer 'it is easy to trace the runaways', and from the second clause one may infer 'it is not easy to trace the runaways'. These two inferences are in fact contradictory.

The results for this restricted corpus analysis are represented in figure (65). The scores for directness were compared. The upper figure in the appendix shows the score for the left-hand side link and the lower figure for the right-hand side link between surface utterance and basic scheme. Evidently, for the left-hand side the hypothesis is confirmed; the causal relations score significantly lower than the contrastive relations. So the relation between a causal utterance and its basic scheme is significantly more direct then the relation between a contrastive utterance and its basic scheme. On the right-hand side the result is inverse - but only slightly so. The contrastive relations are non-significantly more direct then the causal relations. This right-hand tendency is contrary to expectation and it requires an explanation. But before offering one, however, I would like to discuss a few other observations that could be made during the analysis.

Firstly, semantic opposition behaves unlike the other contrastive relations. In fact, the basic scheme is redundant for a semantic opposition: both the right-hand side link and the left-hand side link between surface utterance and basic scheme are of the identity type. Since both have contrast for a relation, the basic scheme has no information over and above the information of the surface utterance. This makes the relation ultimately direct. In other words: semantic opposition does not seem to have a (strong) interpersonal component.

Secondly, there are occurrences of the causal connective *omdat* which lack generalization. In these cases too, the relation between the clauses in the surface utterance and the basic scheme is one of identity, both left and right. This may be very direct, but it relativizes the usefulness and correctness of a presupposed basic scheme. The examples (65) and (66) demonstrate the case.

(65) D De 27-jarige Van Loen was ontevreden bij Ajax, *omdat* zijn optreden beperkt bleef tot invalbeurten.

E The 27-year old Van Loen was unhappy while being with Ajax because his actions were restricted to stand-ins.

(66) D De dierenartsen, verenigd in de Koninklijke Nederlandse Maatschappij voor Diergeneeskunde zijn tegen het doden van overbodige eendagskuikens (...). Jaarlijks worden in Nederland bijna 60 miljoen mannelijke eendagskuikens om het leven gebracht omdat ze niet bruikbaar zijn voor de eierproduktie.

a. The veteranarians, united in the KNMD, oppose the killing of superfluous chickens. In Holland, almost 60 million male chickens are killed every year because they are useless with respect to the production of eggs.

There is no regularity underlying (65) to the effect that acting as stand-in leads to unhappiness. There may be such a regularity for a talented keeper; in that case (65) should be analysed as being gappy. If one does not assume such a regularity, (65) presupposes nothing more general then the utterance itself. Something similar holds for (66): it is not to be expected that one would agree with the rule that a chicken should be killed if it does not produce eggs - even if there are tenths of millions of such chickens. Moreover, the preceding discourse in (66) points out that the writer is aware of the fact that one could oppose such a rule. Then who is responsible for the connective *because*? In (65) this could be van Loen; for him the relation between being stand-in and unhappiness does hold. Similarly, in (66) for the persons executing the killings the relation between uselesness and brutal death is a plausible relation. Note that the agent responsible for the implicational relation is not explicitly present in the text in this case. Implicitly, of course, there is an agent: the chickens are killed by someone. These interpretations of the connective *omdat*, I will (unorthodoxly) refer to as **motivation**.

In conclusion, one might say that the hypothesis was partly confirmed. But the immediate linking of causal connectives to the ideational metafunction and contrastive connectives to the interpersonal metafunction is slightly misguided. Moreover, 'directness' as used here, does not seem to be sufficient to get a clear picture of the difference between these two major groups. Semantic opposition is very direct, whereas a causal belief case is not. Still, there is a tendency for causals to be more direct then contrastives - or perhaps one should say, there is a tendency for connectives with a $<$ in their basic scheme to be more direct then connectives wit $> - <$ in their basic scheme. Denial of expectation would count as causal in this formulation. This difference suggests a different relation to context for interpretations of connectives belonging to the one group and interpretations of connectives belonging to the other group. A basic scheme that is more "remote" with respect to the surface utterance needs more guidance in order to be derived then a basic scheme that is more directly related to the surface utterance. In 4.3 this suggestion will be tested out.

Before turning to the context issue, I will return to some examples and argue that we need more finegrained tools for properly analysing and contrasting the two groups of connectives. It will be argued that it is necessary to relate the basic scheme to perspective and directive act.

4.2 Conjectures (as hidden argumentation)

On the one hand, when considering the 'pragmatical' evidence interpretation of a causal relation, there is consensus among Dutch native speakers that *want* is far better a connective to express this relation then *omdat* is. On the other hand, *omdat* and *want* sometimes appear to be interchangeable, as is the case in (67).

(67) D Een ticket naar Nederland is ook niet meer te bekostigen, omdat/want een kwart van de prijs (moet) in harde valuta (moet) worden betaald.

E A ticket to Holland has become too expensive because a quarter of the price is to be paid in cash.

Is *want* simply ambiguous and is there really no difference in certain interpretations of *omdat* and *want* - or is *omdat* generally more ideational while *want* has a stronger interpersonal meta-function?

It is hard to draw a sharp line between ideational and interpersonal meaning. Even when using the definition of interpersonal meaning as all meaning that somehow relies on or involves one or both of the communicating parties (speaker/writer and hearer/reader), there still is doubt with respect to the interpersonal character of a connective. Although it is not hard to check whether there are interpersonal aspects within the clauses related by means of the connective, it is not selfevident in what way this is related to the interpersonal function of the connective. According to the approach to interpersonal meaning followed here, any term expressing some form of perspective would have an interpersonal metafunction. But if we would consider all connectives interpersonal to the same extent if they have interpersonal meaning expressed by one or both of their relata, in 83 percent of the occurrences of connectives investigated the connective would turn out to share their interpersonal function. Although perspective expressed by the relata will be part of the criteria for determining the interpersonal meaning of the connective, it cannot be the only criterion. Of course, in perspective very often the opinion of the speaker/writer can be recognized (or in other cases the reported opinion of a third person). But interpersonal meaning is not only concerned with the speaker/writer but just as much with the hearer/reader. Bateman and Rondhuis write:

"The initial interpersonal component of the classification hierarchy is drawn largely from the effect fields of the relations so classified above." (Bateman & Rondhuis, 1994, p. 63). Apart from the rather neutral 'assert', there are more hearer/reader directed options like: influencing the readers attitude (belief or regard), influencing the readers commitment (intention or ability) or the readers comprehension (understanding or understanding purposes). Now when are these options realized by (the occurrence of) a connective? In order to obtain some indications for deciding this issue, it may be worthwhile to take a look at argumentation theory (for example the Pragma-dialectical model by van Eemeren and Grootendorst). Sentences can be used to report a state of affairs, but they can also be used for conjectures or claims. Argumentation theory focuses on the latter function and questions are posed like: "which standpoint does the arguer defend ?", "To what extent is the counter-argument he mentions accepted by him?" and "How does he attempt to overcome the anticipated criticism?" (Snoeck Henkemans, to appear).

How can this argumentation view be exploited in the analysis of connectives? I assume the answer must be 1. by being very precise with respect to the type of speech act involved (what does the speaker himself think he is doing?) ; and 2. by being very precise with respect to the attribution of responsibility for (parts of) clauses (that is: whose perspective is involved?). Hobbs et al (1993) state : "In a discourse situation, the speaker and hearer both have their sets of private beliefs, and there is a large overlapping set of mutual beliefs (see figure below). An utterance lives on the boundary between mutual belief and the speaker's private beliefs. It is a bid to extend the area of mutual belief to include some private beliefs of the speaker's." (Hobbs et al., 1993: p. 70). They do observe that this is clearest in case of assertions, but also other types of speech act are considered to be primarily conveying information. This is too blunt a truth. The example (66) with *want* may be said to convey information - as does the same example with *omdat* - but the speaker does not expect to have the same effect on the hearer in these two cases. The speaker does not expect the hearer to "extend the area of mutual beliefs to include some private beliefs of the speaker's" to the same extent in both cases. Whereas he will pretend to give mere information in the *omdat* case, he will use the *want* construction if he thinks he has to give an argument in order to be allowed to state what is stated in the first clause. In other words: the sequence is argumentative (and so: interpersonal) and the first clause may be seen as a **claim** or a *conjecture*.

What kind of a speech act would a conjecture be? Tentatively, I will scetch a conjecture in terms of Searle's conditions on speech acts (Searle, 1975). This is useful for a couple of reasons: to a certain extent it may function as heuristic device for recognizing conjectures in context, and a connection can be established between Searle's essential condition and the effect field as in Mann and Thompson (1986). In the last section of this paper, this connection will prove to have an additional advantage. The conditions on conjectures would resemble (68).

(68) a. propositional content condition: S states p

b. sincerty condition: S believes p

c. preparatory condition: 1. S realises that it is possible to doubt p 2. S thinks that H doubts/would doubt p

d. essential condition: S wants H to believe p

The connective *want* is supposed to relate a conjecture (in the first clause) to another clause and consequently its context of use must satisfy the conditions in (68). The connective *omdat* is not.

One of the preparatory condition states that the hearer has not accepted yet the clause interpreted as a conjecture. If this clause would be interpreted as a fact, we would expect *omdat* to be suitable - but not *want*. Moreover, if the information in this clause has been stated already in the preceding context, *want* should be excluded. Again, the preparatory condition would not be satisfied since the information would count as belonging to the common ground. The examples (69) and (70) show that these predictions are correct.

(69) a. Eerder had Brenda Schultz besloten Australie te laten schieten omdat ze herstellende is van een knie-blessure

b. ?Eerder had Brenda Schultz besloten Australie te laten schieten want ze is herstellende van een knie-blessure

(70) a. Shihanouk en zijn zoon zijn van plan uit de hoofdstad te vertrekken. Ranaridd zei Phnom Penh te zullen verlaten omdat hij vreest voor zijn leven.

b. ?Shihanouk en zijn zoon zijn van plan uit de hoofdstad te vertrekken. Ranaridd zei Phnom Penh te zullen verlaten want hij vreest voor zijn leven.

Another consequence of the conditions stated in (68) concerns the perspective taken in the first clause of a causal sequence. If the speaker realises that it is possible to doubt p - and he even thinks that the hearer doubts p or would doubt p if confronted with it, he knows he is saying something from a subjective point of view. In other words: the first clause will usually represent his perspective.

The last consequence of the conditions for conjecture concerns directive act. The essential condition states that S wants H to believe p. The subclause, introduced by the connective is used to make the hearer believe p. This amounts to saying, that the directive act would be realised by the first clause, p in the conditions, rather than the clause introduced by the connective.

Taking the last to consequences together, a prediction can be made with respect to the combination of directive act and perspective. A conjecture interpretation (of *want*, for example) would be characterized by a perspectivized first clause that realises the directive act. In the last section of this paper a larger corpus analysis is reported; the prediction put forward is put to the test in this analysis.

4.3 Contrastives and Context

In 4.1 it was suggested that interpretations of connectives with a defeasible implication in their basic scheme and interpretations of connectives related by contrast in their basic scheme, put different demands on their context. Semantic oppositions do not resort under this hypothesis: in fact, they do not have a scheme more basic then their surface form. Therefore, a first step in checking the hypothesis could consist in comparing concessive interpretations of *maar* and *hoewel* to denial of expectation interpretations of the same connectives.

Connectives expressing a concession can be seen as instructions to construct a contrast (cf. Moeschler, 1990). A third member in the relation expressed in the surface utterance is required to realize this contrast (cf. the *r* in the basic scheme in 4.1). How can this third member be found? Ducrot (1983), Moeschler (1990) and Elhadad and McKeown (1989) suggest that we use topoi to find this member. Topoi are universal in a speech community (Raccah, 1990); they are underlying regularities that need not be specified in context. So the topoi theory leads to an alternative hypothesis: it is not the context that guides us towards the construction of a contrast for a concessive connective: the underlying regularity can easily be found since it is common knowledge.

The topoi position can not be entirely correct: in 3.3.2 concessions appeared to be domain-bounded in certain contexts. In Sidiropoulou (1992) the SAC (Speaker attitude concession)-cases are explicitly context dependent. In her words: they imply an existential quantification (over situations) - as opposed to SIC-cases (denial of expectations), where a universal quantification is implied. Consider the examples from Moeschler (1989) in (71) and (72).

(71) a. The weather is nice but I am tired

b. If the weather is nice, one wants to go out

c. If one is tired, one does not want to go out

(72) a. The weather is nice but I am tired

b. If the weather is nice, I am happy

c. If I am tired, I am not happy

As Moeschler observes, there is no unique way to infer an underlying regularity, or a topos. Both (71) and (72) are plausible interpretations. It will have to be determined somehow which one gets selected. Obviously, if the utterance would be made as a response to the question "Will you join me for a walk?", the former analysis would be most suitable, and if it were an answer to the question "Why are you looking so depressed?", the latter would be more suitable.

In 3.3.2 a type of evaluative concession was discussed; the third member that has to be constructed in these cases is simply an evaluation: p is not good (or undesirable) and q is good (or desirable) (cf. the example about slavery). In this case, the evaluation could be recognized in the wording of the concession. However, that need not be the case: in the SAC example from Sidiropoulou (1992) in (73) and in example (74), no evaluation is expressed.

(73) Athough he is Viennese, he does not like music

(74) a. Het huis had drie etages maar het was omringt door een grote tuin

b. The house had three floors, but it was surrounded by a large garden

The context given for (73) was: 'I am looking for Viennese music-lovers' and the context that makes (74) into an evaluative concession is: 'She wanted the house to be easily accessible for her wheelchair'. Evidently, context rather then topoi helps the reader to construct the intended contrast.

The plausible reconstruction of the usage of concessions seems to be at this point: concessive connectives instruct the reader to form a contrast. Indications for the correct selection of the members of the contrast generally will be given by context, unless they can be derived with the help of very general and often used topoi (clichees). Connectives with a denial of expectation- interpretation do not need the assistence of the context as much. The relation between the two relata in the utterance are more direct (the one leads to the expected negation of the other) and instructions in order to find the contrastive element are superfluous. Confirmation of this reconstruction can be found in the behaviour of *maar* and *omdat* sequences out of context. As is shown by Van Engelen (1995), if such a sequence is ambiguous for a concessive or a denial of expectation interpretation, it will be interpreted as denial if no context is present. [35]

In the corpus analysis reported in the last section, the interaction between the semantic content of the relata in the utterance and the semantic content of the context will be investigated. It is of special interest to note in which cases the context does nothing to find the missing member of a concessive relation.

5 Questioning the corpus

In this section, I rephrase the questions which emerged from the preceding sections in terms of three main sets of hypotheses. These hypotheses are tested against data from the *De Volkskrant* corpus, a large corpus of news reports which appeared in the daily newspaper *De Volkskrant* in the year 1993. My selection from the corpus consisted of 160 occurrences of the different connectives under investigation. I show that the results of this empirical investigation are largely in line with the theoretical observations presented earlier.

The scope of the research is unfortunately too limited to warrant statistically justified conclusions and generalizations. Whithin the time available, I was able to design the framework for the analysis and to test the hypotheses emerging from this against a small set of data. But to obtain "harder" evidence a much larger part of the corpus would have to be researched, and such an enterprise would obviously require much more time than was available.

5.1 Coding the corpus

All of the properties the occurrences were coded for, were discussed before. Twenty-two positions were coded. Firstly, I will give the properties of the occurrence of the connective and certain properties of its context, and secondly, I will describe the methods used to decide on the proper coding. Not each item will be addressed here: some seem to be uncontroversial, especially given the elaborations on positions given in the previous sections.

The abbreviations used in the descriptions of the codes refer to concepts introduced before: **BS** stands for basic scheme; **MC** stands for main clause or the clause without connective; **SC** stands for sub-clause or the clause introduced by the connective; **SDT** stands for shared discourse topic.

5.1.1 Properties encoded

1. is there negation added in BS to the proposition expressed by MC ?

[35] Van Engelen (1995) argues that the position of the sequence in the discourse structure is crucial as well. For example, if the sequence is an elaboration, it will be interpreted as a concessive construction.

- no (0)
- yes (1)

2. what is the relation between the proposition expressed in SC and the first relatum in BS ?
    - identity (0)
    - additional Belief operator (1)
    - additional Speech act operator (2)
    - additional Intentional operator (4)
    - generalization (5)
    - implication (6)
    - inference (7)
3. what type of relation is there in BS ?
    - & (0)
    - $>$ (defeasible implication) (1)
    - $> - <$ (weak contrast) (2)
    - $>> - <<$ (strong contrast) (3)
    - $<$ (defeasibly being implied) (4)
4. is there negation in BS added to the proposition expressed by SC ?
    - no (0)
    - yes (1)
5. what is the relation between the proposition expressed in MC and the second relatum in BS ?
    - identity (0)
    - additional Belief operator (1)
    - additional Speech act operator (2)
    - additional Intentional operator (4)
    - generalization (5)
    - implication (6)
    - inference (7)
6. what type of connective is used ?
    - *omdat* (1)
    - *want* (2)
    - *maar* (3)
    - *terwijl* (4)

- *zodat* (5)
- *opdat* (6)
- *hoewel* (7)
- *doordat* (8)

7. in which order are the clauses positioned?
   - SC - MC (0)
   - MC - SC (1)
8. which Tense is used in MC?
9. which Tense is used in SC?
10. which event type is expressed in MC?
    - state (0)
    - process (1)
    - event (2)
11. which event type is expressed in SC? (see previous item)
12. is SC deletable (yes/no) ?
13. the directive act can be located in
    - MC (1)
    - SC (2)
    - neither MC nor SC (0)
14. is there an evaluative term in MC?
    - no (0)
    - yes: positive (1)
    - yes: negative (2)
15. is there an evaluative term in SC (see previous item)?
16. is MC perspectivized?
    - no (0)
    - yes: explicitly (1)
    - yes: implicitly (2)
17. is SC perspectivized (see previous item)?
18. is the first relatum the locution or the illocution of MC?
19. is the second relatum the locution or the illocution of SC?

20. is the connective deletable?

21. is there a SDT?

    - no (0)
    - yes: between MC and SC of the surface utterance (1)
    - yes: between MC and context (2)
    - yes: between relata in BS (but not context) (3)
    - yes: between relata in BS and also in context (4)

5.1.2 Selecting the codes

The first five items on the list are presence/absence of negation over the first relatum in BS, the relation between SC and the first relatum in BS, the actual relation in BS, presence/absence of negation over the second relatum in BS, and finally the relation between MC and the second relatum in BS. Together these five items characterize the modified basic scheme. So this five-tupel uniquely defines a certain type of relation; the code for a concession, for example, differs from the code for a semantic opposition. This way it is not necessary to decide at once what kind of relation is intended. The final BS code is built up by five separate items - but a one-to-one relation between this five- tupel and the type of relation can easily be established. Examples of this correspondence are:

1. 00100: specific causal: motivation
2. 05105: general causal
3. 00101: epistemic or believe causal
4. 00102: speech act causal
5. 04400: intentional relation
6. 00400: consequential relation
7. 00200: semantic opposition
8. 05115: denial of expectation
9. 00111: epistemic or believe denial
10. 00112: speech act denial
11. 07307: concession (or alternatively: 07207; 06306)
12. 00300: refutative contrast
13. 02200: speech act contrast

Note that the sequence of relata in general is the inverse of the sequence of relata in the surface form - at least w.r.t the connective. The leftmost position (2) represents the sentence that is introduced by the connective, whether it is co-ordinating or subordinating. The rightmost position (4) represents the other sentence, related to the first one by the connective. Choosing this format forces me to define most relations bidirectionally; eg. in the case of a denial of expectation, the antecedent of the underlying implication may be expressed in the sentence introduced by the connective (as is the case for "hoewel"), but it may also be expressed in the related sentence (as is the case for "maar"). In order to keep the comparison clear, the two types of sentence will always occupy the same position in the basic scheme and (defeasible) implication can point in either direction.

In order to check whether the right five-tupel was chosen, we must add the corresponding BS to the context. This should be possible and result in a more explicit piece of discourse - according to the perspective on BS as having a presuppositional status as is taken here. First, points of interest to decide on the constituents of the five-tupel are given. Then criteria for the other items are presented, in sofar as it is not self-evident how a choice on these items can be made.

- *ad Negation (1), (4)*: the default regularity is exactly the opposite from the particular relation expressed in the surface form.
- *ad B-operator (2), (5)*: This operator is required when a relation concerns (at least one-sidedly) a conviction of the speaker. The BS is derived by means of abduction from some commonly accepted regularity. The B-operator is strongly related to the argumentative nature of a discourse and will resort under the interpersonal subsystem, the speaker being a necessary component in its definition.
- *ad Speech act operator (2), (5)*: If it is **necessary** to add [speaker says] to one of the relata to get a reasonable implication, a speech act operator is assumed.
- *ad Intentional operator (2), (5)*: This operator will have to be related to the presence of an agent and a action expressed in the main clause. The content of the intentional clause is something feared or something desired (cf. Martin, 1992).
- *ad generalization (2), (5)*: If a causal connects two particular propositions, it is often not plausable to assume that an (defeasible) implicational relation between these particular propositions is part of our real world knowledge - or can be accommodated as such. In those cases the minimal generalization is taken that can be thought of as belonging to this knowledge base. Very often, this generalization concerns the particular subject of the complex sentence; but it may be a constituent with another syntactic function as well. In some cases this generalization can be backed up by the context - in others it is a reconstruction based on common sense only.

Directive act (13): In order to establish Directive act, a couple of tests were discussed already. The most frequently used test will be leaving out the supposedly non-directive clause. Another test derived from van Kuppevelt (1994) was discussed in 2.2.1.

Another well-known way of determining directivity is by means of a continuation test. The subclause expressing the directive act is supposed to be continued in the following text (albeit not necessarily immediately). This makes sense since the directive act is supposed to be a part of the back-bone of the discourse. If we assume that there is some right-frontier restriction to attachability of discourse (Scha & Polanyi, 1988), the outcomes of an continuation test will have to be interpreted in the following way: the subclause not expressing the directive act will be embedded more deeply in a discourse tree; consequently, it can be continued if it is positioned at the right hand side of the sentence expressing the directive act but not if it is positioned at the left-hand side of it. The sentence expressing directive act can be followed independent of its position because it is attached higher in the discourse tree then the non-directive act sentence is. So, if a subclause can be continued independent of its position with respect to the other subclause, it might express the directive act. But a subclause that can be continued only if it is positioned to the right of the other subclause, does not express the directive act.

Directive act is not a clear notion. If the outcomes of the tests point in the same direction, this option becomes more convincing. If the outcomes of the tests point in different directions, a proper answer to this question cannot be given; in such cases the option 0 was chosen (i.e. neither the main clause nor the subclause expresses the directive act of the complex sentence, or, in other words: the distinction directive/subordinate cannot be made in a convincing way).

Evaluation (14), (15). Only if some element in a subclause conveys a positive or negative attitude towards the content of the subclause is the sentence said to express evaluation. If the content of the subclause is relativized in another way (i.e. a judgement is expressed with respect to the probability of the occurrence of the event expressed in the subclause) the subclause is supposed to express perspective, but not evaluation. Usually, if a sentence expresses evaluation, it must express perspective. An evaluation is tied to a subject responsible for the evaluation.

Explicit perspective (16), (17). In Sanders (1994) perspective in (narrative) discourse is defined as follows: "Perspective is the introduction of a subjective point of view that ascribes the claim of validity of the presented information to a particular subject (person) in the discourse" (Sanders, 1994: p.188) Sometimes this is done in an overt, explicit way. Here perspective is considered to be expressed explicitly if one of the following two constructions is used: if a quote is used (Mr. X said: "..."); if an indirect mode is used (Mr. X said that ....).

Implicit perspective (16), (17). There is a problem with respect to the perspective of the authority who is (presented as being) responsible for the discourse - that is, the narrator in case of a narrative, the reporter in case of a news report. Sanders (1994) puts this problem as follows: "The act of narrating and the act of vision (focalizing) coincide in the person of the narrator (see also van Rees 1985: 449). The voice of the narrator is always present, and narrative, therefore, is always subjective, whether it presents a character's vision or that of the narrator [...]. How then, can we determine the extent of focalization in the narrator's voice, when all we have available is the narrator's inescapably subjective representation ?" (Sanders 1994: p.32) This is a problem of attribution: to what extent is a narrator reporting something that might be considered a fact and to what extent is he interpreting - and consequently reporting from his own perspective ? This problem is not restricted to narrative texts: the reporter can be seen as an external narrator and thus the attribution problem is present in this type of texts as well. The 'foregrounding' of the narrator may be linguistically marked. Means of linguistically marking (implicit) perspective are listed in Wiebe (1994) and Sanders (1994). Verbs of perception or cognition, episthemic modifiers like "moeten" (must), "dunken" and "kunnen" (can), world creating verbs, exclamations, elements that express lack of knowledge, kinship terms, conditional clauses (note that in the view defended here, of causal connectives as presupposing conditional relations, there would also be something perspectival in a causal construction), comparative "like", habituals, Pluperfect and Progressive in the main clause, evidentials, and the form of referential descriptions (cf Ushi, 1992).

Locution versus illocution (18), (19). Kroon (1995) distinguishes a representational and a presentational level. Connectives can be used to describe relations on either level. In my framework presentational clauses should be represented with the help of a S (Speech act) operator or a B (believe) operator; in both cases a locution is related to an illocution. Kroon gives some tests to recognize "because" sequences as belonging to the one level or the other.The tests are the following:

- a presentational "because" clause cannot be the focus of a cleft-construction: ? It is because there are puddles on the pavement that it has been raining
- a presentational "because" clause cannot be the focus of a question: ?Is it because there are puddles on the pavement that it has been raining ?
- a presentational "because" clause‘ cannot be anaphorically or cataphorically referred to: ? Because there are puddles on the pavement, therefore it has been raining
- a presentational "because" cannot be the answer to a "why" question: ? Why has it been raining ? Because there are puddles on the pavement.
- a presentational "because" clause cannot be in the scope of a modal adverb or some focalizing adverb/particle: ? It has been raining, perhaps (of course etc) because there are puddles on the pavement

Shared discourse topic (21) McKeown and Elhadad (1989) suggest that two clauses linked by a connective must have some discourse entity or relation in common. In 2.2.4 it was argued that this can not be correct - but the question becomes interesting if 1. we narrow down the concept of 'having something in common' and 2. relate the issue to the type of relation expressed and 3. the part the context plays.

Two clauses are supposed to have a shared discourse topic (SDT) if they either contain identical relations holding between dissimilar entities, or contrasting properties holding between similar entities. Following Hobbs (1985) and Kehler (1994), similarity is defined as follows: "by Ai and Bi being similar we mean that for some salient property Qi, Qi(Ai) and Qi(Bi) holds. Likewise by dissimilar we mean that for some Qi(Ai) and not Qi(Bi) holds" (Kehler 1994: p6).

On the basis of the findings in the previous sections and the descriptions of English connectives in Martin (1992) and, last but not least, an impression of the actual occurrences in the corpus of the seven connectives studied, a set of hypotheses is formed.

5.2 Hypotheses

In this section I present the three sets of hypotheses. In formulating the hypotheses I have restricted myself to the major ones; minor ones, - i.e. those concerning only one (interpretation of) a connective - will be given in the next section. These three sets can be labeled as:

1. hypotheses on the correlation between type of relation in BS ($<$ or $>$ on the one hand and $> - <$ or $>> - <<$ on the other hand) and other properties

2. hypotheses on the relation between perspective, directive act, shared discourse topic and argumentativity

3. hypotheses on the deletability of the connective (in relation to argumentativity)

Hypotheses in group 1 suppose that there is a principal difference between interpretations of connectives having a $>$ or a $<$ in their BS and occurrences of connectives having a $> - <$ or a $>> - <<$ in their BS. This type of hypotheses emerges from the elaborate discussion on the basic distinctions between causal and contrastive (interpretations of) connectives in 4. The directness distinction used there appeared to be to blunt and it was argued there that other properties, like and shared discourse topic should be involved in the comparison. In case the contrast was to be found at BS level (i.e. in case of a concession), context was supposed to have a guiding function in finding a suitable, derivable contrast.

Examples of this type of hypotheses are given here:

- For the group having a $> - <$ or a $>> - <<$ in their BS, a SDT is expected. Sometimes this SDT will occur at utterance level (in case of semantic oppositions) and sometimes it will occur at BS level (in case of concessions).

- if the SDT occurs at BS level, context will have to indicate how to find the SDT and consequently the SDT will be recognizable in context.

- For the group having a $>$ or a $<$ in their BS , no SDT between the relata is expected

This first set of hypotheses is confirmed by the analysis of the corpus. The data are as follows:

- in case of $>$ in BS: 80 percent of the cases has either no SDT in BS (38 percent) or a SDT between MC and context (42 percent)

- in case of $<$ in BS: 100 percent of the cases has either no SDT in BS (85 percent) or a SDT between MC and context (15 percent)

- in case of $> - <$ in BS: 85 percent of the cases has SDT in surface utterance

- in case of $>> - <<$ in BS: 92 percent of the cases has SDT in BS and in context.

The second type of hypotheses, on the relation between perspective, directive act, shared discourse topic and argumentativity is especially based on the discussions on concessions and on the difference between *want* and *omdat* in 4.2. The argumentative nature of *want* leads to requirements concerning perspective (the speaker presents his own perspective in the conjecture part) and directive act (the directive act presents the most important part of a piece of discourse, and consequently the conjecture is made in the clause realizing the directive act).

Examples of this type of hypotheses are:

- in an argumentative relation, the directive act is located in a perspectivized clause. The other clause is perspectivized differently (which may be not at all)

- in a not-argumentative relation, there is no relation between directive act and perspective and there does not have to be a change in perspective between the clauses
- if the relation in BS is $>> - <<$, a change of perspective is required

The second set of hypotheses is confirmed by the following data.

- given a $<$ or a $>$ in the BS, 100 percent of the *want* cases is characterized by the following feature combination: MC is perspectivized (implicitly or explicitly), SC is not perspectivized, and the directive act is realized by the MC. Only 15 percent of the *omdat* occurrences is characterized by this combination. These are exactly the 15 percent of cases where *omdat* may be replaced by *want* without any noticable change of meaning [36]. For the remaining 85 percent, no pattern of perspectives can be recognized.
- given a $> - <$ or a $>> - <<$ in the BS, if the directive act is realized by SC, then the SC is perspectivized in 85 percent of the cases. Again, this confirms the first hypothesis.
- The hypothesis that MC has to perspectivized differently in these cases is not confirmed: as was noticed in the literature on argumentation (cf. Snoeck Henkemans, to appear) in these cases (concessives) the speaker may concur (at least partly) with the content of the MC. There is no contradiction since the contrast is at BS level, not at the level of the surface utterance. So the speaker may disagree with the argumentative force of the first clause while agreeing with its content.

The third type of hypotheses, on the deletability of the connective in relation to BS, emerges from the discussion on the relation between connectives and coherence relations in 3.5 and 4.3. It will be instrumental in determining the relations between coherence relations and connectives in the representation format proposed in the final section.

Examples of this type of hypotheses are:

- if the relation in BS is $>$ or $<$, the connective is not deletable if no directive act can be identified
- there are two types of interpretations of connectives having $>$ or $<$ in their BS: the one type is characterized by generalization, the other is not. The former type allows for deleting the connective more easily then the latter type.
- if the relation in BS is $>> - <<$, the connective is not deletable because it has a strong instructive force

This third set hypotheses consists of three parts.

- The first part was confirmed for all cases. If the relation in BS is $<$ or $>$ and if there is no directive act, and consequently the one clause is not subordinated to the other clause, the connective is necessarily present.

[36] An example of such a case is *...zou het kabinet een vierde bestuurslaag creeren. En dat is ondenkbaar omdat er in kamer en kabinet geen draagvlak bestaat voor een vierde bestuurslaag* [..the government would create a fourth ruling level. And that is unthinkable since there is no support for a fourth ruling level in chamber nor in cabinet]

- The second part was not confirmed. Generalization of the MC and SC in BS is not a requirement for deletion of the connective. A counterexample for the hypothesis can be found in an example given in 4.1 and repeated below without the connective *omdat* that appeared in the original sentence.

  (75) D De dierenartsen, verenigd in de Koninklijke Nederlandse Maatschappij voor Diergeneeskunde zijn tegen het doden van overbodige eendagskuikens (...). Jaarlijks worden in Nederland bijna 60 miljoen mannelijke eendagskuikens om het leven gebracht. Ze zijn niet bruikbaar voor de eierproduktie.

  a. The veteranarians, united in the KNMD, oppose the killing of superfluous chickens. In Holland, almost 60 million male chickens are killed every year. They are useless with respect to the production of eggs.

- The third hypothesis was confirmed. In case of a $>> - <<$ in BS, the connective is never deletable. In case of a $> - <$, on the other hand, the connective can easily be deleted in 70 percent of the cases.

In the next section I will propose a representation format for the connectives, based on the conclusions of the corpus analysis presented here and on other minor results not presented sofar.

6 Representing the data

A distinction was drawn earlier in this paper in 4 between two major classes of interpretations of connectives: those characterizable by a (defeasible) implicational relation in the BS underlying them and those characterizable by a contrastive relation in the BS underlying them. Sometimes the BS and the surface utterance appeared to be closely resembling each other, both in case of causal and in case of contrastive interpretations. Those interpretations can be classified as virtually purely ideational. No instruction is give by the connective to build a BS differing from the surface utterance. The greater the distance between the surface utterance and the BS, the more effort (i.e. in the from of reasoning) is expected from the reader and the stronger an interpersonal metafunction the connective fulfills. In case of causal connectives, this distance may be due to a Belief operator or a Speech act operator; in principle, all interpretations of connectives with a $<$ or a $>$ in their BS may have a Belief- or a Speech act-interpretation (cf. Sweetser, 1990).

Contrastive interpretations are realized by the three contrastive connectives studied. Three basic interpretations were distinguished, one of them having a causal component. This interpretation, denial of expectation, can be realized by *maar*, *hoewel* and *terwijl* alike. The second interpretation, semantic opposition, can be realized by two of the connectives: *maar* and *terwijl*. The third interpretation, concession, can be realized by *maar* and *hoewel*. Consequently, each of the members of this small set has his own interpretation potential. [37] Relations to context are various, differing from class to class and from interpretation to interpretation. But regularities can be found. Such regularities and others are summarized below for the individual connectives.

[37] Of course, they can be distinguished by another parameter: syntactic role. Both *hoewel* and *terwijl* are subordinating connectives, whereas *maar* is a co-ordinating connective. I am aware that insufficient attention was paid to the impact of such syntactic differences. In fact, parallel interpretations of subordinating and co-ordinating connectives should be compared. This task is left for future research.

1. *Omdat*: the BS is related to the surface utterance by generalization. In 90 percent of the cases there is some form of perspective present: both clauses may be presented from the same or alternatively from a different perspective. The MC is often connected to the context by means of a SDT. Even stronger: the entire proposition expressed by MC may be "old", i.e. present in the preceding context (cf. Van Dijk (1977), who considers an *omdat* clause to be a presupposition bearer). The directive act is either realized by MC or not localizable at all. If MC expresses "old" information, DA can not be identified. And in that case, *omdat* cannot be deleted.
   Omdat can be used to connect a locution and an illocution. In those cases MC can not express "old" information. But DA is expressed by MC. There is an interpretation of *omdat* which lacks an underlying generalized regularity; I have referred to this case as the motivation interpretation. The distance between BS and surface utterance is minimal. This interpretation requires an (implicit) animate subject in MC: the causal link is attributed to this subject. Often, *doordat* can be substituted for *omdat*. In this interpretation of *omdat* this is impossible: *doordat* requires a non-agentive MC.

2. *Want*: usually, the BS is related to the surface utterance by generalization. Usually, MC is perspectivized and SC is not perspectivized: it is presented as expressing facts (in many cases facts which the speaker expects the hearer to share with him: facts that belong to the common ground). Usually the proposition expressed in SC is new in context (though not necessarily in common ground), cf. the strangeness of (76a) as compared to (76b). If the SC is perspectivized, it usually is presented from a different perspective. In that case the perspectivized proposition does not have to be new in context (cf. the acceptability of (76d).

   (76) a. ? Het is warm. Alex gaat zwemmen want het is warm
   b. Het is warm. Alex gaat zwemmen omdat het warm is.
   c. It is warm. Alex is going for a swim since it is warm
   d. Het is warm. Alex gaat zwemmen want hij vindt ook dat het warm is
   e. It is warm. Alex is going for a swim since he thinks it is warm too

   No SDT can be found systematically between MC and context. The directive act is realized by MC. The entire MC expresses a proposition that does not yet belong to the common ground. In the following example from the corpus, the previous text already states that Martinair has chosen the first of August as a deadline to compensate for damages.

   (77) a. ??De datum van 1 augustus is gekozen want Martinair wil de zaken snel afwikkelen
   b. De datum van 1 augustus is gekozen omdat Martinair de zaken snel wil afwikkelen
   c. The date of August 1 has been chosen because Martinair wants to settle affairs quickly
   d. De datum van 1 augustus is met algemene stemmen gekozen want Martinair wil de zaken snel afwikkelen

e. The date of August 1 has been chosen unanymously because Martinair wants to settle affairs quickly

Only if the MC contains new information as in (77d), *want* is acceptable. No such restriction holds for *omdat* (cf. (77b)).
The SC can not be in the scope of a questionmark or a sentence operator. In (78), an example which originally contained *omdat*, it is not possible to substitue *want* because the SC has to be interpreted as a future situation while it can not: in that case SC would have been in the scope of a future operator over the entire sequence.

(78) a. ?? Na de Koude Oorlog zullen de VN meer en meer te hulp worden geroepen en de VN zullen steeds vaker verwijten krijgen want zij hebben oorlogen en rampen niet kunnen voorkomen

b. After the Cold War the UN will be called for help more and more often and the UN will be blamed more and more often since they have not been able to prevent wars and catastrophes.

3. *Maar*: three different BSs can be related to this connective, representing semantic opposition (SO), denial of expectation (DE) and concession (CO).

   - SO has a weak contrast in BS and the distance between BS and surface utterance is minimal. SO has no directive act: it has been called "argumentatively neutral". There is a SDT in the surface utterance. There is no need for distinct perspectives; since the contrast is weak there is no danger of contradiction. This interpretation allows for substitution of the connective by *en* (*and*). The same properties can be attributed to the SO interpretation of *terwijl*.
   - DE has both > and negation in BS. BS is usually related to the surface utterance by generalization. There may be a Belief- or a Speech act operator. The directive act is in SC (the clause introduced by the connective). There is no need for a SDT between the clauses in the surface utterance or the relata in BS. There are no requirements with respect to perspective: since the general rule in BS is defeasible there is no contradiction. This interpretation of the connective can be recognized by the possibility to add *toch* (*still*). The same properties can be attributed to the DE interpretation of *hoewel* and *terwijl*, but the functions of MC and SC are the inverse of those in *maar*-sequences [38].
   - CO has a strong contrast in BS. The distance between the surface utterance and BS is relatively large and the links relatively weak (inferences). Therefore context has to guide the interpretation of the correct BS: a SDT is found both between the relata in BS and with context. For the same reason, no contradiction is obtained, even if there is no change in perspective from MC to SC. The SC represents the perspective of the speaker. CO is not argumentatively neutral: the directive act is realized by SC. This interpretation of the connective can be recognized by the possibility to add *weliswaar* (*to be sure*). The same properties can be attributed to

[38] It may be expected that this inversion leads to preferences for the one connective or the other in concrete contexts

the CO interpretation of *hoewel*, but the functions of MC and SC are the inverse of those in *maar*-sequences [39].

4. *Zodat*: the BS is the inverse of the BS of *omdat* but it usually contains no generalization. An Intentional operator may have to be added to the SC relatum in BS, but this is not always the case: *zodat* may be neutral with respect to intention. The eventuality in MC temporally precedes the eventuality in SC. The directive act is realized by MC. There are no requirements with respect to perspective. The order of clauses is fixed: MC precedes SC. The SC usually contains a modal expression like *kunnen* (*can*) or *hoeven* (have to).

5. *Opdat*: the BS is the inverse of the BS of *omdat* but it contains no generalization. It is characterized by the addition of an Intentional operator to the SC relatum in BS. The intention expressed is purely ideational: it is not an intention to increase the reader's commitment to the action expressed in the SC (as is intention/motivation in the sense of Mann and Matthiessen, 1990). Since the eventuality expressed in SC indicates a desired state of affairs, it must temporally follow the eventuality expressed in MC. The MC requires an animate subject. There are requirements with respect to perspective: it normally is the same for MC and SC. This may the perspective of the speaker - or the entire BS may be embedded in the perspective of an implicit utterer. Note that in (79) both MC and SC are attributed to the Sudanese government, although the MC has only a very weak perspectivizer (the use of the Pluperfect).

   (79) a. Het bezoek was georganiseerd door de Soedanese regering opdat de Paus zou kunnen 'vaststellen dat de beschuldigingen vals zijn...'.

   b. The visit had been organized by the Sudanese government in order that the Pope would be able to 'record that the accusations are false....'

   The directive act may be realized by MC - but this is not necessarily the case. There is no need for a SDT.

6. *Doordat*: the BS is similar to the BS of *omdat* but it contains no generalization. All interpretations of this connective are strongly ideational - the BS is close to the surface utterance. The time of occurrence of the eventuality expressed in SC has to precede the time of occurrence of the eventuality expressed in MC. Finally, the MC can not be agentive. Therefore, no 'intelligent being' is present there and the perspective can not be embedded, as it can in case of *omdat*, cf. (80) and (81).

   (80) a. ?? Henry was tevreden doordat hij met Kerst thuis zou zijn

   b. Henry was content through the fact that he would be home for Christmas

   (81) a. Henry was tevreden omdat hij met Kerst thuis zou zijn

   b. Henry was content because he would be home for Christmas

   The impossibility of embedded perspective causes a temporal infelicity in (80): the temporal order is not SC before MC, and there is no intervenience of an 'intelligent

[39] Again, it may be expected that this inversion leads to preferences for the one connective or the other in concrete contexts

being' to reverse this order. As could be predicted, this connnective does not allow for a belief reading or a speech act reading.

The conclusions will be presented in the form of a double system network. In Systemic Functional Grammar systems are the common representation formats. As was argued in Bateman and Rondhuis (1994), coherence relations and their linguistic realizations belong to separate but interrelated systems. I will adopt their proposal and refer to their paper (DANDELION deliverable R1.1.1a/b) for further arguments and details of the division into a higher (rhetorical) level and a lower (connectives) level.

However, I deviate from their proposal in one respect. Contrary to the outlook on connectives found in Martin (1992) and adopted by Bateman and Rondhuis (1994), I will not assume two systems for the connectives themselves: an internal one for primarily textual relations and an external one for primarily ideational relations. The reasons for this deviation are the following. Firstly, no connectives were found that *exclusively* realise an interpersonal or textual meta-function. In Martin (1992), an internal relation system for causal relations is not even presented: there are not many candidate connectives for such a system. Those connectives that may be used textually, i.e. as cue phrases, also have an ideational meaning component. Secondly, an argument offered by Martin (1992: p.217) in favour of both an internal and an external system for connectives seems to be rather weak. He considers the nature of the external and the internal dependency to be different, which, of course, is a fact. Compare (82a) and (82b): two interpretations of the connective *except* occur. The first is used externally, whereas the second is used internally.

(82) a. Dinner's ready except that the rice isn't quite done

b. You could call people to dinner, except that they're not all there

The order of MC and SC in (82a) but not in (82b) could be reversed. But this reversibility criterion seems to be rather ad hoc; the core meaning of both occurrences is very similar. Besides, even 'purely ideational' connectives, like *zodat*, were found to require a specific ordering of clauses.

The conclusion should not be that I propose to neglect 'internal' meaning components of (interpretations) of connectives. The proposal is to discerns a certain core meaning for an individual connective (or, if necessary, more than one core meaning). This meaning is represented in the system for connectives in the usual way: the interpretation of the linguistic realization at the utter right in the system is composed by the nodes of the system passed by if we walk through the system from left to right. The further to the right, the more 'delicate' or specific the properties attributed to the connective get.

The system is kept as simple as possible. The connectives represented obtain their variety of interpretations in combination with the higher system, the system for coherence relations (or: rhetorical relations). For three reasons this appeared to be an efficient and explanatory satisfactory solution. For one, the complex of interpretations of connectives is reduced in a systematic way. And secondly, the variety of interpretations the connectives may get parallels the interpretations of juxtaposed clauses to a great extent. Consequently, we do not have to do a double job, first defining a set of possible interpretations for coherence relations and then defining a largely identical set of relations for their linguistic realizations, the connectives. Finally, the division into a higher and a lower system makes the duplication of the system for connectives superfluous. Connectives may receive a belief-interpretation or a speech act interpretation grace to their interrelation to the higher system. Firstly, the two systems are sketched and then the interrelations between them are given for each connective.

6.1 Two systems

RHETORICAL SYSTEM (the higher system)

- IDEATIONAL
  - →
    - occurrence →
      - cause (*a*)
      - enablement →
        - plan step (*b*)
        - ...
    - expansion (*c*)
  - →
    - positive (*d*)
    - negative (*e*)
- INTERPERSONAL
  - →
    - →
      - interpersonal occurrence → assert (assess, qualify) (*f*)
      - interpersonal expansion →
        - reader-attitude
          - belief (evidence, conjecture) (*g*)
          - regard (concede) (*h*)
        - reader-commitment
          - intention (motivation) (*i*)
          - ability (enablement) (*j*)
        - reader-comprehension
          - understanding (*k*)
          - understanding purpose (justify) (*l*)
    - →
      - nuclear positive (*m*)
      - nuclear neutral (*n*)
      - nuclear negative (*o*)
- TEXTUAL
  - →
    - MC nuclear (*p*)
    - SC nuclear (*q*)
    - neither MC nor SC nuclear (*r*)

SYSTEM FOR CONNECTIVES (the lower system)

- →
  - causal →
    - > in BS →
      - gener. BS w.r.t. Utt. ↘ *omdat1*, ↘ *want*
      - no gener. BS w.r.t. Utt. ↘ *omdat2* ↘ *doordat*
    - < in BS →
      - intention ↘ *opdat*
      - consequence ↘ *zodat*
  - contrastive →
    - weak contrast in BS ↘ *maar1*, *terwijl1*
    - strong contrast in BS ↘ *maar2*, *hoewel1*
  - } denial of exp. ↘ *maar3*, *hoewel2*, *terwijl2*

6.2

Interrelations between the systems

For each connective that ends up at the right-hand end of the system, as the realization of the sum of the properties along the path trough the system leading to it, relations to the higher system are given. Sometimes, one realization maintains several relations to the higher system; these are the cases of connectives that have interpretations varying with respect to the meta-function they fulfil most prominently.

omdat1a

- ideational

  cause

  positive

- interpersonal

  interpersonal occurrence

  nuclear neutral

- textual

  MC nuclear or nuclear neutral

- conditions

  general regularity in common ground

  MC often has a SDT with context

  if nuclear neutral, the content of MC may be "old"

  if nuclear neutral, MC has SDT with context

  if nuclear neutral, the connective can not be deleted

omdat1b (speech-act case)

- ideational

  cause

  positive

- interpersonal

  interpersonal expansion/ comprehension/ understanding purpose/ justify

  nuclear positive

- textual

MC nuclear

- conditions

MC does not express "old" information
Speech act can be added to BS

omdat2

- ideational

cause
positive

- interpersonal

interpersonal occurrence
nuclear neutral

- textual

MC nuclear

- conditions

(implicit) agent (animacy)
the implication in BS is attributed to an utterer other than the speaker
(embedded perspective)

want

- ideational

cause
positive

- interpersonal

interpersonal expansion/ reader attitude/ belief or conjecture
nuclear positive

- textual

MC is nuclear

- conditions

MC is new in context
MC is perspectivized: speaker's perspective
SC is perspectivally neutral (or has a perspective that is different from the speaker's perspective)

MC *want* SC is not a question
operator over MC can not have SC in its scope

zodat

- ideational

  enablement
  positive

- interpersonal

  occurrence/ assertion
  nuclear neutral

- textual

  MC is nuclear

- conditions

  event time of MC precedes event time of MC
  MC precedes SC
  SC often contains a modal expression

opdat

- ideational

  occurrence enablement plan step
  positive

- interpersonal

  assertion (assess)
  nuclear neutral

- textual

  MC nuclear (or no nucleus)

- conditions

  event time MC precedes event time SC
  either one perspective for MC and SC or SC perspectivized and MC perspectivally neutral (fact)

doordat

- ideational

  cause

positive

- interpersonal

  occurrence/ assertion
  nuclear neutral

- textual

  MC nuclear (or no nucleus)

- conditions

  event time SC precedes event time MC
  MC is not agentive
  both MC and SC from one perspective

maar1 (semantic opposition)

- ideational

  expansion
  negative

- interpersonal

  interpersonal occurrence/ assert, qualify (argumentatively neutral)
  nuclear neutral

- textual

  neither MC nor SC nuclear

- conditions

  SDT in surface utterance

maar2 (concession)

- ideational

  expansion
  negative

- interpersonal

  interpersonal expansion regard
  nuclear positive

- textual

  SC nuclear

- conditions

  SDT, both in BS and with context
  SC from speaker's perspective

maar3 (Denial of expectation)

- ideational

  cause
  negative

- interpersonal

  interpersonal occurrence
  nuclear neutral

- textual

  SC is nuclear

terwijl1 (semantic opposition)

- ideational

  expansion
  negative

- interpersonal

  interpersonal occurrence/ assert, qualify (argumentatively neutral)
  nuclear neutral

- textual

  neither MC nor SC nuclear

- conditions

  SDT in surface utterance

terwijl2 (Denial of expectation)

- ideational

  cause
  negative

- interpersonal

  interpersonal occurrence
  nuclear neutral

- textual

  MC is nuclear

hoewel1 (concession)

- ideational

  expansion
  negative

- interpersonal

  interpersonal expansion regard
  nuclear positive

- textual

  MC nuclear

- conditions

  SDT, both in BS and with context
  MC from speaker's perspective

hoewel2a (Denial of expectation)

- ideational

  cause
  negative

- interpersonal

  interpersonal occurrence
  nuclear neutral

- textual

  MC is nuclear

hoewel2b (belief- Denial of expectation)

- ideational

  cause
  negative

- interpersonal

  interpersonal expansion reader-attitude belief
  nuclear positive

- textual

  MC is nuclear

- conditions

  Belief operator can be added to BS

hoewel2c (speech-act Denial of expectation)

- ideational

  cause
  negative

- interpersonal

  interpersonal expansion reader-comprehension understanding purpose justify
  nuclear positive

- textual

  MC is nuclear

- conditions

  speech-act operator can be added to BS

There is no pretension to completeness with respect to these characterizations. But, incomplete as they may be, they do allow for a set of systematic combinations characterizing the individual interpretations of eight Dutch connectives as they were described in this paper. Moreover, although I have released the one-to-one correspondence between sets of features and connectives, there is no proliferation of possible interpretations. The interrelations between the higher and the lower system alow for a strong ideational interpretation of the connective (i.e. if "assert" and "nuclear neutral" is chosen in the interpersonal part of the system), or a stronger interpersonal interpretation of the connective (i.e. if some form of expansion is chosen in combination with "nuclear positive" or "nuclear negative"). In the latter cases an (implicit) argumentation is given.

In the corpus analysed, no occurrences were found characterizable as expansion/ reader-commitment/ motivation or enablement in the interpersonal component. Connectives that could be characterized as such, would be expected in text types intended to stimulate the reader to perform some action or putting him in the position to do so. News reports do not belong to these text types. In further research, the results reported here will be compared to analyses of corpora of different text types performed along the same lines.

References

[1] Asher, Nicholas, and Michael Morreau (1991), Commonsense Entailment: A Modal Theory of Nonmonotonic Reasoning, in *Proceedings of the 12th International Joint Conference on Artificial Intelligence*. Sydney, Australia.

[2] Anscombre, J. and Ducrot, O. (1977). Deux 'Mais' en Fran cais? *Lingua*, 43:23–40.

[3] Anscombre, J. and Ducrot, O. (1983). L'Argumentation dans la Langue, in *Philosophie et Langage*, Pierre Mardaga.

[4] Banfield, A. (1982), *Unspeakable sentences. Narration and Representation in the Language of Fiction*, Routledge, Boston.

[5] Bronzwaer, W. (1979), Focaliseren of Vertellen?, in *Forum der Letteren 20-4*.

[6] Bateman, J. and K.J. Rondhuis (1994). *Coherence Relations: Analysis and Specification.* Deliverable R1.1.2:a,b. ESPRIT-project EP6665 DANDELION.

[7] Dahlgren, K. A Computational Account of Discourse Relations, in *Computational Linguistics.*

[8] Dascal, M. and Katriel, T. (1977). Between Semantics and Pragmatics: The two Types of 'But' - Hebrew 'Aval' and 'Ela'. *Theoretical Linguistics*, 4:143–172.

[9] Ducrot, O. (1983). Connecteurs Pragmatiques et Structure du Discours, in *Cahiers de Linguistisque Fran caise, 5.*

[10] Ducrot, O. (1980). *Les Mots du Discours.* Paris: Minuit.

[11] Dijk, Teun van (1977). Connectives in Text Grammar and Text Logic, in Teun van Dijk and János Petöfi (eds.), *Grammars and Descriptions*, Berlin, New York.

[12] Dijk, T. v. (1979). Pragmatic connectives. *Journal of Pragmatics*, 3:447–456.

[13] Elhadad, M. and K. McKeown (1989). *A Procedure for the Selection of Connectives in Text Generation.* Technical report CUCS-419-89. Columbia University.

[14] Engelen, J.L. van (1995), *Discours Structuur en de Interpretatie van de Connectieven **Maar** en **Hoewel***, thesis, Catholic University of Tilburg.

[15] Gazdar, G. (1979), *Pragmatics, Implicature, Presupposition and Logical Form*, New York.

[16] Grosz, B. J. and Sidner, C. L. (1986). Attention, Intentions and the Structure of Discourse. *Computational Linguistics Journal*, 12(3):175–204.

[17] Halliday, M. A. (1985). *An Introduction to Functional Grammar.* Edward Arnold, London.

[18] Heim, Irene (1983), On the Projection Problem for Presuppositions, in *Proceedings of the West Coast Conference on Formal Linguistics 2.*

[19] Heim, Irene (1987), Presupposition Projection, in *Presupposition, Lexical Meaning and Discourse Processes, Workshop of the Esprit Working Group on Dialogue and Discourse. December 16, 17 and 18, 1990 at the University of Nijmegen*, Nijmegen.

[20] Hintikka, J. (1962), *Knowledge and Belief*, Cornell University Press, Ithaca.

[21] Hobbs, Jerry (1985), On the Coherence and Structure of Discourse, Unpublished paper (1985), appeared as a chapter in *Literature and Cognition*, CSLI lecture notes 21, Stanford.

[22] Hobbs, J. et al. (1993). Interpretation as Abduction, in *Artificial Intelligence*, 63:69–142.

[23] Hovy, Eduard H. (1990), Parsimonious and Profligate Approaches to the Question of Discourse Structure Relations, in *Proceedings of the Fifth International Workshop on Natural Language Generation. 3-6 June 1990, Pittsburgh.*

[24] Hovy, Eduard, Julia Lavid, Elisabeth Maier, Vibhu Mittal and Cécile Paris (1992), Employing Resources in a New Text Planner Architecture, in *Proceedings of the 6th International Workshop on Natural Language Generation, Castel Ivano, Trento, Italy, 5th-7th April, 1992*, Springer Verlag.

[25] Jespersen, O. (1924), *The philosophy of grammar*, Allen and Unway, London.

[26] Karttunen, L. (1974), Presupposition and Linguistic Context, in *Theoretical Linguistics 1.*

[27] Kehler, A. (1994). Common Topics and Coherent Situations: Interpreting Ellipsis in the Context of Discourse Inference. In *Proceedings of ACL-94*.

[28] Knott, Alistair (1993), Using Cue Phrases to Determine a Set of Rhetorical Relations, in Owen Rambow (ed.), *Intentionality and Structure in Discourse Relations. Proceedings of a Workshop Sponsored by the Spesial Interest Group on Generation of the Association for Computational Linguistics*, June 1993, University of Ohio at Columbus.

[29] Knott, Alistair and Robert Dale (to appear), Using Linguistic Phenomena to Motivate a Set of Coherence Relations, to appear in *Discourse Processes.*

[30] König, Ekkehard (1986), Conditionals, Concessive Conditionals and Concessives: Areas of Contrast, Overlap and Neutralization, in E. Traugott et al. (eds.), *On Conditionals*, Cambridge MA.

[31] Kroon, Carolien (1995), *Discourse Particles in Latin*, Dissertation, Gieben Publisher, Amsterdam.

[32] Kuppevelt, Jan van (1994), Directionality in Discourse, in Bosch, P. and R. van der Sandt (eds.) *Proceedings of the IBM Focus and Natural Language Processing Conference*, 1994, Schloss Wolfsbrunnen, Germany.

[33] Lagerwerf, L. and Oversteegen, E. (1994). Inferring Coherence Relations through Presuppositions. In Bosch, P. and Van der Sandt, R., editors, *Focus & Natural Language Processing. Proceedings of a Conference in Celebration of the 10th Anniversary of the Journal of Semantics, Hotel Schloss Wolfsbrunnen, Germany*, number ISSN 0946-7521, Heidelberg, Germany. IBM Deutschland and *Journal of Semantics*, IBM, Working Papers of the Institute for Logic and Linguistics.

[34] Lakoff, G. (1971). The Role of Deduction in Grammar, in J. Fillmore and D.T. Langendoen (Eds.), *Studies in Linguistic Semantics*, New York etc.

[35] Lakoff, Robin (1971). If's, And's, and But's about Conjunction, in J. Fillmore and D.T. Langendoen (eds.), *Studies in Linguistic Semantics*, New York etc.

[36] Lascarides, Alex and Nicholas Asher (1991), Discourse Relations and Defeasible Knowledge, in *Proceedings of the annual meeting of the Association for Computational Linguistics 1991* (ACL91).

[37] Lascarides, Alex, Nicholas Asher and Jon Oberlander (1992), Inferring Discourse Relations in Context, in *Conference of the European Chapter of the Association of Computational Linguistics: Proceedings of the Conference 1992* (EACL92).

[38] Lascarides, Alex and Jon Oberlander (1992), Temporal Coherence and Defeasible Knowledge, in *Theoretical Linguistics 18.*

[39] Lascarides, Alex and Jon Oberlander (1993), A Semantics and Pragmatics for the Pluperfect, in *Conference of the European Chapter of the Association of Computational Linguistics: Proceedings of the Conference 1993* (EACL93).

[40] Lavid, Julia and Elisabeth Maier (1992), *Text Relations: their Usefulness for a Dynamic Account of Discourse Structure in a Text Planning System*, Technical Report, GMD/IPSI, Darmstadt.

[41] Mackie, J.L. (1965), Cause and Conditions, in *American Philosophical Quarterly 2* (Also in Sosa (1975)).

[42] Mann, W. and Thompson, S. (1986). Relational Propositions in Discourse. *Discourse Processes*, 9:57–90.

[43] Mann, William and Sandra Thompson (1988), Rhetorical Structure Theory: Toward a Functional Theory of Text Organization, in *Text 3*.

[44] Martin, J.R. (1992), *English Text. System and Structure*, Philadelphia etc.

[45] Nølke, Henning (1992) Semantic Constraints on Argumentation: From Polyphonic Micro-Structure to Argumentative Macro-Structure, in *Argumentation Illuminated*, Amsterdam, Sicsat.

[46] Matthiessen, C. and Thompson, S. (1988). The Structure of Discourse and 'Subordination'. In Haiman, J. and Thompson, S., editors, *Clause Combining in Grammar and Discourse*, pages 275–329. Benjamins, Amsterdam.

[47] McKeown, K. and M. Elhadad (1991). A Contrastive Evaluation of Functional Unification Grammar for Surface Language Generation: A Case Study in Choice of Connectives, in C. Paris et al. (Eds.), *Natural Language Generation in Artificial Intelligence and Computational Linguistics.*

[48] Moeschler, J. (1989), Pragmatic Connectives, Argumentative Coherence and Relevance in *Argumentation 3*, Kluwer.

[49] Moeschler, J. (1990), Topoi and Inferences in *Journal of Integrated Study of Artificial Intelligence.*

[50] Oversteegen, E. (1993), *Temporal Connectives in Dutch*, Report ESPRIT Project 6665 (Dandelion), 1993.

[51] Polanyi, Livia and Remko Scha (1984), A Syntactic Approach to Discourse Semantics, in *Proceedings of Coling84*, Stanford, California.

[52] Rambow, Owen (1993) (ed.), *Intentionality and Structure in Discourse Relations. Proceedings of a Workshop Sponsored by the Special Interest Group on Generation of the Association for Computational Linguistics 21 June 1993, Ohio State University, Columbus, Ohio*, editor Owen Rambow.

[53] Raccah, P.Y. Argumentation, Semantics and AI Presentation in *Journal of Integrated Study of Artificial Intelligence.*

[54] Redeker, G. (1991). Linguistic Markers of Discourse Coherence. *Linguistics*, 29:1139–1171.

[55] Redeker, Gisela (1992), Coherence and Structure in Text and Discourse, manuscript Tilburg University.

[56] Rees, C.van (1985), Implicit Premises on Text and Reader in Genette's Study of Narrative Mood in *Poetics 14*.

[57] Routley, R. and R.K. Meyer (1973), The Semantics of Entailment, in H. Leblanc (ed.), *Truth, Syntax and Modality*, Amsterdam.

[58] Sanders, J. M. (1994). *Perspective in Narrative Discourse.* PhD thesis, Katholieke Universiteit Brabant, Tilburg.

[59] Sanders, Ted (1992), *Discourse Structure and Coherence. Aspects of a Cognitive Theory of Discourse Representation*, Dissertation University of Tilburg.

[60] Sanders, Ted, Wilbert Spooren and Leo Noordman (1992), Toward a Taxonomy of Coherence Relations, in *Discourse Processes 15.* (also in Sanders (1992), chapter 2).

[61] Sanders Ted, Wilbert Spooren and Leo Noordman (1993), Coherence Relations in a Cognitive Theory of Discourse Representation, in *Cognitive Linguistics 4*, (also in Sanders (1992), chapter 3).

[62] Sandt, Rob van der (1988), *Context and Presupposition*, London etc.

[63] Sandt, Rob van der, and Bart Geurts (1991), Presupposition, Anaphora and Lexical Content, in O. Herzog and C.-R. Rollinger (eds.), *Text Understanding in LILOG: Integrating Computational Linguistics and Artificial Intelligence*, vol. I. Springer, Berlin.

[64] Scha, R. and L. Polanyi (1988). An Augmented Context-free Grammar for Discourse, in *Proceedings of the 12th International Conference on Computational Linguistics.*

[65] Searle, J. R. (1975). Indirect Speech Acts. In Cole, P. and Morgan, J. L., editors, *Syntax and Semantics*. Academic Press, New York.

[66] Sidiropoulou, Maria (1992), On the Connective *Although*, in *Journal of Pragmatics 17*.

[67] Snoeck Henkemans, F. (to appear), *'But as an indicator of counter-arguments and concessions*.

[68] Soames, S. (1979), A Projection Problem for Speaker Presuppositions, in *Linguistic Inquiry 10*.

[69] Sosa, Ernest (1975), Introduction, in Ernest Sosa (ed.), *Causation and Conditionals*, Oxford.

[70] Spooren, Wilbert (1989), *Some Aspects of the Form and Interpretation of Global Contrastive Coherence Relations*, Dissertation University of Nijmegen.

[71] Sweetser, Eve (1990), *From Etymology to Pragmatics. Metaphorical and Cultural Aspects of Semantic Structure*, Cambridge, Great Britain.

[72] Ushie, Y. (1986), Corepresentation - A Textual Function of the Indefinite Expression in *Text 6-4*.

[73] Wiebe, J.M. (1994), Tracking Point of View in Narratives in *Computational Linguistics 20-2*.

[74] Zeevat, Henk (1990), Anaphora or Accomodation, in *Presupposition, Lexical Meaning and Discourse Processes, Workshop of the Esprit Working Group on Dialogue and Discourse. December 16, 17 and 18, 1990 at the University of Nijmegen*, Nijmegen.