

Causality marking across levels of language structure

A cognitive semantic analysis
of causal verbs and causal connectives in Dutch

Published by
LOT
Trans 10
3512 JK Utrecht
The Netherlands

phone: +31 30 253 6006
fax: +31 30 253 6000
e-mail: lot@let.uu.nl
<http://www.lot.let.uu.nl/>

Cover illustration: Language reflects our subjective interpretation of reality
(Hermann's grid, L. Hermann (1870)).

ISBN 90-76864-84-5
NUR 632

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A cognitive semantic analysis of causal verbs and causal connectives in Dutch

*Causaliteitsmarkering op verschillende niveaus van taalstructuur
Een cognitief-semantische analyse van
causale werkwoorden en causale connectieven in het Nederlands
(met een samenvatting in het Nederlands)*

Proefschrift

ter verkrijging van de graad van doctor
aan de Universiteit Utrecht
op gezag van de Rector Magnificus, Prof. dr. W.H. Gispen,
ingevolge het besluit van het College voor Promoties
in het openbaar te verdedigen
op vrijdag 2 december 2005
des middags te 16.15 uur

door

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geboren op 1 november 1971 te Assen

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Acknowledgements

A number of persons played an important role in the long and winding causal chain that lead to this dissertation. They deserve mentioning!

In the first place, these are Ted Sanders and Arie Verhagen, who are the causers of this book from a chronological perspective. Their ‘Sanders & Verhagen 1996’ experiment laid the foundations for this project. They may also be construed as the causers of my showing up at this scene (though, perhaps this event is categorized more adequately in terms of the force dynamics category of ‘letting’). My contribution started in the form of a MA-thesis, and was continued as the PhD-project of which the results are reported in this book. Ted and Arie played an important role in making this project possible. I was, and still am, very grateful for that.

Ted became my ‘daily supervisor’. I very much appreciated his *not* supervising me on a daily basis, but trusting me on arranging and planning my activities my own way, and being there whenever I needed some supervision - good advice, a critical reader (he was!), and (well, yes...) on planning matters. I still have nightmares about his drawings of ‘suns’ and ‘Christmas trees’ on the white board, indicating time lines and deadlines. However, the magic word turned out to be: ‘saint Nicolas’ mitre’, and guess what: now I’m even 3 days early!

Arie was appointed to Leiden University even before this project started. Despite geographical and institutional distances, Arie stayed involved in the project as a supervisor, and provided earlier versions of chapters in this dissertation with very valuable and useful comments. Ted and Arie, thank you very very much for your precious time spent on reading lengthy concept-chapters and also on often lengthy discussions on their contents. I enjoyed these very much, and I learned incredibly many things from both of you.

More ‘thank yous’ for contributions on the content level of this dissertation are (in random order) dedicated to: Henk Pander Maat and Liesbeth Degand for discussing ‘connectives’ with me during the earlier stages of this project; Mirna Pit for allowing me to look over her shoulder into the kitchen of ‘doing research’ when I was still a student. Mirna, answering the remark in the ‘acknowledgements’ section in your own dissertation: no, this didn’t stop me of studying my own connectives - at all, I must add... Good times continued ever after, travelling to the ICLC conference in California in the summer of 2001, organizing the first Coglingdag in December 2004 (with Sarah van Vliet from Tilburg University) and simply chatting in our doorways at the Trans; Jacqueline Evers-Vermeul for inspiring collaboration in the diachronic analysis of causal connectives. I really enjoyed our to-the-point discussions and also our ‘mutual disagreements’ on almost anything, I’m convinced these played a crucial role in getting to understand our subject matter better; Paul van den Hoven who was my promotor before Ted and Arie both became professors themselves, he educated me on presentation matters;

Arvid van Maaren for cheerful and very useful contributions to the pilot version of the experiment reported in Chapter 6; Huub van den Bergh for his invaluable statistical advices and his patience; Øystein Nilsen and Oele Koornwinder for occasional ventures into the foundations of linguistic theory. Somehow we always got lost on the words ‘algebra’ and ‘biology’, but it was fun anyway.

Since there is more to life than work, I would also like to thank my fellow PhD students at the UiL OTS for sharing good times. Special thanks are for Mike Huiskes, Oele Koornwinder and Iris Mulders who introduced me to the PhD-students’ life and also turned out to be wonderful company for enjoying musical experiences in ‘real life’, ranging from drum&bass parties to performances of medieval Spanish music. To my roommates (in chronological order of appearance) Mike, Oele, Jacqueline, Judith, Jentine and Sanne: thank you for the pots of coffee and tea we shared, as well as the bigger and smaller stories of life inside and outside of ‘Trans’. I also would like to thank the people from Afdeling Taalbeheersing, who provide an agreeable working environment, letting their PhD-students participate in the department’s daily life.

Very special thank yous for love and support in many respects during the past years are destined to my parents and to my brother Herman, and also to Bernard & Lidy, Betty & Peter, Evelien, Heleen, Karin, Lenn and Vivienne.

And finally, a thank you so big that words cannot express it go to my ‘dearest dear’ Matthijs who had to put up with my kind of tight working schedule during the past year and a half or so. I deeply deeply deeply admire the way he did, especially during this notorious ‘year 2005’, when he somehow found a way (despite his own busy activities) for supporting me and cheering me up at moments that I needed it. Yet there was also happiness during this year: our son Laurens was born. Matthijs and Laurens, my wish for the year 2006 is: the three of us dangling in the big hammock singing out loudly and falsely *Sambassim*.

Chapter 1

Introduction

1.1 Introduction

Causality is a fundamental concept in human thinking and reasoning about the world. It has been at the center of attention in the fields of philosophy, psychology, cultural anthropology, and of scientific debate in general. Because of its fundamentality in human thinking, it plays an important role in (everyday) human communication too. It comes as no surprise that virtually all languages of the world contain lexical and grammatical elements specifically designed for expressing causality. These expressions occur at different levels of the linguistic structure. Several studies have suggested that the meaning of these expressions is derived from our conceptual understanding of causal relations.

So far, causality markers of different grammatical types have typically been studied in isolation. The present study argues that for a full understanding of the interaction between conceptual structure and linguistic structure, an integrative perspective on different types of causality markers is needed. The proposed relation between semantic categories and conceptual understanding will be explored and empirically tested with respect to causal expressions that function at different levels of linguistic structure. It focuses on the semantic contrasts between the Dutch causal verbs *doen* and *laten* and the Dutch causal connectives *daardoor*, *daarom* and *dus*. The present chapter presents an overview of background assumptions and major goals of this study.

1.2 Causality markers in Dutch: observations from language use

This study focuses on linguistic expressions of causality in Dutch. More specifically, it focuses on the semantic contrasts between grammaticalized causality markers of two types: causal auxiliary verbs, marking causal relations expressed *within* one clause, and causal connectives, marking causal relations *between* clauses. Some examples:

Causal verbs:

- (1) [De extreme koude]_{cause} **deed** [de rivieren bevrozen]_{effect}
*The extreme cold **caused** the rivers to freeze.*
- (2) De koude wind **deed** haar verlangen naar een beker warme chocolademelk.
*The cold wind **made** her long for a hot cup of chocolate milk.*
- (3) Hij **liet** de soep afkoelen.
*He **let** the soup cool.*

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- (4) Ze **lieten** de kinderen wat extra rondjes schaatsen.
*They **had** the children skate some extra rounds.*

Causal connectives:

- (5) [Het was extreem koud]_{cause}. **Daardoor** [waren de rivieren bevroren]_{effect}.
*It was extremely cold. **Because of that** the rivers were frozen.*
- (6) Het was extreem koud. **Daarom** besloten we een café op te zoeken.
*It was extremely cold. **That's why** we decided to enter a café.*
- (7) Er ligt ijs op de vijver. **Dus** het heeft gevroren.
*The pond is covered with ice. **So** it must have been freezing.*
- (8) Het is nu wel heel erg koud. **Dus** zullen we maar naar binnen gaan?
*It is getting really cold now. **So** shall we go inside?*

As these examples illustrate, Dutch, like most other languages, offers alternative options to mark causal relations reported in one and the same construction. In this study, the Dutch causal auxiliaries *doen* (roughly equivalent to English 'make'; cf. translation and discussion below) and *laten* (roughly equivalent to either English 'let', or 'have'; cf. translation and discussion below) are studied as a species of linguistic causality markers that function at the 'clause level' of language structure. *Doen* and *laten* are used in constructions that in this study will be referred to as 'analytic causatives'. They can be characterized as 'two-verb constructions' that express a predicate of causation (finite form of *doen* or *laten*) and a predicate of effect, expressed as an infinitive (Kemmer & Verhagen 1994; cf. Wolff & Song 2003; Degand 2001; Wierzbicka 1988).

Analytic causative constructions differ from the inter-clausal relations marked with connectives at least with respect to the explicitness of the elements expressed. The most obvious difference is that in causative constructions the actual causing event is not overtly specified by one of the predicates. The causing events are not specified further than the indication with *deed* and *liet(en)*, that causation *is* occurring (without further lexical content, apart from schematic relations that will be introduced below), and specifying the 'onsetters' of the causal processes in the grammatical subjects of e.g. 'the extreme cold' in (1) or 'he' in (3) (cf. discussion in Kemmer & Verhagen 1994: 117).

In intersentential causal relations, on the other hand, the 'cause' is linguistically further specified as a complete state-of-affairs or event. The clauses expressing cause and effect each contain finite verbs with fully specified state- or event structures. In the present study, intersentential causal relations are considered as a species of 'coherence relations' between discourse segments, typically clauses. Coherence relations are meaning relations that connect discourse segments into a coherent whole (Sanders, Spooren & Noordman 1992; cf. Martin 1992; Mann & Thompson 1988; Hobbs 1979).

Coherence relations are constructed in language user's mental representation of a text, independently from explicit linguistic expression; they are considered to be primarily cognitive phenomena (Hobbs 1979; Noordman 1987; Sanders et al. 1992; Givón 1995; Sanders & Spooren 2001). Yet, they *can* be linguistically marked with lexical or grammaticalized expressions, an example of the latter type being the 'connectives' under investigation in the present study. In

constructions expressing ‘forward causality’, where the ‘cause’ precedes the ‘effect’, Dutch, like many other languages, offers a wide variety of marking options. Frequently used ones are *daardoor* (not having a grammaticalized counterpart in English; best approximated by *because of that*), *daarom* (‘that’s why’; or ‘therefore’) and *dus* (‘so’). These are the connectives on which this study focuses.

Why do language users need so many different expressions for marking causal relations? And why do they need so many lexical contrasts at different levels of linguistic structure? An obvious answer would be: they need them because the markers have different meanings, and these meaning differences are salient enough to structurally maintain specialized expressions for communicating them. This hypothesis is supported by the observation that substitution of *doen* by *laten* (or vice versa) is hardly possible in examples (1) through (4) – if the grammaticality of the sentences is to be preserved. The same observation holds for substitution of the connectives in (5) through (8) by any of the other ones (with exception perhaps of *daarom* by *dus* in (6)).

Yet, the meaning differences are *not always* that obvious. For example, usage contexts exist where *all* of the markers easily fit, consider (9) to (13):

(Context: During a press conference the Minister for Education presented the proposed cut-backs.)

- (9) De kritisch doorvragende journalisten **deden** hem vrezen voor de acceptatie van zijn plannen.
*The persistently critical journalists **made** him worry about the acceptance of his plans.*
- (10) De kritisch doorvragende journalisten **lieten** hem vrezen voor de acceptatie van zijn plannen.
*The persistently critical journalists **had** him worry about the acceptance of his plans.*
- (11) De journalisten bleven kritisch doorvragen; **daardoor** vreesde hij voor de voor de acceptatie van zijn plannen.
*The journalist persisted in their critical attitude. **Because of that** he worried about the acceptance of his plans.*
- (12) De journalisten bleven kritisch doorvragen; **daarom** vreesde hij voor de voor de acceptatie van zijn plannen.
*The journalist persisted in their critical attitude. **That’s why** he worried about the acceptance of his plans.*
- (13) De journalisten bleven kritisch doorvragen; **dus** vreesde hij voor de voor de acceptatie van zijn plannen.
*The journalist persisted in their critical attitude. **So** he worried about the acceptance of his plans.*

Furthermore, causality markers may sometimes occur in atypical contexts, and still be ‘grammatical’. Consider (14) (taken from a daily newspaper) where *daardoor* is used in a context where *daarom* would be the more conventional marking option, or consider (15) (from the same daily newspaper) where *doen* is used in a typical *laten* context. And finally, ‘real life’ examples exist where highly similar causal processes are marked differently within one and the same text span as in (16)

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- (14) (Context: According to international legislation, it is a war crime to shoot at people or installations that are protected by the Red Cross or the Red Crescent moon.] Het gebruik van het kruis of de halve maan is uit den boze in Israël. De Israëlische organisatie werd **daardoor** / **daarom** niet toegelaten als volledig lid (*Trouw*, 2001).
[The use of the cross or the crescent moon is wrong in principle.]_{S1}
Because of this / **that's why** [*The Israeli organisation was not allowed as full member.]_{S2}*
- (15) Zijn (koning Boudewijn van België) door de rooms-katholieke leer gevormd geweten, geraakte in conflict met hetgeen de landsregering besloten had. En in hoeverre heeft de clerus getracht door middel van de kroon zijn opvattingen in de besluitvorming van kabinet en parlement te **doen** / **laten** zegevieren? (*Trouw*, 2001)
*His (King Boudewijn of Belgium) conscience, formed by Roman Catholic teachings, was conflicted by what the government had decided. And to what extent had the clergy attempted to **make** their opinions triumph in the decision making of the cabinet and the parliament, by using the crown?*
- (16) God heeft Hem echter op de derde dag **doen** opstaan en **laten** verschijnen, niet aan het hele volk, [...] (Handelingen 10, 40- KBS Willibrordvertaling 1977)¹
*By the third day, however, God **made** Him rise and **had/let** him appear, not to the whole people [...]*

1.3 Causality markers as categorization devices

How can these paradoxical observations – on the one hand, causality markers have clearly got ‘a meaning’, but on the other hand, they are extremely flexible in usage - be accounted for in a coherent linguistic theory? This is the central research question of this study. During the past 30 years, a theoretical framework has been developed that offers a good starting-point to handle this question. It has been proposed that causality markers function as ‘categorization devices’. When selecting a specific marker among the options available in a language, the language user assigns the causal relation expressed to a specific type of causal relation.

A classical theory on linguistic categorization of causal relations is Talmy’s (1976; 1988; 2000) theory of ‘force dynamics’: “how entities interact with respect to force” (2000: 409). Talmy observes that semantic contrast between different types of causal expressions can be characterized with reference to this conceptual system for force interaction. Major categories in his taxonomy of causality types are ‘causing’ and ‘letting’, illustrated and discussed with reference of the following examples (Talmy 2000: 418).

¹ I would like to thank José Sanders for bringing this fragment to my attention.

- (17) The ball's hitting it **made** the lamp topple from the table.
 (18) The water's dripping on it **made** the fire die down.
 (19) The plug's coming loose **let** the water flow from the tank.
 (20) The stirring rod's breaking **let** the particles settle.

The difference between the categories of 'causing' (associated with the causal verb 'make') and 'letting' (associated with the causal verb 'let') is defined by the nature of interaction between the element(s) representing the "cause" in the relation (called 'antagonist' in Talmy's theory), and the one undergoing the "effect" (termed 'agonist'). In the force dynamic system, all entities are assumed to have an 'intrinsic force tendency'. Entities may have a tendency towards 'action' or a tendency towards 'rest'. The difference between 'causing' and 'letting' can be defined in terms of the interaction between the cause-entity and the effect-entity. Prototypical 'causing' is understood in force dynamics terms as a situation where the cause-entity by exerting force changes the inherent force tendency of the effect-entity (examples (17) and (18)). Prototypical 'letting' is understood as a situation where the cause-entity *stops* exerting force on the effect-entity (and where the effect-entity is enabled to carry out its inherent force tendency - examples (19) and (20)). The semantic contrast between causing and letting is summarized in Figure 1.1. For a more detailed discussion of Talmy's theory of force dynamics: see Chapter 2, Section 2.3.

Make	Let
<i>Causing</i>	<i>Letting</i> (permission, enablement)
A stronger antagonist changes the intrinsic tendency of the agonist	A stronger antagonist is able to change the intrinsic tendency of the agonist, but refrains from doing so

Figure 1.1. The categories of 'causing' and 'letting' (Talmy 1988; 2000).

Talmy observes that the force dynamic model shows close parallels with the conceptual systems for force interaction both in naïve physics and psychology, and in early science, as well as in casual treatments of modern science (2000: 410). The relation between semantic structure and conceptual structure is at the center of attention in the research field of cognitive linguistics. Its central assumption is that content and architecture of linguistic elements show important parallels with the content and architecture of human conceptual understanding. Cognitive linguistics investigates the way linguistic structure may be related to conceptual thought and bodily experience. Among the research objects are "the various cognitive models, image schemas, radial structures, conceptual metaphors, and so on, that are constitutive of people's everyday experience" (Gibbs 1996: 49).

Cognitive linguistics can be associated with the broader field of functional linguistics (indeed, it is sometimes considered as a subspecies of functional linguistics; cf. Newmeyer 1998, and references cited there) because of its assumption that language is essentially to be studied from its communicative function, and that it cannot be isolated from actual language use and usage contexts. It is to be contrasted with formal linguistic approaches to language, in that it does

not start from the a priori assumption that language is best understood as an autonomous system, isolated from other human cognitive capacities.

A central claim in cognitive linguistics is that there is a close relationship between semantic categories and conceptual categories: word meaning reflects the cognitive understanding of the concept denoted. But this relation is assumed to hold in the opposite direction as well. An expression's meaning is taken to be "not just an objective characterization of the situation described. Equally important for linguistic semantics is how the speaker chooses to 'construe' the situation and portray it for expressive purposes" (Langacker 2002: 315). In line with this assumption, the present study will propose that causality markers are categorization devices that do *not* portray the world the way it objectively is, but rather the way the speaker chooses to construe it, making use of shared conceptual models. It will be argued that it is exactly this aspect of language use that enables us to understand the sometimes surprising usage patterns of causality markers as observed in Section 1.2.

The 'cognitive' analysis of causal expressions as discussed in this section has implications for the analysis of linguistic expression of causality in general. If the parallel between semantic categories and conceptual categories holds the way it has been proposed in cognitive semantic research, it is to be expected that it applies to *all* types of causality markers. We don't expect to change the conceptual understanding of a causal relation fundamentally with the type of expression chosen. This is indeed what has been suggested by Talmy, claiming that "force dynamics (...) plays a structuring role across a range of language levels. (...) it has direct grammatical representation. In English, our main language of demonstration, such representation appears not only in subsets of conjunctions, prepositions and other closed-class elements but, most significantly, also as the semantic category that most uniquely characterizes the grammatical category of modals as a whole" (2000: 409). Elaborating this claim and empirically testing it is the central goal of the present study.

1.4 Causality marking across levels of language structure

The expected parallel between different types of causality markers, however, is not obviously visible if we take a closer look at a number of recent studies on Dutch causal verbs and Dutch causal connectives. The studies discussed share with Talmy the cognitive linguistic orientation, but differ from Talmy's approach in that their findings are based the empirical study of data from language use.

Causality marking at the clause level: doen and laten

Verhagen & Kemmer (1997; 1992; Kemmer & Verhagen 1994) observe that the conceptual model of 'interaction of force' is relevant in the distinction between Dutch *doen* and *laten* too, but that the exact distinction between the causal verbs differs somewhat from Talmy's 'causing' and 'letting' categories. Consider the following examples, discussed by Verhagen & Kemmer (1997: 62).

- (21) De stralende zon **deed** de temperatuur oplopen.
*The shining sun **made** the temperature rise.*
- (22) De recessie **doet** de mensen verlangen naar betere tijden.
*The recession **makes** people long for better times.*
- (23) De agent **liet** hen passeren.
*The police officer **let** them pass.*
- (24) Ze **liet** de agent haar rijbewijs zien.
*She showed (**let see**) the police officer her driver's license.*
- (25) De sergeant **liet** ons door de modder kruipen.
*The sergeant **had/made** us crawl through the mud.*

Sentences (21) and (22) can be interpreted as instances of ‘causing’: an antagonist alters the intrinsic force tendency of a weaker agonist. If the sun shines, the temperature can do nothing but rise. A similar construal of the second situation is likely: if a recession occurs, people start longing for better time almost automatically. Sentence (23) is a clear instance of the ‘letting’ category: the antagonist has the opportunity to alter the force tendency of a potentially weaker agonist, but does not do so, thereby enabling (permitting) the agonist to carry out its inherent tendency to pass. Sentence (24) is ambiguous between ‘causing’ and ‘letting’, but the only plausible interpretation of sentence (25) is a construal in terms of ‘causing’: it is highly unlikely that the antagonist has an inherent tendency for ‘crawling through the mud’ (Verhagen & Kemmer 1997: 68). Verhagen & Kemmer define the semantic contrast between *doen* and *laten* as follows:

Doen	Laten
<i>Direct causation</i>	<i>Indirect causation</i>
The initiator produces the effected event directly; there is no intervening energy source ‘downstream’	Some other force besides the initiator is the most immediate source of energy in the effected event

Figure 1.2. The categories of direct and indirect causation (Verhagen & Kemmer 1997).

They propose that in mechanisms governing marking patterns of *doen* and *laten*, the construal of ‘inherent force tendency’ appears to be mediated by other conceptual models. One of them is the ‘folk theory’ distinction between the ‘mental world’ of human beings and their inanimate physical environment. Another one is the ‘folk model of the mind’ (D’Andrade 1987), which governs human understanding of mental processes such as perception and belief (1997: 70-7). For an extensive discussion of Verhagen & Kemmer’s findings see Chapter 3 of this study.

Causality marking at the discourse level: daardoor, daarom and dus
During the last decade or so, a number of studies focusing on the meaning and use of causal connectives were published. By way of introduction, the proposal of Pander Maat & Sanders 1995 will be discussed. This study has its origins in a

broader textlinguistic research of notably Sanders (1992) and Sanders, Spooren & Noordman (1992; 1993) into the nature and organization of coherence relations (cf. Section 1.2). Sanders et al. (1992; 1993) propose that the set of coherence relations may be ordered in a taxonomic way, organized around ‘cognitive primitives’. The study of Pander Maat & Sanders (1995) elaborates this theory by investigating whether *daardoor*, *daarom* and *dus* may offer ‘linguistic evidence’ (and thus underpin the claim of cognitive reality) for Sanders’ et al. assumption that the class of causal coherence relations is split up by a primitive ‘source of coherence’.

Pander Maat & Sanders argue that this primitive shows important conceptual parallels with distinctions formulated in Sweetser’s (1990) theory of ‘domains of use’ (cf. Chapter 4). Building on Sweetser’s classification, Pander Maat & Sanders hypothesize that the meaning and use of *daardoor*, *daarom* and *dus* can be characterized in terms of the ‘paraphrases’ presented in Figure 1.3. Examples (taken from Pander Maat & Sanders 1995) are discussed below.

Daardoor	Daarom	Dus
<i>Content non-volitional</i> [s1] ² the consequence of this situation is: [s2]	<i>Content volitional</i> [s1] this situation constitutes a reason for carrying out the following action: [s2]	<i>Epistemic</i> [s1] this fact leads me to conclude [s2]

Figure 1.3. The categories of (non-)volitional and epistemic causation (Pander Maat & Sanders 1995).

- (26) Vooral bij grotere machines gaat het om maatwerk [...]. **Daardoor** kan het gebeuren dat er onverwachte problemen ontstaan bij het afbouwen.
Especially in the case of large machines goods made to measure are at stake [...] Because of this, unexpected problems may occur when phasing out.
- (27) Omdat er nog geen manier is ontwikkeld om legitieme dubbelmeldingen te scheiden van die waaraan een luchtje zit, zal de verwerking van [de] signalen veel tijd kosten. De bedrijfsverenigingen hebben **daarom** afgesproken deze samenloopsignalen niet te onderzoeken.
Because no way has been developed yet for separating legitimate ‘double signalings’ from the legitimate ones, processing the signals will take too much time. That’s why trade organizations have agreed upon not investigating these signals.
- (28) Er blijkt weer een toename van het aantal besmettingen met het hivvirus te zijn. Als aids-verpleegkundige zie ik de gevolgen ervan. Aidspreventie, daar komt het **dus** op aan.
There appears to be an increase in the number of HIV infections. As a nurse specializing in AIDS, I encounter the consequences of this situation. So: AIDS prevention, that is what it takes.

² The symbol ‘s’ is short for ‘(text)segments causally related’. In forward causal relations, S1 stands for the causal antecedent (Q) and S2 stands for the causal consequent (P).

The concept of ‘volitionality’ distinguishes causal relations in which the causal effect comes about by an intentional decision in [s2] (such as (27)) from causal relations in which intentionality does not play a crucial role (such as (26)). In ‘epistemic’ causal relations on the other hand, of which (28) is an example, a relation is constructed not between real world situations (such as reported in (26) and (27)), but between a real world situation and a conclusion of the speaker in [s2], based on his³ assessment of this situation. Pander Maat & Sanders’ (1995) proposal, as well as other, more recent proposals (making use of the concepts of ‘subjectivity’ and ‘mental spaces’) will be discussed in Section 4.2.

There are important similarities between the theoretical accounts of causal verbs and causal connectives just discussed. They share the same starting point, namely: the assumption that an adequate account of the semantics of causal expressions must be related to our conceptual understanding of causal relations. Both of the theories are compatible with the idea of conceptual categorization: in both approaches the concept of ‘distinctions between conceptual types’ is present. Still, it is not at all obvious how the concept ‘directness of causation,’ proposed to characterize the semantics of *doen* and *laten*, is to be related to the concepts of ‘volitionality’ and ‘epistemicity,’ proposed to characterize the semantic distinction between *daardoor*, *daarom* and *dus*.

1.5 Purposes of the present study

The short discussion in Section 1.4 presents a confusing situation. Why is it that studies with similar theoretical orientations come up with semantic theories of causality markers that differ to such an extent? On the one hand, it is conceivable that the overall meaning of a causal expression may be influenced to some extent by construction specific characteristics. But if the cognitive assumption that word meaning reflects conceptual understanding holds, it is highly unlikely that our understanding of causal relations varies fundamentally according to the type of construction it is construed with. This will be the central hypothesis of the present study. It will build on findings from previous research, focusing on patterns of meaning and use of the Dutch causal verbs *doen* and *laten*, which mark causal relations at the clause-level, and on the Dutch causal connectives *daardoor*, *daarom* and *dus*, which mark causal relations at the discourse-level.

The starting assumption will be that the ‘cognitive’ theories of causality marking discussed here diverge somewhat in their scope and actual application of theoretical concepts. For example, connectives have typically been studied from a textlinguistic perspective that differs from the cognitive linguistic framework with respect to descriptive and methodological traditions. Chapter 4 will argue that a more complete implementation of ‘cognitive principles’ in the description of connectives renders conceptual similarities with causal verbs more visible.

³ The choice for masculine forms for reference to the speaker is arbitrary.

Conversely, while cognitive semantic theory does not make a principled distinction between sentence level phenomena and discourse level phenomena, the latter are seldom explicitly taken into account in cognitive grammars (e.g. Langacker 1987; 2002) or comprehensive semantic theories (e.g. Lakoff 1987). This is also true for Talmy's force dynamics theory. The proposal predominantly focuses on expressions that function at the clause-level of language. Causal conjunctions, typically used to connect clauses at the level of discourse structure, are taken into account from their non-typical function as prepositional markers (*because of*), but not in their full discourse function connecting complete clauses (*because*). Moreover, the more recent studies discussed differ from Talmy's in that they are more explicitly concerned with empirical testing of actual data of language use.

The aim of the present study is to realize the integrative perspective on causality markers of different types, as was suggested by Talmy (1988, 2000), while preserving the empirical basis added by more recent approaches. It will be proposed that an integrative perspective of this kind is needed for a full understanding of the mechanisms governing the linguistic marking of causal relations. By analyzing markers of different grammatical types, it will become possible to disentangle the contributions that conceptual content and constructional aspects may make to the overall lexical semantics of the markers. This, in turn, will yield a better understanding of the interaction between conceptual structure and semantic structure with respect to the linguistic expression of causality. But it will also add to the understanding of the functioning of marker types in isolation.

Evidently, this study fits in with a broader perspective on linguistic study. Firstly, by investigating and empirically testing the relation between semantic structure and conceptual structure as it is manifest in causal verbs and causal connectives, it adds to the understanding of the nature and scope of this relation. A second aim is to explore whether discourse phenomena can be integrated in cognitive semantic theories that were originally designed for accommodating clause-level phenomena.

1.6 Summary and outlook

This chapter started out with a number of questions regarding the linguistic marking of causal relations with Dutch causal verbs and causal connectives. Why do we need so many markers at different levels of linguistic structure? And why is it so difficult to formulate a descriptively adequate account of the meaning and use of causality markers? Section 1.3 formulated an onset of an answer to these questions. Previous studies have suggested that the meaning of causality markers is related to the conceptual understanding of causality. The present study aims at elaborating and empirically testing this hypothesis.

It has rightly been suggested that the generalizing theory of Talmy is not specific enough to offer a descriptively adequate account of individual marker types. But at the same time, the studies that *do* offer descriptive adequacy tend to lose sight from commonalities between marker types, characterizing the family of causality marker as a whole. On the one hand, it is conceivable that the overall semantics of causality markers is influenced by constructional factors. But if the assumption

concerning the relation between semantic and conceptual factors holds, it is highly unlikely that the interpretation of causal relations changes fundamentally if the level of linguistic representation changes. The hypothesis tested in this study is:

Hypothesis

There are fundamental conceptual parallels between causality markers of different grammatical type, visible in similar conditions of use.

Semantic differences are expected to be found as well, but they must be attributable to constructional factors. The hypothesis will be tested against meaning and use of the Dutch causal auxiliary verbs *doen* and *laten*, and the Dutch causal connectives *daardoor*, *daarom* and *dus*. Chapter 2 constructs a theoretical framework in which basic assumptions and findings of cognitive semantics that are relevant to the purposes of the present study will be discussed. In Chapter 3 and Chapter 4, existing theories on the meaning of (Dutch) causal verbs and causal connectives will be related to this framework. Chapter 3 explores the nature of the relation between semantic structure and conceptual structure as it may be manifest in the Dutch causal verbs *doen* and *laten*. Hypotheses are formulated and empirically tested against quantitative data from natural language use. Chapter 4 proceeds in a similar way with respect to the Dutch causal connectives *daardoor*, *daarom* and *dus*. In Chapter 5, the diachronic stability of the relation between semantic structure and conceptual structure will be tested for the connectives *daarom* and *dus* against usage data from texts encompassing a period of time ranging from the 13th to the 20th centuries.

The analyses of verbs and connectives ‘in isolation’ reported in Chapters 3, 4 and 5 serve as input for the next two chapters, reporting ‘cross-level analyses’ of verbs and connectives. Chapter 6 formulates an onset for a ‘cross-level parallel’ hypothesis, and reports an experimental study investigating intuitions language users may have to this point. Previous findings in the field of cognitive semantics suggest that constructional aspects may interact with conceptual content communicated by linguistic expressions. Chapter 7 of this study investigates conceptual parallels in categorizations made by causal verbs and causal connectives more systematically and also derives and tests hypotheses in a corpus analysis. In the same chapter, construction related differences between the expressions will be explored.

While Chapters 6 and 7 address this study’s hypothesis most directly, the preceding ones are essential in preparing the way. Chapters 2 to 5 aim to create a homogenous framework with respect to theoretical concepts, text samples and empirical methods of analysis used, which is necessary for carrying out the cross-level analyses in a meaningful and reliable way.

Chapter 2

The linguistic expression of causality and conceptual structure

2.1 Introduction

Studies conducted in the field of cognitive semantics propose that the meaning of causality markers is related to our conceptual understanding of causal relations. More specifically, causality markers are considered to be categorizing devices. When selecting a specific marker among the options available in a language, a language user assigns the causal relation expressed to a specific type of causality. The aim of the present study is to construct a theory that offers an integrative perspective on causality markers of different grammatical types. It focuses on the Dutch causal verbs *doen* and *laten*, marking causal relations at the clause level of linguistic structure, and also on the Dutch causal connectives *daardoor*, *daarom* and *dus*, functioning on the discourse level of language structure. It is assumed that semantic differences between causality markers may exist, due to differences between the construction types they are used in. But more importantly, it is expected that there must be fundamental conceptual parallels as well. This expectation functions as the main hypothesis of this study.

The hypothesis was empirically tested in a number of studies that will be reported in subsequent chapters. The present chapter's aim is to introduce and discuss a number of theoretical concepts and ideas that will be used in this study. This study will mainly be concerned with the question of how the conceptual understanding of causality may be related to the lexical *meaning* of causal verbs and causal connectives. Its main focus therefore, is the *semantics* of causal expression. 'Semantic study' may be defined as:

the study of meaning expressed by elements of a language and by combinations thereof [...] It is the task of the semanticist to describe the meaning of linguistic elements and to study the principles which allow (and exclude) the assignment of meaning to combinations of these elements. In addition, a complete and adequate semantic theory [...] provides an account of the relations between linguistic expressions and things that they can be used to talk about (De Swart 1998: 1, 2).

The analysis of causality markers in terms of conceptual categories, which is what this study does, implies a specific position in the field of linguistic study. It implies that a rather direct relation exists between semantic structure and conceptual structure. This is a constitutive assumption of the cognitive linguistic approach to

language; but it is *not* necessarily shared by other linguistic theories. Section 2.3 discusses a number of assumptions and findings of cognitive semantics that are relevant to the purposes of the present study. Section 2.4 relates the concepts and assumptions to methods used in this study for testing its hypothesis. Section 2.2 offers an overview of the different ways the concept of ‘causality’ has been defined and analyzed from different (non-linguistic) perspectives.

2.2 The concept of causality

Causality is a fundamental concept in human dealing with the world and in human thought. It comes as no surprise that documented attempts in so-called western society at defining and understanding this concept date back to antiquity at least. *The Oxford English Dictionary* defines *causality* as “the operation or relation of cause and effect”. *Cause* is defined as “that which produces an effect; that which gives rise to any action, phenomenon, or condition”. Exactly how this relation is to be defined has been a matter of debate from Aristotle’s times to the present day, and seems to depend crucially on the chosen level of analysis.

Philosophical and scientific study traditionally aimed at defining causality as it ‘really is’ /objectively is (ontological level), or at defining what we may or may not know about it (epistemological level). Modern psychology redirected attention to the phenomenological level; the level of how human beings interpret the world around them making use of their mental faculties. Even if the ontological status of causality remains unclear, its phenomenological status is evident, as we make constant and demonstrable use of the concept in our daily lives.

2.2.1 Causality as a philosophical and scientific concept

Causal explanation is the basic form of explanation in science. In the fields of philosophy and science, causality is studied in its quality of an epistemological phenomenon, focusing on the nature and justification of causal knowledge (Bulman 1977: ii). Aristotle (384-324) defined cause as ‘any principle that influences the essence (*wezen*) of things’. In order to grasp this essence, knowledge is required of its four ‘explanatory factors’ or ‘causes’: its material cause (the material from which the object is made), its formal cause (the form of pattern it takes), its efficient cause (the agent by which the object was wrought) and its final cause (the end or purpose for which it was produced).

Early science restricted the definition of ‘causality’ to ‘efficient cause’ only; this is the concept of causality that comes closest to our modern every-day understanding of the concept.

Newton’s (1642-1727) ‘laws of motion’ are a famous example of this understanding of causality; one that is considered a prototypical instance of a causal relation even today (Bulman 1977: 47-8). Newton’s laws dealt with ‘matter in motion’ in space and time; everything in the world was believed to have a cause; an invariable set of conditions that preceded or accompanied an event. In the Newtonian understanding, causality is conceptualized as a ‘flow of energy between particles’.

This relation has been assumed to be problematic. Even today, scientific and philosophical debate concentrates on the question of how exactly energy was

transmitted from cause to effect, in order to count as a proper example of causality. Hume (1711-1776) is considered to be the founder of the modern understanding of causality. As an empiricist, he argued that only knowledge starting in 'sense perception' is true knowledge. The elements of 'direct contact' and 'logical necessity' presupposed in earlier proposals were not observable according to Hume. Instead, the concept should be defined in terms of the only way humans could *perceive* it: as a relation consisting of 'associated impressions', constructed by a subject when one and the same impression is perceived to repeatedly follow on another one and the same impression preceding it. Hume's understanding of causality as a 'non-deterministic' phenomenon endures in modern physics even today. Formally, the concept is defined in terms of 'probabilistic laws' described in mathematical formulae ('statistical causality').

2.2.2 Causality as a psychological concept

Modern philosophers redirected attention to the role of human cognition in defining the ontological status of causality. Kant, for example, considers causality to be an a priori concept of the human mind. These apriorisms are properties of the cognitive system, not of the observable world. In doing so, modern philosophy comes closer to psychological and anthropological theories on causality. These leave the ontological level of causality aside and concentrate wholly on its phenomenological status. In this section, psychological theories are discussed as an account of how the concept may be defined in human cognition and perception. Human understanding of causality as reflected in modern everyday thinking shows parallels with the analyses of the concept in early science or classical philosophy.

Even if the ontological status of causality remains unclear, its phenomenological status is evident as we make constant and demonstrable use of the concept in our daily lives. Michotte (1963: 4-5) views 'causality' as one of the functional relations that "constitute the essential fabric of the phenomenological world". Functional relations determine human understanding of objects in the world: "it is by coming to know what things *do* that we learn what they *are* (...). Among the functional relations which give things their significance, the causal relations which unite them clearly play a very considerable part." He presents experimental evidence that people do 'perceive' causality indeed. Nowadays Michotte's claim of 'direct perception' of causality is disputed, but his experiments have shed more light on the way causality functions as a cognitive concept.

Developmental psychologist Piaget (1974), on the other hand, proposes that 'causal knowing' is derived from human cognitive structure, rather than from perception (Bulman 1977: 66). He draws attention to the fact that children's earliest understanding of causality is conceptualized in terms of 'bodily manipulations' with their surrounding world (Piaget 1974). This experience is ultimately extended to 'the idea of causation' as the child matures. The basis of experiencing causation is attributed to in the human ability to experience 'force' and 'will' located in the self, as a source of effects in external objects. Piaget & Inhelder (1969) contend that it is not the visual perception of causality, as Michotte argued, but this 'sensory-motor causality' that is the more basic form of understanding causality.

Other indications of the basicness of 'causality' in human thinking and its relevance as a phenomenological category stem from the field of anthropological

research. Anthropologist White (1960) describes the ‘evolutionary shift’ from ‘association’ (perceiving that a biologically relevant event is preceded by a certain stimulus without postulating causality) to the category of ‘cause and effect’. The latter capacity is taken to be advantageous over the former, in that organisms that understand causality obtain the ability to control aspects of their environment (as White states “the organism now has alternatives and choices”). Anthropologists tend to analyze human understanding of causality with reference to cultural models. An example is D’Andrade (1987), who specifically focuses on the ‘Folk model of the mind’; a model that is widely shared in “American and European culture” (1987: 113). It is called ‘folk model’ because it is “a statement of the common-sense understandings that people use in ordinary life and because it contrasts with various ‘specialized’ and ‘scientific’ models of the mind.”

Both psychological and anthropological research refer to the importance of categorization in human thought regarding causality. Michotte’s work, for example, suggests that in the human understanding of causality, categorization into different types plays a role. He reports experiments on the perception of causality in which he found evidence that people are able to ‘perceive’ two types of physical causality, characterized as ‘the launching effect’, referring to “the impression of of one object ‘bumping’ into another and setting it in motion” (1963: xvi) and the ‘entraining effect’, referring to “the impression of one object joining another and carrying or pushing it along (1963: xv).

In D’Andrade’s Folk model of the mind, categorization also plays an important role. The model is composed of a variety of mental processes and states such as ‘perception’, belief’, feelings and ‘intentions’. These ‘internal states’ differ with respect to the way they are believed to be brought about. The Folk model of the mind will be discussed in more detail throughout this study. For the purposes of the present overview, it is important to note that there is an interesting parallel between concepts used in describing the human (phenomenal) understanding of causality (subtypes) as presented by different anthropologists and psychologists: all of them agree on the fact that, notwithstanding scientific and philosophical analyses, human beings take causality to be a meaningful, articulate concept that can be divided into subtypes.

2.3 The linguistic expression of causality from a cognitive semantic perspective

This study assumes that a direct relation exists between the meaning of causality markers and the conceptual understanding of causal relations. This assumption is not ‘common property’ in linguistic theory. Instead, the relation between conceptual thought and the linguistic system is considered to be a complex one. Many approaches in modern formal semantic theory, for example, have abandoned the idea that establishing a direct relation between semantic and conceptual structure is at all possible. Formal semanticists either choose to formulate ‘referential theories of meaning’ – establishing a relation between semantic and conceptual categories via the level of external reality in terms of truth conditions (Tarski 1944; cf. Asher & Lascarides 1993 on causality), or propose a mediated relation between semantic and conceptual structure (e.g. Jackendoff 1990).

At the same time, no serious linguist would deny the importance of the issue for a 'complete' linguistic theory. An argument that becomes more and more generally accepted is that because language is in the brain, linguistics is a branch of cognitive science, on a par with psychology and neuro-sciences (cf. De Swart 1998, and references cited there). An advocate of (re)constructing a relation between conceptual structure and semantic structure and aiming for a psychologically 'real' semantic theory within the formal semantic framework is Jackendoff (1983; 1990). He maintains that:

a theory of meaning must pertain to the 'behavioral reality' of the organism, not to physical reality – to the world as it appears to the organism, or more properly, the world as it is *constructed* by the organism's mind (Jackendoff 1996: 124; author's italics).

This assumption, that it is the phenomenological level of analysis, rather than the ontological level, that must be taken as a starting point for a semantic theory of causal expressions, lies at the basis of the present study too. So far, the idea that a direct relation exists between semantic and conceptual structure has been mainly worked out in the research framework of cognitive linguistics. Therefore, the body of theories and evidence accumulated in this research field has been chosen as the framework in which the present study is conducted.

Cognitive linguistics studies language as an instrument for communicating knowledge. In doing so, it starts from the assumption that our interaction with the world is mediated through informational structures in the mind. Language is seen "as a repository of world knowledge, a structured collection of meaningful categories that help us deal with new experiences and store information about the old ones" (Geeraerts 1997: 8; cf. Langacker 1987; Lakoff 1987). Cognitive linguistics is often thought of as a branch of cognitive science in general. Not only because it actively and explicitly builds on findings from other cognitive disciplines, but also because:

"it (a) actively seeks correspondences between conceptual thought, bodily experience, and linguistic structure, and (b) because it seeks to discover the actual contents of human cognition. At the same time that cognitive linguists are using ideas from related fields such as psychology and anthropology to inform their theoretical understanding of linguistic phenomena, they are discovering a good deal about the substantive content of human conceptual knowledge. This emphasis on specifying the actual knowledge, the various cognitive models, image schemas, radial structures, conceptual metaphors, and so on, that are constitutive of people's everyday experience, makes cognitive linguistics a unique discipline within the cognitive sciences" (Gibbs 1996: 49-50).

Cognitive linguistics does not constitute a uniform paradigm (such as generative linguistics does), but it comprises a more or less coherent research orientation (cf. discussion in Langacker 2002: 1-2). Assumptions concerning the directness of the relation between conceptual and linguistic categories may vary somewhat among

cognitive linguists – from treating them as equivalents (e.g. Lakoff 1987; Geeraerts 1997) to questioning the nature of the exact relation (Casad 1995; Talmy 2000; Wierzbicka 1988). But they share the assumption that linguistic structure must be studied in relation to general human cognitive capacities.

This section discusses a number of assumptions and findings of cognitive semantics that are relevant to the purposes of the present study. A starting-point is that the semantic content of causality markers is related to the phenomenological level of analysis, as was discussed in Section 2.2. The principles behind this assumption will be elaborated in Section 2.3.1. It will be argued that the parallel between semantic and conceptual structure not only holds at the level of *content* of categories (Section 2.3.2), but at the level of internal *organization* of the categories as well (Section 2.3.3). Another assumption is that linguistic knowledge is stored, learned and applied as usage knowledge, and therefore, the linguistic system is best characterized as a usage system (Section 2.3.4). A final assumption states that ‘meaning’ resides not only in lexical elements of a language, but in *all* of the linguistic symbols, ranging from morphemes to syntactic structures (Section 2.3.5).

2.3.1 Language as a construal instrument

A foundational claim of cognitive semantics is that an expression’s meaning is not just “an objective characterization of the situation described”. Equally important for linguistic semantics is how the speaker chooses to “construe” the situation and portray it for expressive purposes (Langacker 2002: 315). In other words, linguistic expression is inherently ‘perspectivized’. By choosing one formulation option rather than another, the speaker influences the mental representation of a text by its reader or hearer. This phenomenon is referred to as ‘speaker construal’, emphasizing the active role language users play in organizing their worlds (Taylor 1995b: 4). The ‘construal relationship’ is defined by Langacker (e.g. 1987: 487-488) as “the relationship between a speaker (or hearer) and a situation that he conceptualizes and portrays, involving focal adjustments and imagery”. These elements interact in a ‘viewing arrangement’, symbolized by Langacker as follows¹:

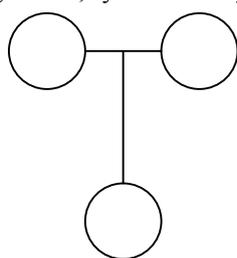


Figure 2.1 The viewing arrangement (Langacker 2002: 325).

The whole of two circles connected by a line represent the standard structure of a linguistic message in Langacker’s cognitive semantic theory: a ‘trajector’ (singled out for focal attention) a ‘landmark’ (a salient entity other than the landmark) and a

¹ This is a strongly simplified reproduction of the ideas presented in Langacker (2002). However, it is taken to be sufficient for the purposes of the present discussion.

relational expression that unites these elements ‘at any level of organization’ (cf. Langacker 2002: 320). The circle at the lower level represents the speaker within his communicative setting. When producing an utterance, the speaker functions as a ‘conceptualizer’ of a particular situation. The circle at the higher level represent the ‘object of conceptualization’, that which the speaker’s message is about. The arrow pointing from the lower to the higher level symbolizes the construal relationship: it “resides in the conceptualizer entertaining a certain conception and construing it in a particular fashion” (Langacker 2002: 318).

As a matter of fact, *any* linguistic utterance can be interpreted as an act of construal. When a speaker uses a particular construction or grammatical morpheme, he thereby selects a particular image to structure the conceived situation for communicative purposes (Langacker 2002: 12). This phenomenon is illustrated in a clarifying manner by Talmy (1988; 2000), who discusses construal mechanisms with reference to the linguistic expression of causality. In modern scientific physics, causation is understood to involve a “continuum of interactions occurring at the finest scale of magnitude”. But in the linguistic expression of causality, ‘schematic reduction’ is involved: “the grammatical, constructional, and to some extent lexical structure of a language presents an extremely simple representation of causality, one that marks few distinctions and lumps together ranges of diversity. This representation abstracts away, for example, from particularities of rate, scope, involvement, manner of spread, and the like.” The impact of this simplification is illustrated by examples (1) and (2), that Talmy presents by way of illustration:

- (1) The heat broke the guitar.
- (2) A falling radio broke the guitar.

In the first event, “the manner of breaking caused by the heat, in (1), would involve slow and gradual warping, spread of a trace work of cracks, and the like. On the other hand, the event depicted in (2), would involve a sudden localized disruption. Though these situations involve very different causal particulars, they are treated together by a common grammatical structure and lexical structure.” Generalizing then, Talmy claims the linguistic expression of causality is built on a:

(...) simplified schema in which linguistic constructions represent causality is a tripartite structure: a static prior state, a discrete state transition, and a static subsequent state. Linguistic structures, in effect, “chunk” the complexities and continuities of occurrence into this simplified schema, and, in this, may very well parallel conceptual patterns of naïve physics (2000: 457).

An important characteristic of construal mechanisms is that the degree of ‘speaker involvement’ in the construal of a particular situation may vary. On the one hand, there are construal operations that impose aspects of structure on the object conceptualization without the subject of conceptualization playing a role in the construal (the speaker is “off-stage”). Well-known examples are figure-ground distinctions (rendering one element in the object of conceptualization more salient, at the expense of other elements – cf. Langacker 2002: 9), profiling (characterizing

(or: ‘profiling’) a concept with reference to a specific domain, e.g. referring to an individual as an “uncle” profiles this individual against a set of individuals linked by kinship relations – Langacker 2002: 5), or relative levels of specificity (consider the contrast between “that player is tall” vs. “that middle linebacker is precisely 6’ 5” tall”; Langacker 2002: 7). All of these construal operations function at the *horizontal* level of the viewing arrangement in Figure 2.1.

Another type of construal operations profiles the role of the speaker in the object of conceptualization; the speaker is becoming part of the scope of predication (Langacker 2002: 318). Examples are deictic expressions (such as *I, you, here, now*) and perspectivization phenomena such as ‘directionality’ (consider the difference between “The hill falls gently to the bank of the river” and “the hill rises gently from the bank of the river”), ‘vantage point’ and ‘subjectification’ (the relative increase in the speaker’s self-expression; cf. discussion in Chapter 4) (cf. Langacker 2002: 12).² These construal operations have in common that they take the vertical axis of Figure 2.1 into account. The conceptual difference between construals (predominantly) projected at the horizontal axis and those projected at the vertical axis is referred to as ‘subjectification’ (Langacker 2002: 324).

It has been proposed that the concept of ‘subjectivity’ plays an important role in characterizing the meaning of causal connectives (e.g. Pander Maat & Sanders 2000, 2001; Pit 2003; Pander Maat & Degand 2001; Traugott 1995; Keller 1995). They propose to characterize the meaning of causal connectives in terms of a relative position on a subjectivity scale. Consider the difference between the causal relations in (3) and (4)³:

- (3) The neighbours suddenly left for Paris last Friday. That’s why they are not at home.
- (4) The lights in the neighbour’s living room are out. So they are not at home

In (3), a causal relation is constructed between two states of affairs in observable reality. The relation between these states of affairs also occurs in observable reality. Causal relations of this type are considered to be maximally objective. The speaker is not part of the construal of the causal relation. The causal relation in (4), on the other hand, is constructed between a ‘real world situation’ (the fact that “the lights are out”), that functions as an argument for the speaker’s conclusion that “the neighbors are not at home”. In this case, the causal relation is constructed in the speaker’s mind, there is no connection in observable reality between cause and effect. This type of causal relation is considered as subjective. The crucial difference between the two is that in the latter case, the speaker is construed as the source responsible for the construction of the causal relation (for an extensive discussion of the subjectivity approaches to causal connectives: see Chapter 4).

² For an extensive discussion of characteristics of each of these construal perspectives, see Verhagen (2005).

³ The examples are taken from Pander Maat & Sanders 2001: 58.

2.3.2 Semantic categories and conceptual categories: content

The present study focuses on a specific construal operation: linguistic categorization. It is assumed that the meaning contrasts between different causality markers coincide with different conceptual categories of causality. Thus, selecting a specific causality marker from the range of possibilities in a particular language is interpreted as assigning a given causal relation to a specific conceptual category of causality. The importance of categorization in human thought has been argued for by Lakoff 1987:

There is nothing more basic than categorization in our thought, perception, action, and speech. Every time we see a *kind* of thing, for example a tree, we are categorizing. Whenever we reason about *kinds* of things – chairs, nations, illnesses, emotions, any kind of thing at all- we are employing categories. [...] Without the ability to categorize, we could not function at all, either in the physical world or in our social and intellectual lives. An understanding of how we categorize is central to any understanding of how we think and how we function, and therefore central to an understanding of what makes us human. (Lakoff 1987: 5-6).

Within the field of cognitive semantics, the starting assumption is that “the structural categories of language itself will be analogous, in many ways, to the categories which human beings perceive in the non-linguistic world around them” (Taylor 1995: x). Findings from cognitive psychology and anthropology suggest that conceptual thought is organized in models (cf. discussion in Section 2.2.1) The idea that conceptual models play an important role in language too, is being proposed for decades. Examples are: schema theory (Rumelhart 1975), scripts (Schank & Abelson 1977), frames with defaults (Minsky 1975). Fillmore’s (1977) ‘frame semantics’ is often taken to be the forerunner of ‘modern’ cognitive linguistic understanding of the way cognitive models may be manifest in language (Lakoff 1987: 68; Barlow & Kemmer 2000: xx). He maintains that words and constructions are interpreted against the background of conventional situations of use which include far more than linguistic information. Thus, Fillmore (1977) argues that there may exist interdependence between linguistic ‘frames’ and cognitive ‘scenes’.

Building on these findings, cognitive linguists assume that there is a direct relation between semantic knowledge and world knowledge (‘encyclopedic knowledge’) (cf. Langacker 2000: 3; cf. Haiman 1980; Lakoff 1987; Taylor 1995; Geeraerts 1997; 1992). Lakoff (1987: 68), building on Fillmore’s propositional structure, elaborates this idea. He introduces the concept of ‘Idealized Cognitive Model’ (ICM); a “complex structured whole, a Gestalt.” Cognitive models are ‘idealized’ in that they often represent knowledge and phenomena that do not exist objectively in nature (Lakoff 1987: 69).

The assumption that linguistic meaning is to be equated with ‘speaker construal’ has important consequences for the definition of the *content* of semantic categories. The construal approach to meaning implies that semantic content is by definition ‘filtered’ by human perception and conceptualization (cf. Section 2.3.1). This is why cognitive semantic analyses start from the *phenomenological* level of analysis (cf. discussion in Section 2.2) instead of attempting to relate semantic

content to some notion of ‘objective’ reality. This perspective has consequences for the form a semantic theory may take. This is indeed what has been proposed in numerous cognitive linguistic studies on the linguistic expression of causation. For example, Turner (1987) argues that many lexical expressions of causation witness to specific metaphorical understanding of causal processes (= phenomenological by definition). Some examples are cited in (5):

- (5) Night produces fear.
 Filth causes stench and disease.
 Age causes sickness.
 Solitude causes anxiety.

None of the causal relations in (5) can be properly analyzed making use of ‘scientific’ models of causality. Rather, Turner claims, the examples cited are to be understood by way of the conceptual metaphor CAUSATION IS PROGENERATION⁴ (Lakoff & Johnson 1980). The specific metaphoric inference pattern invoked for interpreting the causal statements in (5) is the one of *lineage*, “(expressing) paths by which things in the world, the mind, and behavior can spring from one another” (Turner 1987: 143). The metaphor is more explicitly visible in the original formulations of the statements in (5), cited in :

- (6) Sable Night, mother of dread and fear
 Stench, diseases, and old filth, their mother
 Sicknesses, or their true mother, Age
 Solitude is the mother of anxieties

‘Causation as progeneration’ is the main conception of causation we use to understand mental creation. In the metaphorical mapping of CAUSATION IS PROGENERATION, ‘cause’ corresponds to the parent (mother, father) and ‘effect’ corresponds to child (6) (son, daughter). In the interpretation of the type of causal statements at hand, Turner identifies a number of elements that seems to occur in the linguistic expression of causation in general. Examples are: ‘cohesion and individuation’, ‘quickness’ and ‘efficacy’ as aspects of a causal relation. Analysis of causal relations in these terms clearly deviates from the modern analytical, scientific understanding of the concept. As a matter of fact, it shows closer resemblance to pre- or early scientific understanding of the concept (cf. Talmy 1988; 2000)

Cognitive models play an important role in linguistic categorization, too. It is assumed that distinct descriptions of a single phenomenon differ in the frames of knowledge in relation to which the conceived situation is characterized. (Verhagen to appear: 2). A direct relation is assumed to exist between semantic categories and conceptual categories, as stated by Geeraerts (1997):

⁴ It is convention to refer to conceptual metaphors with capital letters (cf. Lakoff & Johnson 1980)

[T]he categorization function of language imposes a structure on the world [...]. Specifically, language is a way of organizing knowledge that reflects the needs, interests, and experiences of individuals and cultures (Geeraerts 1997: 8).

Probably the most influential theory concerning the linguistic categorization of causal events is Talmy's (1976, 1988, 2000) theory of 'Force dynamics', one of the basic imaging (or: construal) systems in language he identifies (cf. discussion above). Force dynamics characterizes "how entities interact with respect to force" (2000: 409). Talmy positions his theory of causal constructions within the "broader approach of cognitive semantics". In accordance with the approaches discussed above, Talmy claims that "the conceptual system for force interaction that appears to be built into language structure can be related to other cognitive domains. The linguistic system, in fact, shows close parallels with the conceptual systems for force interaction both in naïve physics and psychology, and in early science, as well as in casual treatments of modern science" (2000: 410). As for the general validity of Force dynamics explaining the linguistic expression of causality, Talmy claims:

Force dynamics (...) plays a structuring role across a range of language levels. (...) it has direct grammatical representation. In English, our main language of demonstration, such representation appears not only in subsets of conjunctions, prepositions and other closed-class elements but, most significantly, also as the semantic category that most uniquely characterizes the grammatical category of modals as a whole (...) (2000: 409).

According to Talmy, prototypically, causation is conceptualized as 'two forces opposing each other'. The examples in (7) represent the basic pattern, "underlying all more complex force-dynamic patterns" involving 'steady-state opposition' (2000: 415).

- (7) (a) The ball kept rolling because of the wind blowing on it.
(b) The shed kept standing despite the gale wind blowing against it.
(c) The ball kept rolling despite the stiff grass.
(d) The log kept lying on the incline because of the ridge there.

Language marks a role difference between the two entities exerting the forces. One of the entities is singled out for focal attention. According to Talmy, the salient issue in the interaction between the two forces is whether the entity 'in focus' is able to manifest its force tendency or, on the contrary, is overcome (2000: 413). The force tendencies at stake can be of any nature –rolling, standing or lying still in the examples in (7) but according to the conceptual model of Force dynamics they are relevant only in a highly abstract way; they are categorized dichotomously as having either a tendency towards 'action' (the focal participants in the a and c variants) or a tendency towards 'rest' (the focal participants in the b and d variants). The second

force entity is considered for the effect it has on the first entity, the focal participant, whether it will overcome its inherent force tendency or not.

The basic categories discussed here can be extended into more complex types, Talmy claims. Thus, Force dynamics is “a generalization over the traditional linguistic notion of “causative”: it analyzes ‘causing’ into finer primitives and sets it naturally within a framework that also includes ‘letting’, ‘hindering’, ‘helping’, and still further notions not normally considered in the same context” (2000: 409). The Force dynamics theory not only comprises the prototypical type of causing ‘onset causing of action’, which all accounts treat – an unanalyzed notion of primitive causation - but defines causation as “a complex built up of novel primitive concepts” that reassess the idea of causation “as just one notion within a related set”; “a systematic matrix of concepts” (2000: 428).

Talmy, too, notes that the force dynamic understanding of causal expressions differs substantially from the type of models characterizing ‘rigorous (modern) scientific thought’. The theory of Force dynamics builds on the strong cultural tradition in physical (and psychological) science of analyzing phenomena as force interactions (that is, the idea that causality may be analyzed as concerning force interactions is not at all new, to say the least; cf. discussion in Section 2.2 above), but finds that the concept of force interactions is coded in language in a simplified, pre-scientific or naïve, manner. He finds that it is not the ‘conceptual models used in modern science’ that are coded in the grammar of language, but the naïve models that guide our everyday reasoning (2000: 410; 1988).

The concepts of ‘privilege’ (of one participant over another in terms of focus, 2000: 456), tendency (intrinsic force tendency of one of the participants), ‘stationariness’ (as a distinct state set apart from motion) and relative strength (cf. the discussion of the examples in (7)) don’t have equivalents in modern science and must be understood as typical examples of ‘speaker construal’ (as discussed above) that defines linguistic construal of events rather than objective reality.

Talmy’s theory of Force dynamics is elaborated for Dutch causal verbs by Verhagen & Kemmer (1997; Kemmer & Verhagen 1994). In Chapter 3, Talmy’s theory as well as Verhagen & Kemmer’s analysis of *doen* and *laten* within this framework are discussed in more detail. In Chapter 1 it was suggested that the meaning of Dutch causal connectives, too, can be adequately characterized in a categorization framework. This proposal will be elaborated in Chapter 4.

2.3.3 Semantic categories and conceptual categories: internal organization

If a parallel exists between semantic categories and conceptual categories for *content* matter, it is to be expected that this parallel holds for the internal *organization* of the category content as well. Whereas the first relation is widely accepted and applied in linguistic studies that ally with the framework of cognitive linguistics, the second assumption is less frequently taken into account. However, as has been elaborated by a number of cognitive semanticists, (e.g. Lakoff 1987; Geeraerts 1997), all of them building on the seminal work of Rosch (e.g. 1973; Rosch et al. 1975)), it is also relevant to linguistic categorization.

Categorizing is an activity that is mostly performed automatically and unproblematically. This intuition is reflected in the theories often referred to as ‘the classical view’ on categorization, represented by philosophers Aristotle onwards.

The classical definition conceptualized categories as ‘abstract containers’, with things either inside or outside the category. Things were assumed to be in the same category if and only if they had certain properties in common. And the properties they had in common were taken as defining the category (Lakoff 1987: 6). However, ‘categorizing things’ is a highly complex operation. One reason is that people do not only categorize *things*, natural kinds, such as physical objects and animals, but also abstract entities, such as events, emotions, scientific concepts (electrons and colds) (Lakoff 1987: 6). Since these ‘entities’ do not have material substance in ‘objective reality’, how are we to know what they ‘really’ look like, what properties they share? But even if the act of categorization does concern concrete entities, problems may still arise.

Observations like these were elaborated from the 1960s onwards within the field of cognitive psychology. Empirical evidence was found that categorization operations performed by human beings were far more complex than assumed by classical theory. More specifically, it was found that conceptual categories were not homogenous: some members of a category are better examples than others – categories are built around prototypical members (‘best examples’) and other members that vary in the degree to which they have features in common with the prototype. More specifically, members of a category may be related to one another without all members having any common properties that define the category (cf. Wittgenstein 1953; Rosch 1973; Rosch et al. 1975).

This study will make use of the concept of ‘graded category membership’ mainly in relation to the *semantic* categories themselves, rather than in relation to the causality concepts they may refer to. In this study, semantic categories are operationalized in terms of usage contexts. It will be proposed that prototypicality and extensions from the prototype are relevant at the level of *usage* of the causality markers under investigation. This idea will be elaborated in Section 2.3.4.

2.3.4 Language as a usage system

The internal organization characteristics of semantic categories discussed in Section 2.3.4 will be referred to in this study as prototypicality structure. This structuring has been claimed to be relevant for characterizing the relation between conceptual structure and semantic structure, but also for explaining the functioning of linguistic mechanisms. This idea has been worked out in detail within what has become known as ‘the usage-based approach to language’ (Langacker 1987; Barlow & Kemmer 2000, and contributions to the volume). A central assumption to the usage-based approach is that there is a relation between linguistic knowledge and instances of use; the speaker’s linguistic system is believed to be “fundamentally grounded in ‘usage events’” (Barlow & Kemmer 2000: viii).

‘Grounded in’ means that linguistic representations are tightly linked to usage events in three ways: First, such instances are the basis on which a speaker’s linguistic system is formed, i.e. they are experience from which the system itself is initially abstracted [...]. Second, the relation between the more abstract representation in the speaker’s grammar and the usage events experienced by the speaker is much more direct than usually assumed. [...] third [...] Usage events are crucial to the ongoing structuring

and operation of the linguistic system. [...] Thus, usage events play a double role in the system: they both result from, and also shape, the linguistic system itself in a kind of feedback loop (Barlow & Kemmer 2000: viii-ix).

The outlines of this model were sketched by Langacker (1987; 1991) as ‘a dynamic usage-based model of language’. The principles of this ‘model’ have since been refined by many others (cf. contributions to Barlow & Kemmer 2000). As cognitive linguistics doesn’t distinguish between syntax or semantics (structure or meaning; cf. discussion in Section 2.3.5), ‘usage events’ may involve lexical items as well as larger constructions and smaller ones such as morphemes.

According to the usage-based model, the language system does not consist of ‘rules’ generating grammatical instances of language use, but instead consists of generalizations over individual usage events. Conventional usage types are called ‘schemas’, abstracting away from individual usage events, containing conventional elements that have become ‘entrenched’ in the language user’s memory by the frequency of their occurrence. Within this approach, entrenchment is equated with cognitive routinization (Langacker 2000: 10). Naturally, entrenchment of a specific usage schema coincides with a relatively high usage frequency. “The idea of the fundamental importance of frequency [...] sharply distinguishes usage-based models from other approaches in which frequency is an insignificant artifact, unconnected with speakers’ linguistic knowledge” (Barlow & Kemmer 2000: x)⁵.

In line with the usage-based approach to language, this study proposes that an interplay of conceptual and usage factors can explain why usage facts do not always conform to abstract definitions that seem to be quite straightforward otherwise. The mechanisms behind this phenomenon are explained in an elucidating manner by Verhagen (2000). Verhagen observes that a relative change in distribution of the causal verb *doen* over animacy configurations that occurred (from the 18th century onward) is paralleled by a change in our understanding of how the social world functions. The change can be illustrated with reference to the fragment in (8) (from the 1872 Dutch novel *Sarah Burgerhart*, written by Betje Wolff and Aagje Deken; taken (including translation) from Verhagen 2000a: 277)

- (8) Ja, ik heb genoeg gezegd om u te **doen** weten, dat ik u bemin...
Yes, I have said enough to you in order to make [lit: do] you know that I love you...

Modern speakers of Dutch are perfectly able to interpret this sentence, but experience a ‘strangeness’ that resides in the marking of the sentence with *doen* (Verhagen 2000a: 262). Nowadays, similar events would rather be linguistically reported making use of *laten* as a causality marker, as in (9):

⁵ This conception of the linguistic system makes explicit claims about language acquisition. Indeed, evidence has been accumulated that this mechanism actually mirrors acquisition processes (cf. Tomasello 1992). Bybee (cf. 1994; 2000): effects of lexical frequency in the phonological and morphological systems.

- (9) Ja, ik heb genoeg gezegd om u te **laten** weten, dat ik u bemin...

Verhagen contends that it is not (only) *doen*'s meaning that changed since the time (8) was written down, but rather our understanding of the way people may interact in their social environments, specifically with respect to the social concept of 'authority'. Modern speakers of Dutch would typically categorize the event depicted in (8) and (9) as a case of 'indirect causation': as a matter of principle, nobody can interfere with other people's minds directly (D'Andrade 1987). This understanding is typically marked by choosing *laten* as a marker of the causal relation, signaling that the causee, *u* ('you'), is perceived as having a relevant amount of autonomy in this causal process. Marking with *doen*, on the other hand, signals that the causee is to be construed as 'non-autonomous' in the causal process (Verhagen & Kemmer 1997; cf. discussion in Chapter 3). This construal fits in with 18th century assessment of social relations, where the causer (*I*) derives 'authority' status from gender: the causer is male and the causee is female (cf. discussion in Chapter 5).

This analysis explains the fact that "there is simultaneously something familiar and something strange" in the fragment cited above, "it is sufficiently familiar to allow understanding to proceed, but the motivation for use of [...] *doen* is not transparent" (Verhagen 2000a: 262). The meaning of *doen* itself has not changed fundamentally, but conventionality of a certain usage type has.

Basic assumptions from the usage-based approach to language are reflected in many modern linguistic theories aiming at formulating psychologically plausible claims on the functioning of the language system. Langacker for example views grammar as an inventory of 'processing instructions'. As elaborated by Barlow & Kemmer:

Comprehension and production [are seen] as integral rather than peripheral to the linguistic system: given that usage events drive the formation and operation of the internal linguistic system, the structure of this system is not separate in any significant way from the (cumulative) acts of linguistic processing that occur in language use. The speaker's linguistic ability, in fact, is *constituted* by regularities in the mental processing of language (Barlow & Kemmer 2000: xi)

All of the accounts of meaning and use of Dutch causal verbs and Dutch causal verbs that were discussed in section 1.2 are at least partly based on usage-based assumptions. However, the ways they elaborate and apply this assumption differ, ranging from explicit reference to connectives as 'processing instructions' serving to relate the content of the connected segments in a specific type of relationship (cf. Sanders & Spooren, to appear), to principally acknowledging to study language use as a source for empirical evidence for a theory on the meaning and use of causal connectives (Pit 2003).

2.3.5 The conceptual input of 'constructions'

In the present study, there are actually two types of categorization at stake. The central type is the (lexical) semantic contrast between different causality markers of the same grammatical type, marking either different categories of intersentential causal relations, or different types of analytic causative constructions. It is this type

that has been discussed in the present section so far. But a second categorization dimension that is relevant for the object under investigation is categorization in terms of construction type. Construing a given causal relation in the form of an analytic causative construction or in the form of an intersentential causal relation may also be viewed as an act of categorization.

The most obvious constructional differences between analytical causative constructions and intersentential causal relations were discussed at an intuitive level in Section 1.2. They can be characterized in a somewhat more systematic manner with reference to Talmy's (1976; 2000) 'basic causative situation':

The basic causative situation [...] consists of three main components: a simple event (that is, one that would otherwise be considered autonomous), something that immediately causes the event, and the causal relation between the two (Talmy 2000: 480).

The 'basic causative situation' is assumed to underlie all causal expressions. Linguistic expressions of causality may differ with respect to the elements of the basic causative situation that are foregrounded. The most obvious difference between the constructions causal verbs and causal connectives are used in, is the shape of the event that represents the cause-part. The form of intersentential causal relations conforms most directly to Talmy's description⁶. Consider the contrast between (10) and (11), already discussed in Chapter 1.

- (10) S (causer CAUSE event)
 [De extreme koude]_{cause} **deed** [de rivieren bevrozen]_{effect}
- (11) S (event) CAUSE S (event)
 [Het was extreem koud]_{cause}. **Daardoor** [waren de rivieren bevroren]_{effect}.

At this point in the discussion, the difference between the constructions may be characterized at an intuitive level as a difference in 'level of specificity' (Langacker 2002; cf. discussion in Section 2.3.1). The cause-part in the analytic causative construction (10) has the form of an noun phrase and is construed as a participant in an event, while the cause-part in the intersentential causal relation (11) is construed as a complete event itself (for a more extensive discussion: see Chapter 6 and Chapter 7).

A fundamental assumption in the cognitive semantic framework is that constructional aspects also contribute to the construal of a linguistically expressed situation. It is assumed that not only lexical elements, but *all* linguistic elements contain semantic content, ranging from morphemes to lexical elements to syntax (cf. Langacker 1987; Goldberg 1995). The grammar of a language is conceived of as "providing the speaker with an inventory of symbolic resources". It is assumed that grammatical constructions function as a kind of construal operation too (cf. discussion in Section 2.3.1); they may "have the effect of imposing a particular

⁶ This study does not follow Talmy in proposing that one construction may be 'more basic' than another one (cf. Talmy 2000: 485)

profile on their composite semantic value” (Langacker 1990: 12), in the following way:

Lexicon and grammar form a continuum of symbolic elements. Like lexicon, grammar provides for the structuring and symbolization of conceptual content, and is thus imagic in character. When we use a particular construction or grammatical morpheme, we thereby select a particular image to structure the conceived situation for communicative purposes (Langacker 1990: 12-13).

The analytic causative constructions and intersentential causal relations under consideration in the present study are certainly not the only type of causal constructions. In the literature many other types are distinguished. Examples are: Morphological causatives, created by processes such as suffixation by *-en* and *-ify* (for example, *widen*, *blacken*, *nullify*); lexical causatives, words like *kill*, *send* and *feed* which seem to be related in meaning to other (non-causative) words (such as *die*, *go* and *eat*), without there being any visible sign of the meaning relation in the morphological make-up of the causative word itself (e.g. Goddard 1996: 260), and causal prepositions, words like *by* or *because of* marking clause-internal causal relations, the cause expressed by a noun phrase or nominalized clause etc. (Degand 2001: 47).

The contrast between different causal constructions has been characterized in terms of ‘windowing of attention’ (Talmy 2000) or differences in conceptual integration (e.g. Goddard 1996; Wolff 2001). As this study is mainly concerned with the semantics of causality markers, and not with the constructional aspects of their usage contexts, it will not address this issue directly. However, since different types of causality markers are contrasted in this study, and construction type is one of the relevant differences, constructional aspects *cannot* be ignored. As a matter of fact, it must be assumed that the conceptual import of constructions may interact with the conceptual content of the (lexical) causality markers. This point will be elaborated in Chapter 7.

2.4 Towards an operationalization: objects, concepts, and methods

The starting-point of this study is: the idea that the meaning of causal verbs and causal connectives reflect the conceptual understanding of causality. More specifically, it assumes that causal verbs and causal connectives function as categorization devices. Selecting a specific expression as a marker of a given causal relation means that the causal process expressed is assigned to a specific conceptual category of causality. The aim of this study is to establish a cognitive semantic theory that makes it possible to generalize over different types of causality markers. That is, to construct a theory that brings out the parallels between the semantic content of verbs and connectives that must exist if the assumption that ‘meaning reflects conceptualization’ holds. Differences in terms of semantic content are expected to exist as well, due to the fact that causal verbs and causal connectives are used in different constructions. An assessment of both aspects is a prerequisite for a

full and complete understanding of the interaction between linguistic structure and conceptual understanding with respect to the linguistic expression of causality.

In this chapter, concepts and findings from previous research were discussed. In the present section they will be related to the specific hypothesis to be tested in the remainder of this study. It pays special attention to the aim of this study to formulate a theory that is both cognitively plausible and descriptively adequate. Therefore, the following issues are addressed: characteristics of the research objects of this study (2.4.1), the definition of ‘meaning’ used in this study (2.4.2), and the methods used for testing this study’s hypothesis (2.4.3).

2.4.1 Research objects

This study aims to formulate an integrative semantic theory on causality markers of different grammatical types. As research objects, the Dutch causal auxiliary verbs *doen* and *laten* are analyzed as a species of causality markers functioning at the clause-level of language. Dutch *daardoor*, *daarom* and *dus* are studied as representatives of the class of causal connectives, causality markers functioning at the discourse level of the linguistic structure. The reasons for selecting these markers are twofold. Firstly, they allow for comparing and integrating ‘clause-level phenomena’ that have traditionally been studied extensively within the cognitive semantic framework, with ‘discourse-level phenomena’, which have *not* been standardly integrated in cognitive semantic theories (cf. Section 1.5). Secondly, both Dutch causal verbs and Dutch causal connectives have been studied extensively in recent years, from perspectives that are more or less compatible with the theoretical goals of the present study.

As a matter of fact, the actual grammatical differences between the causality markers within the same functional category are more finegrained than suggested here. A variety of contrasts exist between the intra-clausal and inter-clausal causality markers under investigation (for syntactic differences between *doen* and *laten* cf. Dik 1980; Vet 1986) between the connectives *daardoor* and *daarom* on the one hand and *dus* on the other, there are obvious syntactic differences too; for possible interactions between syntactic and semantic factors concerning connectives, see Evers-Vermeul 2005). Although it is believed that it is only plausible that more subtle constructional aspects interact with overall conceptualization of the causal event (cf. Section 2.3.5), the present study will generalize over the categories, taking into account only differences on the level of the linguistic structure they operate on. In the remainder of this section, characteristics of causal verbs and causal connectives that are relevant for the purposes of the present study are discussed.

Daardoor, daarom and dus as markers of intersentential causal relations. The choice for *daardoor*, *daarom* and *dus* as ‘inter-clausal’ markers of causal relations is probably self-evident. In traditional grammatical terms they may be analyzed as clause constituents: *daarom* and *daardoor* are adverbs; *dus* can function both as an adverb (with inversion: *Het is zondag, dus zijn de winkels niet open.* ‘It’s Sunday, so the shops are closed’) and as a coordinator (no inversion: *Het regent, dus we gaan naar huis.* ‘It’s raining, so we are going home’.) (cf. Geerts et al. 1984; Evers-

Vermeul 2005). Yet, with respect to function, they are unambiguously ‘discourse-level phenomena’ (cf. discussion in Section 1.2 and in Chapter 4)⁷.

Their functioning as causality markers is also beyond question. They are among the most frequently used causal connectives in Dutch (cf. Uit den Bogaart 1975; Pander Maat & Sanders 1995). All of the connectives under investigation may be used in non-causal, clause-connecting functions as well. *Daarom* and *daardoor* may be used as anaphorical expressions (*Ik heb zin in koffie – dan moet je daarom vragen*. ‘I’d fancy a cup of coffee – then you should ask for one’; *Je moet dat gat in de plint dichten, want daardoor kunnen muizen komen*. ‘You should stop up that hole in the plinth, because mice can come through it’) (cf. Geerts et al. 1984; Pander Maat & Sanders 1995). In spoken Dutch, *dus* is frequently used as a marker of information management (*Nou, dat is dus mijn moeder*. ‘Well/ so, that’s my mum’) (cf. Evers-Vermeul & Stukker 2003; Evers-Vermeul 2005). In this study only unambiguously causal usage-types are taken into account⁸ (with the exception of Chapter 5).

Daardoor, *daarom* and *dus* have been selected as causal connectives rather than the (also) frequently studied backward causality marking *doordat*, *omdat* and *want*, because the order of presentation of cause and effect of the former corresponds most closely to the presentation order in causal verbs (cause precedes effect).

Doen and laten as causality markers of intrasentential causal relations

Doen and *laten* are used in constructions that will be referred to in this study as ‘analytic causatives’. Globally, they can be characterized as “two-verb constructions that expresses a predicate of causation and a predicate of effect. (...) To use such a structure, a speaker must view one predicate, which we will call the effected predicate, as causally dependent on some action of the subject of the sentence.” (Kemmer & Verhagen 1994: 117).

The choice for selecting *doen* and *laten* as ‘causality markers’ functioning at the ‘clause-level’ of linguistic structure may need some additional argumentation. The identity of analytic causative constructions in terms of semantic and syntactic properties has been a matter of debate for decades. Traditionally, the analytic causative construction has been analyzed as being derived from intersentential causal relations. However, this study will follow the proposal of Kemmer & Verhagen (1994) to analyze analytic causatives as extensions from simple (transitive or ditransitive) clauses. One of their central arguments is the fact that the interpretation of the causal auxiliary verb is conceptually dependent on the infinitive of the construction. For example, the auxiliaries *doen* and *laten* cannot be interpreted meaningfully, unless related to the infinitive of the constructions. In the words of

⁷ Although there are (relatively rare) usage-contexts where the connectives may be analyzed as relating clause-constituents (e.g.: *een mooie, dus dure ring*. ‘A beautiful, so: an expensive ring’). Still, there are also arguments to analyze these constructions as elliptic clauses. In order to avoid any ambiguity, the present study only takes unambiguously inter-clausal usage of the connectives into account.

⁸ With the exception of Chapter 5 in which diachronic development ‘to’ and ‘from’ connective function are analyzed.

Kemmer & Verhagen “causal predicates necessarily evoke the idea of another action or state” (1994: 118), suggesting that the finite and non-finite verbs forms in analytic causatives are ‘conceptually fused’⁹. Kemmer & Verhagen’s arguments will be discussed in more detail in Chapter 3.

Another point where selection of *doen* and *laten* may need additional argumentation is the ‘causality’ of *laten*. *Doen* marks relations that are traditionally analyzed as ‘prototypically causal’ (cf. Talmy 1988; 2000; Lakoff 1987); relations where a causer alters the state of a causee. *Laten* on the other hand, can also be used in relations where a causer does *not* alter the state of a causee. The difference between these types can be clarified making use of the ‘force dynamic’ theory of Talmy (1988; 2000). Consider the following examples (taken from Talmy 2000: 418; 421):

- (12) The ball’s hitting it **made** the lamp topple from the table.
- (13) The plug’s coming loose **let** the water flow from the tank.
- (14) The plug’s staying loose **let** the water drain from the tank.

In the ‘opposition of forces’, the role of ‘cause’ seems to be distributed differently over both types. In Force dynamics terms: in ‘causing’ situations, it is the antagonist’s (causer’s) force that is the main factor responsible for the coming about of the causal effect, e.g. the ‘toppling down’ of the lamp in (12). In the case of ‘letting’, it is *not* the antagonist’s force that is the main responsible factor for the occurring of the causal effect; the main responsible factor is the force located in the *agonist* (the causee: ‘the water’ that is conceptualized as having an inherent force tendency to flow away in (13) and (14); cf. Section 2.3.2)

Despite this difference, there are two reasons for discussing the category of ‘letting’ in a study of causality markers. The first and most important one is that conceptually, ‘causing’ and ‘letting’ are clearly related. This is explicitly acknowledged by Talmy, who states that either of the categories are part of the “traditional notion of causative” (2000: 428). At the same time, he acknowledges that ‘causing’ is the more prototypical model of causation (ibid.). However, both ‘causing’ and ‘letting’ can be related to common definitions of ‘causation’, be it not on the ontological level of analysis, but on the phenomenological level. In both cases, the causal effect is seen “as causally dependent on some action of the subject of the sentence” (Kemmer & Verhagen 1994: 117).

In the same vein, both ‘causing’ and ‘letting’ can be seen as instantiations of Talmy’s basic causative situation, where “a simple event”, the causal effect, “that would otherwise be considered autonomous”, is seen as having a causal relation with “something that immediately causes the event” (Talmy 2000: 480). Example (12) is an instance of ‘causing’, representing the prototypical force dynamic configuration. In my opinion, the sheer fact that in ‘letting’ situations, that these ‘events’ are construed in a force dynamic relation, implies that in these cases, the effected event is *not* to be conceptualized as ‘autonomously occurring’. An

⁹ This is in line with the assumption often stated in cognitive linguistics or functional linguistics in general, that there may be an iconic relation (correlate) between morphological type and semantic type (cf. Song: 1996: 4-5; Haiman 1985; Talmy 1976; Shibatani 1975).

argumentation along these lines may hold for example (13), as well as (14) –this latter case perhaps being less obvious. But it is arguably still the case, as Talmy notes:

The notions of Agonist and Antagonist, it can be argued, intrinsically involve the engagement of two bodies in an opposition of force, and reference to an Agonist and Antagonist not so engaged necessarily depends on their potential for such engagement (2000: 421).

The second reason to consider *laten* as a causality marker is that in Dutch *laten*, ‘letting’ constitutes only a part of its meaning. The concept is important for understanding its overall semantics, but the semantic category as a whole is broader than that; while ‘permission/enablement’ constitutes an important part of its semantics, Dutch *laten* is ‘really’ causative (cf. Verhagen & Kemmer 1997). The causal characteristics of *laten* will be discussed in more detail in Chapter 3.

2.4.2 Definition of ‘meaning’

In the introduction to this chapter, the aim of semantic study was characterized as “providing an account of the relation between linguistic expressions and the things they can be used to talk about” (De Swart 1998: 1-2; cf. discussion in Section 2.1). Following a basic assumption in cognitive semantic theory, it is assumed that this relation is constructed at the level of the conceptual interpretation of the ‘things we can talk about’; a direct relation is taken to exist between semantic categories and conceptual categories. Accordingly, in the present study, the semantic *content* of causality markers will be defined in terms of the conceptual understanding of causal relations. It is also assumed that a parallel between semantic categories and conceptual categories entails a parallel at the level of the internal *organization* of the categories. This study will take as a starting point the assumption that membership of a semantic category can be a matter of degree. Some instances may be more prototypical examples than others. Moreover, members of a category may be related to one another without all members having any properties in common that define the category.

Finally, this study assumes that the language system is ‘usage-based’; that linguistic knowledge is stored and employed as a ‘usage system’. This assumption has further consequences for the way a semantic category is defined in terms of content and internal organization. A semantic category is taken to originate from concrete ‘usage-events’, including cognitive characteristics of the language user, as well as “full apprehension of the physical, social, cultural, and linguistic context” (Langacker 2000: 9). A semantic category emerges through reinforcement of the commonality inherent in multiple ‘usage experiences’ (Langacker 2000: 4). Thus, in a usage-based approach to language, word meaning is defined in terms of a ‘usage-schema’: “the commonality that emerges from distinct structures when one abstracts away from their points of difference by portraying them with lesser precision and specificity” (Langacker 2000: 4). From this perspective, semantic content is defined as ‘knowing in what context to use a word properly’ (cf. Verhagen 2000a). It is assumed that semantic knowledge has the form of a usage-schema, making the usage conventions explicit.

Another characteristic of the usage-based approach to word meaning, is that it allows for different levels of specificity and conventionality in one and the same semantic category. ‘Prototypicality’ will be defined in usage-based terms; degree of prototypicality of a given usage context is determined in terms of relative frequency of use. The more it is frequently used, the more prototypical a context is taken to be. Conversely, relatively infrequent usage types are taken to be less prototypical.

Existing semantic theories of causal verbs and causal connectives differ to the degree that these assumptions are explicitly adopted. The theories discussed in Chapter 1 have all adopted the assumption that meaning reflects conceptual content. They share the characteristic that they are at least *compatible* with a usage-based conception. For example, Verhagen & Kemmer (1997) characterized the meaning of *doen* and *laten* as follows:

- (15) **Doen**: direct causation “The initiator produces the effected event directly; there is no intervening energy source ‘downstream’”
Laten: indirect causation “Some other force besides the initiator is the most immediate source of energy in the effected event”

Pander Maat & Sanders (1995) explicated the meaning of *daardoor*, *daarom* and *dus* in terms of paraphrases, as follows.:

- (16) **Non-volitional causality**: (P)¹⁰ “Het gevolg van deze situatie is als volgt:” (Q)
 (P) *The consequence of this situation is the following (Q)*
Volitional causality: (P) “Deze situatie is reden voor het verrichten van de volgende handeling:” (Q)
 (P) *This situation is a reason for performing the following action: (Q)*
Epistemic causality: (P) “Uit dit gegeven concludeer ik het volgende:” (Q)
 (P) *From this fact I conclude the following: (Q)*

Both the definitions of the verbs and the definitions of the connectives show elements of a usage-schema as characterized above. Both sets of definitions explicate meaning with reference to the (broader) usage-contexts of the causal relation. Both abstract away from individual usage-events by generalizing about participant types (15) and about aspects of the segments that are related (16).

Finally, the theories differ somewhat to the extent in which they allow for complexity of internal structure of the categories. That ‘less prototypical members’ or, as defined from a usage-based point of view, ‘less conventional usage types’ of the semantic categories naturally occur in language use was already suggested in Chapter 1. In Chapter 3 and in Chapter 4, this discussion will be extended. Existing semantic theories on causal verbs and causal connectives will be investigated and

¹⁰ P (symbolizing the proposition functioning as the ‘cause’) and Q (symbolizing the proposition functioning as the ‘effect’) were added by the present author for the ease of understanding in the present discussion.

evaluated against the cognitive semantic framework set up here. Hypotheses will be derived, and these will be tested empirically. It will be proposed that consistently applying the concepts and findings from the cognitive semantic field enhances descriptive adequacy and cognitive plausibility of a semantic account of causal verbs and causal connectives. Chapter 7 and Chapter 8 will reveal that this approach highlights the conceptual similarities between causal verbs and causal connectives, as well as the differences. Again in accordance with cognitive semantic assumptions, it will be argued that the latter can be related to aspects of the constructions verbs and connectives are used in.

2.4.3 Methods and operationalization

The goal of this study is to construct an integrative semantic theory of causal verbs and causal connectives that is both cognitively plausible and descriptively adequate. It starts from the assumption that these aims can only be attained by carefully choosing, implementing and combining research methods. The goal of this study is to compare the semantic categories of causal verbs and causal connectives as directly as possible. While Chapters 6 and 7 address this goal most directly, the preceding ones are essential in preparing the way. Chapters 2 to 5 aim to create a homogenous framework with respect to theoretical concepts, text samples and empirical methods of analysis used, which is necessary for carrying out the cross-level analyses in a meaningful and reliable way.

In Chapters 3 and 4, the assumed relation between semantic categories and conceptual categories is tested in corpus analyses, analyzing the same sample of texts. Cognitive plausibility and descriptive adequacy will be strived for in three different ways. First, semantic categories of the causality markers will be explicitly related to conceptual models of causality, as identified in psychological, biological and anthropological research (cf. discussion in Section 2.2).

The assumed relation between meaning and conceptual understanding will be tested in two directions, making use of the distinction between the ‘semasiological’ and ‘onomasiological’ levels of word meaning (cf. Geeraerts 1989). Given that a lexical item couples a word form with semantic content (Geeraerts 1997: 17), the semasiological level is the level traditionally studied, answering the question: “given linguistic item *y*, what meaning does it express?” The onomasiological level approaches the relation between semantic and conceptual structure from the opposite perspective, answering the question “given concept *x*, what linguistic item can it be expressed with?” The present study is explicitly concerned with both semasiological *and* onomasiological aspects of semantic structure. In order to understand how language structure relates to conceptual structure, it is necessary to investigate this question from both directions: we need to know what an expression ‘means’ (denotes in terms of conceptual reference – the semasiological perspective) *and* we need to know how (with what element or elements) an articulate concept can be expressed linguistically (the onomasiological perspective).

A second operationalization starts from the usage-based conception of the linguistic system. Because of the assumed ‘usage-based character’ of semantic knowledge, patterns of language use are taken to provide rather direct evidence for the content and form of the semantic categories. It is proposed that each of the

semantic categories may consist of prototypical and less prototypical usage-contexts. Degree of prototypicality coincides with ‘relative entrenchment’. It is assumed that degree of entrenchment will be reflected in usage patterns with respect to relative usage frequency (cf. Verhagen 2000a for a more elaborate argument). Thus, ‘internal structure’ of the semantic categories under consideration can be operationalized in relation to actual language use. The more frequent a particular usage-type occurs in language use, the more entrenched or prototypical it is assumed to be. This operationalization will be implemented by testing specific hypotheses against corpora of written language (cf. Chapters 3, 4 and 5 concerning semantic analysis of causal verbs and causal connectives in isolation, and Chapter 7 analyzing similarities and differences between verbs and connectives).

As a third research method experimental testing is used. In Chapter 6, the ‘cross-level hypothesis’ will be tested experimentally, investigating intuitions of language users. It is assumed that these different operationalizations and research methods complement each other. Converging methods are used as a means of careful empirical testing of the hypotheses under investigation in the present study. The methods and arguments for using them will be discussed in more detail in the following chapters.

Chapter 3

Causality marking at the clause-level: *doen* and *laten*

3.1 Introduction

In this chapter, the Dutch causal auxiliaries *doen* and *laten* are studied as a species of linguistic causality marker that functions at the ‘clause level’ of language structure (cf. discussion in Chapter 2). *Doen* and *laten* are used in constructions that will be referred to in this study as ‘analytic causatives’. Globally, they can be characterized as follows:

An analytic causative is a two-verb construction that expresses a predicate of causation and a predicate of effect. (...) To use such a structure, a speaker must view one predicate, which we will call the effected predicate, as causally dependent on some action of the subject of the sentence (Kemmer & Verhagen 1994: 117).

Different types of constructions belong to the class of analytic causatives, which are also called periphrastic, auxiliary or overt causatives (cf. Wolff & G. Song 2003; J. Song 1996; Goddard 1998, etc.). These constructions share the characteristic of containing a finite ‘causal auxiliary verb’ (also called the causal verb or the causative verb), e.g. *cause, force, get, make, let, have*, which is combined with an infinite verb.

The present study focuses on a subclass within this category: strongly grammaticalized causal auxiliary verbs combined with infinitive without ‘to’ marking. Some examples from Dutch:

- (1) De extreme koude **deed** de rivieren bevroeren.
“The extreme cold **did** the rivers freeze”
*The extreme cold **caused** the rivers to freeze.*
- (2) De koude wind **deed** haar verlangen naar een beker warme
“The cold wind **did** her long (to/for) a cup warm
chocolademelk.
chocolate milk.”
*The cold wind **made** her long for a hot cup of chocolate milk.*
- (3) Hij **liet** zijn soep afkoelen.
“He **let** his soup cool off.”
*He **let** his soup cool/He waited for his soup to cool off.*

- (4) Ze **lieten** de kinderen nog wat extra rondjes schaatsen.
 “They **had** the children some extra rounds skate”
*They **had** the children skate some extra rounds.*

The identity of analytic causative constructions in terms of semantic and syntactic properties has been a matter of debate for decades. On the one hand, they clearly differ from ‘lexical causatives’, verbs that are “discernibly semantically causative, but [...] not formally analyzable into two morphemes (e.g. English *break, open*)”, thus involving “maximal closeness of the causal and effected predicate” (Kemmer & Verhagen 1994: 118-9) or maximal “continuity of the causal process” (Talmy 2000: 502-4; cf. discussion in Section 8.4). On the other hand, they also differ clearly from intersentential causal constructions, such as the *daardoor, daarom* and *dus*-marked constructions under consideration in Chapter 4 of the present study, with respect to the explicitness of the two events that are causally related. In the words of Kemmer & Verhagen (1994):

The hallmark of the causative construction, which sets it apart from the [intersentential -ns] expression, is that in the causative construction the actual causing event is not overtly specified by one of the predicates. All that is expressed by the predicate representing the causing event [...] is the pure notion of cause [...] without more specific lexical content (Kemmer & Verhagen 1994: 117).

The present study’s starting assumption is that the meaning of causality markers reflects the human conceptual understanding of causality. In this chapter, the exact nature of the relation as it may be manifest in the Dutch causal auxiliary verbs *doen* and *laten* is investigated. Section 3.2 presents an overview of studies of the meaning of causal verbs, relevant for the present purposes. Section 3.3 evaluates previous findings with respect to the theoretical assumptions presented in Chapter 2. From this discussion testable hypotheses for *doen* and *laten* are derived. Section 3.4 reports a corpus analysis that aims to test the hypotheses. Section 3.5 discusses the findings from the perspective of the overall goal of the present study.

3.2 Categorizations with causal verbs

In this study, analytic causative constructions are considered as ‘clause-level’ causal relations. From a historical perspective, this choice is not self-evident. Therefore, before discussing categorization proposals, a few words will be devoted to this issue.

Traditionally the analytic causative construction has been analyzed as derived from intersentential causal relations. Examples are derivational syntactic approaches that propose underlying biclausal structures, reduced into a single clause making use of derivational syntactic rules (cf. references cited in Shibatani 1976; Comrie 1981)– or lexical approaches that propose ‘merger’ of the two predicates in order to arrive at a single predicate-argument structure (cf. Rosen 1989; Alsina & Joshi 1991 – cf. discussion in Kemmer & Verhagen 1994). A recent example of

‘interclausal (syntactic and semantic) analysis’ of analytic causative constructions is Wolff & Song (2003)¹:

Syntactically, periphrastic causative verbs can be used as the matrix verb of a sentence containing an embedded clause. [...] Semantically, periphrastic causative verbs encode the notion of cause, broadly construed while the verb in the embedded clause encodes a particular result (Wolff & Song 2003: 285)

A number of semantic characteristics, however, suggest that analytic causative constructions share important characteristics with simple clause structures. The present study follows the proposal of Kemmer & Verhagen (1994) to analyze analytic causatives as extensions from simple (transitive or ditransitive) clauses.

An argument in favor of this position is the fact that the interpretation of the causal auxiliary verb is conceptually dependent on the infinitive of the construction. For example, the finite forms in examples (1) to (4) cited in Section 3.1, referring to ‘some action’ of the initiator of the causal relation, cannot be interpreted meaningfully, unless related to the infinitive of the constructions. In the words of Kemmer & Verhagen “causal predicates necessarily evoke the idea of another action or state” (1994: 118), suggesting that the finite and infinite verb forms in analytic causatives are ‘conceptually fused’². Accordingly, Kemmer & Verhagen propose that the semantic structure of analytic causatives, in terms of semantic roles, can be characterized as the ‘core participants in the causative event’ as a *whole* (1994: 119).

Kemmer & Verhagen 1994 (Verhagen & Kemmer 1997) show that different types of interaction between these core-participants can account for the distribution of *doen* and *laten* over different usage-contexts. This in itself is strong evidence for the plausibility of their analysis of simple clause properties of analytic causative constructions. Further arguments in favor of this analysis presented by Kemmer & Verhagen (1994) are presented with reference to the distribution of case marking in Dutch analytic causative constructions (for discussion of more arguments, see Verhagen 1999). Verhagen & Kemmer’s analysis of *doen* and *laten* as markers of intrasentential causal relations will be reconstructed below.

The semantics of different causative constructions, including analytic causatives, has cross-linguistically been described with terms such as ‘direct vs. indirect causation’, ‘contactive vs. distant causation’, ‘strong coercion vs. weak coercion’, ‘factitive vs. permissive causation’ or ‘manipulative vs. directive causation’ (Wierzbicka 1988: 237; cf. references cited there). Despite cross-linguistic commonalities (perhaps rightly suggested by these recurring labels), languages seem to differ in what meanings causal verbs actually encapsulate (Wierzbicka 1988: 240). But as many

¹ Other analyses starting from the assumption that analytic causative constructions are ‘inter-sentential’ in nature: Shibatani 1976; Comrie 1976.

² This is in line with the assumption often stated in cognitive linguistics or functional linguistics in general, that there may be an iconic relation (correlate) between morphological type and semantic type (cf. Song: 1996: 4-5; Haiman 1985; Talmy 1976; Shibatani 1975; cf. discussion in Section 2.3.4).

typologists studying causal verbs have noted, “this is not to say that there are no recurring motives, no cross-linguistic similarities in the area of causation” (Wierzbicka 1988: 240). Notions that recur in semantic analyses of a variety of languages are: coercion, permission, volition, control, autonomy, etc. (cf. Shibatani 1976; Givon 1976; Comrie 1980; Wierzbicka 1988; Talmy 1988; Wolff & Song 2003; Degand 1996; 2001; J. Song 1996). The present section presents an overview of the way these notions are relevant in characterizing the meaning of Dutch *doen* and *laten*. As the present study is only concerned with semantic issues, syntactic analyses of analytic causative constructions are not discussed.³

Force dynamics: causing vs. letting

Many cognitively oriented accounts of causal verbs take as a starting-point Talmy’s theory of Force dynamics (cf. Wolff 2001; Wolff & Song 2003; For analyses of Dutch *doen* and *laten*: cf. Kemmer & Verhagen 1994; Verhagen & Kemmer 1997; Degand 1996; 2001). Force dynamics characterizes “how entities interact with respect to force”, including “exertion of force, resistance to such a force, the overcoming of such a resistance, blockage of the expression of force, removal of blockage, and the like” (Talmy 2000⁴: 409). Talmy identifies Force dynamics as a conceptual model that plays a structuring role across a range of language levels and conceptual domains (“material pertaining to force interaction in a common way across a linguistic range: the physical, psychological, social, inferential, discourse, and mental-model domains of reference and conception” (2000: 409-10). Talmy (1976; 1988; 2000) orders grammaticalized expressions of causality using an elaborate model of Force dynamic configurations in terms of “increasing structural complexity” (e.g. 2000: 472) in a taxonomic way (cf. discussion in Chapter 2).

Underlying all more complex force-dynamic patterns is the “steady state opposition of two forces” (2000: 413). This opposition is conceptualized as a “role difference between the two entities exerting the forces”. According to Talmy, this asymmetry with respect to roles is marked in language:

One force-exerting entity is singled out for focal attention – the salient issue in the interaction is whether this entity is able to manifest its force tendency or, on the contrary, is overcome. The second force entity, correlatively, is considered for the effect that it has on the first, effectively overcoming it or not (2000: 413).

Borrowing terms from physiology (where they refer to opposing members of muscle pairs), Talmy metaphorically terms the first entity ‘agonist’ and the second one ‘antagonist’. The roles are not defined in terms of grammar or semantics, but in a rather abstract, conceptual way, with respect to their overall roles within the model

³ For syntactic analyses of analytic causative constructions and Dutch causal verbs, see Dik (1980); Vet (1986).

⁴ The paper *Force Dynamics in language and cognition* as it appeared in Talmy (2000) is a slightly revised and expanded version of Talmy (1988) and Talmy (1985) (Talmy 2000: 468).

of force dynamic interaction⁵. These elements are constant throughout different types of causal constructions. In this section, the instantiation of these roles and their interaction types relevant for analytical causative constructions will be discussed.

Causal verbs mark the force dynamic type ‘shift in state of impingement’. This type differs from the type Talmy considers to be basic: ‘steady-state force dynamic pattern’ (of the type “the ball kept rolling because of the wind blowing on it”) in that “the Antagonist, rather than impinging steadily on the Agonist, instead enters or leaves this state of impingement” (2000: 417). Some examples (taken from 2000: 418; 421):

- (5) The ball’s hitting it **made** the lamp topple from the table.
- (6) The water’s dripping on it **made** the fire die down.
- (7) The plug’s coming loose **let** the water flow from the tank.
- (8) The stirring rod’s breaking **let** the particles settle.
- (9) The plug’s staying loose **let** the water drain from the tank.
- (10) The fan’s being broken **let** the smoke hang still in the chamber.

It is the nature of this “shift in state of impingement” that is crucial for defining causation type. What examples (5) through (10) have in common is that all of the situations must be construed as involving a ‘stronger antagonist’. But they differ with respect to the role of the agonist. The first examples are construed as involving a stronger antagonist ‘entering into impingement’, *changing* the agonist’s inherent tendency to ‘act’ (from rest into action in (5); from action into rest in (6)). In the remaining examples, the antagonist does *not change* the agonist’s inherent tendencies to ‘act’. All of them can be construed as situations where the antagonist initially ‘blocked’ the inherent force tendencies of the agonist (toward action in (7) and (9); toward rest in (8) and (10)), but then ‘leaves a state of impingement’ and enables the agonist to implement their inherent tendencies to act.

The category of ‘antagonists actively impinging’⁶ is termed ‘causation’ by Talmy. The category of ‘antagonists leaving impingement’ ((7) and (8)) or ‘non-occurrence of impingement’ ((9) and (10)) is termed ‘letting’ by Talmy (cf. 2000: 419). The distinction between ‘causing’ and ‘letting’ is reflected in the semantics of English *make* and *have*⁷ on the one hand and *let* on the other. It is reflected in many other languages as well (e.g. in French (Degand 2001; De Lentacker 1987)). The distinction between these two types of causation is also referred to with the terms

⁵ However, Talmy principally views these roles as semantic roles similar to e.g. Agent. Moreover, he signals a parallel between the agonist and antagonist roles, and the spatial/temporal concepts, or: construal operations (cf. discussion Section 2.3.1) of ‘Figure’ and ‘Ground’ (Talmy 2000: 468).

⁶ Talmy distinguishes within this category further between ‘onset’ and ‘extended causation’. As it is not very useful for the present purposes, this distinction will be neglected.

⁷ Both of these verbs indicate causative processes. The distinction between these two verbs can be characterized with reference to the concept of ‘intentionality’ of the causee: the *make* causative implies that the causee is acting against his or her will; the *have* causative indicates that the causee is ‘willing to act’; perhaps not entirely voluntarily, but as a consequence of a dependency relation (Wierzbicka 1988: 241-2).

‘coercion’ vs. ‘permission’ (‘letting’ with animate causees) or ‘enablement’ (‘letting’ with inanimate causees). Talmy’s distinction between ‘causing’ and ‘letting’ is summarized in Figure 3.1 (discussed earlier as Figure 1.1):

Make	Let
<i>Causing</i> A stronger antagonist changes the intrinsic tendency of the agonist	<i>Letting</i> (permission, enablement) A stronger antagonist is able to change the intrinsic tendency of the agonist, but refrains from doing so

Figure 3.1. The categories of causing and letting (Talmy 1988; 2000).

Doen vs. laten: directness of causation

Verhagen & Kemmer (1997; 1992; Kemmer & Verhagen 1994) propose an analysis of meaning and use of Dutch *doen* and *laten*, elaborating the Force dynamics theory of Talmy (1976; 1988). They investigate the relation between conceptual models and lexical semantics of causal expressions further, analyzing empirical data from actual language use. Verhagen & Kemmer propose that causal relations marked with *doen* and *laten* must also be understood as an ‘interaction between forces in the causal event’. But they propose that in *doen* and *laten* the ‘interaction of forces’ is of a somewhat different nature.

Verhagen & Kemmer (1997; Kemmer & Verhagen 1994) re-define Talmy’s concepts of Agonist and Antagonist in terms of semantic roles in the overall causative event⁸. These distinctions will be illustrated with reference to the following examples (taken from Verhagen & Kemmer 1997: 62; 68).

- (11) [De stralende zon]_{CR} **doet** [de temperatuur]_{CE} oplopen.
[The blazing sun]_{CR} **made** [the temperature]_{CE} rise.
- (12) [De recessie]_{CR} **doet** [de mensen]_{CE} verlangen [naar betere tijden]_A.
[The recession]_{CR} **makes** [people]_{CE} long [for better times]_A.
- (13) [De agent]_{CR} **liet** [hen]_{CE} passeren.
[The police officer]_{CR} **let** [them]_{CE} pass.
- (14) [Ze]_{CR} **liet** [de agent]_{CE} [haar rijbewijs]_A zien.
[She]_{CR} showed (**let** see) [the officer]_{CE} her [driver’s license]_A
- (15) [De sergeant]_{CR} **liet** [ons]_{CE} door de modder kruipen.
[The sergeant]_{CR} **had** [us]_{CE} crawl through the mud.
- (16) [Hij]_{CR} trok de stop eruit en **liet** [het badwater]_{CE} weglopen.
[He]_{CR} pulled the plug out and **let** [the bath]_{CE} water drain.

The causer (indicated in the examples with subscript ‘CR’) is the entity viewed as ‘causing the entire event’, i.e.: the subject of the sentence (1994: 119); the initial energy source for the entire composite causal event (Verhagen & Kemmer 1997:

⁸ It would perhaps seem obvious to put Talmy’s concepts Agonist and Antagonist on a par with Verhagen & Kemmer’s concepts Causee and Causer. However, matters appear to be more complicated. As was already hinted at in Section 2.2.1, Verhagen & Kemmer do not assume that the ‘force potentially being most immediately involved in bringing out the causal effect’ coincides systematically with this participant (cf. Kemmer & Verhagen 1994).

62). In the examples, *the shining sun* (11), *the recession* (12), *the police officer* (13), etc. are conceptualized as causers. The causee (indicated with subscript ‘CE’) is the entity that is ‘the immediate recipient of the energy supplied by the causer’, and is ‘the participant carrying out the activity designated by the effected predicate’ (Verhagen & Kemmer 1997: 63); in the examples, *the temperature* that ‘rises’ (11) *the people* who ‘are longing’ (12), *them* who are ‘passing’ (13) etc.

Verhagen & Kemmer (1997: 63) state that their definition of the causee-role is “provisional because in fact the specific semantics of the causee is heavily dependent on the entire event structure”. The main differences in event structure referred to here concern the type of infinitive expressing the causal effect (e.g. *rise* in (11), *long* in (12), *pass* in (13)). These ‘effected predicates’ may occur in two types: intransitive, (as in (11), (13), and (15)) or transitive (as in (12) and (14)). Instances of the first type are referred to as ‘intransitive causatives’ (IC); instances of the second type are referred to as ‘transitive causatives’ (TC).

Variation in the type of effected predicate makes “a difference for the overall semantics of the causal event, in general because they involve two different configurations of participants” (Verhagen & Kemmer 1997: 62). The most obvious difference is, of course, the fact that IC contain only a causer and a causee, while TC contain (at least schematically) *three* participants: apart from the causer and causee they contain an ‘affectee’ (indicated with subscript ‘A’); which is the entity that can be conceived of as the “endpoint of the energy (literal or metaphorical) expended in the entire causative event”; the participant that is (again: literally or metaphorically) affected by the causal event (Kemmer & Verhagen 1994: 149). Examples are *for better times* in (12) and *her driver’s license* in (14).

Categorizations of *doen* and *laten* are defined with reference to interactions between these core-participants. The force dynamic distinction between ‘causing’ and ‘letting’ is relevant in the categorizations made with *doen* and *laten* in analytic causative constructions too, but it does not adequately capture the semantic difference between the verbs. Interestingly, it *does* in another grammatical function of *doen* and *laten*. Both verbs occur in simple clauses (without an infinitival complement) as well, some examples are (taken from Verhagen & Kemmer 1997: 66; 70):

- (17) Vandaag **doe** ik examen.
“Today **do** I exam.”
Today I will take an exam.
- (18) Dat **doet** pijn/ **doet** mij verdriet.
“That **does** pain/ **does** me hurt/sadness.”
That hurts/ that saddens me.
- (19) Ik **laat** jou de keus.
“I **let** you the choice”
I leave the choice to you.
- (20) Ze **liet** de kat in huis.
“She **let** the cat in the house”
She let the cat into the house/ she left the cat in the house

As Verhagen & Kemmer (1997: 66) point out: *Doen* is used in simple clauses to refer to an action that carries the idea of producing a result (with an animate subject, e.g. (17)) or producing an effect (with an inanimate subject, e.g. (18)). Simple clause *laten* carries the meaning of ‘allowing’. For example, in (19) and (20), the initiator has some power to grant or prevent something, and grants it.

However, if *doen* and *laten* are used in analytic causative constructions, the ‘causing’ and ‘letting’ distinction is not as clearly visible. That is, *doen* as a causal verb is always used in ‘causing’ situations (in which the activity of the causer brings about a change of state in some other participant in the causative event), but *laten* as a causal verb does not restrict itself to ‘letting’ contexts (in which the causer does *not* alter the state of the other participant in the causative event, but on the contrary refrains from acting). Instead, Verhagen & Kemmer propose, the difference between Dutch *doen* and *laten* is characterized best as marking direct and indirect causation respectively. This distinction will be illustrated with reference to the following examples (taken from Verhagen & Kemmer 1997: 62; 68).

Doen is used when the activity of the causer is conceptualized as causing the effected predicate immediately and directly; none of the other core-participants present in the causal process are understood as having any influence on the progress of the process depicted. Examples are (11) and (12). In (11), the causal effect ‘rising’ of the temperature is to be understood as caused immediately, or directly by an (unspecified further) activity of ‘the blazing sun’ (cf. Verhagen & Kemmer 1997: 70): if it is there, exerting its influence, the temperature can do nothing but ‘rise’. In this example the causee is understood to have no influence whatsoever on the progressing of the event depicted. Direct causation is strongly associated with causal relations in the physical world (as opposed to the mental world of human experience and human thinking), i.e. causal processes that take place between inanimate core participants. Physical entities are taken to act directly on other things (1997: 71). Another clear example of direct causation is (12). The causal effect ‘longing for better times’ is an emotional state of ‘feeling’ or ‘desire’. This type of human emotion is normally understood as being ‘uncontrollable’ and (thus) as directly caused from outside (Verhagen & Kemmer 1997: 74; cf. D’Andrade 1987).

The meaning and use of *laten* on the other hand, is best described as marking indirect causation. This causation type can be defined as ‘a situation that is conceptualized in such a way that it is recognized that *some other force* besides the initiator is the *most* immediate source of energy in the effected event’ (Verhagen & Kemmer 1997: 67; italics from the authors). Examples are (13), (14), (15), and (16). In (13), the causer, the police officer, is initiating the causal process, but he can’t control its complete course. He can prepare conditions for the causal effect ‘passing’ to take place, but this effect takes place *only* if the causee, ‘we’, interpret the (unspecified) action of the police officer as a reason to ‘pass’. Hence, ‘we’ is viewed as the most immediate source of energy in the effected event. Similarly, ‘some other force’ is easily recognizable in (14): the effect ‘see’ only takes place if the causee, ‘the police officer’, interprets the activity of the causer ‘she’ as a reason to carry out the effected predicate. In (15) the causal effect ‘crawl through the mud’ only takes place if causee ‘us’ interprets the activity of the causer ‘the sergeant’ as a reason to carry out the effected predicate. In both examples, by virtue of the causer’s not being

able to control the situation fully, the causees are conceptualized as having a certain amount of autonomy in the event depicted.

Verhagen & Kemmer (1997: 67) propose that indirect causation is an extension of the notion of permission/enablement of Talmy (1988). As a matter of fact, the degree of indirectness of *laten*-marked causative constructions varies: it is maximal in cases of permission/enablement with relatively great autonomy for ‘the other force’ (cf. (13) and also (16), discussed below) and it is smallest in cases like (15), in which the causee is more or less forced into carrying out the effected predicate. In some cases it is even difficult to make out what kind of causation is involved, cf. (14), in which both an interpretation as ‘letting’ (causer complies with the wish of the causee to ‘see her driver’s license’) and an interpretation as ‘causing’ (reversing the perspective: the causee complies with the causer’s wish to show her driver’s license) makes perfect sense. What all these cases have in common is the ‘recognition of an intermediary force that most directly brings about the effected predicate’ (Verhagen & Kemmer 1997: 69).

Verhagen & Kemmer’s data shows that the category of indirect causation is prototypically associated with causative situations with an animate causer and an animate causee. According to human conceptualization of this kind of processes, it is *not* possible for animate beings to interfere directly with the minds of other animate beings; to cause them directly to do, feel or think something: it is believed that animates can only act on other animates via the intervening physical world (Verhagen & Kemmer 1997: 71) – that is, *indirectly*. Still, the possibility of being conceptualized as ‘some other force’ in the causal relations is *not* restricted to animate causees. In example (16), the ‘flowing out of the bath tub’ of ‘the water’ is naturally understood as *not* being caused directly by ‘he’, the causer. Rather, it makes sense to view the ‘flowing out’ as being caused more directly by (a force associated with) the causee, ‘the water’ (Verhagen & Kemmer 1997: 68).

The examples cited indicate that Dutch causative *laten* is commonly used in (Talmy’s 1988; 2000) ‘letting’ contexts. For example, (13) is a clear case of ‘permission’: it is highly likely that ‘they’ wanted to ‘pass’, so that this sentence is to be understood as a situation in which the causer, ‘the police officer’, removed a barrier and allowed, or permitted, the causee ‘them’ to have their way. Example (16) is a similarly clear case of ‘enablement’: the causer ‘he’ enables the causee ‘the bath water’ to follow its inherent tendency of ‘flowing out of a container’. But ‘letting’ is evidently not the only context that fits *laten* well. It is as easily combined with clear ‘causing’ (or: coercive) contexts as well. For example, the most likely interpretation of (15) is not that the sergeant’s subordinates had the inherent tendency to crawl through the mud (and that the activity of the sergeant consisted of removing a barrier that restrained them from doing so) but rather that the sergeant imposes his will upon ‘us’, and forces the causee in some way to carry out the ‘crawling’. Thus, this event is to be interpreted as an instance of ‘causing’ in terms of Talmy (2000): an event in which the antagonist changes the inherent force tendency of the agonist.

The distinction between direct and indirect causation as proposed by Verhagen and Kemmer (1997; 1992; Kemmer & Verhagen 1994) is summarized in Figure 3.2 (discussed earlier as Figure 1.2):

Doen	Laten
<i>Direct causation</i>	<i>Indirect causation</i>
The initiator produces the effected event directly; there is no intervening energy source ‘downstream’	Some other force besides the initiator is the most immediate source of energy in the effected event

Figure 3.2. The categories of direct and indirect causation (Verhagen & Kemmer 1997).

Causation as interpersonal manipulation

Verhagen & Kemmer’s analysis is compatible with other theoretical frameworks as well. For example, Degand (1996; 2001) argues that the notions of ‘direct’ and indirect causation explain the function of causal auxiliaries within the framework of systemic functional grammar (cf. Halliday 1985). According to Degand, the notion of manipulation or control of the causer over the causative event that is crucial in Verhagen & Kemmer’s analysis specifies Dutch and French causal auxiliaries as functioning in the ‘interpersonal metafunction’ of the language system, “concerned with the symbolic interaction between speaker and hearer” (Degand 2001: 7).

3.3 Corpus analysis: hypotheses and operationalization

Verhagen & Kemmer’s ‘directness of causation’ theory is corroborated by empirical data from language use; it adequately characterizes usage of *doen* and *laten* in different text genres (cf. Verhagen & Kemmer 1997; Kemmer & Verhagen 1994; Degand 1996; Degand 2001). Moreover, it explicitly aims at cognitive plausibility, examining the relation between conceptual models and lexical semantics of causal expressions (cf. discussion in Section 3.2). Therefore, it is a good starting-point for operationalizing the assumption underlying this study, that the meaning of linguistic causality markers reflects the conceptual understanding of causality. The aim of the corpus analysis reported in the remainder of this chapter is to investigate the exact nature of this relation as it may be manifest in the meaning of Dutch causal verbs. Section 3.3.1 formulates and operationalizes hypotheses with respect to prototypical usage of *doen* and *laten*. Section 3.3.2 formulates and operationalizes hypotheses with respect to *non*-prototypical usage types. These hypotheses will be tested against a corpus of data from natural language use, reported in Section 3.4.

3.3.1 Prototypical usage

Verhagen & Kemmer (1997) argue, on the basis of empirical data, that the categorizations made by *doen* and *laten* coincide with a number of cross-linguistically alleged conceptual models structuring the human understanding of causality. In the first place, the conceptual model of Force dynamics is relevant in the categories of direct and indirect causation. In the distinctions made by Dutch causal verbs however, the focus of attention ‘moves’ from ‘intrinsic force dynamics’ of the core participants involved in the causal process to the degree of ‘control’ (or lack of control) these participants are assumed to have in bringing about the causal

effect: if the causer is construed as controlling the process completely, the causal relation is marked with *doen* as an instance of ‘direct causation’. If, on the other hand, the causer shares control with a second force in the causal process (which, as a consequence, is construed as having a certain degree of ‘autonomy’ in the process), the causal relation is marked with *laten* as an instance of indirect causation.

A second conceptual model that is reflected in the meaning and use of Dutch *doen* and *laten* is the distinction between the animate world of sentient beings and the physical world of ‘things’, which will be referred to here (following Verhagen & Kemmer 1992: 7) as the conceptual model of Naïve dualism. The way this model is manifest in language can be schematized as follows:

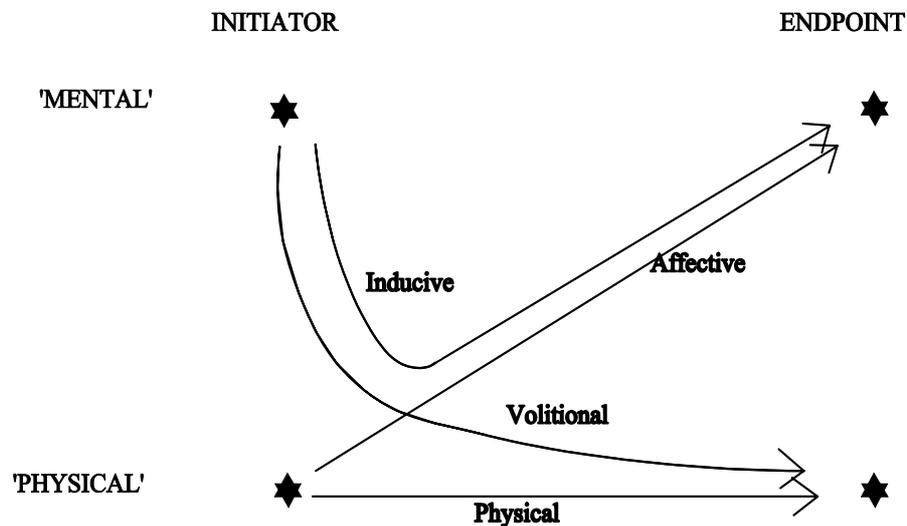


Figure 3.3. Schematization of distinction between the animate and the inanimate world, present in causation types (Croft 1991, based on Talmy 1976; in: Verhagen & Kemmer 1997: 71).

According to this schema, causative events are distinguished along two dimensions: the distinction between the mental world of animate beings vs. the physical world of inanimate entities (the model of Naïve dualism itself) on the one hand, and the ‘initiator’ and the ‘endpoint’ of a causal event on the other (specifying how this model is relevant in the linguistic expression of causal relations). In analytic causative constructions, the initiator of the event always coincides with the causer. According to the analysis presented in Figure 3.3, the endpoint of the causal event on the other hand varies in analytical causatives: in constructions with an intransitive effected predicate (IC) it is the causee, but in constructions with a transitive effected predicate (TC) it is the affectee that counts as the endpoint in the energy flow (Verhagen & Kemmer 1997: 71; but see discussion in Section 3.4.3).

The asymmetry between the animate and the physical world is symbolized in Figure 3.3 with bent vs. straight arrows. The first indicate indirect causation and

the latter indicate direct causation. In a naïve dualist model, physical entities are taken to act directly on other things (Verhagen & Kemmer 1997: 71). Hence, causal processes that have an inanimate initiator are taken to be instances of direct causation. Figure 3.3 suggests that there are two interaction types that are standardly conceptualized as direct causation: ‘physical causation’ (which denotes interactions between inanimate initiators and endpoints) and ‘affective causation’ (which denotes interactions between inanimate initiators and animate endpoints). ‘Inductive causation’ (interactions between animate initiators and endpoints), on the other hand, is typically understood as indirect causation: Animatees can only act on other animatees via the intervening physical world (Verhagen & Kemmer 1997: 71). Least clear is ‘volitional causation’ (interaction between an animate causer and an inanimate endpoint). As indicated by the ‘slight’ bend of the arrow symbolizing this kind of interaction, this causation type is neither inherently direct nor indirect. Their exact interpretation (and linguistic marking) is dependent on circumstantial factors (Verhagen & Kemmer 1997: 72).

A third model that is shown to be relevant is D’Andrade’s Folk model of the mind (1987). This model specifies the way the concept of ‘animacy’ is dealt with in categorizations of *doen* and *laten*: categorization does not always entirely coincide with inherent ‘animacy’, but with aspects of ‘controllability’ of mental processes caused in animate causees. The Folk model of the mind describes how, according to our pre-scientific, folk understanding, “the mind relates to the physical world, and how events in the mind may be caused” (Verhagen & Kemmer 1997: 72). Some of them are conceptualized as ‘controllable’ (mainly beliefs, intentions and resolutions); others are not (feelings, desires and especially perception). For a more elaborate discussion of this model, see Chapter 7.

Operationalization

The evidence accumulated by Verhagen & Kemmer (1992; 1997) and Kemmer & Verhagen (1994) suggests that the proposed parallel between the semantic categories indirect causation and direct causation and the conceptual understanding of causal relations is plausible. Therefore, in the present study it will be assumed that the categories of direct and indirect causation reflect conceptual categories relevant for understanding causality. In accord with the usage-based approach to meaning adopted in this study (cf. discussion in Section 2.3.4), the semantic categories will be operationalized in terms of usage-schemas (cf. discussion in Section 2.4.2). Following Verhagen & Kemmer (1997; Kemmer & Verhagen 1994) and Talmy (1988; 2000), it is assumed that relevant factors in such a usage schema must be the core-participants in the causal event (causer, causee, affectee) and the nature of the interaction between these participants. Thus, a plausible meaning representation of *doen* and *laten* in terms of a usage-schema would be the definitions presented in Figure 3.2, presented in Section 3.2.

However, this characterization needs some further specification on the level of ‘core participants’ in order to operationalize it for analysis. The ‘initiator’ is always the ‘causer’ of the causal event. But what about the ‘other force’ that plays an intermediate role in the process conceptualized as indirect causation? The definitions of usage contexts in terms of directness and animacy configurations are stated with reference to *two* core-participants. But as was already mentioned in Section 2.1,

depending on the type of effected predicate, there may as well be *three* core-participants playing a role in the conceptualization and categorization of the causal process in analytic causative constructions. Analytic causative constructions with an intransitive effected predicate (IC; cf. (21) below) ‘only’ contain a causer and a causee. Constructions with a transitive effected predicate (TC; cf. (22) and (23) below), on the other hand, contain (at least schematically) three participants: apart from the causer and causee they contain an affectee – as the participant that is ‘affected’ by the causal event without playing an active role in the coming about of causality; the participant that is the final endpoint of the energy flow in the causative event (Verhagen & Kemmer 1997: 63).

- (21) [De agent]_{CR} **liet** [hen]_{CE} passeren.
*The officer **let** them pass.*
- (22) [Ze]_{CR} **liet** [de agent]_{CE} [haar rijbewijs]_A zien.
*She showed (**let see**) the officer her license.*
- (23) [Ze]_{CR} **liet** [ø]_{CE} [haar rijbewijs]_A zien.
*She showed(**let see**) ø her license.*

This variation in the type of effected predicate makes “a difference in the overall semantics of the causal event, in general because they involve two different configurations of participants” (Verhagen & Kemmer 1997: 62). Apart from the variation in *number* of participants, there may also be variation in the construal of the specific *role* the participants plays – notably the participant in the role of causee. Kemmer & Verhagen (1994) observe that the exact identity and behavior of the causee varies systematically according to whether they occur in an IC or in a TC.

In an IC, the ‘intermediate factor’ in indirect causation is to be associated with (an action of) the causee. For example, the ‘passing’ in (21) only occurs thanks to some initiative on behalf of the causee ‘them’. In many TC it seems to make sense to conceptualize the causee as the intermediate factor in the same vein, cf. (22) and (23): the ‘seeing’ occurs only because of an activity of the causee – ‘the police officer’ in (22), or a more schematic one in (23)). However, in transitive causatives (TC), Kemmer & Verhagen (1994) argue, the causee conceptually occupies a more peripheral position. This difference is related to differences in the respective grammatical models that structure the interpretation of causal relations expressed in IC or in TC respectively. Kemmer & Verhagen (1994: 115) propose that the semantic roles of the core-participants in IC (causer and causee) correspond to the grammatical roles of subject and direct object in a simple transitive clause. The underlying model for TC, on the other hand, is proposed to be the ditransitive or instrumental simple clause (1994: 115). In TC, the affectee of the analytic causative construction corresponds to the direct object (patient role) of a ditransitive clause, whereas the causee rather takes the position of the indirect object (dative or instrument role). Evidence for this proposal found in patterns of case marking of the causees in TC⁹ (Kemmer & Verhagen 1994: 123; Comrie 1976; 1981), and perhaps

⁹ Dutch TC marked with *laten* allow for the following markings of the causee (ordered from more to less integrated): zero marking (“Hij liet ø haar de brief lezen”) – Dative marking

also in the fact that causees are more frequently left implicit in TC-constructions than they are in IC-constructions.¹⁰

Unfortunately, Verhagen & Kemmer (1997; Kemmer & Verhagen 1994) do not concretely further work out this analysis for their implications on categorization patterns with *doen* and *laten*. The corpus analysis reported in Verhagen & Kemmer (1997) is based on a sample of fragments containing an explicit causee. Usage-contexts with implicit causee are excluded from the analysis. A drawback of this decision is that by doing so, only a small part of naturally occurring TC-constructions is included in the analysis; 65% of the TC occurrences in the corpus used by Verhagen & Kemmer (1997) was without a causee.

As the present study aims at maximal generalizability of its findings, it was decided to include causee-less fragments as well. Yet, the question remains: how to deal with these cases? In itself, Kemmer & Verhagen's (1994) proposal seems to imply that categorizations of IC-constructions are based on interactions between *different types* of core-participants (namely: causer and causee) than categorizations of TC-constructions (namely: causer and affectee)¹¹, or at least: that these differences pertain to causee-less TC. This in turn implies that (22) is to be categorized as an instance of indirect inductive causation, whereas (23) is to be categorized as an instance of indirect volitional causation. It is an empirical question whether this (possible) difference is reflected in patterns of causality marking with *doen* and *laten*.

However, for lack of empirical evidence to the contrary, the present analysis will start from the assumption that there is *no* fundamental difference in the way causal relations in IC and TC are construed, or in the way causal relations in IC and causee-less TC are construed. Building on the findings of Verhagen & Kemmer (1997), it is assumed that all analytic causative constructions are conceptualized as interactions between the causer and the causee, explicitly present or not. Thus, the following usage-schema will be taken as a starting point for analysis:

Doen	Laten
<i>Direct causation</i>	<i>Indirect causation</i>
The causer produces the effected event directly; there is no intervening energy source 'downstream'	Besides the causer, the causee is the most immediate source of energy in the effected event; the causee has some degree of 'autonomy' in the causal process

Figure 3.5. Usage-schemas for *doen* and *laten*: core-participants causer and causee.

("Hij liet de brief *aan iedereen* lezen") – Agentive/Instrumental marking ("Hij liet de brief *door iemand* lezen") (Kemmer & Verhagen 1994: 136-137).

¹⁰ According to data from Verhagen & Kemmer (1997: 64): Only 9 out of 439 with IC, against 272 out of 416 with TC (cf. Degand (2001) for similar findings).

¹¹ This is also what is suggested in the proposals of Talmy (1976) and Comrie (1991), who state that it is the interaction between the starting-point and the end-point of the energy flow (in force dynamic terms) that determine categorization of a causal relation.

In order to control for possible interference of this factor with the main aim of the analysis, two control steps have been built in. Firstly, in reconstructing the categorization processes in the corpus analysis, it will be investigated whether the causee is a plausible ‘intermediary factor’ or not. Secondly, Section 3.4.3 will take the affectee instead of the causee as a starting point for analysis of TC-constructions, and will investigate what difference this makes in overall patterns.

Verhagen & Kemmer’s (1997; Kemmer & Verhagen 1994) data suggests that *prototypical* usage of *doen* and *laten* can be defined more specifically in terms of ‘(in)animacy’. Following Verhagen & Kemmer’s proposal (building on Croft 1991 and Talmy 1976), this will result in four subcategories, related to *doen* and *laten* as follows:

Animacy configuration	Prototypically marked with:
Physical causation Inanimate CR – Inanimate CE	Doen
Affective causation Inanimate CR – Animate CE	Doen
Volitional causation Animate CR – Inanimate CE	Doen or laten
Inductive causation Animate CR – Animate CE	Laten

Figure 3.6. Prototypical usage of *doen* and *laten* (CR = causer; CE = causee).

According to Verhagen & Kemmer (1997: 72), causal processes with inanimate core participants (physical causation) and processes with an inanimate causer and an relevant animate ‘other participant’ (affective causation) are as a general rule categorized as ‘direct causation’. Causal processes with animate core participants (inductive causation) are normally categorized as indirect causation. If in a specific fragment usage of *doen* or *laten* does not conform to the general patterns established by Verhagen & Kemmer, other elements will be invoked to account for the categorization found (e.g. the other conceptual models identified as relevant by Verhagen & Kemmer, or contextual factors). These will be explicitly argued. As causal processes with an animate causer and an inanimate relevant ‘other participant’ (volitional causation) do not show any pattern related to animacy, in these types other arguments will be used standardly¹².

The distinction between animate and inanimate elements is made as follows: ‘animate beings’ are taken to be ‘thinking entities’ in the Cartesian sense (‘res cogitans’), having the property of either being a ‘subject of consciousness’ (of feeling, cognition and perception) or a ‘subject of action’ (an agent) (Lyons 1995: 337). Whether a participant is ‘animate’ or ‘inanimate’ is established making use of

¹² Cf. Verhagen & Kemmer, who state that “volitional causation is, in terms of categorization as direct or indirect, the most complex, i.e. neither prototypically direct nor prototypically indirect: thus it comes as no particular surprise that quite a number of examples of both *doen* and *laten* are found in this subclass [...] other factors will more often be decisive here than in other subclasses (1997: 72).

both linguistic indications (inherent semantics) and contextual factors. Examples of the latter situation are fragments where an animate being is not involved in the causal relation for his or her ‘sentient’ aspect but, instead, for its ‘physical aspect’ (cf. (24)). Conversely, inherently inanimate entities may metonymically be conceptualized as animate beings, capable of feelings, perception and action (cf. (25))

- (24) (Over tennisser Peter Wessels) Vorig seizoen trapte zijn lichaam echter op de noodrem. Een virus en oververmoeidheid **deden** hem van de 82e plaats op de wereldranglijst weer buiten de tophonderd duikelen¹³ (por200267)¹⁴
*(About tennis player Peter Wessels) Last season his body slammed on the brakes. A virus and exhaustion **made** him degrade/fall from 82nd place on the world ranking list out of the top hundred.*
- (25) Volkswagen blijft de grootste Europese autobouwer, hoewel het aantal verkochte eenheden met 2,9 procent daalde tot 2,75 miljoen. De VW-merken Seat en vooral Skoda wisten echter hun verkopen te **doen** stijgen (ac170105).
*Volkswagen remains the largest European car manufacturer, although the number of sold units fell from 2.9 percent to 2.74 percent. However, VW brands Seat, and especially Skoda, were able to **make** their sales rise.*

If the causee is left unexpressed, its animacy was reconstructed on the grounds of the effected predicate: taking an animate or an inanimate subject. An example is (26):

- (26) We hebben [ø] ons huis **laten** verbouwen.
*We **had** [ø] our house redecoreated.*

¹³ A specific sub-type is formed by expressions containing figurative language. An example from the corpus investigated: “Op de Maastrichtse antiekbeurs Tefaf komt dit weekeinde een veertiende-eeuws manuscript in de verkoop, dat musicologen het water in de mond **doet** lopen.” (rec030359) *This weekend at the antique dealer’s exhibition ‘Tefaf’ in Maastricht a 14th century manuscript which makes musicologists’ mouths water will be sold.* Fragments containing figurative language will be analyzed from the perspective of the literal energy flow depicted. Thus, in the example just cited, the Dutch equivalent of the expression also known in English ‘the 14th manuscript makes musicologists’ mouths water’, referring to the situation that the musicologists referred to take a lively interest in the manuscript, is analyzed as an interaction in which the 14th century manuscript acts as a causer that directly causes ‘the water’ as a causee, to (literally translated) ‘pour into the mouths’ of the musicologists.

¹⁴ Examples taken from the corpora analyzed are followed by their ‘administrative code’: digits 1-4 indicate ddmm, and the last two positions indicate the ranking number in the selection process. Numbers over 50 indicate cases replacing ‘doubles’. The letter code indicates text type (cf. Appendix 3-1) Thus: fragment por200267 was taken from a portrait article published Februari 20th and it was selected in order to replace an xth occurrence of a lexicalized expression marked with *doen*.

The effected predicate of (26) is a verb denoting an action. Actions take animate subjects (agents), therefore: the causee must be animate.

The relation between semantic and conceptual categories will be tested in two directions, from a semasiological perspective (testing whether usage-categories of *doen* and *laten* can be adequately described in terms of the conceptual categories direct and indirect causation respectively) and from an onomasiological perspective (testing whether the conceptual category of direct causation is typically expressed with *doen*, and whether the conceptual category of indirect causation is typically expressed with *laten*, as the hypothesis predicts – see Section 2.4.3). This results in the following hypotheses on prototypical usage of *doen* and *laten*:

Semasiological hypothesis

Doen is prototypically used in causal relations with inanimate core-participants; *laten* is prototypically used in causal relations with animate core-participants.

Onomasiological hypothesis

Causal relations with inanimate core-participants are prototypically expressed with *doen*; causal relations with animate core-participants are prototypically expressed with *laten*.

These hypotheses will be tested quantitatively. In line with the assumptions presented in Chapter 2, degree of prototypicality of a usage-context is operationalized in terms of usage-frequency: the more frequent a specific context is, the more prototypical it is taken to be.

3.3.2 Non-prototypical usage

Verhagen & Kemmer (1997) do not explicitly make use of the idea that semantic categories may have a complex structure, built from a prototype and less prototypical usage types, linked by ‘family resemblance’ (cf. discussion in Section 2.3.3). But a number of observations can be interpreted as indications that there are, apart from the prototypical cases discussed in section 3.3.1, less-prototypical ones as well. More specifically, they find that a ‘considerable’ number of *doen*-contexts contain an *animate* causer and an *animate* causee. Of the examples discussed by Verhagen & Kemmer (1997: 74-7) two fragments will be reproduced by way of illustration:

- (27) Gaarne wil ik u **doen** weten, dat ik geen enkele verantwoordelijkheid kan nemen voor de nu uitgevoerde werkzaamheden.
I should very much like you to know that I cannot accept the slightest responsibility for the activities which have now been carried out.
- (28) Met een zucht **deed** hij de buitenwereld weten dat het kleine vertrek bezet was.
With a sigh, he let the outside world know the bathroom was occupied.

Verhagen & Kemmer's analysis of these fragments suggests that they maintain clear conceptual relations to the prototypical usage-schema of *doen*, as discussed in Section 3.3.1. Both cases concern inducive causation: causal processes in which an animate causer acts on an animate causee. In both cases therefore, marking with *laten* would be the most conventional option. However, *doen* in these contexts is bringing about a rhetorical effect that fits in perfectly well with the given contexts. The effect of *doen* in (27) for the overall interpretation of the sentence is that "the influence of the causer is maximized. (...) By using *doen* the author focuses attention on an action that is completely within his own control, and suggests that this is sufficient for producing the desired effect" (1997: 76).

As a matter of fact, this example is an instance of a genre-specific usage-type of *doen*, more or less conventionally used in contexts with a specific type of causer. Verhagen & Kemmer found this usage type relatively frequently in a subcorpus of political language, with government authorities as causers; a type of communication in which this effect of ruling out the responsibility of other factors fits rather well.¹⁵ An important point to note here, is the fact that the effect of *doen* in this kind of contexts is clearly related to the prototypical usage context of *doen*, even more so than to the prototypical context of *laten*, indirect causation, in spite of the animacy types of its core-participants.

The marking with *doen* instead of *laten* in (28) does not constitute a conventional pattern, but it can be explained along similar lines of reasoning. Again, the causer and the (implicit) causee are animate (the participant carrying out the act of 'knowing' must necessarily be – cf. discussion in Section 3.3.1). The act referred to with *doen* is 'sliding the bathroom latch'. The (schematic) causee that is to 'know' that 'this bathroom is occupied' can be interpreted as being the rather indefinite 'outside world'; there are no specific persons referred to. Marking with *doen* instead of *laten* in this specific context, highlights the non-communicative aspect of this situation (Verhagen & Kemmer 1997: 77). It can be interpreted as a construal operation of the speaker, strategically choosing a non-conventional marker in order to establish a very specific rhetorical effect. A clear link of 'family resemblance' to the prototype is still present: precisely the effect realized brings it about. The corpus analysis reported in the remainder of this chapter will investigate the non-prototypical usage-types of *doen* and *laten* more closely. By analyzing them systematically and quantitatively, it will investigate whether the patterns observed by Verhagen & Kemmer (1997) are regular patterns.

Operationalization

The hypothesis with respect to non-prototypical usage is: If a causal verb is used in a usage-context different from its proposed prototype, this 'domains crossing' usage shows resemblances to the proposed prototype of the verb. In order to make it falsifiable and maximally restrictive, this hypothesis will be operationalized as follows:

¹⁵ Cf. Verhagen (2000; 2001) extending this usage-pattern in a diachronic analysis of *doen* (cf. also discussion in Section 2.3.4).

Family resemblance hypothesis

A non-prototypical usage type of *doen* or *laten* shares one or more characteristics with its own prototype *and* shares one (or, in really peripheral cases, more) characteristics with the prototype of its counterpart, but it *never* shares *all* of the characteristics of the counterpart's prototype.

Verhagen & Kemmer's findings suggest that a well-defined 'superschema' exists (cf. Section 2.3.4), determining the boundaries of the semantic categories of *doen* and *laten*; characterized in terms of 'directness of causation'. *Any* usage-context of *doen* can be characterized as 'direct causation', prototypical contexts being interactions between inanimate causer and causee, and interactions between inanimate causer and causee. *Any* usage-context of *laten* can be characterized as indirect causation, prototypical contexts being interactions between animate causer and animate causee. In sum, it is expected that the overall semantic categories of *doen* and *laten* can be characterized as follows:

Doen	Laten
<i>Direct causation</i>	<i>Indirect causation</i>
Prototypically	Prototypically
- inanimate CR – inanimate CE	- animate CR – animate CE
- inanimate CR – animate CE	

Figure 3.7. The meaning of *doen* and *laten*: hypotheses (CR = 'causer'; CE = 'causee').

The 'family resemblance hypothesis' will be tested qualitatively. It is only hypothesized *that* less prototypical usage-contexts of *doen* and *laten* will occur, and that these will maintain relations of family resemblance to their respective prototypes. It is unknown in advance what *kind* of family resemblance will occur, therefore, it is impossible to formulate quantitatively testable hypotheses at this point of the discussion.

3.3.3 Sample and procedure

The hypotheses were tested against a sample of 100 usage-contexts of *doen* and *laten* in analytic causative constructions each, selected from an electronic version of the Dutch daily newspaper *Trouw*¹⁶. In order to control for possible genre-effects, the sample was built from genres belonging to different text types (cf. Sanders 1997, for a more detailed description of the sub-corpora, see Appendix 3-1). As the causal verbs appear in analytical causative constructions in finite form, it was taken care of that each conjugation type occurred in the sample according to its natural frequency. In order to prevent biases in the sample due to writer's idiolects, a maximum of two instances per text were admitted in to the sample. Evidently, usage of *doen* and *laten* in simple clauses (without infinitive) and adhortative constructions were excluded from the sample. Both *doen* and *laten* frequently occur in idiomatized expressions

¹⁶ Available from *Factlane* (Lexis Nexis Nederland)

and in conventionalized constellations of predicates (and semantic roles too)¹, a fact already observed by Kemmer & Verhagen (1994: 147). In both cases, the first ‘token’ of each ‘type’ encountered was analyzed and instances of the same expression occurring next were not sampled.²

The ‘prototypicality’ hypothesis presented in Section 3.3.1 was analyzed quantitatively with a contrast analysis (see Appendix 3-1). Qualitative analysis will be used to illustrate the findings. The ‘family resemblance hypothesis’ concerning the non-prototypical usage types, presented in Section 3.3.2 will be analyzed only qualitatively. Problematic fragments were analyzed by three independent judges. If problems remained, additional (linguistic) evidence was collected.

Laten proved to be used more frequently than *doen* (approximately 10 : 1). Moreover, *doen* and *laten* differ somewhat in productivity. *Doen* is used relatively often in idiomatic expressions. The final sample contains 41 idiomatic expressions of some sort. Of the first selection of *doen* occurrences, 48 were excluded from analysis, being ‘second (or more) instances’ of an idiomatic expression that was already included³. With *laten*, 33 idiomatic expressions were found. 23 *laten*-fragments from the first sample taken were excluded for being ‘second (or more) instances’ of an idiomatic expression that already was included.

3.4 Corpus analysis: Results

Table 3.1 shows the overall distribution of *doen* and *laten* over animacy configurations in the sample analyzed. The distribution pattern supports the hypotheses presented in Section 3.3.1 ($p < 0.001$). The distribution found corroborates the hypotheses from a semasiological perspective: *Doen* is prototypically used in causal relations with inanimate core-participants; *laten* is prototypically used in causal relations with animate core-participants, AND from an onomasiological perspective: Causal relations with inanimate core-participants are prototypically expressed with *doen*; causal relations with animate core-participants are prototypically expressed with *laten* (see Appendix 3-1).

¹ Lexicalized expressions seem to occur in at least two variants: expressions that contain ‘frozen’ combinations of causal predicate, effected predicate and type of semantic roles (E.g. *doen denken aan* ‘make one think of’ in *Dat verhaal doet me denken aan een film die ik laatst heb gezien* ‘That story makes me think of a film I recently saw.’), and combinations that ‘simply’ occur frequently (E.g. *laten zien* ‘let see/show’ in *Zal ik je de nieuwe keuken laten zien?* ‘Shall I let you see (=‘show you’) the new kitchen?’). Although the last type is not a proper ‘lexicalization’, it is handled as such: only one instance is included in the sample.

² As idioms are in most cases still analyzable, there is no principled reason with respect to the purposes of the present study not to take them into account (cf. Kemmer & Verhagen 1994: 147). However, as this study is interested in investigating ‘types’ rather than in all ‘tokens’ of lexicalized expressions, it is believed that every second (or further) occurrence of the same expression does not yield extra information (cf. Bybee 1985).

³ The lexicalized expression *doen denken aan* constituted by itself 25% of all occurrences in the first sample taken.

Table 3.1. Distribution of *doen* and *laten* over animacy configurations.

	Doen	Laten	Total
CR inanimate – CE inanimate	40	3	43
CR inanimate – CE animate	41	6	47
CR animate – CE inanimate	12	38	50
CR animate – CE animate	7	53	60
Total	100	100	200

In the following sections, these patterns are scrutinized in more detail. Section 3.4.1 focuses on the prototypical usage-types of *doen* and *laten*. Usage-patterns are discussed from a semasiological perspective. Section 2.4.2 investigates non-prototypical usage-types. These are investigated for family resemblances with the hypothesized prototypes by analyzing the data from an onomasiological perspective. Section 3.4.3, finally, investigates the identity of the (potential) intermediary factor in the causal process, and the proposal (cf. Section 3.3.1) that this factor can systematically be related to the ‘causee’-role.

3.4.1 Prototypical usage

As was hypothesized, physical causation and affective causation are the contexts that are most frequently marked with *doen*. These are the causation types containing an inanimate causer. In terms of absolute numbers, there doesn’t seem to be a difference between causative events with an inanimate causer interacting with inanimate causees or animate causees. In all of the ‘physical causation’ cases, categorization as ‘direct causation’ is intuitively clear. An example is (1):

- (1) In Nederland wordt mondjesmaat begonnen met de verkoop van 'groene' sneeuwkllokjes tot ongeveer eind april. Belangrijk is dat ze op een 's zomers koele plaats geplant worden; warmte **doet** het blad te vroeg afsterven zodat de bol niet groeit, of geeft gevaar voor schimmels (co240256)
The sale of green snowdrops (=plant) has begun very gradually in the Netherlands. It is important that they be planted in a summery place that is cool in summer; heat causes the leaf to die prematurely so that the bulb will not grow, or makes it prone to fungus.

In this causative event, interaction takes place between the causer *warmte* (‘heat’) and the causee *het blad* (‘the leaf’). Interactions within the ‘physical domain’ are naturally understood as processes in which the activity of the causer immediately causes the effected predicate. It is intuitively difficult to imagine what kind of active contribution ‘the leaf’ could make to the total event, once ‘the warmth’ is in effect, potentially averting the causal effect ‘dying off’. This intuition is, as was argued in Section 3.3.1, in accordance with the conceptual model of Naïve dualism: in our culture, we feel that the ‘physical world’ of inanimate entities is different from the human world of animate beings, in that events in the physical world immediately and directly cause other events in the physical world.

The same analysis intuitively holds for interactions between inanimate core participants that semantically or contextually refer to animate beings, but that are most likely interpreted as interactions within the physical world. An example is (2):

- (2) (Over tennisser Peter Wessels) Vorig seizoen trapte zijn lichaam echter op de noodrem. Een virus en oververmoeidheid **deden** hem van de 82e plaats op de wereldranglijst weer buiten de tophonderd duikelen (por200267)
(About tennis player Peter Wessels) Last season his body slammed on the brakes. A virus and exhaustion made him degrade/fall from 82nd place on the world ranking list out of the top hundred.

These *doen*-marked contexts were analyzed in terms of the energy flow literally depicted (cf. Section 3.3.1). In (2), the causee ‘him’ is human, in but it has to be construed as a physical entity: an object that is, non-resistingly, attracted by gravity. The ‘virus and exhaustion’ are thus to be interpreted as directly causing the ‘tumbling down’ of ‘him’.

In Section 3.3.1 it was predicted that another prototypical usage-context of *doen* is causal relations with an inanimate causer and an animate causee (affective causation). This, too, is corroborated by the present data. In half of the cases found, again, categorization as direct causation is rather straightforward. These affective *doen* contexts contain effected predicates that are conceptualized, according to the Folk model of the mind, as being ‘uncontrollable’ by their experiencer: perception, feelings and desire. A typical example of *doen* marking an uncontrollable mental process is (3).

- (3) „Het lichaam wordt gezien als een last, door de naar verlossing strevende godsdiensten, maar ook door Socrates, die uitriep: 'het lichaam is de kerker van de ziel.' Het **doet** ons lijden en maakt ons onderhevig aan vrijwel oncontroleerbare verlangens (ac080243).”
The body is seen as a burden by salvation seeking religions and also by Socrates who proclaimed: “ the body is the dungeon of the soul.” It causes us to suffer and makes us subject to almost uncontrollable desires.

‘Suffering’, the effected predicate of (3) is a mental state that, generally, is not evoked intentionally. In this specific context at least this is clearly the case; it is exactly the difficulties in controlling the causer (‘it’: the body), the source of the suffering, that is at stake here. An interpretation of ‘direct causation’; conceptualizing the ‘suffering’ of the causee ‘us,’ as caused immediately by the activity of the causer ‘it,’ is obvious. According to the Folk model of the mind, ‘suffering’ is to be categorized as a feeling, and feelings are conceptualized as being uncontrollable in general.

However, the other half of the affective processes with *doen* in the sample consist of processes that, judged from the inherent meaning of the effected predicates, are to be categorized as ‘controllable’ mental processes. The effected predicates fall into the categories of belief (6 cases), intention (13 cases) or

resolution (2 cases). Interestingly, however, the majority of cases contain in their linguistic contexts indications that the inherent controllability aspect in the effected predicates is to be amended. These ‘amendments’ seem to consist of three types: contexts containing suggestions of ‘inevitability’ (6 cases; see (32)), suggestions of backgrounding of controllability of inherently intentional predicate (2 cases; cf. (33)); mental-internal processes (4; example (24))

- (32) (Sale of ‘rookworst’ (Dutch delicacy: ‘smoked sausage’) is increasing under influence of winter weather.) De voorlichter van Unox neemt opmerkelijk goed gemutst de telefoon op. De verkopen gaan goed.
 „Vooral erwtensoep en rookworst. De verkoopkanalen nemen toe, met al die snertkraampjes langs het ijs. Zien eten **doet** eten.“ (ac190118)
The spokesperson of Unox picks up the phone noticeably pleased. Sales are going well. “Especially the pea soup and smoked sausages. The sales points are increasing, with all those pea soup stands along the ice. Seeing food leads to eating food.

Fragment (32) describes the situation that the presence of many stalls selling ‘rookworst’ and ‘snert’ (Dutch traditional pea soup, eaten in the winter season) induces people to want to have some too. ‘Eat’ is an inherently intentional action: in the real world, no external force can cause you directly to eat something; eating starts necessarily by an internal decision of the ‘eater’ to do so, and its essential acts can only be performed by the eater himself. However, under certain circumstances ‘eating’ *can* be conceptualized as caused directly from outside: in situations that invoke the craving for the food, as is the case in (32). The regularity and inevitability of the pattern ‘if you see somebody eating something good, you want to have some too’ is accentuated by the parallel formulation (cause and effect containing the same infinitive preceded by one other predicate). Marking with *doen* fits in perfectly well with this interpretation: the causee (only schematically present) is understood to be a weak-willed victim of the circumstances, whose acts may be directly caused from the outside. Similar indications of ‘inevitability’ are present in five other fragments of affective *doen* with inherently controllable causal effect.

In two other cases, inherent controllability of the causee over the effected predicate is amended by the type of causee. For example (33):

- (33) Was de walvisvaart in de negentiende eeuw een economische noodzaak, nu is de geromantiseerde mythe ervan de bron van overvloed, die niet zeelieden maar massa’s toeristen naar Nantucket **doet** komen.
*Whaling was an economical necessity in the nineteenth century, but now it is the romanticized myth of whaling the source of surplus, which **draws** not sailors but masses of tourists to Nantucket.*

Having ‘control’ over a situation is a quality that normally ascribed to (human) individuals. The causee in (33) ‘crowds of tourists’ on the contrary consists of a collection of individuals so large, that it is rather conceptualized as solid mass devoid of human characteristics. This is the conceptualization that is underlined by marking the process as direct causation: the ‘coming to Nantucket’ of the crowds of

tourists is conceptualized as being immediately caused by the causer, the ‘source of abundance’. Another pattern that occurs with ‘*doen* + controllable mental predicate’ is: causal processes that take place completely within one mind. For example (34):

- (34) Het besef dat ze haar talent nog lang niet ten volle had geëxploiteerd, **deed** Garbrecht op de ijsbaan terugkeren (op220126).
The realization that she had not fully exploited her talent made Garbrecht turn back on the ice skating rink.

In these cases, a mental state of the ‘participant that carries out the causal effect’ brings about the situation referred to with the effected predicate. In this example, it is the causee’s ‘realization’ that she didn’t use her gift of skating fully’ that causes her action of returning to the skating rink. A recurring pattern in these cases is that in conceptualizing the event the focus seems to be on the coming about of the effected predicate rather than on its carrying out. The effected predicates are rather abstract processes taking their starting point in the mental environment of an animate being (‘return’ in the present example; expect, choose, decide to take a plane). Fragment (32) above (‘eten’) can perhaps be interpreted as a similar example: the perception of ‘eating’ causes the desire for food. All of the usage-contexts in which inherent ‘controllability’ of the effected predicate was amended by the causee (inhibiting in principle interpretation as ‘direct causation’) were categorized as instances of direct causation.

A final observation that deserves mentioning is the fact that many of the lexicalized (or frozen) expressions with *doen* are cases of affective causation. The lexicalized expression ‘*doen denken aan*’ constituted by itself 25 percent of all occurrences in the first sample taken. An example is (35).

- (35) Zo verwees Brahms in zijn intieme Serenade naar het genre van de achttiende-eeuwse Gartenmusik, met doorkijkjes die aan pastorale werken van Mozart of Haydn **doen** denken.
In his intimate Serenade, Brahms alludes to the genre of 18th century Gartenmusik, with bits and pieces which make one think of Mozart’s pastoral works.

It is interesting that the verb ‘denken’ (‘think’) should occur so frequently with *doen*: ‘thinking’ is an instance of the category of ‘belief’-denoting mental states and processes in the Folk model of the mind, which must inherently be controlled by the person carrying out the thinking - the causee in these constructions. ‘Denken aan’, then, is expected to occur with indirect causation signaling *laten*. However, in *all* occurrences of this configuration, the process referred to does not seem to be one of ‘belief’, but is rather to be interpreted as cases of ‘perception’: the phenomenon having the causer role is perceived as being ‘similar to the phenomenon occupying causee position’²⁰.

²⁰ Other types that occurred more than once with *doen* are combinations with an effected predicate that denotes uncontrollable mental states and processes too, for example *doen vergeten* (‘make forget’), *doen vermoeden* (‘make forget’) (like *denken aan* (‘make think of’ -

Turning to *laten*, it can be concluded that in the present sample, just like in Verhagen & Kemmer's, *laten* prototypically occurs in constructions that contain interactions between animate core-participants: inductive causation. As Verhagen & Kemmer found too, causal processes marked with *laten* can vary to the degree of directness from clear permission/enabling to clear coercion and anything in-between. Some examples from the corpus:

- (36) Jari Litmanen komt de komende tweeënhalf jaar uit voor Liverpool. Dat meldde Studio Sport gisteren. De Fin krijgt medewerking van Barcelona, dat hem ondanks een contract tot 2002 transfervrij **laat** vertrekken. (bio040142)
Jari Litmanen will play for Liverpool for the next two and a half years, reported Studio Sport yesterday. The Finn received cooperation from Barcelona, which despite a contract valid until 2002, lets him leave without transfer.
- (37) Vooral de arrogantie stuitte hem tegen de borst. In het begin van zijn ambtsperiode ging hij ter kennismaking op bezoek bij de toenmalige burgemeester van Amsterdam, Ivo Samkalden. Hij moest een halfuur wachten, 'dat kostte me een parkeerbon'. Korte tijd later nam hij wraak. Wethouder Han Lammers bracht een tegenbezoek. Burgemeester IJsselmuiden **liet** hem een halfuur wachten en las in die tijd op zijn werkkamer in het gemeentehuis in Halfweg rustig de krant. (por050123)
Particularly the arrogance bothered him. In the beginning of his term in office he went to visit the then mayor of Amsterdam, Ivo Samkalden, for a getting-to-know-you meeting. He had to wait half an hour, "that cost me a parking ticket". Shortly afterwards he took his revenge. Councillor Han Lammers returned the visit. Mayor IJsselmuiden had him wait a half hour while he sat in his office in Halfweg and calmly perused the newspaper.
- (38) Ondanks alle internationalistische retoriek gaat voor de VS het Amerikaanse recht gewoon voor het internationale recht. De Amerikanen hebben dan ook in het verdrag een bepaling **laten** opnemen dat een staat instemming moet verlenen voordat één van zijn onderdanen door het hof vervolgd mag worden. (co060155)
Despite all its international rhetoric, American law comes before International law for the USA. The Americans had a clause written that states permission must be given before a US citizen can be brought before the International War Crimes Tribunal in The Hague.

In the category inductive causation, (37) can be interpreted as a case of permissive causation: the causer 'Barcelona' (the soccer team of Barcelona) allows the causee: soccer player Litmanen, to do what he most probably wants to do, and will do as soon as he gets the chance. Fragment (38) on the other hand, is a clear case of

> 'remind of') a process in which 'perceiving something' is more central to the interpretation than 'maintaining a belief'), *doen verlangen* ('make long for').

coercive causation. The only likely reading is that the causer ‘the Americans’ changed the inherent tendency of the (implicit) causee ‘the other parties in the treaty’ (at least: if they are conceptualized as the persons carrying out the effected predicate ‘including in the treaty’): they are most probably striving for a situation in which *none* of the parties involved demands an escape clause, like the Americans do. And finally, (36) is neutral with respect to the question of the direction of the inherent tendency of the causee.

Despite these differences in ‘autonomy of the causee’, all of the fragments are clear cases of indirect causation: it is clear that the causer is not controlling the situation completely. In all of the cases, the causal effect being ‘waiting’, ‘having a clause written’ or ‘leaving’, it is clearly ‘some other force than the causer’s’ that ultimately brings about the causal effect. An interesting fact is furthermore that the most obvious candidate to play the role of ‘intermediary’ is the causee (cf. discussion in Section 3.4.4).

Another context in which *laten* is frequently used is volitional causation, where an animate causer interacts with an inanimate causee. With respect to volitional causation Verhagen & Kemmer’s (1997) theory does not propose specific predictions with respect to marking patterns (cf. Section 3.3.1). However, all of the volitional causal usage-contexts are readily interpreted as indirect causation. Processes can be interpreted both as permissive/enabling causation and as coercive causation and anything in-between. An example is of ‘permission’ is (39).

- (39) Het is hier gezellig en levendig. Ik kan mijn deuren gewoon openlaten en mijn was buiten **laten** hangen. (rec 060119)
It’s friendly and lively here. I can just leave my doors open and let my washing dry outside.

The ‘hanging’ of the causee ‘the laundry’ ultimately takes place because of the laundry being in this position and continuing to be so. The fact that the causer may very well be the force that brought about this situation in the past is not relevant: the present formulation focuses on the event that follows²¹. A clear case of coercive causation is (40)

- (40) Zodra Ernst Reijseger het echter op zijn heupen kreeg en zijn cello **liet** zingen en kermen (rec060142).
As soon as the fit was on Ernst Reijseger and he made his cello sing and moan...

The cello certainly does not have an inherent tendency to ‘sing’ and to ‘whine’; it is the player that is clearly responsible for the onset of the causal process. However, as the singing and whining necessarily takes shape in the cello, the causee, the causer

²¹ Fragment (39) is an instance of Talmy’s category ‘extended letting’ – where the causer ‘refrains from acting on the causee’. Traditionally, this type was not considered to be causative, but along with Talmy, the present study assumes that it *is* (cf. discussion in Section 2.4.1).

does not control the complete process; it is the cello that ultimately is causing the effect.

At this point it can be concluded that all of the hypotheses formulated in Section 3.3 are corroborated by the findings. Prototypicality patterns occurred as predicted, and the differences in frequency with non-prototypical usage-types were statistically significant.

3.4.2 Non-prototypical usage

As was expected, both *doen* and *laten* occur in contexts *other* than the hypothesized prototypical contexts as well. And as predicted, frequency patterns of these hypothesized ‘non-prototypical usages’ differ enormously from the prototypical ones. The hypothesis presented in Section 3.3.2 predicted with respect to family resemblance: “A non-prototypical usage type of *doen* or *laten* shares one or more characteristics with its own prototype *and* shares one (or, in really peripheral cases, more) characteristics with the prototype of its counterpart, but it *never* shares *all* of the characteristics of the counterpart’s prototype.” This section discusses the distribution of *doen* and *laten* over different animacy configurations from an onomasiological perspective, and in a qualitative way. Discussion focuses on the relation between prototypical and non-prototypical usage-types of *doen* and *laten*, investigating the non-prototypical ones for family resemblance with their prototypes.

As was predicted, inductive causation (animate causer interacting with animate causee) is prototypically marked with *laten*. But this causation type *can* be marked, albeit seldom, with *doen* as well. The *doen*-marked inductive contexts seem to have a special characteristic in that almost all of them contain uncontrollable processes as an effected predicate. For example (41):

- (41) Askew raakt meer en meer de weg kwijt, hij loopt van huis weg en leeft als een holbewoner in de verlaten mijngangen. Kit weet contact met hem te krijgen en hem te **doen** (SUBST²²: **laten**) inzien dat hij, in plaats van zich af te zetten tegen de maatschappij, ook de sterke schouder kan zijn waarop zijn disfunctionele gezin kan leunen (rec130105)
Askew is losing his way more and more (...) Kit manages to stay in contact with him and to make him see that he can also be a strong shoulder for his dysfunctional family to lean on.

Inductive causation is understood to be inherently *indirect*: no person can directly cause anything to happen in the mind of another person; a detour via the outside world, by way of communication, is inevitable (cf. discussion in Section 3.3.1). *Inzien* (‘see’), for example, is ambiguous with respect to ‘controllability’: its coming about can or cannot be intended by the experiencer, but it is not under his or her complete control. Therefore, *doen* seems to fit rather well in the context of (41), where it is clear that the causal effect ‘see’ comes about more or less against the

²² SUBST stands for ‘substitution’: the alternative (and more prototypical) marker is inserted in the fragment discussed, enabling the reader to assess conceptual differences of effect.

causee's will. This suggestion would be lost if in this fragment, *doen* is replaced with *laten*: *laten* supports an interpretation in which 'see' is in accord with the causee's intentions, and that the coming about takes place at least partly under the control of the causee himself. This interpretation is hardly in accord with the other elements in this specific context.

All of the *doen*-marked inductive causation fragments were categorized as 'direct causation'. In all of these cases, it is clear that the usage of *doen* is licensed by factors in the contexts that suggest a flavour of 'directness' in the causal process. This systematic pattern can be interpreted as evidence for the second hypothesis to be tested in this analysis: if *doen* is used in a non-prototypical context, its usage shares characteristics with its prototypical contexts of use – be it 'uncontrollability of the process for the causee', 'irrelevance of causee's role' or 'coerciveness of the causer' that sets it apart from the inductive contexts of *laten* discussed in Section 3.4.1.

Another usage-context that turned out to be predominantly marked with *laten* is volitional causation (animate causer interacting with inanimate causee). As there didn't seem to be a way for predicting marking patterns, (cf. Section 2.3.1), no hypothesis was formulated for this interaction type. However, comparing *doen*-marked contexts with *laten*-marked contexts yields interesting information. In volitional contexts, the usage of *doen* seems to evoke a clear 'coercive' flavour: the process is clearly and unequivocally controlled by the causer. In some contexts (5 occurrences), conceptualization as 'direct causation' is almost self-evident because of contextual factors. An example is (42).

- (42) In 1995 startte Rabobank het ambitieuze wielersproject dat beoogde de in Nederland diep gevallen sport terug aan de top te brengen, waar het onwrikbaar stond toen Raas de benen nog **deed** (SUBST: **liet**) spreken (ac310131).

In 1995, Rabobank started the ambitious cycling project which was intended to bring the sport, which had lost popularity in Holland, back on top, where it had unshakably stood back when Raas' legs still made their music.

This fragment contains a rather idiosyncratic figurative usage of the verb *spreken* ('speak'), typifying language usage in Dutch sport journalism, and meaning something like 'move in a noticeable way'. The use of *doen* in this example, instead of *laten* that fits well too, again seems to stress the fact that the occurrence of the situation of 'speaking legs' is under supreme control of Jan Raas, a legendary Dutch racing cyclist. Thus, the conceptualization of the event results that the 'speaking of the legs' is Raas' merit, and not for example the result of simple biological processes located in his legs – which fits our cultural understanding of outstanding sporting achievements: they are to be attributed to some heroic individual, not to mechanisms located in the sportsman's body.

In the remaining (7) cases both categorization as direct and indirect causation are conceivable on the grounds of the causative situation itself, but *doen*

highlights an aspect of directness that is congruent with other factors in the context. An example of this situation is (43):

- (43) Zijn (king Boudewijn of Belgium) door de rooms-katholieke leer gevormd geweten, geraakte in conflict met hetgeen de landsregering besloten had. En in hoeverre heeft de clerus getracht door middel van de kroon zijn opvattingen in de besluitvorming van kabinet en parlement te **doen** (SUBST: **laten**) zegevieren? (opi090251)
His (King Boudewijn of Belgium) conscience, formed by Roman Catholic teachings, was conflicted by what the government had decided. And to what extent had the clergy attempted to make their opinions triumph in the decision making of the cabinet and the parliament by using the crown?

In these *doen*-marked fragments of volitional causation, *laten* fits perfectly well too. The choice for one of the verbs as marker seems to be motivated exactly along the lines of the distinction between direct and indirect causation. For example, the process in (43), in itself rather neutral in terms of causation type, *doen* signals that the causal effect ‘triumphing’ is to be attributed to the causer ‘the clergy’ more than to inherent tendencies of the causee, ‘the beliefs’. In spite of the variation between usage-contexts of volitional *doen*, variation leading even to categorization differences in terms of ‘directness of causation’ – all of the contexts contain characteristics that relate them to *doen*’s prototypical usage type of ‘direct causation’.

As predicted, affective causation (inanimate causer – animate causee) contexts in the sample are prototypically marked with *doen*. *Laten*-marked affective causation contexts are of a special type: causeeless reflexive constructions. An example is

- (44) Mijns inziens **laat** (SUBST: #**doet**) een mysterie zich [ø]_{CE} niet beredeneren (bri030129).
In my opinion a mystery never lets itself be rationalized [ø]_{CE}.

Cases like these are not analyzable in the same way regular causative relations are²³, they are, therefore, not very illuminating with respect to the question discussed here. An interesting fact is that *laten* cannot be substituted by *doen* in this specific context.

An exceptional fragment in the sample is (45). This is the only example of affective causation marked with *laten* that is analyzable following the standard format for causative verbs. If the effected predicate ‘enjoy’ is inherently understood as a member of the category ‘feelings’, according to the Folk model of the mind this situation is to be understood as direct causation. However, it is completely natural to understand the situation in (45) as indirect causation: the causer ‘paths of small tree-trunks’ is the onset of the process, but the causal effect ‘enjoy’ is not under its

²³ Cf. Kemmer (1993) on middles, and Loewenthal (2003) on reflexive causative constructions.

control; it is to take place in the minds of the causee ‘us’. In the context, there are no indications that prohibit interpretation as indirect causation. However, this pattern is clearly exceptional.

- (45) Wij gaan door de modder op zoek naar een stukje Peel dat volgens de topografische kaart 't Eeuwig Leven heet, terwijl de mensen die het gebied onder barre omstandigheden moesten ontginnen al met veel minder tevreden waren geweest. Met een paar knuppelbruggen bijvoorbeeld, paden van boomstammetjes die ons zonder gevaar van de natuur **laten** (SUBST: #doen) genieten (rep060131).
We went looking through the mud for a piece of Peel which according to the topographical map was called “Eternal Life”, while the people who had to prepare the land under dire circumstances would have been happy with much less. With a couple of stick bridges, for example, paths of tree trunks, which would allow us to enjoy nature without any danger.

Possibly, *laten* is motivated because it indicates a situation of ‘permission’ or ‘enablement’ rather than one of real causation: the causer enables the causees to continue ‘enjoying’ nature, instead of being disturbed by ‘danger’ (as a matter of fact: the best paraphrase of this relation is ‘leave us at peace enjoying nature without danger, what we were doing until now’). Interestingly, *doen* leads to an interpretation that is not compatible with this specific context. It suggests that the causal effect *enjoying* is completely controlled by the causer *the paths of tree-trunks*, while the influence of the causee *us* (that is necessarily there) is amended.

Finally, physical causation (inanimate causer – inanimate causee) contexts in the sample are prototypically marked with *doen*. Again, ‘physical’ *laten* differs demonstrably from *doen* in the same type of contexts. One of the three instances found concerns reflexive constructions of the same type found with affective causation. An example is (46):

- (46) De filosoof wiens stijl zich altijd **liet** (SUBST: ? **deed**) kenmerken door helderheid in taal en denken], begon gedesoriënteerd te raken en kon de weg naar de universiteit niet meer vinden. (nec 100167)
The philosopher whose style was always characterised by the clarity of language and thought, began to become disoriented and could not find the way to the university anymore.

Substitution of *laten* by *doen* is questionable in this specific context – indicating that there is more ‘freedom of choice’ in this specific context than there was in the reflexive constructions of the affective type. The other two instances of physical *laten* are in accord with the most plausible construal of the situation depicted. One of the examples is (47):

- (47) Het enige dat werd gedaan om de monotonie van dit naargeestige grote vlak te doorbreken, was het aanbrengen van een patroon van lampjes die 's avonds de bioscoopgevel moeten **laten** (SUBST: **doen**) opflakkeren (rec060154).

The only thing that was done to break the monotony of this somber space, was to set up a group of patterned lights which were meant to light the front of the cinema at night.

In this example, interpretation as ‘standard’ direct causation seems to be overruled by clear indications in the context that the causal relation is to be construed differently. The focus seems not to be on the activity of the causer (which would have been the case if *doen* was used instead of *laten*), ‘a group of patterned lights’, but on the activity of the causee ‘the cinema’s front’ that is to ‘shine’. This is perfectly in accord with our understanding of this particular situation: we all know that it is common practice to make lights illuminate monumental buildings; this is the very purpose of those lights. So, in these two cases, family resemblance with *laten*’s prototype of indirect causation: interaction between animate beings, is taken to be manifest.

In sum, qualitative analysis of the data supports the second hypothesis tested in this corpus analysis, that non-prototypical usage-types of *doen* and *laten* share one or more characteristics with its own prototype *and* shares one (or, in really peripheral cases, more) characteristics with the prototype of its counterpart, but it *never* shares *all* of the characteristics of the counterpart’s prototype. Interestingly, *doen* and *laten* seem to differ in the type of non-prototypical usage contexts. *Doen* is relatively frequently used in an exploitative way, construing the causal relation in a non-standard way, for rhetorical purposes. This type of usage is rare with *laten*. If *laten* is used in a non-standard causative contexts, it is predominantly used in non-analyzable reflexive constructions. As expected, the notion ‘directness of causation’ defines the limits of the usage-categories of *doen* and *laten*: *any* non-prototypical usage-type of *doen* could be analyzed as ‘direct causation’; *any* non-prototypical usage-type of *laten* could be analyzed as indirect causation.

3.4.3 Identity of the (potential) intermediary force

The study reported in this chapter analyzed the usage-contexts of *doen* and *laten* in terms of interaction types between causer and causee. As was discussed in Section 3.3.1, it is not entirely clear whether this analysis is adequate for all types of analytic causative constructions. Kemmer & Verhagen (1994) suggest that especially the causee-role varies with construction type; they suggest that in analytic causative constructions with a transitive effect-predicate (TC), the causee-role is conceptually more peripheral than it is in analytic causative constructions with an *intransitive* effect-predicate (IC; cf. discussion in Section 3.3.1). Although Kemmer & Verhagen (1994) do not formulate it explicitly, they seem to suggest that in TC, it is *not* causer-*causee* interaction that determines categorization of the overall causative event, but rather causer-*affectee* interaction that does.

This suggestion was not followed in this study. For reasons set forth in Section 3.3.1, the present analysis exploratively assumed that categorization with

causal verbs *is* systematically determined by causer-causee interaction, regardless of subtle variation in construction type. It was hypothesized that in IC *and* TC, it is the role of the causee of the total causative event that determines its categorization in terms of directness. If the causee is conceptualized as being (more or less) autonomous in the total event, *laten* is used. If, on the contrary, the causee is conceptualized as being non-autonomous in the total event, *doen* is used.

This assumption is corroborated with the findings presented in Sections 3.4.1 and 3.4.2. The ‘intermediary force’ that leads to categorization as indirect causation could in each instance plausibly be pinned down to an activity of the causee in the process. Especially illuminating were the analyses presented in Section 3.4.2, where effects of substitution of *laten* for *doen*, and vice versa, were taken into account. Again, changes in interpretation could plausibly be characterized with reference to the causee-role.

At this point it could be rightly suggested that all of the fragments cited in Section 3.4.2 contained an explicit causee. However, the effect seems to occur even in contexts of TC where the causee role was left unexpressed. Consider the effect of substitution in the following example (discussed in Section 3.4.1 as (35), repeated here for convenience):

- (48) Zo verwees Brahms in zijn intieme Serenade naar het genre van de achttiende-eeuwse Gartenmusik, met [doorkijkjes]_{CR} die [ø]_{CE} [aan pastorale werken van Mozart of Haydn]_A **doen** denken.
*In his intimate Serenade, Brahms alludes to the genre of 18th century Gartenmusik, with [bits and pieces]_{CR} which **make** [ø – ‘one’]_{CE} think [of Mozart’s pastoral works]_A.*
- (49) Zo verwees Brahms in zijn intieme Serenade naar het genre van de achttiende-eeuwse Gartenmusik, met [doorkijkjes]_{CR} die [ø]_{CE} [aan pastorale werken van Mozart of Haydn]_A **laten** denken.
*In his intimate Serenade, Brahms alludes to the genre of 18th century Gartenmusik, with [bits and pieces]_{CR} which **have/let** [ø – ‘one’]_{CE} think [of Mozart’s pastoral works]_A.*

Doen facilitates an interpretation as affective direct causation, in which the implicit causee does not perform the actual *act* of thinking, but rather automatically *perceives* a similarity between the objects mentioned. This is also the conventional meaning of the lexicalized expression *doen denken aan*. In spite of this conventionality, *laten* leaves room for an interpretation where the causee *does* engage in the act of conscious thinking, somehow invited by the ‘bits and pieces’. In either case, any role in the construal of the causal event of the complement part of *denken aan*, functioning as ‘affectee’ in this construction, is very implausible.

As a last step in the exploration of this question in the present study, categorization patterns of TC defined in terms of causer-causee interactions will be contrasted to categorization patterns defined in terms of causer-affectee interaction. Table 3.2 shows that the overall pattern of TC categorization defined in terms of

causer-causee interaction does not differ essentially from the pattern found for IC and TC combined²⁴ (cf. Table 3.1 above).

Table 3.2. Categorization of TC in terms of animacy configurations of causer-causee.

	Doen	Laten	Total
CR inanimate – CE inanimate	-	1	1
CR inanimate – CE animate	20	5	25
CR animate – CE inanimate	1	6	7
CR animate – CE animate	3	34	37
Total	24	46	70

The overall pattern *does* change rather fundamentally if the categorization of TC is redefined in terms of animacy configurations of causer-affectee, as summarized in Table 3.3. The most striking difference is the fact that in this version, quantitative evidence for *laten*'s proposed prototype 'inducive causation' is lost.

Table 3.3. Categorization of TC in terms of animacy configurations of causer-affectee.

	Doen	Laten	Total
CR inanimate – A inanimate	19	6	25
CR inanimate – A animate	2	-	2
CR animate – A inanimate	1	31	32
CR animate – A animate	1	9	10
(Not clear)	1	-	1
Total	24	46	70

More detailed and more systematic evidence is needed in order to understand fully the possible interaction between grammatical construction type and mechanisms governing categorization of IC and TC. But if degree of congruency with the findings of Verhagen & Kemmer (1997), based on an analysis of usage-contexts with an explicit causer and an explicit causee may be taken as an indication of success, the patterns depicted in Table 3.2 seem to be more successful than the patterns depicted in Table 3.3.

3.5 Conclusion and discussion

The present study's starting assumption is that the meaning of causality markers reflects the human conceptual understanding of causality. The Dutch causal auxiliary verbs *doen* and *laten* are studied in the present study as a species of causality markers functioning at the clause-level.

²⁴ Transitivity of the effected predicates was determined not only on the characteristic of 'taking a direct object'. All verbs taking some kind of 'dependent object' (apart from direct object Np's, prepositional phrases, complement clauses –cf. Degand 2001: 181).

This chapter aimed to investigate the exact nature of the relation as it is manifest in *doen* and *laten*. It investigated existing cognitive linguistic theories on the meaning of causal verbs, derived hypotheses and tested them empirically.

Verhagen & Kemmer's (1997; Kemmer & Verhagen 1994) proposal was taken as a starting-point. Verhagen & Kemmer build on the Force dynamics theory of Talmy (1976; 1988), proposing that the semantics of *doen* and *laten* is adequately described with reference to an 'interaction of forces'. They extend Talmy's Force dynamics theory by showing that the construal of these interaction types is influenced by a number of conceptual models that structure the human understanding of 'reality' at a more general level: the model of Naïve dualism and the Folk model of the mind. Thus, Verhagen & Kemmer propose that the meaning of *doen* and *laten* is adequately described with reference to the notion 'directness of causation'. *Doen* is typically used in contexts of 'direct causation': where an activity of the causal relation's 'initiator' leads immediately to the effect. *Laten* is typically used in contexts of indirect causation: where another force 'downstream of the initiator' is construed as the factor most directly involved in bringing about the causal effect. Verhagen & Kemmer (1992; 1997) show that their Directness of causation proposal is corroborated with empirical evidence.

In this chapter, Verhagen & Kemmer's proposal was 'converted' to the specific purposes of the present study. It turns out that, although not all of the elements pursued here are explicitly worked out in Verhagen & Kemmer's proposal, it is highly compatible with assumptions and aims of the present study. Interestingly, placing their observations in the 'usage-based' perspective used in the present study, yields some additional insights (cf. Verhagen 2000; 2001, who showed that this perspective is relevant for understanding the diachronic development of causative *doen*). Findings and implications in relation to the aims of the present study are summarized below.

Prototypical usage

This study approaches 'word meaning' from a usage-based perspective. It is assumed that semantic knowledge is stored in the form of 'templates', schematically defined usage contexts (cf. discussion in Section 2.4). Verhagen & Kemmer's (1997) analysis of the meaning of *doen* and *laten* is compatible with this approach. They defined direct and indirect causation in terms of a usage schema taking into account the complete analytic causative construction. The specific meanings of *doen* and *laten* (and the semantic contrast between the markers) was defined in terms of participant roles and the relation between them.

The present study diverges from Verhagen & Kemmer's theory in the explicit assumption that semantic categories may have a complex internal structure (cf. Section 2.3.3 and Section 2.4). The present analysis aimed to shed light on the exact identity of the prototypical usage contexts of *doen* and *laten* respectively, and also on the relation the less-prototypical usage-contexts can be shown to have to the proposed prototypes. Therefore, the analysis presented here diverges from Verhagen & Kemmer's approach in that it explicitly 'unraveled' prototypical and less prototypical usage-types, and tried to establish the relation between the two. Elaborating on Verhagen & Kemmer's (1997) finding that *prototypical* usage-contexts of *doen* and *laten* can be characterized with reference the notion of

‘animacy’, it was assumed that the meaning of *doen* and *laten* has a prototypical core that can be characterized in terms of animacy configurations.

The proposed relation between usage categories of *doen* and *laten* and the conceptual models of Naïve dualism and Folk model of the mind was tested in two directions. The semasiological perspective tested whether *doen* and *laten* are prototypically used in the animacy configurations hypothesized. But the assumed relation between semantic categories and conceptual categories can only be said to hold if the conceptual categories distinguished are prototypically expressed by only *one* of the markers, and not by the other one. This opposite direction was tested in the analysis from an onomasiological perspective.

The hypothesis was corroborated in a quantitative analysis taking both perspectives into account. In the sample of texts presently investigated, *doen* is prototypically associated with *inanimate* core-participants. In addition to the findings of Verhagen & Kemmer, it was observed that it appears to be not only characteristics of the *causer* that are relevant for categorization, but characteristics of the *causee* can be systematically related to ‘animacy’ too. *Doen* was evenly distributed over contexts with an inanimate causer and causee (‘physical causation’) and contexts with an inanimate causer and an animate causee (‘affective causation’). Interestingly, it was found that whenever *doen* was used in the latter context, crucial aspects defining animacy (such as ‘control’, ‘intention’, ‘autonomy,’ etc. – cf. Folk model of the mind (Chapter 7)) in the causee were amended.

Laten was predominantly used in contexts with *animate* core-participants. This fact, too, is in accordance with findings from Verhagen & Kemmer 1997. No hypotheses were formulated for contexts with an animate causer and an inanimate causee (volitional causation). In the present sample, these contexts turned out to be marked with *laten* much more frequently than with *doen*. But in all contexts, *doen*-marked cases were plausibly interpreted as instances of ‘direct causation’; *laten*-marked contexts were plausibly interpreted as instances of indirect causation.

Non-prototypical usage and family resemblance

In the sample analyzed, both *doen* and *laten* occurred in non-prototypical contexts. For example, *doen* was found to mark contexts with an animate causer and an animate causee, the prototypical usage-context of *laten*. The present analysis adds quantitative evidence for Verhagen & Kemmer’s (1997) observation that in these cases, *doen* seems to serve specific rhetorical purposes and can still be construed as marking ‘direct causation’ (cf. Verhagen 2000; 2001 for a more elaborate discussion of this phenomenon). All of the ‘inducive’ *doen*-contexts were compatible with an interpretation where the causer brought about the effect immediately and directly, without interference of the potential intermediary force located downstream of the causer. Interestingly, this force could systematically be identified as residing with the causee of the event, and could also be systematically tied to causee’s ‘autonomy’ or ‘non-autonomy’. Another interesting finding was that construal of ‘degree of autonomy’ was in many cases related to the concept of ‘animacy’. If the causee’s role in the process was characterized by aspects of ‘control’, ‘volition’ etc., the causal relation could plausibly be categorized as indirect causation. If, on the other hand, aspects of ‘animacy’ were absent, the causal relation was most plausibly categorized as ‘direct causation’.

A surprising finding is that this kind of ‘construal operation’ with clearly rhetorical purposes was hardly found with *laten*. In affective causation (inanimate causer, animate causee) and physical causation (inanimate causer and inanimate causee), *laten* was only found in combination with exceptional patterns: reflexive constructions. In the only two instances encountered of ‘analyzable’ *laten* in contexts of physical causation, interpretation as indirect causation was plausible in the context given, and thus, family resemblance with *laten*’s prototype was established.

Finally, it was found that non-prototypical usage-types may differ with respect to their conceptual distance to the prototype. Indications for categorization may vary from linguistic elements in the construction itself, in the wider linguistic context – with at the ‘fuzzy edges’ of the usage-categories - non-linguistic elements playing a role in the interpretation of the causal relation in context. All of the non-prototypical usage contexts of *doen* could be shown to ‘demonstrably share one or more characteristics with its own prototype *and* share one (or, in really peripheral cases, more) characteristics with the prototype of its counterpart, but it *never* shares *all* of the characteristics of the counterpart’s prototype’.

Interaction of forces

Verhagen & Kemmer (1997; Kemmer & Verhagen 1994) are not maximally explicit with respect to the exact identity of the forces ‘interacting’ in the construal of the causal relation, and the core-participants in the causative event. Kemmer & Verhagen (1994) suggest that the nature of the interaction in terms of relevant participant roles may vary according to construction type. In analytic causative constructions with an intransitive effected predicate it is the force interaction between causer and causee that determines categorization in terms of directness. In analytic causative constructions with a transitive effected predicate, on the other hand, it may as well be the interaction between the causer and the affectee that determines categorization, the causee (specifically if left unexpressed), playing a more peripheral role.

This suggestion was not worked out further in Verhagen & Kemmer (1997). The issue was circumvented by analyzing only usage-context of *doen* and *laten* with an explicitly expressed causee. As ‘causee-less’ constructions constitute a great part of all occurrences of Dutch analytic causative constructions (cf. discussion in Section 2.3.2), the present study chose to include them as well. It was hoped that in doing so, representativity of the data would be maximized. Maximal generalizability in terms of usage types was considered important for realizing the purpose of the present study: comparing different construction types.

Potential flaws in validity of this explorative aspect of the analysis were controlled for in two ways. First, by explicitly identifying the role of the (potential) intermediary factor with one of the core-participants. It turned out that ‘the second force downstream the causer’ (potentially) invoking categorization as indirect causation, could systematically be pinned down to the causee in the event, even if this participant was left unexpressed (cf. Section 2.4). Second, validity was controlled for by comparing results of a quantitative analysis of TC in terms of causer-causee interaction with results of a quantitative analysis of TC in terms of causer-affectee interaction. This analysis suggested that the causer-causee

interaction model showed a much clearer parallel to the findings of Verhagen & Kemmer (1997) than the causer-affectee interaction model did.

Conclusion

The Dutch causal verbs *doen* and *laten* categorize causal relations expressed in analytic causative constructions in terms of ‘animacy’ and ‘directness of causation’. Findings in the corpus analysis reported in this chapter corroborated the proposal of Verhagen & Kemmer (1997), that categorization of *doen* and *laten* is not only determined by a schematic model of force interaction (cf. Talmy 1988; 2000), but also by more specific conceptual models. Exact categorization patterns coincide with characteristics of the ‘core-participants’ in the causal event in terms of ‘animacy’. The usage-based perspective adopted in this study offers the possibility of systemizing a number of observations of Verhagen & Kemmer (1997) in a semantic theory. Most importantly, it makes it possible to explicitly incorporate Verhagen & Kemmer’s observation with respect to ‘domains-crossing usage’ of *doen* (in inductive contexts), that:

“it is not really possible to set up selectional restrictions in any strict way; for example, even though it might look plausible at the start, we cannot stipulate a rule to the effect that mental predicates select *laten*. What is actually going on is that each lexical and grammatical signal chosen by the speaker/writer sets up a constraint for the hearer’s/reader’s interpretation: the latter must, as a whole, maximally satisfy the set of constraints presented in the utterance, but it is clearly incorrect to say that a given element absolutely constrains the occurrence of another element” (1997: 76).

This approach of causality marking as a construal operation can be described in a cognitively plausible and restrictive way with reference to the concepts of ‘prototype’ and ‘family resemblance’: mental predicates are prototypically marked with *laten* as indirect causation, but for rhetorical purposes, it may be marked with *doen* as ‘direct causation’. However, *doen* can only be used if the usage-context shows family resemblance to *doen*’s prototype of inanimate causation. In other words: prototypical usage of *doen* and *laten* can be defined in terms of ‘animacy’ of the core-participants in the causal relation; non-prototypical or ‘domains-crossing’ usage of *doen* and *laten* is restricted by the concept of ‘directness of causation’. Thus, the semantic categories of *doen* and *laten* can be schematized as Figure 3.8:

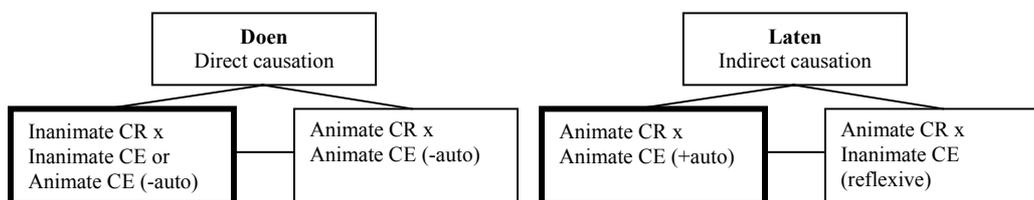


Figure 3.8. The meaning of *doen* and *laten* (CR = ‘causer’; CE = ‘causee’; ‘auto’= autonomy).

Chapter 4

Causality marking at the discourse level: *daardoor, daarom* and *dus*

4.1 Introduction

In this chapter, *daardoor*, *daarom* and *dus* are studied as a species of linguistic causality markers that function at the discourse level of language structure (cf. discussion in Chapter 2). Connectives have been studied by text linguists as markers of coherence relations: meaning relations between clauses, such as temporal relations, contrastive relations and causal relations (cf. Mann & Thompson 1988; Martin 1992; Sanders, Spooren & Noordman 1992, 1993). These coherence relations are of fundamental importance to discourse, a collection of sentences that cannot be connected meaningfully in terms of coherence relations is not a proper text. It is assumed that coherence relations add an informational surplus to the discourse as a whole, that cannot be characterized in terms of the sentences in isolation (Sanders et al 1993: 95; cf. Hobbs 1979; Mann & Thompson 1986)

Coherence relation can be marked linguistically, but they do not depend on any dedicated linguistic signal (Sanders et al. 1993: 94). However, it is recognized that ‘coherent mental representations’ are at least partly built on linguistic signals (Sanders & Spooren 2001)¹. ‘Descriptive’ approaches of text structure make use of markers of coherence relations for inferring the rhetorical structure of a text or for judging content and structure of a text (cf. Pander Maat 2001).

The present study’s starting assumption is that the meaning of causality markers reflects the human conceptual understanding of causality. This chapter investigates the exact nature of the relation as it is manifest in the Dutch causal connectives *daardoor*, *daarom* and *dus*. Section 4.2 describes recent accounts of Dutch causal connectives. Section 4.3 evaluates these proposals against the theoretical perspective chosen in this study, and formulates an alternative hypothesis. Sections 4.4, 4.5 and 4.6 report a corpus analysis in which this hypothesis is tested. Finally, Section 4.7 interprets the findings with reference to the overall goal of the present study.

¹ Assumptions about the role connectives and other lexical signals may play in inferring coherence relations vary from ‘complete dissociation’ (e.g. Mann & Thompson 1988) to ‘fairly direct indication’ (Knott 1996, Knott & Sanders 1998) – cf. Knott et al. 2001: 3).

4.2 Categorizations with causal connectives

Recent interest in connectives has stemmed from text linguists and psycholinguists having developed integrated theories of language structure and language processing (Knott et al. 2001; cf. Sanders 1997b; Sanders & Spooren 2001). Within this approach it is assumed that connectives or lexical phrases serve as devices facilitating the construction of a coherent mental representation of a discourse. Connectives are studied as 'processing instructions' serving to relate the content of the connected segments in a specific type of relationship, signaling the type of conceptual relation that must be constructed between the discourse segments (Sanders & Spooren in press; cf. Gernsbacher & Givón (1995); Noordman & Vonk 1997; Knott et al. 2001). These approaches consider coherence relations conceptual entities relating to fundamental cognitive concepts such as 'causality', 'sequence' or 'polarity' (cf. Sanders, Spooren & Noordman 1992, 1993). Assuming that connectives are markers of these conceptual entities, their meaning is characterized in similar terms.² (Knott & Dale 1994; Pander Maat & Sanders 1995; Knott & Sanders 1998).

Recent years have also witnessed semantic accounts of connectives stemming from other (text-)linguistic approaches that do not primarily aim at constructing theories of discourse processing or text structure, but *did* however establish a link with more general cognitive concepts, such as 'domains of use' (Sweetser 1990); 'perspective' (J. Sanders & Spooren 1997); 'subjectivity' (Pit 2003; Pander Maat & Sanders 2000; 2001) or related notions such as 'speaker involvement' (Pander Maat & Degand 2001) or 'mental spaces' (Fauconnier 1994; Dancygier & Sweetser 2000; Verhagen 2000). Although the authors did not always use the term themselves, in the 'coherence' approaches as well as in the more general cognitive ones, the function of connectives can be thought of as 'categorization devices' (cf. Knott et al. 2001: 2). This section discusses accounts of causal connectives that are relevant for understanding the categorizing function of *daardoor*, *daarom* and *dus*.

4.2.1 Domains of use

A prominent line of research into Dutch causal connectives originated from textlinguistic research into coherence relations. Meaning and use of causal connectives were analyzed in order to test hypotheses concerning the identity of causal coherence relations. The assumption underlying this line of research is that there must be important parallels between the conceptual content of coherence relations, and the semantic content of connectives used to mark them linguistically (cf. Sanders, Spooren & Noordman 1992, 1993; Redeker 1990). Sanders et al. propose that the set of coherence relations manifest in natural discourse is ordered according to taxonomic principles. They propose a taxonomy of coherence relations

² At the same time, it is recognized that the relation between connectives and coherence relations is a complex one. No one-to-one mapping between coherence relations and connectives seems to exist. Often, one coherence relation can be expressed with different connectives, and, conversely, one connective can express different coherence relations (Sanders et al. 1993; Pander Maat & Sanders 1995)

that is built around a number of supposedly semantic primitives: order of the segments (forward or backward), polarity of the relation (positive or negative), basic operation (causal or additive) and source of coherence (semantic or pragmatic). The present discussion will only focus on the latter one.

The proposal for the taxonomic organization of coherence relations was corroborated with experimental evidence (cf. Sanders et al. 1992, 1993). However, the exact identity of the primitive ‘source of coherence’ proved to be somewhat unclear³ (cf. Sanders et al. 1993; Sanders 1997b). ‘Source of coherence’ classifies coherence relations according to the level of representation the segments of the causal relation are linked on (cf. Knott et al. 2001). Consider (1) and (2) (taken from Sanders 1997a: 122):

- (1) Theo was exhausted because he had to run to the university.
- (2) Theo was exhausted, because he was gasping for breath.

A relation is semantic if the discourse segments are related because of their propositional content, or in other words, at the level of the locutionary meaning of the segments. In (1), a causal relation is constructed between the proposition that *Theo had to run to university* (functioning as casual antecedent) and the proposition that *Theo was exhausted* (the causal effect). In (2) on the other hand, no causal relation can be constructed between the propositions expressed in the segments. Instead, the causal relation is to be constructed between the proposition that *Theo was exhausted*, and the speech act presented in the second segment. The utterance of the second clause justifies the claim presented in the first segment. In pragmatic causal relations, then, the segments are related because of the illocutionary meaning of one or both of the segments (Sanders 1997a: 122; Sanders et al. 1992; 1993). The distinction between semantic and pragmatic causal relations can be summarized as follows:

Semantic causality	Pragmatic causality
The causal relation is constructed at the locutionary level of the segments.	The causal relation is constructed at the illocutionary level of at least one of the segments.

Figure 4.1. Categories of causal relations resulting from the primitive ‘source of coherence’ in the taxonomy of coherence relations of Sanders et al. (1992; 1993).

The distinction between a semantic (locutionary) and a pragmatic (illocutionary) “level of representation” is noted by many students of discourse coherence, although there is a great deal of discussion about the exact definition of the distinction (see e.g. Bateman & Rondhuis 1997; Degand 1996; Sanders 1997a; Knott & Sanders 1998; Martin 1992; Oversteegen 1997; for an overview see Sanders & Sporeen 2001). However, the pervasiveness of this distinction (or variants of it) in the

³ Sanders et al. (1992, 1993) tested language user’s intuitions with respect to the proposed distinctions. Judgments were rather clear on all of the primitives except ‘source of coherence’.

literature and its cross-linguistic validity suggest that it is an important conceptual distinction.

Pander Maat & Sanders (1995) investigate the usage of *daardoor*, *daarom* and *dus* with the aim of testing the ‘source of coherence’ hypothesis against linguistic evidence. Their study’s point of departure is the observation that the distinction between ‘semantic’ and ‘pragmatic’ causal relations shows important conceptual similarities to distinctions proposed in Sweetser’s (1990) Domains of use theory. Sweetser proposes that the meaning of English causal connectives such as *because*, *so*, *since* and *therefore* must be analyzed “in the context of an utterance’s polyfunctional status as a bearer of content, as a logical entity, and as the instrument of a speech act” (1990: 76). Thus, the connectives can bear meaning in three ‘domains of use’, exemplified in the famous sentences (3)-(5) (examples taken from Sweetser 1990: 77):

- (3) [John came back]₁, because [he loved her]₂.
- (4) [John loved her]₁, because [he came back]₂.
- (5) [What are you doing tonight]₁, because [there’s a good movie on]₂.

Instead of two, Sweetser distinguishes between three categories of causal relations. In (3) a relation is constructed between two situations in observable reality. The causal relation exists in the content domain; in the real world, the situation depicted in S2 *John loved her* leads to the situation depicted in S1: *he came back*. In (4), the sentences with the same propositional content are related at a different level. Interpreting the situation in S2 as causing the situation in S1 in the real world (as was done in (3)) leads to an incoherent text. Rather, (4) is to be interpreted as an argument-conclusion relation: the situation in S2, *he came back*, serves as an argument for the conclusion of the speaker uttered in S1, *John loved her*. In this type of causal relations the ‘probability status’ of states of affairs is at stake; it is constructed in the ‘epistemic domain’. Finally, in (5), the causal relation is constructed in the speech act domain, as S2 presents a motivation for uttering the speech act in S1: asking what the hearer is doing tonight (or rather: inviting the hearer to watch television). The distinction between content, epistemic and speech act causality can be summarized as follows:

Content causality	Epistemic causality	Speech act causality
S1 and S2 ⁴ are connected in the real world	The speaker’s knowledge of S1 causes the conclusion S2	S1 gives the cause of the speech act embodied by S2

Figure 4.2 Categories of causal relations according to the Domains of use theory (Sweetser 1990: 77).

⁴ P and Q as symbols for ‘cause’ and ‘effect’ were added by the present author for ease of presentation.

The category of ‘content causality’ corresponds to Sanders’ et al. (1992; 1993) category of ‘semantic causality’; their category of ‘pragmatic causality’ encompasses Sweetser’s categories of epistemic and speech act causality. Sweetser argues that the domains of use are manifest in a variety of linguistic phenomena, e.g. modal expressions, causal and adversative conjunctions and conditional expressions. The relevance of the concept for describing the meaning and use of connectives is the idea that there are connectives that are ‘exclusively’ used in only one of the three domains. For example, English *since* has a strong tendency towards the epistemic and speech act domains; French *parce que* may be used mainly in the content domain, while *puisque* seems to specialize in the epistemic and speech act domains (Sweetser 1990: 82).

Pander Maat & Sanders (1995) analyze meaning and use of *daardoor*, *daarom* and *dus* in a corpus of newspaper texts, making use of Sweetser’s categories of content and epistemic causality.⁵ In order to maximize descriptive adequacy of their analysis, the content domain and epistemic domain are subdivided making use of notions that may be relevant for characterizing the meaning of *dus*, *daarom* and *daardoor* more specifically. The content domain is divided into the categories ‘content volitional’ and ‘content non-volitional’ causality. The concept of ‘volitionality’ distinguishes ‘reason’ relations (the antecedent describes the motivation an agent may have for the action performed in the clause denoting the result) from ‘pure cause’ relations (no agentivity involved). Examples are:⁶

- (6) Het was erg warm die dag. **Daarom** vertrokken de kinderen naar het zwembad.
It was very hot that day. That’s why the children left to go to the swimming pool.
- (7) De zon scheen fel. **Daardoor** liep de temperatuur snel op.
The sun shone fiercely. Because of that the temperature rose quickly.

Fragment (6) is an example of a volitional causal relation. The real world situation of ‘hot weather’ leads to the real world action of ‘leaving to go to the swimming pool’ by ‘the children’. We construe this causal relation as the ‘hot weather’ presenting a reason for the children’s decision to do something. In (7), volitional elements are absent. The real world situation of ‘the sun shining fiercely’ leads to the real world situation of ‘temperature rising quickly’ without any intervening factors related to an agent’s ‘volition’. Hence, (7) is classified as a non-volitional causal relation.

That the distinction between volitional and non-volitional relations may be relevant in the semantic distinction between *daardoor* and *daarom* is suggested in dictionaries and Dutch grammars (e.g. Geerts et al. 1984: 1163). Although many classifications of coherence relations distinguish ‘reason’ relations from ‘cause’

⁵ Pander Maat & Sanders analyze written texts. As ‘speech act causality’ hardly occurs in these usage-contexts, they do not discuss speech act causality further (1995: 3).

⁶ As Pander Maat & Sanders (1995) don’t present examples to illustrate this distinction, the examples discussed here have been made up by the present author.

relations (e.g. Mann & Thompson 1988; Pander Maat 2002), the concept of ‘volitionality’ has so far been treated as a ‘second order’, or non-primitive distinction – a characteristic relevant at the level of the individual segments instead of being part of the ‘informational surplus’ that characterizes the coherence relation itself (cf. Sanders 1992: 175).

Epistemic causal relations are defined by Pander Maat & Sanders as relations between some fact presented as the causal antecedent and a conclusion of the speaker that is based on this fact (1995: 3⁷). An example would be:

- (8) Het is erg warm vandaag. **Dus** de kinderen zullen wel weer naar het zwembad willen.
It is very hot today. So the children shall no doubt want to go to the swimming pool again.

In (8), the speaker draws the conclusion that ‘the children shall no doubt want to go to the swimming pool’ on the basis of the occurrence of ‘hot weather’. Finally, Pander Maat & Sanders distinguish two types of relations that they consider to be neither prototypically epistemic, nor prototypically speech act causality⁸: ‘summary’ and ‘paraphrase’ relations. In both types, the causal relation is constructed at the level of “inferential acting” (1995: 7) of the speaker, so both types are clear cases of ‘pragmatic’ causality. Examples would be:

- (9) De kinderen wilden vandaag naar het zwembad. Maar er was een band lek, er was er een zijn handdoek kwijt en de rest was aan het zeuren – **dus**: het was weer een hoop gedoe.
The children wanted to go to the pool today. But someone had a punctured tyre, someone lost his towel and the rest were complaining—so, it was just a lot of bother.
- (10) Als je naar het zwembad wilt, moet je deze weg verder uitfietsen. **Dus** je moet niet afslaan bij het stoplicht.
If you want to go to the pool, you must cycle to the end of this road. So don’t turn at that traffic light.

Fragment (9) exemplifies a ‘summary’ relation. The first four clauses function as the antecedent of the relation, they are summarized in the *dus*-marked clause, functioning as the effect-part. In (10), second clause in the conditional relation is restated as the last clause. This is a ‘paraphrase’ relation.

Pander Maat & Sanders define their relation categories in terms of ‘paraphrases’ that are taken to represent the meaning of the relation types distinguished. The paraphrases are presented in Figure 4.3:

⁷ In many instances of epistemic causality, a content causality relation between the propositions plays a relevant role at the level of interpretation (Pander Maat & Degand 2001; Oversteegen 1997). However, even in these cases, it is the causal relation at the illocutionary level (the conclusion) that is relevant at the level of communication.

⁸ As this discussion is not relevant for the purposes of the present section, it will not be further pursued here. The question will be taken up again in Section 4.5.

Relation type	Paraphrase
Content non-volitional	Het gevolg van deze situatie is als volgt :... / <i>This situation's consequence is as follows:...</i>
Content volitional	Deze situatie is reden voor het verrichten van de volgende handeling: ... / <i>This situation is a reason for carrying out the following action:...</i>
Epistemic, conclusion	Uit dit gegeven concludeer ik het volgende: ... / <i>From this fact I conclude the following:...</i>
Summary	De voorgaande uiting(en) kan / kunnen als volgt worden samengevat: ... / <i>The preceding utterance(s) can be summarized as follows:...</i>
Paraphrase	De voorgaande uiting(en) kan / kunnen als volgt worden geparafraseerd: ... / <i>The preceding utterances can be paraphrased as follows:...</i>

Figure 4.3. Paraphrases representing 'segmental meaning' of relation types distinguished in Pander Maat & Sanders (1995: 7).

The distribution of *daardoor*, *daarom* and *dus* is investigated in corpora of written text, making use of these paraphrases. The 'paraphrase test' consists of taking out the connectives from their relational contexts, and judging which one of the paraphrases represents the relation between the connected segments best (Pander Maat & Sanders 1995: 6).

The results of the corpus analysis suggest that the only connective that is 'domain-specific' is *daardoor*: this connective can only express non-volitional causality. *Dus* and *daarom* are not domain-specific, but do have (strong) preferences. The majority of *dus* usage contexts (87 %) can unambiguously⁹ be characterized as epistemic causality, but *dus* can be used with volitional causality too. *Dus* is the only connective that can mark summary and paraphrase relations. *Daarom* has a preference for volitional causal relations (54 %) but is used in epistemic causal relations and (although seldomly) non-volitional relations too. Table 4.1 presents a schematic overview of the findings. For each usage type the connective(s) that can express it are summed up. Bold-faced printed connectives are those which are most frequently used per category.

⁹ Pander Maat & Sanders characterized 'meaning and use' of the respective connectives in terms of the nature of usage contexts (1996: 8) and in terms of contribution of the connectives themselves to interpretation of contexts that are ambiguous between different interpretations (1996: 23). In order not to complicate the present discussion more than necessary for the present purposes, I have 'added' the results that Pander Maat & Sanders presented.

Table 4.1. Distribution of connectives over ‘domains of use’ (Pander Maat & Sanders 1995: 12).

Usage type	Content Non-vol.	Content Volitional	Epistemic, Conclusion	Summary	Paraphrase
Expressed by connectives	daardoor* daarom	daarom dus	daarom dus	dus	dus

*Bold-face print indicates what connective is typically (most frequently) used for expressing this relation type.

Pander Maat & Sanders conclude that the hypothesized distinction between the ‘semantic’ (content) and pragmatic (epistemic) causality types is at best weakly represented in the semantics of *daardoor*, *daarom* and *dus*. Lexical evidence is only found for a distinction between the content non-volitional and the epistemic domains, as *daardoor* can only express the first type, which is in turn the only type that *dus* cannot express. The finding that *daarom* can mark epistemic conclusion relations but not summary and paraphrase relations, is interpreted as evidence in favour of the distinction between the epistemic and speech act levels described by Sweetser (1990).

Other approaches of causal connectives making use of notions derived from Sweetser’s domains of use theory are e.g. Pander Maat & Degand (1997, 2001), Keller (1995), Lagerwerf (1998), Oversteegen (1997); similar notions are considered meaningful by Pit (2003), Degand (1996). For an assessment of the exact differences and parallels between categorizations under these labels in different studies, see Sanders (1997a) and Bateman & Rondhuis (1997).

4.2.2 Subjectivity

The findings of their 1995 study leads Pander Maat & Sanders to conclude that “[...] the lexicon of connectives *cannot* be described in terms of distinctions well-known from accounts like ‘domains’ (Sweetser 1990) or layers of meaning, such as *content*, *epistemic* and *speech act*” (Pander Maat & Sanders 2000: 77). This conclusion is endorsed by findings in other studies of usage of Dutch causal connectives (notably Pit et al. 1997; Pit 2003; Pander Maat & Degand 2001). Pander Maat & Sanders (2000) investigate whether the meaning contrast between *dus* and *daarom* (the least clearly delineated connectives in terms of ‘domains of use’ – cf. discussion in Section 4.2.1) can instead be characterized with reference to the notion of ‘subjectivity’.

They were not the first, and certainly not the only ones who proposed that the meaning of (Dutch) causal connectives is to be described with reference to the notion of ‘subjectivity’. Others are Pit (1996; 2003), Pander Maat & Degand (1997; 2001); Degand & Sanders (1997). However, only the proposal of Pander Maat & Sanders (2000; 2001) will be discussed extensively in the present section. The reason for choosing this proposal and not one of the others is that this proposal parallels the perspective of the present study most closely, with respect to the objects of investigation as well as the theoretical perspective chosen. The commonalities and differences to other proposals will be discussed at the end of this section.

As a starting point for an alternative theory that *can* capture the difference between *dus* and *daarom*, Pander Maat & Sanders (2000) focus on the similarities between the two: What do they have in common, so that speakers of Dutch easily use the same vocabulary to express these two relation types? They propose that the common denominator of volitional and epistemic causality, the usage categories *daarom* and *dus* specialize in very strongly, is “the involvement of an animate subject, a person, whose intentionality is conceptualized as the ultimate source of the causal event, be it an act of reasoning or some ‘real world’ activity” (2000: 64). *Dus* and *daarom* can be distinguished from *daardoor* in that the usage contexts of the former (almost) always involve an animate subject, while in *daardoor*-contexts this is not the case.

Pander Maat & Sanders (2000) propose that this commonality can be explained with reference to the concept of subjectivity. Defining the way it may be manifest in the semantics of *dus* and *daarom*, they start from the ‘speaker involvement’ definition of subjectivity, introduced by Langacker (1985; 1990), focusing on the speaker’s ‘self-expression’ (cf. discussion in Section 2.3.1). Pander Maat & Sanders’ understanding of the concept is combined with the notion of ‘perspectivization’ (cf. J. Sanders & Spooren 1997), allowing for the idea that the source of an utterance’s subjectivity need not necessarily be the speaker. According to Pander Maat & Sanders, other ‘actors’ (e.g. narrative characters) can also function as a source for subjectivity.¹⁰ Thus, the link established by Langacker between the speaker (and other elements of ‘the ground’) and ‘subjectification’ is loosened by Pander Maat & Sanders. They introduce the concept ‘Subject of consciousness’ (SoC) (2000: 64), which generalizes over the different roles that may be played by the ‘animate subject’ prototypically present in *dus* and *daarom*-marked causal relations: speaker or other person; actor or concluder.

This adaptation results in a scalar notion of subjectivity: it is defined as “the distance between the speaker and the SOC responsible for the causal relation” (2000: 77). The distinction between ‘subjectified’ causal relations and ‘objective’ ones remains binary. A condition for subjectivity to occur in a causal relation is the presence of a subject of consciousness: only causal relations that originate in some mind can potentially contain subjective elements. A causal relation is more subjective to the extent that the speaker accepts more responsibility for the content of the causal relation. As causal relations may be ‘perspectivized’, the SOC of which the causal relation originates does not always coincide with the speaker. As a consequence, the degree of subjectivity of causal relations may vary: the smaller the distance between speaker and SOC, the more subjective a causal relation is.

Pander Maat & Sanders (2000: 65-70) discuss the relevance of the notion of subjectivity in characterizing the meaning of *dus*, *daarom* and *daardoor* with reference to the domains of use types of causality used in their 1995 study. Their argumentation is reconstructed here. For the sake of clarity and conceptual continuity, the examples discussed in the previous section on ‘domains of use’ are re-used.

¹⁰ This understanding of the concept of ‘subjectivity’ is rooted in the notion of ‘perspective’ as it is relevant in theories of narrative texts (cf. Banfield 1982; J. Sanders 1994). For a detailed discussion of commonalities and differences between these two approaches: see Pit 2003: 83-106.

Non-volitional relations are presented as strictly objective. An example is (11):

- (11) De zon scheen fel. **Daardoor** liep de temperatuur snel op.
*The sun shone fiercely. **Because of that** the temperature rose quickly.*

S1 and S2 represent objective facts; there is no linguistic sign of subjective elements. As Pander Maat & Sanders state:

Not only does the [non-volitional] relation concern two real world situations, the relation itself is also construed as an objective fact. Of course the speaker is committed to her statements (i.e. the speaker cannot subsequently deny them), but the crucial point is that the speaker is not involved in the events being described, nor in constructing a causal relation between them (2000: 65).

The situations depicted in the segments of (11) are causally connected in the real world: ‘the shining of the sun’ leads to ‘rising of the temperature’. This causal process takes place without human intervention; there is no SOC involved. Elements of the ground are entirely absent in (11). Causal relations such as these are utterly objective: there is no linguistic or conceptual sign of SOC involvement in the causal process.

According to Pander Maat & Sanders, volitional causal relations are by definition more subjective than non-volitional ones, because they contain an SOC. An example is (12):

- (12) Het was erg warm die dag. **Daarom** vertrokken de kinderen naar het zwembad.
*It was very hot that day. **That's why** the children left to go to the swimming pool.*

Volitional causal relations differ from non-volitional ones in that they always originate in some mind. In (12), the situation depicted in S1 leads to the intentional action of ‘the children’ in S2 who ‘leave to go to the swimming pool’. In the default interpretation of this fragment, the speaker is committed to the truth of both S1 and S2 and the causal relation between them, but the speaker is not interpreted as being the primary responsible person, the SOC, for constructing the causal relation. This responsibility lies with ‘the children’ - it is their intention to act that functions as the source of the causal relation in the real world, so: ‘the children’ are the SOC of the causal relation. So far, as far as the role of the speaker is concerned, there is no difference between non-volitional and volitional relations: from a linguistic point of view, the speaker only reports things that happened in the outside world; he is not integrated in the semantics of the causal relation, or, in terms of Langacker (1987; 1990): linguistically, the ground is entirely absent from the causal relation in (12).

However, here is where the consequences of ‘perspectivization’ come in. According to Pander Maat & Sanders, at the conceptual level, the speaker *is* present in

volitional causal relations. Although linguistically there is no sign of presence of the speaker at the 'ground' of the causal relation in (12), conceptually he *is* present, by way of identification: both the actor and the speaker must be committed to the truth of S1 and S2 and to the fact that the occurrence of the situation in S1 is a valid reason to perform the action in S2:

[...] the representation of volitional (content) relations always involves both the mental domain of the speaker and the mental domain of the actor. In general, the speaker adopts the actor perspective and in this case, the actor is the SOC. In other words, the actor is the default SOC for volitional relations (Pander Maat & Sanders 2000: 67).

If the actor is not the speaker, as in (12), there is a certain distance between the SOC of the volitional relation and the speaker who reports it. This distance decreases if the actor is referred to with 'I' (Pander Maat & Sanders 2000: 65), as in (13):

- (13) Het was erg warm die dag. **Daarom** vertrok ik naar het zwembad.
It was very hot that day. That's why I left to go to the pool.

The SOC - speaker distance decreases even further if the difference between the point in time where the action is performed and the moment of speaking is reduced (PMS 2000: 67), as in (14):

- (14) Het wordt erg warm vandaag. **Daarom** ga ik naar het zwembad.
It will be very hot today. That's why I am going to the swimming pool.

In epistemic relations the distance between SOC and speaker is smallest. Thus epistemic causal relations are considered to be maximally subjective.¹¹ An example is (15):

- (15) Het is erg warm vandaag. **Dus** de kinderen zullen wel weer naar het zwembad willen.
It is very hot today. So the children shall no doubt want to go to the pool again.

The only way to relate S1 and S2 meaningfully is to interpret S1 as an argument for the conclusion in S2. In (15), the source of the conclusion (thus, the primary responsible source of the causal relation) is the speaker who utters the text. At least at the conceptual level, the ground is prominently integrated in the semantics of the relation between S1 and S2. In (15) speaker and SOC coincide, speaker-SOC distance is absent, the relation is maximally subjective. But according to Pander Maat & Sanders, nuances in subjectivity are possible with epistemic relations too:

¹¹ Pander Maat & Sanders (2000) don't discuss Speech act relations. Others have suggested that this type of causal relations is even more subjective than the epistemic ones (cf. Pander Maat & Degand 2001).

“In the unmarked case (of epistemic relations –ns) the SOC, the concluding subject, is identical to the present speaker. However, it is certainly *possible* to represent the reasoning of a subject other than the speaker in epistemic relations” (2000: 67; italics are the authors’).

They illustrate this point with reference to the following examples:

- (16) The lights in the neighbour’s living room were out. So they were not at home.
- (17) Harry saw that the lights in his neighbour’s living room were out. He concluded that they were not at home.

Pander Maat & Sanders hypothesize that the differences in meaning between *dus* and *daarom* can adequately be characterized with reference to the differences in speaker-SOC distance that they encode. More specifically, their claim is that *daarom* encodes a larger distance than *dus* does (2000: 68).

This hypothesis is tested in a corpus analysis investigating the distribution of *dus* and *daarom* over different types of SOC in causal relations. The findings suggest that, judging from linguistic expression of SOC, *dus*-actors in volitional relations are indeed closer to the author than *daarom*-actors. In the majority of cases, the actor in *dus*-marked volitional relations is the speaker himself, explicitly referred to by *I*. *Daarom*-marked volitional relations are dominated by ‘third-person’ SOCC’ (referred to with nominal or pronominal expressions). These findings are corroborated by the findings for epistemic relations: all of the *dus*-marked fragments have an implicit speaker SOC, while with the *daarom*-marked epistemic relations ‘explicit speaker’ (referred to by *I*) and ‘third-person nominal’ SOCs can also occur.

Additional evidence comes from an analysis of perspective configurations, reported in the same paper. In volitional causal relations marked with *dus*, perspective configuration is ‘continuous’: the first segments of all of the *dus* fragments are presented from (explicit or contextually implied) actor perspective. With *daarom* on the other hand, the first segments of half of the sample tested is presented from ‘non-actor perspective’; in these cases, perspective of the causal relation as a whole is ‘discontinuous’. The S1s of the other half of the *daarom*-fragments is presented from explicit actor perspective (2000: 71).¹²

The findings of Pander Maat & Sanders (2000) are summarized in Figure 4.4. These findings are corroborated by experimental evidence reported in Pander Maat & Sanders (2001).

¹² As no third-person epistemic *dus* fragments were found, the continuity hypothesis could not be tested for this relation type (2000: 74).

Minimal	<-----Subjectivity----->	Maximal
No SOC	Actor SOC	Speaker SOC
Daardoor	Daarom	Dus

Figure 4.4 Subjectivity scale of Pander Maat & Sanders (2000).

The proposal of Pander Maat & Sanders (2001) is paralleled by a number of other approaches to (Dutch) causal connectives. Pit (1996; 2003) presents a detailed account of the way the concept of ‘subjectivity’ is relevant for characterizing the meaning of backward causal connectives in Dutch, German and French. Building on theories of Lyons (cf. 1995), Langacker (cf. 1990), Banfield (1982) and J. Sanders (1994), Pit defines subjectivity in terms of ‘self-expression’ of “some participant P that arises (a) if his perspective is adopted (P = conceptualizer), and (b) if P, being perspectivized, becomes part of the meaning of the utterance (that is, if his consciousness is a reference-point in the interpretation of the linguistic expression)” (2003: 108).

Pit, too, proposes that subjectivity is a scalar concept (cf. 2003: 108). The degree of subjectivity is defined with reference to the role of the ‘Causally primary participant’ (CP): the participant in a causal relation which is the locus of effect of the causality represented by that causal relation (2003: 113). The degree of self-expression of the CP varies with a number of subjectivity variables: ‘CP’s role’ (non-agent, agent, evaluator or performer of a speech act), ‘nature of the CP’ (speaker, third person, animal, object/concept), and a number of ‘textual markers of subjectivity’ (e.g. representation mode of the discourse, epistemic expressions and evaluative expressions, tense). The proposal is empirically tested with corpus analyses and corroborated by cross-linguistic evidence from Dutch (*doordat, omdat, want, aangezien*) French (*parce que, car, puisque*) and German (*weil, denn, da*).

At crucial points, Pit’s proposal shows parallels with Pander Maat & Sanders (2000). The most important one is of course the definition of the concept of subjectivity itself: Pit as well as Pander Maat & Sanders combine Langacker’s concept of ‘speaker expression’ with ‘perspectivization’ factors. Further similarities involve the subjectivity variable ‘CP role’, that proves to have the greatest descriptive power among the investigated variables (Pit 2003: 313). It shows important parallels with the domains of use categories referred to by Pander Maat & Sanders (1995, 2000; based on Sweetser (1990)). Finally the variable ‘CP’s nature’ shows an important parallel to the concept of ‘Subject of consciousness’ as defined by Pander Maat & Sanders (2000).

Pander Maat & Degand’s (2001) proposal is also highly similar to that of Pander Maat & Sanders (2000) with respect to aspects that are crucial for the present study. Pander Maat & Degand propose a semantic theory for causal connectives in Dutch (*daardoor, daarom* and *dus*) and in French (*donc, dès lors, c’est pourquoi* and *de ce fait*) based on the notion of ‘speaker involvement’ (SI). Speaker involvement is defined as ‘the degree to which the present speaker is involved in the construal of the causal relation’ (2001: 214). Thus, the concept of SI is highly similar to the concept of ‘subjectivity’ as defined in Pander Maat & Sanders (2000). Like the latter, Pander Maat & Degand propose the connectives are ordered on a scale of SI.

There are also small differences between the proposals. Whereas Pander Maat & Sanders' (2000) proposal concentrates on the semantic distinction between *dus* and *daarom*, Pander Maat & Degand (2001) incorporate a larger range of grammaticalized causality markers, thus stressing the 'scalarity' aspect of their proposal. The proposition of subdistinctions within domains of use categories, too, allows the scalarity concept to become more clear. A major theoretical difference is that Pander Maat & Degand propose to separate the semantics of connectives explicitly from the semantics of the coherence relations they may mark. They characterize the meaning of the causal coherence relations with reference to notions from Sweetser's domains of use theory (1990). The connectives are taken to contribute the exact level of SI, which consists of more fine-grained notions such as 'speaker assumptions', 'hearer involvement' and time constraints. However, with respect to issues relevant for the present study, the proposal of Pander Maat & Degand (2001) leads to similar conclusions. They propose that there is a strong relation between connective meaning and domains of use categories, but a more fine-grained distinction in terms of 'speaker involvement' is needed in order to formulate an account that has complete descriptive adequacy.

4.3 Toward a hypothesis: categories of (non-)subjectivity

This chapter aims to explore the way the relation with conceptual categories is manifest in the semantic content of *daardoor*, *daarom* and *dus*. This study assumes that this relation can be characterized in terms of a categorization function of causality markers. In this section, the proposals of Pander Maat & Sanders (1995) and Pander Maat & Sanders (2000) will be evaluated against the theoretical perspective from the present study. The conclusion will be that neither of the proposals gives a satisfying account of the meaning of *dus*, *daarom* and *daardoor*, from the perspective of cognitive plausibility as well as from the perspective of descriptive adequacy. Instead, a proposal is presented that combines the strengths of both proposals, while it also does away with their drawbacks. This proposal will be tested empirically in the remainder of this chapter.

4.3.1 Cognitive plausibility and descriptive adequacy

Both Sweetser's 'domains of use' theory (1990) and the adaptation for the Dutch causality markers by Pander Maat & Sanders (1995), and the 'subjectivity' proposals of Pander Maat & Sanders (2000), Pit (2003) and Pander Maat & Degand (2001) construct a link between cognitively fundamental concepts and the semantic description of causality markers.

The notion of subjectivity is widely attested, determining many linguistic phenomena (cf. Lyons 1995; and Langacker 1987, 2002; cf. discussion in Section 2.3.1). It is a frequently recurring notion in describing e.g. modal expressions (e.g. Nuyts (2001), Mortelmans (2003)), adjectives (Pander Maat 2003) and causal connectives (cf. studies mentioned in Section 4.2.2). In the field of grammaticalization theory, 'subjectification' is a frequently reported phenomenon (with respect to connectives, see Traugott 1989, 1995; Dasher 1995; Keller 1995; cf. discussion in Chapter 5).

However, the same argument holds for concepts used in the ‘domains of use theory’ and for the notion of ‘volitionality’, added by Pander Maat & Sanders 1995. The distinction between content causality on the one hand and especially epistemic (and speech act) causality on the other as proposed by Sweetser has counterparts in numerous other studies of intersentential causal relations (cf. discussion in Section 4.2). On a more general level of language structure, the distinction between a ‘locutionary’ and an ‘illocutionary’ level of language interpretation is pervasive (starting with Austin (1962) and Searle (1969)). ‘Epistemicity’ is recognized as a fundamental concept in research of modal verbs (e.g. Talmy 1988; Traugott 1989; Sweetser 1990). The status of the concept of ‘volitionality’ has not been discussed much so far, but the closely related concept of ‘agency’ is recognized as a fundamental notion in the field of semantics (e.g. Delancey 1984; Lyons 1995; Lakoff 1987; Talmy 1988; 2000).

In terms of the ‘cognitive plausibility’ of the descriptive notions used, there does not seem to be much difference between the domains of use account and the subjectivity account of causal connectives. Further conceptual commonalities will be discussed below. What about differences in terms of descriptive adequacy? At first sight, the subjectivity approach appears to prevail over the domains of use approach. Many more individual cases can be adequately described with the subjectivity scale presented by Pander Maat & Sanders (2000). All *daardoor* contexts are ‘objective’, all *daarom* and *dus* contexts vary in their degree of subjectivity, but overall *daarom* seems to specialize in ‘less subjective’ contexts and *dus* in the ‘more subjective’ ones. By proposing a scalar notion to describe the usage of the connectives and abolishing strictly defined categories, the problem of ‘domains crossing’ that was observed in Pander Maat & Sanders 1995 is solved.

However, from the usage-based perspective explicitly adopted in the present study¹³ this solution also has an important drawback: observable patterns in usage are not accounted for, such as the fact that *dus* specialized strongly in epistemic contexts and the fact that *daarom* specializes in content volitional causality (cf. Section 4.2.1). A scalar concept cannot account easily for the fact that there are conceptual differences in terms of ‘positions on that scale’.

Moreover, if the requirements of descriptive adequacy and cognitive plausibility are combined, another aspect attracts attention. In Chapter 2 of this study, it was assumed that it was highly likely that three different connectives, highly grammaticalized linguistic elements with high frequency of use, *must* differ meaningfully in function. This function was assumed to be the categorization of causal relations according to concepts that are fundamental to our cognitive understanding of causality. These concepts tend to be rooted in a common sense, ‘folk’ understanding of the world. A scalar notion of subjectivity is, without refinement, not easily incorporated in a categorization approach. The concepts used in the domains of use approach and the subjectivity approach differ in level of description. The scalar notion of subjectivity is highly abstract, while the Domains approach makes use of more concrete or at least distinctive notions that correspond

¹³ But implicitly also present in Pander Maat & Sanders 1995, 2000; Pit 2003;

to ‘fundamental concepts’ identified in earlier research, such as ‘naïve dualism’, modality, etc.

4.3.2 Hypothesis: Categories of (non-)subjectivity

The discussion of the domains approach and the subjectivity approach revealed a paradoxical situation: the problems encountered in the 1995 study of Pander Maat & Sanders were resolved in the 2000 version, but in doing so, some strengths of the 1995 approach that are highly appreciated in the specific usage-based perspective taken here, were lost. In this section it will be argued that the strengths and drawbacks of the SOC theory and the domains theory actually complement one another, and that approaching this ‘ideal situation’ more closely is possible if the strengths of the domains theory and the SOC theory are combined.

The argumentation will proceed in three steps. Firstly, an aspect of cognitive plausibility will be addressed with reference to categorization mechanisms. It will be argued that it is possible to split up the abstract category of ‘subjective’ causal relations into two conceptual cores. Secondly, it will be observed that the differences between the domains of use theory and the subjectivity theory are not as fundamental as they may at first seem. The third step concerns descriptive power: it will be argued that combining the domains of use theory and the subjectivity theory leads to greater descriptive adequacy from a usage-based point of view.

Conceptual cores at the ‘subjectivity scale’

The conceptual distinction made by Pander Maat & Sanders (2000) between *daardoor*, on the one hand, and *daarom* and *dus* on the other, is conceptually clear: causal relations *without* an SOC (almost exclusively marked with *daardoor*) are objective and causal relations *with* an SOC (exclusively marked with *dus* and *daarom*) are subjective. But the distinction between *dus* and *daarom* is less easily defined at the conceptual level, it cannot be defined any more specifically than at ‘a relative degree’ of one and the same concept, namely, subjectivity. The degree of subjectivity varies subtly with SOC type (actor or speaker) or with expression type.

However, closer scrutiny of the way ‘subjectivity’ is manifest at the level of a causal *relation* reveals a major conceptual difference between two types of SOC configurations. This difference can be characterized with reference to Langacker’s ‘speaker involvement’ definition of subjectivity and focuses on the role played by the SOC in the construction of the causal relation. If the SOC is defined as ‘the person, speaker or someone else, who is responsible for constructing the causal relation’ (cf. discussion in 4.3.1), a fundamental difference is present in the nature of this responsibility. Consider the examples discussed in Section 4.3.1:

- (18) De zon scheen fel. **Daardoor** liep de temperatuur snel op.
*The sun shone fiercely. **Because of that** the temperature rose quickly*
- (19) Het was erg warm die dag. **Daarom** vertrokken de kinderen naar het zwembad.
*It was very hot that day. **That’s why** the children left to go to the swimming pool.*
- (20) Het was erg warm die dag. **Daarom** vertrok ik naar het zwembad.

- (21) *It was very hot that day. That's why I left to go to the pool.*
 Het is erg warm vandaag. **Dus** de kinderen zullen wel weer naar het zwembad willen.
It is very hot today. So the children shall no doubt want to go to the swimming pool again.
- (22) *Het wordt warm vandaag. Dus zullen we naar het zwembad gaan?*
It's going to be hot today. So shall we go to the swimming pool go?

In terms of SOC type, the examples differ in the following respect: In (18) SOC is absent; in (19) the SOC is *the children*, an ‘actor’ SOC; in (20) the SOC is *I*, an ‘explicit speaker’ SOC, and in (21) the SOC is the speaker herself, an ‘implicit speaker’ SOC which is not linguistically expressed. According to Pander Maat & Sanders, examples (18)-(21) represent a gradually decreasing distance between SOC and speaker. However, an interesting difference occurs between (18) - (20) on the one hand and (21) on the other: the latter is the only case where the speaker and the SOC completely *coincide* at the moment that the causal relation is constructed.

In other words, if the *role* of the SOC in the construction of the causal relation is taken into account, it becomes clear that this fact reflects a fundamental *conceptual* difference. In (21), the SOC is linguistically *absent* in the connected segments, and *present* at the conceptual level of the construction of the causal relation itself. In the other fragments, the opposite pattern holds: the SOC is *present* in the segments that are connected causally, but *absent* in the construction of the causal relation itself.¹⁴

This difference can be illustrated with reference to the ‘viewing arrangement’ of Langacker (1987; 2002), discussed in Section 2.3.1 and repeated here for convenience:

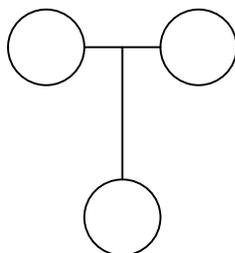


Figure 4.5 The viewing arrangement (Langacker 2002: 325).

Figure 4.5 symbolizes Langacker’s assumption that any linguistic utterance is ‘perspectivized’, meaning that language use reflects a specific speaker’s ‘construal’

¹⁴ The question of whether the SoC actually constructed the very same causal relation at the point in time in which the events took place in reality, is irrelevant in the light of the present discussion. The starting-point of linguistic analysis is the speaker construal of the relation (cf. viewing arrangement of Langacker 1987, 1990; cf. discussion in Section 2.3.1). The speaker construal contains a reconstruction of motives the SoC might have had for e.g. performing an action. Evidently, this analysis implies that from the perspective of linguistic and communicative analysis, the presentation of the SoC in itself is a construal operation.

of a situation in reality rather than it reflects ‘objective reality’ (cf. Section 2.3.1). Therefore, for analyzing linguistic utterances, a distinction should be made between the ‘subject of conceptualization,’ ‘the conceptualizer’ (the speaker in his or her communicative situation, called ‘the ground’); and the ‘object of conceptualization’, or ‘what is conceptualized’. In ‘explicit SOC’ (actor or speaker) causal relations, the SOC is construed as a part of the ‘conceptualized’ and the ‘conceptualizer’ does not play a role in the resulting mental representation of the causal relation. Whether the SOC *referentially* coincides with the conceptualizer (or other elements of the ground) is irrelevant. In ‘implicit speaker SOC’ relations on the other hand, the conceptualizer is inextricably integrated with the ‘conceptualized,’ the SOC and the conceptualizer completely coincide. Implicit SOC relations can only be meaningfully interpreted by taking the whole communicative situation into account: the speaker is seen as the source of the causality, but so is his communicative act of relating the propositions presenting an argument for a conclusion (as in (21)), or the justification a speech act (as in (22)). In sum, the crucial question is whether the construction of the causal relation takes place in the horizontal axis of the viewing arrangement (no SI), or in the vertical axis (max SI). If the conceptualizer is construed as constructing the causal relation ‘in the ground,’ the causal relation is subjective. If the conceptualizer and the SOC do *not* coincide, the causal relation is objective.

In the remainder of this chapter, it will be argued that it is at this point that the subjectivity scale shows a conceptual ‘split’ into two conceptually homogenous categories with one cognitively plausible conceptual core each. In the remainder of the present section, two arguments in favour of this hypothesis will be discussed: the conceptual parallel between the two distinct ‘subjectivity’ categories that emerge and the categories of non-volitional, volitional and epistemic/ speech act causality from the domains of use theory of Pander Maat & Sanders 1995, and patterns in usage-data of *dus*, *daarom* and *daardoor* that provide linguistic evidence in favour of this position.

Parallels between ‘subjectivity’ and ‘domains of use’

Subdividing the scalar organization of subjective causal relations into subcategories of ‘explicit’ and ‘implicit SOC’ relations produces interesting parallels with distinctions found in Pander Maat & Sanders’ account of ‘domains of use’ from 1995. The general idea that there must be parallels between the two approaches is not original. Most of the recent studies of Dutch causal connectives embrace the notion of subjectivity as the main explanatory factor of meaning and use of causal connectives, and at the same time, most of those studies propose that ‘domains of use’ notions exemplify ‘typical examples’ of usage of the respective connectives (cf. Pander Maat & Degand 1997; 2001: 233 on *daardoor*, *daarom*, *dus*, and Pit (2003) on the backward causals *doordat*, *omdat* and *want*).

Some of the parallels are quite obvious. For example, let us begin by looking at the most general one: the domains of use approach and the subjectivity approach agree on the element in the causal relation that is relevant for its categorization, its ‘Locus of Effect’ (Pit 2003: 113). The LOE can be conceptualized as the point where the situation presented as the cause ‘contacts’ the situation presented as the effect, or as the point that can be conceptualized as the

onset of the causal effect. Within the domains approach, the LOE is characterized according to the role it plays in ‘onsetting’ the causal relation, for example, the roles of utterer of a speech act, evaluator, agent or non-agent (cf. Pit 2003; her definitions are highly compatible with the approach of Pander Maat & Sanders 1995). Within the subjectivity approach of Pander Maat & Sanders (2000), the LOE in subjective causal relations is synonymous to the SOC, the animate being which is responsible for the construction of the causal relation.¹⁵

The second parallel is also quite obvious. The distinction between causal relations containing an SOC and causal relations without SOC is literally synonymous to the distinction between causal relations of the type speech act, epistemic and content volitional on the one hand, and non-volitional causal relations on the other (Pander Maat & Sanders 2000: 64; cf. discussion in Section 4.2.2).

A third parallel can be constructed between epistemic and speech act causality on the one hand, and implicit SOC causality on the other. Although there is no complete consensus on the definition of ‘epistemic’ and/or ‘speech act’ causality in the literature, similar distinctions are pervasive there. Moreover, Sanders (1997a: 141) notes that there exists a reasonable consensus of prototypical examples of pragmatic (speech act and epistemic) and semantic (content) relations:

“The clear cases of speech-act [...] relations are the ones in which it is impossible to construct a relation at the propositional level. (...) Prototypical epistemic [...] relations are cases in which the writer argues for something she claims to be true. Most of the times, the writer is clearly present as the communicating person (...)” (Sanders 1997: 125)

In epistemic relations as well as in speech act relations, the relation is constructed at the *illocutionary* level. In other words, contrary to content relations, epistemic and speech act relations are constructed as a communicative act in the ‘here and now’ of the discourse situation. This ‘communicative act’ is by definition performed by the speaker (otherwise it wouldn’t be a proper illocution)¹⁶. And by definition this act of the speaker concerns the *relation* between the propositions, not the content of the propositions themselves. In the case of causal relations constructed at the illocutionary level, neither the speaker nor his act is explicitly referred to in the proposition (unless a performative formulation is used: *it is cold in here, therefore I ask you to shut the window*), so illocutionary causal relations take an implicit

¹⁵ Pander Maat & Sanders (2000, 2001) do not discuss an equivalent for objective causal relations.

¹⁶ A similar line of reasoning is presented by Sweetser (1990), who discusses the effect of comma-intonation on overall interpretation of the causal relation. She proposes that a constituting characteristic of an epistemic causal relation is that the conclusion is actually asserted in the actual discourse situation; and *not* presupposed – the latter situation would lead to categorization as ‘content causality’ (1990: 82-6). Thus, “You’re going to the library, because you wouldn’t be taking your pack of books to the movies” is an epistemic causal relation, whereas “I conclude that you’re going to the library because I know you wouldn’t be taking your pack of books to the movies” is categorized as a content causal relation (1990: 85). Nuyts (1994) proposes that a similar distinction in terms of ‘performativity’ is relevant in characterizing grammatical aspects of the expression of modality.

speaker SOC *by definition*. This parallel is amended by Pander Maat & Sanders (2000), who assume that epistemic causal relations *can* also take an explicit SOC:

“In the unmarked case (of epistemic relations –ns) the SOC, the concluding subject, is identical to the present speaker. However, it is certainly *possible* to represent the reasoning of a subject other than the speaker in epistemic relations” (2000: 67; italics are the authors’).

According to Pander Maat & Sanders, not only (23), but (24) too are to be categorized as epistemic causal relations, differing only with respect to ‘degree of subjectivity’.

- (23) The lights in the neighbour’s living room were out. So they were not at home.
- (24) Harry saw that the lights in his neighbour’s living room were out. He concluded that they were not at home.

However, if the argumentation presented above holds, there are fundamental differences in the way the causal relations in these fragments must be construed. Fragment (23) is a standard example of epistemic causality as discussed in this section: the conclusion is actually performed in the present discourse¹⁷ by an implicit speaker SOC. Fragment (24), containing an explicit speaker SOC, deviates from the assumptions about epistemic causality presented above. If the argumentation up to this point holds, it must be assumed that this is at least a more complex situation. In addition to constructing the causal relation in (23), fragment (24) asserts that in some reality in past time, someone has constructed the relation in (23)¹⁸. As there is some distance between the speaker and the SOC, the latter interpretation is taken to be dominant in (24). This difference can be explained with reference to the ‘viewing arrangement’ in Figure 4.5, the relation is construed at the horizontal axis – not as an epistemic relation, but as a volitional causal relation, reporting the SOC’s motive for concluding that “the neighbors are not at home”.

¹⁷ The fact that the fragment is stated in the past tense does not change this: the deictic centre of the relation as a whole is shifted to a discourse reality that precedes the ‘present situation’ chronologically, which implies that the actual construction, the ground, of this relation as a whole is to be transposed to the ‘here and now’ of the discourse situation of the past.

¹⁸ With reference to the differences between (23) and (24), another line of reasoning could be that the matrix sentence in (24) functions as a ‘mental space builder’. The construction of the second segment can be identified as a ‘Complement Taking Predicate’ (CTP): expressions like ‘I think’ and ‘You know’ which function as epistemic marker or marker of illocutionary force. The whole of this CTP and its complement contains only a single proposition expressed by the apparent complement clause. CTP’s do not have a content function, but function as a signal that the contents of the subordinate clause is to be attributed to the subject of conceptualization referred to in the matrix clause (Verhagen 2005, Chapter 3). But even from this perspective the argumentation would hold: the CTP signals that our construal of the ground must change, without changing the fact that in the construal of the causal relation itself, the ground is put ‘onstage’.

The proposed parallel between domains of use categories and emerging ‘subjectivity’ categories can be summarized as follows. Both in epistemic and speech act relations on the one hand, and ‘implicit speaker SOC’ causal relations on the other, the conceptualizer (the ‘ground’) is inextricably integrated with the ‘conceptualized’: the complete ground itself is put ‘onstage’. These causal relations can only be meaningfully interpreted by taking the whole communicative situation into account: not only the speaker should be seen as the *source* of the causality, but also his communicative act of relating the propositions presenting an argument for a conclusion, or justifying a speech act. The ‘ground’ comes on to the stage on the level of the *relation* between propositions. In these cases, the SOC is linguistically absent from the propositions.

This type of relations is fundamentally different from ‘explicit speaker SOC’ causal relations and from volitional causal relations, in which the conceptualizer is, as a *referent*, becoming part of the conceptualized; the ‘ground’ comes on to the stage only on the level of the related *propositions*. Lastly, the parallel between non-volitional causality and non-SoC causality is clear too: non-volitional causal relations only take non-intentional loci of effect, and these can never be SOCC’.

Characteristics of non-prototypical usage types

If it is assumed that the subjectivity scale proposed by Pander Maat & Sanders (2000) can be split up around three conceptual cores, coinciding with content non-volitional, content volitional and epistemic/speech act causality, a fundamental problem of Pander Maat & Sanders (1995) can be solved. The ‘domains crossing’ usage types of *dus* and *daarom* observed in that study are possibly not due to a faulty semantic description, but can be attributed to standard characteristics of conceptual and semantic categories, namely to the fact that category membership is a matter of degree. Categories are built up from ‘better’ (prototypical members) and ‘less good’ (peripheral) examples of the concept in question. The present study assumes that prototypicality structure is relevant at the level of language use, entailing that ‘degree of prototypicality’ is often reflected in relative usage frequencies (cf. discussion in Section 2.3 and 2.4).

For example, a notorious ‘domains crossing usage type’ is the usage of *dus* in volitional causal (explicit SOC) relations, the proposed prototypical usage context of *daarom*. Previous research has identified observable differences between *daarom*-marked and *dus*-marked volitional relations. The findings suggest that volitional causal (explicit SOC) *dus* shares important characteristics with its hypothesized prototype of epistemic/speech act (implicit SOC) causality –characteristic that are lacking in volitional causal (explicit SOC) relations expressed by *daarom*. In contexts of this type marked by *dus*, the SOC appears to be closer to the speaker, and overall the causal relations have a more argumentative flavor than those marked by *daarom* (cf. empirical findings on differences between *dus* and *daarom* from Pander Maat & Sanders 2000 with respect to perspective configurations, and from Pander Maat & Degand with respect to underlying causality assumptions; see discussion in Section 4.6).

Hypothesis

The remainder of this chapter will explore the idea that the meaning and use of *daardoor*, *daarom* and *dus* are structured like this kind of complex category (cf. Section 2.3 and 2.4). It will be hypothesized that the semantics of each of the connectives consists of a prototypical core that can be described by making use of the notions of the domains of use theory and the subjectivity theory as (re)defined in the present section. An indication that this can be a fruitful endeavor is found in the data on distribution of the connectives of Pander Maat & Sanders (1995). Each of the connectives clearly specializes in one of the hypothesized domains of use, which is evident from a high usage frequencies, which is in turn taken to a signal of prototypicality of the given usage-context (cf. Section 2.3 and 2.4).

Next, it will be hypothesized that the less frequent, non-prototypical usage-types of the connectives—the ‘domains crossing usages’—relate to the conceptual prototype of each connective by the concept of ‘family resemblance’. This idea is also supported by findings from other studies. Obviously, the facts presented do not contradict the idea of a ‘scale of subjectivity’ on which the connectives are ordered. To the contrary, they have been used by the cited authors as arguments in favour of such an idea. My purpose is not to contradict them either, but rather to reinterpret the ‘boundaries’ of use of each of the connectives; to reinterpret their non-prototypical usage-types, as implied by the hypothesized conceptual prototype. In other words, it is hypothesized that for each connective, the non-prototypical usage types share characteristics with the proposed prototype of the connective in question, and lack the characteristics of the proposed prototypes of other connectives. In the corpus analysis reported in this chapter, the following proposal is tested:

Daardoor	Daarom	Dus
<i>Objective inanimate causality</i>	<i>Objective animate causality</i>	<i>Subjective causality</i>
Prototypically:	Prototypically:	Prototypically:
- Content non-volitional causality	- Content volitional causality	- Epistemic or Speech act causality
- SOC-less	- Explicit SOC	- Implicit SOC

Figure 4.6 The meaning of *daardoor*, *daarom* and *dus*: hypotheses.

It is hypothesized that in the usage-categories, prototypical and less prototypical usages can occur. It was proposed that the prototypical meaning of *daardoor*, *daarom* and *dus* can be adequately characterized with reference to concepts from Sweetser’s ‘domains of use’ theory (1990), extended with the concept of ‘volitionality’ (cf. Pander Maat & Sanders 1995), and also with reference to the concept of ‘SOCtype’ as defined by Pander Maat & Sanders (2000; 2001). These concepts are taken to complement each other in characterizing the usage-contexts of the connectives. Therefore, in the corpus analysis reported in the remainder of this chapter, the hypotheses concerning prototypical meaning of the connectives will be operationalized in terms of both ‘domains’ and ‘SoC types’. Finally, it is proposed that the non-prototypical usage-types of *daardoor*, *daarom* and *dus* maintain a demonstrable link of ‘family resemblance’ to their proposed prototypes. It is

hypothesized that their ‘ultimate boundaries of usage’ can be characterized in terms of ‘(non-)subjectivity’ and ‘(in)animacy’.

4.4 Corpus analysis: hypotheses and operationalization

The hypotheses formulated in Section 4.3 were tested in a corpus analysis that will be reported in the remainder of this chapter. Sections 4.4.1, 4.4.2 and 4.4.3 operationalize each of the hypotheses.

4.4.1 Prototypical usage: domains of use

This section formulates and operationalizes hypotheses with respect to the ‘domains of use’ concepts.

Hypotheses

As was done in Chapter 3, investigating a similar hypothesis for causal verbs, the relation between semantic categories and conceptual categories will be tested in two directions: from a semasiological perspective and from an onomasiological perspective (cf. discussion in Section 2.4 and Section 3.3). The semasiological perspective is concerned with word meaning and answers the question: ‘What concept defines meaning and use of connective X best?’ The onomasiological perspective focuses on the linguistic expression of conceptual categories, on the way these concepts are distributed over different linguistic expressions of a language. It answers the question: ‘what connective expresses concept Y best?’ With respect to the ‘domains of use’ concepts, the following hypotheses will be tested:

Semasiological hypothesis

Daardoor is prototypically used in content non-volitional relations; *daarom* is prototypically used in content volitional relations; *dus* is prototypically used in the category epistemic/ speech act relations.

Onomasiological hypothesis

Content non-volitional causal relations are prototypically expressed with *daardoor*; content volitional causal relations are prototypically expressed with *daarom*; the category of epistemic/ speech act relations is prototypically expressed with *dus*.

These hypotheses will be tested quantitatively. In line with the assumptions presented in Chapter 2, a usage-context’s degree of prototypicality is operationalized in terms of usage-frequency: the more frequent a specific context is, the more prototypical it is taken to be.

As will be shown below, speech act causality rarely occurs in written texts. This interaction between causality type and modality of communication was noted by Pander Maat & Sanders (1995: 3) too. Therefore, occurring examples of speech act causality will be discussed separately, but will not be analyzed as a separate category. In the statistical analysis, speech act fragments are joined with epistemic causal fragments. As the discussion in Section 4.3.2 made clear, there are a number

of arguments that suggest that these categories share common fundamental characteristics.¹⁹

Operationalization

In the corpus analysis, ‘domains of use’ categories will be determined making use of the ‘basic operation paraphrase test’ of Sanders (1997a). The categories distinguished in the domains of use hypothesis are operationalized as ‘paraphrases’, making explicit the relational meaning they add to the connected segments. In doing so, the type of causal relation that relates the segments can be established in an objective and reliable way. The paraphrases used are adapted from Pander Maat & Sanders 1995 (cf. Evers-Vermeul & Stukker 2003) as presented in Figure 4.7. *P* refers to the segment containing the causal antecedent. The paraphrase itself refers to the segments containing the causal effect.

Domain	Paraphrase
1. Speech act	1. Situatie P leidt tot de volgende taalhandeling: <i>Situation P leads to the following speech act</i>
2. Epistemic	2. Situatie P leidt tot de volgende conclusie: <i>Situation P leads to the following conclusion</i>
3. Content volitional	3. Situatie P leidt tot de volgende handeling: <i>Situation P leads to the following action</i>
4. Content non-volitional	4. Situatie P leidt tot de volgende situatie: <i>Situation P leads to the following situation</i>
5. Other	(none of the paraphrases holds)

Figure 4.7 Paraphrases of *domains* categories.

Following the argumentation presented in Section 4.3.2, the definition of epistemic and speech act relations is restricted to causal relations where the conclusion or the speech act are actually performed. The paraphrase test consists of four steps, which I will illustrate making use of the following fragment:

- (25) De pony bleef de fietser nalopen. **Daarom** bracht deze hem maar onder bij de dieren in het park.
The pony kept following the cyclist. That's why 'this one' - he took him to the other animals in the park.

Step 1

Determine the text segments that are related by the connective.

[De pony bleef de fietser nalopen]S₁. **Daarom** [bracht deze hem maar onder bij de dieren in het park.]S₂.

¹⁹ In the literature, the question whether ‘speech act causality’ and ‘epistemic causality’ are distinctive categories (as suggested by e.g. Sweetser 1990) or not (as suggested by e.g. Sanders et al. 1992, 1993) is still a matter of debate (cf. Sanders & Spooren 2001; Knott et al. 2001)

[The pony kept following the cyclist]S₁. **That's why** [‘this one’ - he took him to the other animals in the park]S₂.

Step 2

Reconstruct propositions if necessary (write out referential expressions, integrate implicit information that can be deduced from the conceptual and/or linguistic context).

[De pony bleef de fietser nalopen]S₁. **Daarom** [bracht de fietser de pony maar onder bij de dieren in het park.]S₂.

[The pony kept following the cyclist]S₁. **That's why** [the cyclist took him to the other animals in the park]S₂.

Step 3

Remove the connective marking the causal relation.

[De pony bleef de fietser nalopen]S₁. [De fietser bracht de pony maar onder bij de dieren in het park.]S₂.

[The pony kept following the cyclist]S₁. [The cyclist took him to the other animals in the park]S₂.

Step 4

Insert the paraphrases and determine which one fits this specific context best.

[De pony bleef de fietser nalopen]S₁.

[The pony kept following the cyclist]S₁

Situation P leads to the following #²⁰ speech act/ #conclusion/ **action**/ #situation

[De fietser bracht de pony maar onder bij de dieren in het park.]S₂.

[The cyclist took him to the other animals in the park]S₂.

Step 5

Conclusion from the paraphrase test: fragment (25) contains a content volitional relation.

4.4.2 Prototypical usage: SOC type

This section formulates and operationalizes hypotheses with respect to Subject of consciousness (SOC)-types. Following Pander Maat & Sanders (2000), the SOC is defined as the person that can be construed as being ‘the responsible source of the causal relation’.

²⁰ The # symbol indicates that the relation at and is ‘incoherent’.

Hypotheses

The SOC type hypothesis, too, is tested from a semasiological as well as an onomasiological perspective:

Semasiological hypothesis

Daardoor is prototypically used in contexts lacking an SOC; *daarom* is prototypically used in contexts with an explicitly expressed SOC; *dus* is prototypically used in contexts with an implicit SOC.

Onomasiological hypothesis

SoC-less contexts are prototypically expressed with *daardoor*; explicit SOC contexts are prototypically expressed with *daarom*; implicit SOC contexts are prototypically expressed with *dus*.

Operationalization

The present analysis focuses mainly on the distribution of *daardoor*, *daarom* and *dus* over the SOC types ‘Implicit SOC’, ‘Explicit SOC’, ‘No SOC’ (cf discussion in Section 4.3.2). But in order to capture nuances, more distinctions are made. The categories distinguished in this study closely resemble those of Pander Maat & Sanders (2000). Figure 4.8 presents an overview of the categories and their linguistic appearances:

SOC type	Examples
1. Implicit speaker	(only conceptually present)
2. Explicit speaker (including cited speakers)	I, we, you and I, generic ‘you’
3. Pronominal (2 nd or 3 rd person)	You, he, she, this (one, x)
4. Nominal (3 rd person)	the man, Clara
5. Unspecified	‘one’, passive constructions with implicit agent, implicit but conceptually present actors
6. No SOC	(conceptually absent)
7. Other	(concept of SOC does not apply)

Figure 4.8 SOC types.

SoC position is marked with underlining. ‘No SOC’ is marked as [Ø], implicit speaker SOC is marked as [sp], ‘unspecified SOC’ is marked as [?] (for a discussion of concrete examples: see Section 4.2.2). The distinctions made in this study differ from the distinctions in Pander Maat & Sanders (2000) only in minor respects. Firstly, the category ‘explicit speaker SOC’ is extended to include generic ‘you’, as in (26):

- (26) De geluidskwaliteit van deze CD is om te huilen. **Daarom** vraag je je af: waarom niet wat meer moeite geïnvesteerd?
The sound quality of this CD is terrible. That’s why you wonder: why wasn’t more effort invested in it?

Secondly, the category of ‘explicit pronominal or nominal third-person SOC’ is split up into ‘SoC referred to with a pronominal expression’ and ‘SoC referred to with nominal expressions’. The reason for doing so is Pander Maat & Sanders’ (2000: 74) suggestion that these two types of expression differ in speaker-SoC distance: pronominal expressions are taken to signal less SOC speaker distance than nominal expressions.²¹ Therefore, (27) and (28) are distinguished as different types:

- (27) Het was erg warm die dag. **Daarom** vertrokken de kinderen naar het zwembad.
It was very hot that day. That’s why the children left to go to the swimming pool.
- (28) Het was erg warm die dag. **Daarom** vertrokken ze naar het zwembad.
It was very hot that day. That’s why they left for the pool.

Finally, Pander Maat & Sanders confined their category of ‘unspecified SOC’ to only one specific example: passive constructions. In the present study, the category of ‘unspecified SOC’ is generalized to include some other current examples as well, as in (29) (aspecific ‘one’ as SOC) and in (30) (SoC linguistically absent, but conceptually present –here: as an actor).²²

- (29) De gemiddelde lengte van de Europeanen neemt toe. **Daarom** heeft men standaardmaten voor deurposten en bedden verhoogd.
The average height of Europeans is increasing. That’s why they (unspec.) have increased standard sizes of door frames and beds.
- (30) De gemiddelde lengte van de Europeanen neemt toe. **Daarom** [?] hebben deurposten en bedden tegenwoordig verhoogde standaardmaten.
The average height of Europeans is increasing. That’s why these days, the standard sizes of door frames and beds (?) have been increased.

4.4.3 Non-prototypical usage

On the basis of previous findings, it is expected that *daardoor*, *daarom* and *dus* occur in non-prototypical usage-contexts as well. With respect to non-prototypical usage-types, the following is hypothesized:

Family resemblance hypothesis

A non-prototypical usage-type of *daardoor*, *daarom* or *dus* shares one or more characteristics with its own prototype and shares one characteristic, or more in very peripheral cases, with the prototype of another connective, but it *never* shares *all* of the characteristics of the counterpart’s prototype.

²¹ Due to differences in ‘accessibility’ (cf. Ariel 1990).

²² This category only contains SoC types that are conceptually non-specific. It does *not* contain SOC types that are linguistically absent because of constituent contraction, as in “Ze wilde niets van de voorstelling missen en [-] ging daarom vroeg van huis”. In these cases, the interpretation of the identity of the SoC is conceptually clear.

Operationalization

Degree of (non-)prototypicality is operationalized quantitatively in terms of relative frequency of use: prototypical usage of *daardoor*, *daarom* and *dus* is more frequent than their non-prototypical usage types (cf. 4.4.3). Comparison between characteristics of non-prototypical usage-types and prototypical usage-types will be established with reference to linguistic elements and demonstrable contextual aspects. The ‘family resemblance hypothesis’ for connectives will only be tested qualitatively, as was the case with causal verbs in Chapter 3. It is hypothesized that fewer prototypical usage-contexts of *daardoor*, *daarom* and *dus* will occur and that these will maintain relations of family resemblance to their respective prototypes. It cannot be known in advance what *kind* of family resemblance will occur, therefore, it is impossible to formulate quantitatively testable hypotheses at this point of the discussion.

4.4.4 Sample and procedure

The hypotheses were tested on samples from a corpus consisting of texts taken from an electronic version of the Dutch national newspaper *Trouw*, from the year 2001.²³ In order to control for possible genre-effects (cf. Sanders 1997), the sample was built from genres belonging to different text types. For a more detailed description of the corpora, see Appendix 4-1. From each of the subcorpora, 50 occurrences per connective were selected.²⁴ Only forms functioning as markers of causal relations were included,²⁵ and only interclausal relations were included in the sample.²⁶ Occurrences were included in the sample according to chronological order. The newspapers were analyzed ‘issue by issue’ (day by day).²⁷

Both prototypical and non-prototypical usage-types were analyzed according to the procedures discussed in Sections 4.4.1 and 4.4.2. Non-prototypical usage types (and other usage-contexts that could not be categorized in a straightforward manner) were analyzed independently by three judges. If obscurities remained, additional (linguistic) evidence was collected. The ‘prototypicality’ hypotheses presented in Sections 4.4.1 and 4.4.2 were analyzed quantitatively with a contrast analysis (see Appendix 4-1). This analysis will be reported in Section 4.5.

²³ Available from ‘Krantenbank’ Factlane, (Lexis Nexis Nederland bv), a service that provides electronic access to the archives of the most important Dutch daily newspapers.

²⁴ As with the causal verb sample (cf. Section 3.3.3), maximally two occurrences per article were included in the corpus.

²⁵ For an overview of other usage-types of *daarom* and *dus*, see Chapter 5.

²⁶ As a criterion for ‘maximum number of contracted constituents allowed’, the criterion of Pander Maat (2002) was used: if the writer signals segmentation linguistically or with punctuation *and* the unit adds new information to the context, the unit counts as an independent discourse segment. For example, “[Het noorden van Kenia kampt met ernstige droogte]₁ en daardoor [met hongersnood]₂” is segmented into two discourse segments, but the following is not: “Na exploitatie worden de wanden trapsgewijs afgedekt met het grind en het tertiaire zand, [die eerst op de kalksteen lagen en bij de mergelwinning voorlopig werden verwijderd.]₁ In [het daardoor ontstane eenzijdige landschap]₂ is nauwelijks plaats voor natuurlijke processen.”

²⁷ Therefore, the distribution over text genres mirrors composition of the complete newspaper, rather than that proportional selection of all of the genres was strived at.

Qualitative analysis will be used to illustrate the findings. The ‘family resemblance hypothesis’ concerning the non-prototypical usage types, presented in Section 4.4.3 will be analyzed only qualitatively. This analysis is reported in Section 4.6.

4.5 Corpus analysis: results ‘prototypical usage’

In this section, the results of the corpus analysis testing the ‘prototypicality hypotheses’ are reported. Section 4.5.1 presents the results from a semasiological perspective. Section 4.5.2 reports the results from an onomasiological perspective.

Table 4.2 presents an overview of the distribution of the connectives over ‘domains of use’ categories. Read row by row, the table represents the findings relevant for the semasiological view on the relation between the connectives and the domains. Read column by column, Table 4.2 illustrates the onomasiological perspective of this relation. The distribution pattern supports the hypotheses presented in Section 4.4.1 ($p < 0.001$). The distribution found corroborates the hypothesis from a semasiological perspective: *Daardoor* is prototypically used in content non-volitional relations, *daarom* is prototypically used in content volitional relations and *dus* is prototypically used in the category epistemic/ speech act relations. The findings also support the hypothesis from an onomasiological perspective: content non-volitional causal relations are prototypically expressed with *daardoor*, content volitional causal relations are prototypically expressed with *daarom* and the category epistemic/speech act relations is prototypically expressed with *dus* (see Appendix 4-1).

Table 4.2. Distribution of connectives over domains categories.

	Daardoor	Daarom	Dus	Total
Content Non-volitional	96	16	0	112
Content Volitional	4	50	22	76
Epistemic	0	31	76	107
Speech act	0	3	2	5
Total	100	100	100	300

Not surprisingly, the SOC type analysis corroborates the findings of the domains type analysis completely. In Table 4.3, distribution of the connectives over SOC type is presented. Again, read row by row, the table represents findings relevant for the ‘semasiological’ view on the relation between the connectives and the domains. Read column by column, Table 4.3 illustrates the onomasiological perspective of this relation. The distribution pattern supports the hypotheses presented in Section 4.3.2 ($p < 0.001$). The distribution found corroborates the hypothesis from a semasiological perspective: *Daardoor* is prototypically used in contexts lacking an SOC and *daarom* is prototypically used in context with an explicitly expressed SOC, *dus* is prototypically used in contexts with an implicit SOC. The findings also support the hypothesis from an onomasiological perspective: SOC-less contexts are prototypically expressed with *daardoor*, explicit SOC contexts are prototypically

expressed with *daarom* and implicit SOC contexts are prototypically expressed with *dus* (see Appendix 4-1).

Table 4.3. Distribution of connectives over SOC types: global.

	Daardoor	Daarom	Dus	Total
No SOC	96	16	0	112
Explicit SOC	4	50	22	76
Implicit SOC	0	34	78	107
Total	100	100	100	300

4.5.1 Semasiological perspective

As the findings from the domains of use analysis and the findings from the SOC type analysis show an almost perfect parallel, they are discussed in an integrated way.

Daardoor

As was hypothesized, *daardoor* is typically used in contexts of non-volitional causality. A representative example is (31).

- (31) De Boeing 747, het duurste vliegtuig dat rondvliegt, daalt steeds sneller in waarde. De afgelopen jaren is het vermogen van vliegmaatschappijen: ∅ daardoor met vele miljarden dollars verminderd (ac080111).
*The Boeing 747, the most expensive plane in the air, is continuing to diminish in value rapidly. **Because of this, airlines' capital: ∅ has decreased by millions of dollars.***

In this fragment a causal relation is constructed between the decrease in value of the Boeing 747 and the decrease in capital of airline companies. As (31) reports a relation between two states-of-affairs occurring in the 'real world', it is a clear example of content causality. No human intentional acting was involved, therefore, (31) must be interpreted as an example of non-volitional causality. Fragment (31) depicts a causal process with an inanimate Locus of Effect (LOE) – underlined, the ∅ symbol indicating that this LOE is not an SOC. This type of causal processes constitutes approximately half of the sample analyzed in this study. In the other half, animate beings *are* involved as LOE. An example is (32):

- (32) Mag je een onderzoek van vorige week geloven, dan speelt in Amsterdam een derde van de kinderen tussen zeven en negen nooit buiten. [...] **Daardoor** leren ze: ∅ niet goed om te gaan met andere kinderen en dat is weer slecht voor later, als ze voortdurend nieuwe mensen leren kennen (co240126).
*If you are to believe a study from last week, a third of the children in Amsterdam between the ages of seven and nine never play outside. **Due to this, they: ∅** do not learn to interact with other children: that has a negative effect later on when they continue to meet new people.*

‘Learn to interact with other children’ is a mental process that can only take place in an animate being, but occurrence of the process is not dependent on the experiencer’s intentions of doing so. Finally, a less frequent but by no means unusual usage context of *daardoor* is non-volitional relations containing an action predicate, as in the following example, (33).

- (33) De [schaatser Frans de Ronde] omschreef de Jaap Edenbaan als een grote katebak. „Overal lag zand. **Daardoor** schaatsten velen: Ø met bramen op hun ijzers. [...]” (sp220138)
*The skater Frans de Ronde defined the Jaap Eden rink as a big kitty litter bin. There was sand everywhere. **Because of this**, many skaters Ø skated with scratches on their blades.*

Interestingly, in spite of the presence of the inherently volitional action in the consequence segment, the paraphrase of volitional causal relations does not fit very well, in fact, the non-volitional paraphrase is the only one that fits this specific context adequately:

- De [schaatser Frans de Ronde] omschreef de Jaap Edenbaan als een grote katebak. „Overal lag zand.
Deze situatie leidde tot de volgende handeling / “This situation led to the following act”:
Deze situatie leidde tot de volgende situatie/ “This situation led to the following situation”:
Velen schaatsten met bramen op hun ijzers. [...]”

Apparently the adequate interpretation is not that the fact that ‘sand was all over the skating rink’ led to the intentional action of ‘skating of many’, but that the situation depicted in S1 led to the *unintentional* situation of ‘many skaters skating with scratches on their blades’.²⁸ Cases like these are in fact non-volitional causal relations.

Four exceptions to the overall pattern were found: usage contexts that *cannot* be characterized as non-volitional causal. A characteristic shared by all four exceptions is that the relational meaning of the segments is best characterized as ‘volitional causal’. An example is (34):

- (34) (Volgens de internationale wetgeving is het een oorlogsmisdaad om te schieten op mensen of installaties die worden beschermd door het rode kruis of de rode halve maan.)
[Maar] de Israëlische hulporganisatie Magen David Adom wil al meer dan vijftig jaar haar eigen teken gebruiken om 'redenen die diep

²⁸ This fragment illustrates a claim presented in Stukker, Sanders & Verhagen 1999, that the presence of an action predicate in the consequence segment does not automatically constitute a volitional causal relation. It only does so if intentionality is relevant at the *relational* level; not if its relevance is restricted to the *segmental* level, as is the case in (33).

geworteld zijn in religieuze en nationale tradities en in het historisch bewustzijn'. Het gebruik van het kruis of de halve maan is uit den boze in Israël. De Israëliische organisatie werd **daardoor** (?) niet toegelaten als volledig lid. (por030103)

(Context: According to international legislation, it is a war crime to shoot at people or installations that are protected by the Red Cross or the Red Crescent moon.)

But, for longer than fifty years, the Israeli relief agency Magen David Adom has wanted to use its own symbol for 'reasons that are deeply rooted in religious and national traditions, as well as historical consciousness'. The use of the cross or the crescent moon is only out of principle. The Israeli organisation was not accepted as a full member (?) because of this/for this reason.

Contrary to fragment (33), in the context of (34), the paraphrase of volitional causality fits best (the action being 'not admitting') and the adequacy of the paraphrase of non-volitional causality is at least questionable:

[...] de Israëliische hulporganisatie Magen David Adom wil al meer dan vijftig jaar haar eigen teken gebruiken om 'redenen die diep geworteld zijn in religieuze en nationale tradities en in het historisch bewustzijn'. Het gebruik van het kruis of de halve maan is uit den boze in Israël.

Deze situatie leidde tot de volgende handeling / "This situation led to the following act":

? *Deze situatie leidde tot de volgende situatie/ "This situation led to the following situation":*

De Israëliische organisatie werd niet toegelaten als volledig lid.

As will be discussed below, the four 'volitional causal' *daardoor*-fragments are certainly not prototypical examples of the category of volitional causal relations. They share characteristics that set them apart from standard volitional causal relations, marked with *daarom*. An example is the fact that the actions depicted (e.g. '(not) accept' in (34)) are not really actions that come about as a result of free choice, of 'real intentionality'. For now, an important conclusion is that *daardoor* is prototypically used in non-volitional contexts, as was hypothesized. It can be used in volitional contexts as well, but those contexts are relatively rare and they have specific characteristics.

The analysis of the *daardoor* sample according to SOC categorization parallels the patterns observed with 'domains' almost perfectly. Out of the 100 contexts analyzed, 96 are to be characterized as 'not having an SOC'. These contexts are the very same as those categorized as instances of 'non-volitional causation' in the domains analysis, which is hardly surprising. Fragment (31) does not contain an animate LOE, so its categorization as 'non-SoC' is clear.

Fragments (32) and (33) on the other hand *do* contain animate LOE, but cannot be construed as SOC, since they do not act 'intentionally'. Fragment (32) contains a participant that is in itself capable of 'having intentions' ('one third of the children

in Amsterdam'), but as was discussed above, its inherent intentionality is not at stake in the coming about of the causal effect of 'learning'; in other words, the children are not responsible for the construction of the causal effect reported in S2. The same argument holds for (33), although in this case some sort of intentionality and thus responsibility, has certainly occurred in the causal chain but was not relevant in the coming about of the causal effect reported in S2 of this fragment. The 'many' are not responsible for the fact that they are 'skating with scratches on their blades,' this situation is clearly caused by the 'sand on the ice rink'.

Four of the fragments in the sample contain participants that *can* be understood as being SOC. These are the fragments that were categorized in Section 4.5.1 as instances of volitional causation. The SOC in these fragments were categorized as 'unspecified SOC' ((34) above), 'nominal SOC' (35) and 'pronominal SOC' (36).

- (35) (Context: Kleine fondsen die hun zelfstandigheid koesteren, komen op de moderne effectenbeurs steeds meer in de verdrukking.) De grote instituten, de ABP's en PGGM's van deze wereld, zetten liever in op internationaal opererende multinationals. Wellicht zullen kleinere bedrijven, die van hun beursnotering afwillen, **daardoor** in de toekomst wat vaker aankloppen bij participatiemaatschappijen. (ac160121)
*Context: Smaller funds that cherish their independence are getting more and more pressure on the modern stock market exchange. The large institutions, the ABP's and PGGM's of this world prefer to launch operational international multinationals. **That's probably why smaller companies** wishing to give up their Stock Exchange notation will knock on the doors of 'participation companies'*
- (36) (Context: onderzoek wijst uit dat automobilisten onder sommige omstandigheden afstanden overschatten). Ervaren bestuurders bleken na een ritje van vijf minuten over een stille rechte weg een voorligger te ver voor zich uit te zien. **Daardoor** begonnen ze een kwart tot halve seconde later met inhalen dan rijders die in de simulator eerst vijf minuten over een bochtig parkoers reden of in een stationair draaiende auto hadden gezeten. (ac190133)
*(Context: Research shows that under certain circumstances, motorists overestimate particular distances.) After a 5 minute drive on an empty and straight road, experienced drivers seemed to believe that a car in front of them was much farther away than it actually was. **That's why they** began to pass out the other car a quarter-second to half a second earlier than drivers who practiced maneuvering bendy roads in the simulator...*

The ambiguity of fragments like (35) and (36) as noted in the domains analysis comes about in the SOC analysis in a similar way. To the extent that the causal effects in S2 can be interpreted as products of intentional actions of their agents, these can be conceptualized as SOC. But parallel to the way their intentions are backgrounded due to the context and formulating effects mentioned above, the responsibility of the SOC for bringing about the causal effects is backgrounded. The

‘knocking on the doors of’ participation companies’ of ‘smaller funds’ (35) does not come about entirely voluntarily. Accordingly, interpretation of the ‘smaller funds’ as responsible for the occurrence of the depicted situation is questionable. The role of potential SOC ‘they’ in (36) in terms of responsibility can be characterized in much the same way.

As with the domains analysis, we can conclude at this point that *daardoor* is prototypically used in contexts lacking an SOC. It can be used in other contexts, but these are relatively rare and have specific characteristics.

Daarom

As noted in previous studies, *daarom* is the most ‘generalist’ of the three connectives analyzed in this study. It is the only one that is easily used in all of the categories distinguished. Still, *daarom* appears to have a statistically significant preference: as has been hypothesized here, it is used most frequently in volitional causal contexts. In (37) the opinion expressed by the subjects in S1 that ‘traditional advertising is as good as dead’ is their motivation for the action described in S2: organizing hip hop parties and street soccer parties. The paraphrase of volitional causality is the only one that fits this fragment adequately.

- (37) Ook Koert Bakker en Jessica Gysel van ‘relatiebemiddelingsbureau’ Fanclub menen dat de traditionele reclame klinisch dood is. **Daarom** organiseren zij voor Adidas hiphopparty’s en straatvoetbalfeesten. (rec170150).
*Koert Bakker and Jessica Gysel from Fanclub PR Service also claim the traditional advertisement is as good as dead. **That’s why they** are organising hip hop parties and street soccer activities for Adidas.*

In the majority of cases of the volitional causal usage-contexts of *daarom*, the action is overtly expressed in the predicate of S2. However, this is not always the case, an example is fragment (38). S2 contains an inanimate sentence subject (‘the black colored machine’) and a predicate that is clearly not an action (‘has’). Still, the paraphrase for non-volitional causality does not fit very well in this fragment:

- (38) Microsoft-oprichter Bill Gates waagde zichzelf als eerste aan het spel tijdens een computerbeurs in gokparadijs Las Vegas. „Wij wilden iets bouwen dat een doorbraak voor computerfreaks is“, omschrijft de voormalige topman Microsofts ambities. Het zwart gekleurde apparaat heeft (?) **daarom** vier aansluitingen voor besturingsknuppels meegekregen, waar de gangbare ‘gameboys’ er maar twee hebben. (ac080126)
*Microsoft’s Bill Gates was the first to try the game during a computer conference in gambler’s paradise Las Vegas. “We wanted to build something that would be a breakthrough for computer freaks” explains Microsoft’s ex- top executive. **That’s why** the black colored machine has (?) four connections for game pads, while the current ‘gameboys’ have only two.*

“Wij wilden iets bouwen dat een doorbraak voor computerfreaks is”, omschrijft de voormalige topman Microsofts ambities.

- # *Deze situatie leidt tot de volgende situatie / “This situation leads to the following situation”:*
Deze situatie leidt tot de volgende handeling / “This situation leads to the following act”:
Het zwart gekleurde apparaat heeft vier aansluitingen voor besturingsknuppels meegekregen, waar de gangbare 'gameboys' er maar twee hebben.

The best-fitting one is clearly the paraphrase for volitional causality. The causal process which is depicted can only be interpreted meaningfully if S2 is understood as something like ‘Microsoft has equipped the device with four provisions for connections for steering devices’. All of these contexts share the characteristic that in order to interpret the fragment coherently, an animate, intentionally acting LOE must be inferred.

The second most frequent usage-context of *daarom* is epistemic causality. In 29 contexts, *daarom* marks a causal relation that is constructed between a situation and a conclusion of the speaker. This high frequency of epistemic contexts of *daarom* has been noted in previous research as well (Pander Maat & Sanders 1995; 2000; Pander Maat & Degand 1997, 2001). A typical example is (39). In this example the paraphrase for volitional causality is not fitting well.

- (39) Nederland verstedelijkt. (sp) **Daarom** is het niet vreemd dat ook de stadse natuur steeds vaker aandacht krijgt van natuurvorsers.
The Netherlands is becoming urbanized. (sp) That's why it is not at all odd that urban nature is getting more attention from naturalists.

- # Nederland verstedelijkt.
Deze situatie leidt tot de volgende handeling: / “This situation leads to the following act”:
Deze situatie leidt tot de volgende conclusie / “This situation leads to the following conclusion”:
Het is niet vreemd dat ook de stadse natuur steeds vaker aandacht krijgt van natuurvorsers.

The paraphrase of epistemic causality is the only one that fits this context adequately. As will be argued in Section 4.6, compared to *dus*, epistemic contexts of *daarom* contain specific features that are less frequent or even non-existent in contexts marked with *dus*. For now it suffices to say that although the frequency of *daarom* in epistemic contexts is high, it is substantially lower than the usage in volitional causal contexts.

The third most frequent usage-context of *daarom* is non-volitional causality. In 16 contexts, the paraphrase of non-volitional causality is the only one that fits adequately. A representative example is (40):

- (40) (De prof verhuisde ooit voor zijn beroep naar het badmintonwalhalla Denemarken. Er is weinig dat Van Dijk heeft nagelaten om van zijn sport een succes te maken. Juist **daarom** was het voor hem (ø) zo moeilijk om zich neer te leggen bij een andere toekomst.
*(The professional once moved to badminton Valhalla Denmark for his career.) There is little that Van Dijk has not done in order to make his sport successful. **That is exactly why** it was so difficult for him (ø) to resign himself to a different future.*

Er is weinig dat Van Dijk heeft nagelaten om van zijn sport een succes te maken.

- # *Deze situatie leidt tot de volgende conclusie / "This situation leads to the following conclusion":*
 #*Deze situatie leidt tot de volgende handeling / "This situation leads to the following act":*
Deze situatie leidt tot de volgende situatie / "This situation leads to the following situation":
 Het was voor hem moeilijk om zich neer te leggen bij een andere toekomst.

Experiencing a situation as being ‘difficult’ is not an action or a process that can be controlled by the experiencer. The causal process in (40) cannot be described as intentional; the paraphrase for volitional causality is excluded. Nor can S2 be interpreted as a conclusion so the paraphrase for epistemic causality excluded too. Evaluative elements are lacking, and modifiers like ‘zo’ and ‘juist’ signal that the speaker considers the situation in S2 as a real world fact. A further characteristic that almost all non-volitional usage contexts of *daarom* share is the presence of animate elements in the causal relation. Either there is an animate experiencer of the causal effect, as in the fragment discussed here, or the causal relations have some kind of epistemic flavor causing them to be characterized as an objectified conclusion relation. This characteristic will be discussed in more detail in Section 4.6.

Finally, three usage-contexts of *daarom* are best characterized as speech act causality. The speech act *daaroms* that occurred in the present sample were of a specific type. In all three of them, S2 of the causal relation consisted of an utterance presented in subjunctive mood. Two of them contained the lexicalized expression ‘long live’. By way of illustration, let us consider (41). Although implicitly a positive evaluation of the situation in S2 is depicted, the adequacy of the paraphrase for epistemic causality is questionable. The paraphrases for content causality are definitely ‘out’, as S2 doesn’t contain a situation in the outside world. The causal relation is constructed at the speech act level: the situation depicted in S1 leads to the speaker’s wish that ‘fertile trifling live long’. In view of these special characteristics and low frequency, it must be concluded that ‘speech act’ *daarom* is exceptional.

- (41) (Een columnist definieerde zijn eigen beroep in een interview met Trouw als: ‘iemand die eens in de zoveel tijd een keuteltje in de hoek van de krant deponert’ Een lezer reageert met een ingezonden brief)

Zonder het te weten heeft deze persoon een eretitel opgeroepen met niet het minste besef dat zonder bemesting niets groeit. Echte mest doet alles groeien. (sp) Lang leve **daarom** het vruchtbare gekeutel.

(In an interview with Trouw, a columnist defined his job title as "someone who leaves a lump of manure in the corner of the paper". A reader responded to this by mail.) Without knowing it, this person has gotten an honorary title while not even acknowledging the fact that without fertilisation, nothing will grow. Real fertilizer makes everything grow. (sp) So, long live the lump of manure.

Echte mest doet alles groeien.

? *Deze situatie leidt tot de volgende conclusie/ "This situation leads to the following conclusion"*

Deze situatie leidt tot de volgende taalhandeling / "This situation leads to the following speech act":

Lang leve het vruchtbare gekeutel.

At this point, we can provisionally conclude that of the three connectives analyzed in the present study, *daarom* is the one for which the domains categories are least informative with respect to defining its usage. In terms of frequency the category of volitional causality is a statistically significant prototype. But *daarom* can also be used in the other categories distinguished in this analysis. These usage types are not at all infrequent or unconventional with the exception of speech act usage. However, as will be seen in Section 4.6, the usage of *daarom* in these 'other contexts' has characteristics that sets it apart from the usage of *dus* or *daardoor* in the same domain types.

As with *daardoor*, in terms of distribution, the analysis of the usage-contexts of *daarom* in terms of SOC type parallels the domains-analysis almost perfectly. As hypothesized, *daarom* is used most frequently in contexts with explicitly expressed SOC. In 19 of the cases this expression is of the nominal or pronominal type, as in (37) above. 'They' is the participant that is portrayed as being responsible for the coming into being of the causal relation: it is their decision to act that leads to the organization of hip hop parties and street soccer parties. 21 of the explicit SOC consist of explicit mention by the speaker himself as an SOC; an example is (42):

- (42) De emotionele verwarrende kanten aan het leven meed hij (=de Amerikaanse filosoof Willard van Orman Quine) om zich geheel te wijden aan overzichtelijke logische redematies. „Ik raak ontroerd van diverse gedichten", schrijft hij achterin zijn autobiografie. „**Daarom** lees ik er maar weinig van."

*He(=the American philosopher Willard van Orman Quine) avoided the emotionally confusing sides of life so as to completely dedicate himself to clearly structured logical reasoning. "Several poems move me" he writes in the end of his autobiography. **That's why** I only read very few.*

The causal relation comes into being by the decision of ‘I’ to ‘read only few’ in the situation in S1. Again, ‘I’ is the animate being responsible for the causal relation.

Fragments in which the identity of the SOC is unspecified constitute a third type of explicit SOC. In these cases the SOC is linguistically absent in S2, but conceptually present. Sometimes (3 fragments out of 11) the SOC role is evoked both by the grammatical construction of S2 and the relational interpretation of S1 and S2, as in (43):

- (43) (De plannen van Napoleon voor het aanleggen van een Grand Canal du Nord tussen Schelde, Maas en Rijn om omvaren via Rotterdam onnodig te maken) Toen Napoleon ook Holland in bezit kreeg, was de vaart ineens niet meer nodig. De Noordervaart is (?) **daarom** nooit verder gegraven dan tot Beringe. (Rep060121)
*(Napoleon’s plans for building a Great Northern Canal between the Scheldt, the Maas and the Rhine rivers which would make sailing around Rotterdam unnecessary.) Once Napoleon controlled Holland, the waterway was no longer necessary. **That’s why** the Great Northern Canal was (?) never dug any further than Beringe.*

The passive construction ‘the Noordervaart has (not) been dug’ evokes the role of ‘diggers’, the conceptual agent of ‘dug’. In this specific context, their precise identity is irrelevant, be it the persons that carried out the digging physically or their commissioners. But in an abstract sense, a digger-role is essential for interpreting the relation causally, without such a role, the text would be incoherent. In other cases it is only the relational meaning of S1 and S2 that invokes the SOC role. An example is (37) above. As argued above, assuming volitional causality in this fragment is the only available possibility to interpret the text coherently.

Furthermore, in 34²⁹ out of 100 cases, *daarom* marks causal relations with an implicit speaker SOC. An example is (39) above, in which the speaker constructs a relation between the argument in S1 and the conclusion in S2. Finally, sixteen of the *daarom*-marked fragments lack an SOC. These are the fragments that were categorized as non-volitional causals in the ‘domains analysis’ reported above. Although animacy seems to play a more structural/prominent role in *daarom*-marked non-volitional cases than in the *daardoor*-marked ones, the two types share the property that animate beings involved in the causal process can never be interpreted as being responsible for the coming into being of the causal relation. For example, in example (40) above, the badminton player is the experiencer of the feeling of ‘difficulty’, but the source of this difficulty is beyond his control. In all of the fragments analyzed, this is the most prominent characteristic on the level of SOC categorization.

As with *daardoor*, the SOC analysis of *daarom* seems to parallel the domains analysis to a great extent. With respect to SOC type too, *daarom* appears to be the

²⁹ Three of these cases contained ‘speech act causality’. This type of causal relations is not analyzed as a separate category (cf. Section 4.4.4).

least specialized of the three connectives involved in this study: it is used in literally all (sub-)types of SOC.

Dus

Where *dus* is concerned, the hypothesis concerning prototypicality of usage-context is also supported by the sample analyzed. As was predicted, in the majority of cases *dus* is used in epistemic contexts. An example is (44). The paraphrase for epistemic causality is the only one that fits this context adequately:

- (44) (De hoofdredacteur van het radioprogramma Met het oog op morgen vertelt over een brief die hij ooit ontving van een luisteraar)
,De goede man schreef: 'Mijnheer, u bent de baas van 'Het Oog', en ik ben de baas van mijn vrouw. (sp) We kunnen **dus** op niveau praten.'
Waarop de vraag volgt of Van Hoorn nu eindelijk iets kan doen aan die vermaledijde begintune. (op050127)
(*The editor in chief of the radio show, "With the Eye on Tomorrow" tells about a letter he once received from a listener.*) *The good man wrote: 'Sir, you are the boss of "The Eye," and I am the boss of my wife. (sp) **Therefore** we can talk on the same level.'* After this, the question follows whether Van Hoorn can finally do something about that cursed opening tune.

The facts that Van Hoorn is the radio show's boss and that the writer of the letter is his wife's boss leads to the writer's conclusion that Van Hoorn and himself are equals in rank (which is what S2 essentially expresses). This position entitles him to order the chief director to change 'this dashed program's opening tune' which he, like many other people in Holland, dislikes. As S2 clearly contains a subjective interpretation of reality, a real world, non-volitional interpretation of the causality in this fragment is impossible. Another frequently occurring usage-context of *dus* is volitional causality. An example is (45). In this fragment, the paraphrase for volitional causality is the only one that expresses the causal relation between S1 and S2 adequately.

- (45) (Omstanders schieten te hulp bij cafebrand Volendam). "Ik woon vlakbij, **dus ik** ben brandwondencreme gaan halen."
(*Bystanders rush to help out at the Volendam pub fire.*)
"I live nearby **so I** ran to get burn ointment."

"Ik woon vlakbij,
Deze situatie leidt tot de volgende handeling "This situation leads to the following act":
ik ben brandwondencreme gaan halen."

Section 4.6 will show that volitional causal relations marked by *dus* differ from the ones marked by *daarom*. *Dus* relatively often marks volitional causal relations with an argumentative flavor. As was to be expected from previous findings (e.g. Pander Maat & Degand 2001), *dus* is used in contexts of speech act causality as well.

However, as noted above, this kind of usage is very infrequent in written discourse. The sample used in this study contained only two cases. In (46) the speech act, ‘warning’, presented in subjunctive mood, is justified (the type described with *daarom*; cf. discussion above). The other one, (47), is actually ambiguous between an epistemic and a speech act interpretation.

- (46) (Recensie van de ‘supermarktwijngids’) Hooguit een dozijn wijnen krijgt van Klei 15 punten ('ongewoon goed'); een paar honderd blijven (ruim) onder de 10 ('word je al niet vrolijk van'). En verder heel veel middelmaat. (sp) Men zij **dus** gewaarschuid. (rec060125)
(Review of the 'super market wine list') At most, only a dozen wines receive 15 Klei points (exceptionally good'); A few hundred get less than 10 (won't cheer you up). And for the rest, a lot of mediocrity. (sp) So you have been warned.
- (47) (Televisiekok Braakhekke doet tegenwoordig ook aan theater) Is Braakhekke wellicht een aandachtsjunk, wil de interviewer weten. "Neeeee", kaatst de lange uithaal tot over het Leidseplein. Braakhekke "likt alleen graag aan het theater en zingt altijd onder het koken. (sp) **dus**: waarom niet op het toneel?"
(Television chef Braakhekke also does theatre these days. The interviewer wonders if Braakhekke is perhaps an attention junkie?, "Noooo", resounds his answer across the Leidseplein. Braakhekke "only likes to lick the theatre and sings while he cooks, (sp) so: Why not onstage?

Braakhekke "likt alleen graag aan het theater en zingt altijd onder het koken,
Deze situatie leidt tot de volgende taalhandeling / "This situation leads to the following speech act":
 ? *Deze situatie leidt tot de volgende conclusie / "This situation leads to the following conclusion":*
 waarom niet op het toneel?"

The relation between S1 and S2 can be interpreted both as a motivation for the (genuine) question ‘why shouldn’t Braakhekke sing on stage?’, and as giving an argument for the conclusion that is formulated as a rhetorical question ‘Braakhekke should sing on stage as well’.

At this point, we can provisionally conclude that *dus* is strongly specialized in expressing epistemic causality. Still, it occurs in volitional causal contexts too. However, these contexts seem to have characteristics that distinguish volitional causal *dus* from the usage of *daarom* and *daardoor* in the same context type (cf. discussion in Section 4.6). *Dus* is never used in non-volitional causal relations.

Again, the SOC analysis of *dus* confirms this study’s hypothesis. And again, the domains analysis is paralleled to a great extent. In most cases *dus* is used in contexts with an implicit speaker SOC. In cases like (44) above, causality is constructed

because the speaker himself views the situation depicted in S2 as an argument for a conclusion he presents in S2. The speaker is conceptually present at the level of the relation itself; his linguistic presence in S2 is not relevant to the construal of the causal relation.

In two cases causality comes about because the speaker views the situation presented in S1 as a justification for the speech act realized in S2. An example is (46) above. In these cases, the speaker SOC is only conceptually present at the level of the causal relation itself.³⁰ In my data, like *daarom*, *dus* is combined with all types of SOC distinguished in this study; it is distributed over these types rather evenly. An example of ‘explicit speaker SOC’ is (45) above. The speaker reports a situation that took place in the past, in which he himself was the actor.

Fragments (48) and (49) below represent examples of a pronominal and a nominal SOC respectively. *Dus* is also easily combined with an ‘unspecified SOC’, as in (50), which contains an agentless passive construction and (52), which contains an implicit action in a volitional causal relation. In these cases, causality is constructed by the implicit actor that issued the ‘obligation’ signaled by ‘moeten’ in S2.

- (48) Schreijer vond dat er hoognodig een boerin in de Kamer moest komen, en **dus** is zij met zelfgemaakte worst en kaas op markten gaan staan. (op020106)
Schreijer felt it highly necessary to have a peasant woman in the House of Commons, so she went to the market to sell homemade sausage and cheese.
- (49) (Twee sportevenementen zijn door Stichting Rotterdam Topsport naar Rotterdam gehaald) ”Het is bewust beleid evenementen naar Rotterdam, City of Sports, te halen”, vertelt Hans den Oudendammer. En **dus** sloeg de stichting alert toe. (ac020104)
- (50) (*Rotterdam Topsport brought two sporting events to Rotterdam.*) *It is standard policy to bring events to Rotterdam, City of Sports”, said Hans den Oudendammer. That’s why the organisation became alert.*
- (51) (Er is iets verkeerd gegaan met de reservering van een zaal) Wellicht dat hotel Sheraton meer weet. Zaal Universe is nooit gereserveerd, is het droge commentaar, een rekening (?) wordt **dus** niet verzonden. (rep050134)
(Something went wrong making a reservation.) Sheraton Hotel probably knows more. The Universe Room is never reserved, was the dry commentary, therefore, (?) a bill will not be sent.
- (52) (‘TV Kapper’ is een nieuwe real life soap van de Tros.) Kappers kletsen in de regel graag en zijn vaak ook nog bloednieuwsgierig. De tv-kappers (?) moeten **dus** voor de camera clientèle verhalen ontlokken.
(“TV Hairdresser” is a new reality soap on the TROS.) Hairdressers gossip as a rule and are often very nosy. For this reason, the hairdressers (?) are meant to drag stories out of the customers on camera

³⁰ Speech act usage of *dus* was not analyzed statistically, see Section 4.4.4.

The semasiological SOC type analyses of *daardoor*, *daarom* and *dus* once more support the hypotheses of the present study. *Daardoor* is typically used in SOC-less causal relations; *daarom* is most frequently used in causal relations with an explicit (propositional) SOC, and *dus* is typically used in causal relations with an implicit speaker (extra-propositional) SOC.

4.5.2 Onomasiological perspective

The findings for analysis from the semasiological perspective are corroborated by the onomasiological perspective.

Content non-volitional causality / Non-SoC causality

As predicted, non-volitional causality, (lacking an SOC), is typically marked with *daardoor*, but this causality type can also be marked with *daarom* (16 out of 112). It is never marked with *dus*. As noted in Section 4.5.1, the majority of the *daarom*-marked causal relations have specific characteristics that set them apart from the *daardoor*-marked ones: there is always some kind of ‘animacy’ involved in the causal relation. In most of the cases this is best characterized as an ‘animate locus of effect’, or the causal relation has some kind of epistemic flavor (cf. discussion in Section 4.6).

Content volitional causality / Explicit SOC causality

Volitional causality (explicit SOC causality) is prototypically marked with *daarom*. This finding is in accordance with the hypothesis tested here. But volitional causality can be expressed by *daardoor* (4 out of 76) and *dus* (22 out of 76) too. *Daardoor* and *dus* marked content volitional relations systematically show characteristics that are distinguishable from the *daarom* marked ones (cf. discussion in Section 4.6).

Epistemic causality and Speech act causality

Epistemic causality is typically marked with *dus*. Again, this finding is in accordance with the tested hypothesis. But epistemic causality can be marked with *daarom* as well (31 out of 107). But *dus* marked and *daarom* marked epistemic processes appear to have different characteristics (cf. discussion in Section 4.6). As was expected, only a small number of speech act causality contexts were found.

The onomasiological analysis of *daardoor*, *daarom* and *dus* confirms the hypotheses of this study: each of the proposed causality types is specifically expressed by one particular connective. Differences in frequency are statistically significant and the distribution of causality types over connectives is in accord with the hypothesis formulated in Section 4.4.1 and 4.4.2.

4.6 Corpus analysis: Results ‘non-prototypical usage’

Numerical evidence in favour of the hypothesized relation between *dus*, *daarom* and *daardoor* and prototypical usage contexts was presented in Sections 4.5.1 and 4.5.2. But as was expected, the relation between the connectives and their proposed prototypes proved to be ‘non-exclusive.’ All of the connectives were also found in non-prototypical contexts. It was hypothesized that the non-prototypical usage-contexts of *dus*, *daarom* and *daardoor* show family resemblance to their respective prototypes.

In this section, characteristics of non-prototypical usage-types mentioned in the previous chapter are investigated in greater detail. The hypothesis tested here is: “A non-prototypical usage-type of *daardoor*, *daarom* or *dus* shares one or more characteristics with its own prototype *and* shares one (or more in very peripheral cases) characteristics with the prototype of another connective, but it *never* shares *all* of the characteristics of the counterpart’s prototype” (see Section 4.4.3). For reasons set forth in Section 4.4.3 and 4.4.4, the hypothesis will be tested only qualitatively.

As the SOC analysis and the domains analysis lead to similar categorizations, these notions will be jointly discussed below. The analysis will be presented from an onomasiological perspective.

4.6.1 Content non-volitional causality/ Non-SoC causality

Content non-volitional relations, or non-SoC relations, occurred in the sample predominantly marked with *daardoor*, but a minority was marked with *daarom*. The *daarom*-marked causal relations seemed to have a specific characteristic that set them apart from the *daardoor*-marked ones: there is always some kind of ‘animacy’ involved in the causal relation. In most of the cases this is best characterized as an ‘animate locus of effect’. This characteristic occurs with *daardoor*-marked cases too, but less frequently. Table 4.4 presents an overview of distribution of these characteristics over *daardoor* and *daarom* contexts.

Table 4.4 Animate LOE in content non-volitional / non-SoC causal relations.

	Animate LOE	Inanimate LOE	Total
Daarom	11	2	13
Daardoor	53	43	96

Daarom-marked non-volitional relations with an animate LOE do not seem to differ conceptually from *daardoor*-marked ones. In both cases, the LOE is construed as an ‘experiencer’ of the causal effect, instead of as a person responsible for bringing it about. Representative examples are (53) and (54).

- (53) Mag je een onderzoek van vorige week geloven, dan speelt in Amsterdam een derde van de kinderen tussen zeven en negen nooit buiten. [...] **Daardoor** leren ze: \emptyset niet goed om te gaan met andere

kinderen en dat is weer slecht voor later, als ze voortdurend nieuwe mensen leren kennen (co240126).

*If you are to believe a study from last week, a third of the children in Amsterdam between the ages of seven and nine never play outside. **Due to this, they: Ø** do not learn to interact with other children: that has a negative effect later on when they continue to meet new people.*

- (54) (De prof verhuisde ooit voor zijn beroep naar het badmintonwalhalla Denemarken) Er is weinig dat Van Dijk heeft nagelaten om van zijn sport een succes te maken. Juist **daarom** was het voor hem: Ø zo moeilijk om zich neer te leggen bij een andere toekomst. (op1701) *(The professional once moved to badminton Valhalla Denmark for his career.) There is little that Van Dijk has not done in order to make his sport successful. **That is exactly why** it was so difficult for him Ø to resign himself to a different future.*

Only two cases of content non-volitional/ non-SoC *daarom* in the sample have an inanimate LOE. An interesting feature of these cases is that they do contain elements of animacy. An example is (55).

- (55) De wereldpremière in het Londense Alhanbra Theatre deed de gemoederen direct hoog opslaan. Werd hier muzikale heiligschennis gepleegd of was Massine door a stroke of genius getroffen? Leskova: „Voor de dansers was duidelijk het laatste het geval. Veel gezelschappen gingen op tournee naar Amerika, maar omdat het publiek daar amper met ballet vertrouwd was werd het nog niet rijp geacht voor deze revolutionaire aanpak. Ook **daarom** raakte het ballet (Ø) uit roulatie.
*The world premiere in the London Alhanbra Theatre immediately made feelings run very high. Was musical blasphemy committed here or did Massine have a stroke of genius? Leskova: “For the dancers, the latter was the case. Many companies went on tour in America, but because the audience there was hardly accustomed to ballet, it was decided that the time was not yet right for this revolutionary method. Also **that’s why** the ballet (Ø) went out of production.*

The process depicted in S2 is not a physical, uncontrollable process. In bringing about the situation in S2, animate beings *must* have contributed consciously, but not intentionally, in bringing out the specific effect that ‘the ballet went out of production’.

It can be concluded that usage of *daarom* in non-volitional or non-SoC causal relations shows family resemblance to its prototype: volitional or explicit SOC causality. It shares the characteristic of having elements of ‘animacy’ in the construal of the LOE. This characteristic is not part of the prototype of *daardoor*.

4.6.2 Content volitional causality/ Explicit SOC causality

Content volitional or explicit SOC causality occurred in the sample marked with all of the investigated connectives. Apart from clear differences in frequency, variation in marking coincides with systematic variation in conceptual characteristics of the relations. Volitional causal relations marked with *daardoor* are characterized by elements of restricted freedom of choice, or: ‘uncontrollability’ and ‘inevitability’ of the causal effect. Volitional causal relations marked with *dus* relatively often contain elements of argumentation. In these cases relating S1 and S2 seems to have a special function which does not merely present a reason for the action reported in S2, but also *justifies* it. Distribution of these characteristics over the connectives will be discussed one by one.

Intentionality in daardoor-marked relations

Daardoor-marked volitional / explicit SOC relations differ from *daarom* and *dus* marked cases on the aspect of ‘intentionality of the LOE’. As was proposed in Sections 4.5.1 and 4.5.2, the LOE in relations marked with *daardoor* are not ‘true SOC’. Although S2 of these relations contain action predicates, the LOE are not to be construed as ‘real agents’; their intentionality seems to be of a restricted kind. This is never the case with *daarom* or *dus* marked volitional/ explicit SOC relations. The differences in distribution of ‘intentionality type’ over connectives is summarized in Table 4.5.

Table 4.5 Intentionality in content volitional causal / explicit SOC relations

	Restricted intentionality	Full intentionality	Total
Daarom	0	0	4
Daardoor	4	50	50
Dus	0	22	22

In none of the four *daardoor* marked volitional relations is it very likely that the SOC consciously interpreted the situation presented in S1 as a valid reason for performing the action depicted in S2. An example is (56).

- (56) De Chinezen krijgen dit jaar veel meer vrije dagen. De regering hoopt dat de bevolking: Ø daardoor meer spaargeld gaat uitgeven om de groei van de economie op peil te houden.
*The Chinese get more vacation days this year. The government hopes that **for this reason, the populace: (Ø)** will spend more of its savings to keep the economy growing.*

Here, the action predicate ‘spend’ is presented as instantiating systematic patterns. Fragment (56) is taken from an article which discusses a characteristic of the economic climate in China, namely that the Chinese people tend to save all their money instead of spending it and thus stimulate economic activity. The measure of

allotting the people more holidays is prompted by a (assumed) social law: ‘holidays are spent shopping’ or ‘the more time off, the more shopping is done’³¹

An interesting aspect of this fragment is that the causal relation is strongly presented from the perspective of Chinese government. Although a ‘normal’ intentional causal interpretation of the situation reported is certainly conceivable on a conceptual level, (Chinese people consider more holidays a reason for going shopping more frequently) the present wording favors an interpretation from the perspective of the government. The first indication of this is the embedding of S1 in a matrix sentence that conveys a mental state of the government. The following indication is located in the second part of S2; a goal presented internally in the sentence, namely, the action of ‘*spending*’. It’s improbable that ‘to keep the economy growing’ specifies the goal that ‘the people’ have for ‘spending’, as the construction of the sentence suggests. Most probably, this element should be understood as a motivation for introducing the measure from the perspective of the government. This is possibly why the ‘volitional causal paraphrase’ fits this context well, while at the same time the intentions of the actual actors are not very relevant in interpreting the situation. Similar elements can be identified in the other two volitional contexts from *daardoor*. Another example is (57):

- (57) [...] de Israëlsche hulporganisatie Magen David Adom wil al meer dan vijftig jaar haar eigen teken gebruiken om 'redenen die diep geworteld zijn in religieuze en nationale tradities en in het historisch bewustzijn'. Het gebruik van het kruis of de halve maan is uit den boze in Israël.
Deze situatie leidde tot de volgende handeling:
 ? *Deze situatie leidde tot de volgende situatie:*
 De Israëlsche organisatie werd (?) niet toegelaten als volledig lid.

[But], for longer than fifty years, the Israeli relief agency Magen David Adom has wanted to use its own symbol for ‘reasons that are deeply rooted in religious and national traditions, as well as historical consciousness’. The use of the cross or the crescent moon is only out of principle. The Israeli organisation was not accepted as a full member because of this/for this reason.

In this fragment, the action in S2 is presented as following inevitably from the policy of the International Committee of the Red Cross. In a context in which an institution is so fundamentally dependent on immediate identification, the action presented in S2 appears as only natural. That any element threatening this fundamental condition should be avoided is only too self-evident. The fact that the action in S2 is presented in an agentless passive construction is in line with this analysis: it is not just one individual that is responsible for the action reported in S2, but it follows ‘systematically’ from the situation as depicted.

It can be concluded that *daardoor*-marked volitional/ explicit SOC relations have a special characteristic that sets them apart from the *daardoor*- and *dus*-marked ones.

³¹ Note that S1 in this fragment is not related to the predicate ‘hoping’ in the matrix sentence, but to the predicate in the complement clause.

Argumentativity in dus-marked relations

Dus marked volitional/ explicit SOC relations differ from occurrences marked with *daardoor* or *daarom* with respect to ‘argumentativity’. In the majority of *dus* marked relations, the speaker constructing the causal relation seems to be manifest in the construal of the causal relation, next to the explicitly expressed SOC (even if this is an SOC of a non-speaker type). In order to objectify these intuitions, two ‘speaker identification enhancing’ phenomena were investigated.

The first one is perspective configuration. Pander Maat & Sanders (2000: 69-70) propose that volitional relations with ‘continuous perspective’ show less distance between SOC and speaker than causal relations in which perspective changes (S1 is presented from a perspective different from the perspective in S2). This suggests that causal relations with continuous perspective configuration are closer to ‘implicit SOC’ relations, *dus*’s prototype, than relations with discontinuous perspective configurations. This seems to be reflected in the distribution of perspective configurations over the connectives as summarized in Table 4.6. ‘Actor perspective’ can be either explicit or contextually implied (cf. Pander Maat & Sanders 2000: 69-70). ‘Other perspective’ can be any perspective that is not the actor’s.

Table 4.6 Perspective configurations in content volitional causal/ explicit SOC relations

	S1 actor perspective	S1 other perspective	Total
Daarom	25	25	50
Daardoor	0	4	4
Dus	16	6	22

In volitional causal relations marked with *dus*, the relation ‘continuous actor perspective’ occurs more often than volitional causal relations with *daarom* or *dus*. A typical example is (58):

- (58) Schreijer vond dat er hoognodig een boerin in de Kamer moest komen, en **dus** is zij met zelfgemaakte worst en kaas op markten gaan staan. (op020106)
Schreijer felt it highly necessary to have a peasant woman in the House of Commons, so she went to the market to sell homemade sausage and cheese.

In none of the volitional causal relations marked with *daardoor*, did S1 occur in actor perspective. In (57) above, S1 is stated in ‘neutral perspective’. In (56), S1 is presented from the perspective of the government. Another example of this pattern is (59):

- (59) Ervaren bestuurders bleken na een ritje van vijf minuten over een stille rechte weg een voorligger te ver voor zich uit te zien. **Daardoor**

begonnen ze een kwart tot halve seconde later met inhalen dan rijders die in de simulator eerst vijf minuten over een bochtig parkoers reden... (Ac190133)

*After a 5 minute drive on an empty and straight road, experienced drivers seemed to believe that a car in front of them was much farther away than it actually was. **That's why** they began to pass out the other car a quarter-of to half a second earlier than drivers who practiced manoeuvring bendy roads in the simulator...*

In this fragment, the actor of S2 is also the sentence topic of S1. Normally, this would lead to classification of S1 as being presented from actor-perspective. However, in this fragment this does not seem to be the case. Judging from the preceding sentence ('psychologen toonden aan'), the situation in S1 is presented as an objective fact.

In *daarom* marked volitional causal fragments, the skewing for perspective configurations observed with *dus* is absent: actor and non-actor perspective are distributed evenly.

As a second instrument to measure 'argumentative' characteristics of *dus* marked volitional causal relations, the nature of 'speaker-hearer' assumptions was investigated. Pander Maat & Degand (2001) suggest that volitional causal and epistemic causal relations differ in the nature of underlying assumptions that are relevant for interpretation of the causal relation. They observe that in both volitional and epistemic relations, assumptions about 'causal regularity' (or: generality of the causal relation) play a role. Causality in volitional relations is only inferred if a pattern of causal regularity of the form 'if P than normally Q' is recognized (cf. Oversteegen 1997). For example, "The guests were boring. She left the party early" is only interpreted as causal if it is recognized that presence of boring guests may be a valid reason (at least for the SOC) to leave a party early (2001: 218; 220).

Similarly, epistemic relations are interpreted against a background of assumptions relating premises and conclusions. For example, "It has rained continuously for two days. The tennis court will probably be unplayable" can only be interpreted as causal if the hearer is aware of the underlying causal regularity that water on the tennis court hinders playing tennis. But there is a difference in the nature of the assumptions relevant in volitional and epistemic relations. Whereas for inferring causality in volitional relations, the causal regularity must be of an even more general nature for inferring causality in epistemic relations, assuming that 'P>Q' as a causal regularity for the SOC is sufficient. For example, "It has rained continuously for two days. Peter will probably not go to the tennis court today" can only be interpreted coherently by the hearer if she knows Peter. The relevant assumption must be valid not only for the speaker, but must also be valid for people in general (Pander Maat & Degand 2001: 222). Table 4.7 shows distribution of *daardoor*, *daarom* and *dus* over regularity patterns.

Table 4.7 Basic scheme causality in content volitional causal / explicit SOC relations

	Causal regularity present	Causal regularity absent	Total
Daarom	8	42	50
Dus	18	4	22

The conventional action schemas can be deduced from basically two sources. Often S1 represents a goal that is *conventionally* reached by performing the action depicted in S2. An example is (60):

- (60) Het is allemaal heel goed te begrijpen dat de realistische adoptieouders, na de wachttijd van vele jaren, hun kindje zo snel mogelijk willen hebben. **Dus** kiezen ze voor een kindje uit China of een ander 'snel' land (opi050116)
*It is perfectly understandable the probable adoptive parents, after the years-long waiting period, would like to have their child as soon as possible. **That's why they** opt for a child from China, or another "quick" country.*

In other cases the relation as a whole represents a conventional action schema. An example is (61).

- (61) (Omstanders schieten te hulp bij cafebrand Volendam). "Ik woon vlakbij, **dus ik** ben brandwonden crème gaan halen." (rep020107)
*(Bystanders rush to help out at the Volendam pub fire.)
 "I live nearby **so I** ran to get burn ointment."*

The schema instantiated in (61) seems to be something like: "if in a case of emergency some tool is needed, the person that has easiest access to it must go and get it". In some cases S1 is not formulated from actor perspective, but in all of these cases (except one that will be discussed below) a conventional schema for acting is instantiated. In these cases, conventionality seems to be related to 'necessity'. An example:

- (62) (De gemeente heeft verontreinigd slib gestort.) Het Friese vaarwater de Groundam moest voor de scheepvaart op diepte worden gebracht en **dus** besloot de gemeente Boarnsterhim in 1995 tot baggeren.
*(The local government has dumped polluted mud.) The Frisian waterway, Groundam, had to be deepened for ship use **so/therefore, the local government of Boarnsterhim** chose to dredge in 1995.*

If a waterway needs to be deepened, the obvious, and possibly the only, way to effect this is to dredge it. And finally, if the action in S2 is not based on a conventional action schema, familiar to every member of society, the relation as a whole is presented from actor perspective, for whom it may have this conventional status. An example:

- (63) Omdat de techniek van de huidige dansers beter is geworden, mag en moet je een oud ballet daaraan wel aanpassen. Massine zelf deed dat in 1960 ook. **Dus** laat ik de enkele pirouettes van destijds nu dubbel draaien. Benen moeten hoger dan toen opgetild. Maar de essentie is en blijft de juiste sensualiteit en plasticiteit. (op030112)
Because contemporary dancers' technique has improved, you may and you must adapt an old ballet. Massine also did that himself in 1960. So I have the single pirouettes of then now be double pirouettes]Legs must be lifted higher now than then. But the essence is and will remain the proper sensuality and plasticity.

Having dancers perform 'pirouettes twice as fast' is (at least for the average reader of newspapers) not a self-evident thing to do following the situation that 'an old ballet must be adapted to the improved technique of the contemporary dancers'. But from the actor's perspective, this may very well be the case. And what is clear to everyone is that 'pirouetting faster' and 'lifting legs higher' are examples of adaptation to the better technique of modern dancers.

In my sample I found only one volitional causal *dus*-fragment that lacks both actor perspective and a recognizable conventional action schema:

- (64) (Een televisiepresentator wordt belachelijk gemaakt vanwege zijn slechtgemanierde gedrag in het openbaar) Je hoort Theo van Gogh het hem voorkauwen: Beledig, jongen! Beledig! Daar houden de mensen van! En zo word je pas echt beroemd! **Dus Beau** beledigt tegen de klippen op, zoals hij ooit urineerde op die 'kutschrijvers'. Paul Witteman is dus walgelijk („De manier waarop hij zijn gasten bekwijlt!"), NCRV-icoon Rick Felderhof 'hypocriet en wee' en die boeken van successchrijver Ronald Giphart zijn natuurlijk 'kut'. (po030110)
(A television program host is ridiculed for publicly acting in an ill-mannered way.) You hear Theo van Gogh spoon feeding him: Insult, boy! Insult! That's what people love! And that's how you really become famous! So Beau insults shamelessly, as he once urinated on those 'shit authors'. [Paul Witteman is therefore disgusting ("The way he drools on his guests!"), NCRV icon Rick Felderhof is "hypocritical and cloying" and the books of successful novelist Ronald Giphart are naturally "shit".

In (64) the behavior of a television show host ('Beau') is discussed; he frequently insults people. The writer of this article suggests that the host is doing so in order to become famous, just like another television program host (Van Gogh) who has become famous for his outrageous ways of insulting other people. In this fragment it is suggested that Van Gogh advised Beau directly to use insult as a means of becoming famous. And it is suggested that Beau follows this advice. Now the use of *dus* has an ironical effect in this fragment, it suggests some naturalness of the causal relation ("If Theo van Gogh advises you to insult other people in order to get famous, you will do so") that just does not exist for most of us. The effect is the

suggestion that this basic scheme exists in Beau's mind, and therefore this host's eagerness to become famous whatever it takes is accentuated with an ironical effect.

In volitional relations marked with *daarom*, the amount of relations based on conventional action schemas is the mirror image of the amount found with *dus*. Only 8 out of 50 of the *daarom* marked volitional causal fragments contain such schemas. The majority of cases consist of relations containing reason-action pairs that are 'unique' and only logical in the context given. An example is (65).

- (65) Microsoft-oprichter Bill Gates waagde zichzelf als eerste aan het spel tijdens een computerbeurs in gokparadijs Las Vegas. „Wij wilden iets bouwen dat een doorbraak voor computerfreaks is", omschrijft de voormalige topman Microsofts ambities. Het zwart gekleurde apparaat heeft (?) **daarom** vier aansluitingen voor besturingsknuppels meegekregen, waar de gangbare 'gameboys' er maar twee hebben. (ac080126)
*Microsoft's Bill Gates was the first to try the game during a computer conference in gambler's paradise Las Vegas. "We wanted to build something that would be a breakthrough for computer freaks" explains Microsoft's ex-top executive. **That's why** (?) the black colored machine has four connections for game pads, while the current 'gameboys' have only two.*

Note that, although S1 contains a specification of the goal of the action in S2, the reason-action pair present in (65) is not conventional in nature; 'building a black colored machine with four connections for steering devices' is not to be characterized as 'the most logical thing to do' when you are aiming at 'building something that is a breakthrough for computer freaks', it is just one of the things you can do. And it is certainly not a 'necessity'. Moreover, in the present context it is exactly the *non-conventionality* of the action that is at stake: being able to invent such a thing is something that sets the company mentioned apart from other companies.

The analysis so far suggests that a systematic difference between *daarom* marked and *dus* marked volitional causal relations indeed exists. In *dus* marked relations the intentional action in S2 systematically evokes an idea of 'conventionality' or even 'necessity' in the given context. This characteristic is absent in the majority of *daarom* marked relations, in which the intentional action in S2 represents one choice out of a whole range of possibilities.

In none of the volitional *daardoor*-fragments is it very likely that the situation of S1 functioned in the minds of the actors as a consciously experienced motivation for performing the action in S2 (cf. discussion of 'intentionality' at the beginning of this section). Therefore, the 'causal regularity' characteristic will be investigated only for *dus*-marked and *daarom*-marked volitional relations.

To summarize, volitional causality is the causality type that is expressed by all three of the connectives. However, it has become clear that volitional causal relations expressed with *dus* or *daardoor* are not 'standard'; they have special features that set

them apart from the average *daarom* marked relation. In this section I explored three of them: the nature of intentionality (full or restricted), perspective configurations (continuous actor perspective or not) and presence or absence of a conventional action schema in the causal relation reported. These analyses suggest that family resemblances to their proposed prototypes are manifest in non-prototypical usage types of *dus* and *daardoor* when used in volitional causal contexts.

SoC type

A surprising finding is that SOC type, defined in terms of linguistic expression, cannot account for the conceptual differences found. The category ‘explicit SOC’ comprises different types of linguistic expressions that, according to Pander Maat & Sanders (2000) must differ inherently in ‘SoC speaker distance’ (cf. discussion in Section 4.2.2 and 4.4.2). In the previous section it was already observed that in the present data, these differences, contrary to expectations based on Pander Maat & Sanders, do not seem to be specifically tied to the respective connectives in the sample presently under analysis. Now let’s take look at the data from an onomasiological point of view, the perspective that Pander Maat & Sanders (2000) took on the relation between linguistic structure and conceptual content: are explicit speaker SOC and pronominal SOC relatively more often marked with *dus* than with *daarom* (and *daardoor*), and are nominal SOC and contexts with unspecified SOC more often marked with *daarom* (and *daardoor*) than with *dus*? Table 4.8 presents an overview of the data.

Table 4.8. Specification of distribution within ‘Explicit SOC’.

	Unspecified	Nominal 3 rd Pers	Pronominal 2 nd /3 rd Pers	Explicit Speaker	Total
Daardoor	1	2	1	0	4
Daarom	11	8	12	19	50
Dus	5	6	5	6	22
Total	17	16	18	25	76

Proportionally, there are no differences in distribution of the connectives over the different expression types that signal the ‘SoC speaker distance cline’ proposed by Pander Maat & Sanders 2000. Contrary to their findings, in the present sample usage of *dus* is not concentrated in categories that are close to the speaker (explicit speaker and other pronominal expressions); the relatively high amount of ‘explicit speaker’ usage of *daarom* contradicts the expectations, as does its relatively infrequent use in the category ‘nominal SOC’. *Daardoor* was not analyzed in Pander Maat & Sanders (2000), but the fact that it did not occur with speaker SOC (although it’s certainly not unthinkable) is in accordance with the general idea being expressed.

4.6.3 Epistemic causality/ implicit SOC causality

As noted in the previous sections, epistemic causality is typically marked with *dus*, but it can easily be marked with *daarom* as well. Overall, *dus*-marked and *daarom*-marked epistemic relations appear to have different characteristics. One of the differences is reflected in different types of modality present in epistemic causal

relations marked with *dus* or *daarom*. Another difference concerns information status of the conclusions that occur in *daarom* marked and *dus* marked relations.

Modality types

To start with the differences in modality type, generally speaking, it is assumed that the category of ‘epistemicity’ contains different kinds of conclusions, e.g. subjective evaluations of a situation S (conclusions about the nature of a phenomenon or situation), ‘real’ epistemic modality (conclusions regarding the probability that proposition P is true), or deontic modality (conclusions about the desirability of some course of action expressed in P) (Pander Maat & Sanders 2000: 74, Pander Maat 1994: 278). Deontic and epistemic modality are understood as differing in terms that coincide to a great extent with the concepts distinguished in the present study.

In these distinctions, a relation at a conceptual level is visible with both the ‘domains’ categories ‘content’ and ‘epistemic’ and with differing roles of the ‘present speaker’ as proposed in the Subjectivity account. Deontic modality has to do with ‘agents’ and ‘desirability of an action’, and is *not* especially linked to the speaker as a source of judgement of the situation depicted. Epistemic modality, on the contrary, is typically concerned with the ‘truth’ of a proposition in which the speaker is a primary source of responsibility of the epistemic judgement (cf. Traugott 1989; Sweetser 1990; Bybee et al. 1994). Therefore, an obvious hypothesis concerning the difference of epistemic *dus* vs. epistemic *daarom* could be that *daarom* specializes in deontic modality (as this is most likely the most ‘objective’ modality type that is related to actions of intentional agents) and *dus* specializes in epistemic modality (as in this type the speaker is depicted as the source for truth values). Following Sweetser (1990:49) ‘deontic’ and ‘epistemic’ modality are defined as follows:

Modality type	Definition
Deontic modality	real-world obligation, permission or ability
Epistemic modality	necessity, probability or possibility

Figure 4.9: Distinction between deontic and epistemic modality (Sweetser 1990).

In principle, although all types can be expressed by both connectives, *dus* appears to prefer ‘real epistemic’ modality, while *daarom* appears to be distributed over the two types rather evenly. Table 4.9 presents an overview.

Table 4.9 Modality type in *dus* and *daarom*

	Epistemic modality	Deontic modality	Total
Daarom	14	12	26
Dus	70	6	76

An example of epistemic *dus* is (66), an example of deontic *daarom* is (67).

- (66) (De hoofdredacteur van het radioprogramma Met het oog op morgen vertelt over een brief die hij ooit ontving van een luisteraar) De goede man schreef: 'Mijnheer, u bent de baas van 'Het Oog', en ik ben de baas van mijn vrouw. sp We kunnen **dus** op niveau praten.' Waarop de vraag volgt of Van Hoorn nu eindelijk iets kan doen aan die vermaledijde begintune. (op050127)
*(The editor in chief of the radio show, "With the Eye on Tomorrow" tells about a letter he once received from a listener.) The good man wrote: 'Sir, you are the boss of "The Eye," and I am the boss of my wife. sp **Therefore** we can talk on the same level.' After this, the question follows whether Van Hoorn can finally do something about that cursed opening tune.*
- (67) (Lange spelers selecteren voor volleybal vergroot kansen op internationaal succes) "Nederland heet een lang volk te zijn, maar via de clubs vinden we de lange talenten niet. Ze lopen wel op straat rond; vaak gefrustreerd al vroeg met sport gestopt, omdat hun motoriek tijdens de eerste puberjaren achterloopt bij die van kleinere leeftijdsgenootjes. sp **Daarom** moeten wij zelf naar de scholen gaan om ze te vinden en om ze te overtuigen dat ze juist door volleybal meer eigenwaarde kunnen krijgen." (ac080124)
*(Selecting tall players for volleyball increases chances of international success)"The Dutch are meant to be a tall people, but we can't find the tall talents through the clubs. They're walking around on the streets; often already long frustrated and having given up the sport, because their motor skills are not that of their smaller peers when they're teenagers. sp **For this reason**, we have to go to schools ourselves to find them and convince them they'd be greatly appreciated in volleyball.*

In (66) the truth of the situation depicted in S2 is argued for, the conclusion in (67) is concerned with the desirability of the action described in S2. *Dus* is also easily combined with deontic reasoning, but in half of the cases counted as 'deontic' in Table 4.9, an interpretation as epistemic reasoning is possible too. An example is (68):

- (68) De aanbieders van mobiele telefonie in Nederland zien langzaam een einde komen aan de ongebreidelde groei van het aantal klanten. Van de jongeren tussen de 14 en 35 jaar heeft 82 procent inmiddels een mobieltje en de overigen zitten er niet op te wachten. sp Het wordt **dus** tijd om de huidige klanten te gaan vasthouden (ac050135).
*Mobile telephone providers in the Netherlands are finally seeing a let up in previously unbridled growth in the number of customers. 82 percent of young people between 14 and 35 years old already have a mobile phone and the rest aren't interested in one. sp **That's why** the time has come to keep the existing clientele.*

The reasoning presented in (68) can concern both desirability of the action and the moment this should happen. Although this kind of ambiguity did not occur with

daarom-fragments in my sample, there is no principled reason to think that this kind of ambiguity belongs to *dus* exclusively.

Daarom is easily combined with epistemic reasoning processes too, but in these cases the causal relation often seems to have some descriptive flavor:

- (69) Het behoort tot de veronderstelde zekerheden dat jongeren in een disco in alle veiligheid feest kunnen vieren.^{s1} sp Het is **daarom** schokkend te ervaren dat de met de beste bedoelingen opgehangen kerstversiering als een fakkel begint te branden, er paniek uitbreekt en de capaciteit van de nooduitgangen door welke oorzaak dan ook ontoereikend is. (ha020101)
It's one of those supposed certainties that young people in a disco can party under safe circumstances. sp For this reason/therefore it is very shocking to see Christmas decorations which were hung up with the best of intentions start to burn like a torch, panic break out and the capacity of the emergency exits fail to be enough for any reason at all.

In (69), S1 can be interpreted as an argument for the truth or acceptability of the negative evaluation ('het is schokkend') of the situation depicted in the embedded clause in S2. But in the given context this evaluation is so self-evident, that the relation between S1 and S2 can also be understood as descriptive: the situation in S1 leads to the situation of 'experiencing as shocking,' the complement sentence of S2. A similar ambiguity between a conclusion reading and a content non-volitional reading of the causal relation occurs in half of the *daarom*-marked causal relations, and only in one sixth of the *dus*-marked ones.

Performativity of the conclusion

A final difference between epistemic *dus* and *daarom* to be discussed here is the fact that *daarom*-marked ones can be modified with respect to information status, whereas this is impossible with *dus*-marked ones. In *dus* marked epistemic relations the conclusion is *always* performed in the actual discourse situation and in *daarom* marked epistemic relations, the conclusion may already be accepted.

Table 4.10. Information status of the conclusion in epistemic relations marked with *dus* or *daarom*.

	Conclusion performed	Conclusion given	Total
Daarom	24	7	31
Dus	76	0	76

Examples of *daarom*-marked epistemic relations with 'generally accepted conclusions' are (70) and (71):

- (70) „Maar bij ernstige brandwonden is het hele lichaam ziek", zegt Hermans „De lever, de nieren, alle organen doen mee. (sp) **Daarom** is de zorg voor deze patiënten zo ingewikkeld." (ac020104).

*“Serious burns make the whole body ill” says Hermans. “The liver, the kidneys, all organs are affected **That’s why** the care for these patients is so complicated.*

- (71) Zonder veel moeite weerlegt Hoppe de twee belangrijkste argumenten voor euthanasie - autonomie en medelijden. Natuurlijk is de mens autonoom, bepaalt hijzelf wel of niet behandeld te willen worden. (sp) **Daarom** zijn wilsbeschikkingen ook zo belangrijk: wie vastlegt niet kunstmatig beademd te willen worden, mag door geen enkele arts toch tot zo'n behandeling worden gedwongen. (ac050115)
*Without a lot of effort Hoppe refutes the two main arguments for euthanasia—autonomy and pity. Of course a person is autonomous and decides for himself whether or not to be treated **That’s why** last wills are so important. Whoever states that they do not wish to be treated, may not be forced treatment by any doctor.*

S1 in (70) can easily be interpreted as an argument for the conclusion in S2, that care for burn victims is complicated. However, this is not the only thing that happens in this fragment. Judging from the referential expression *zo* ('this') that precedes the evaluative expression *ingewikkeld* ('complicated'), this evaluation is not new. That this specific kind of care is complicated must either be obvious from the context, or must have been concluded at an earlier stage. In the case of (71), the complexity of care is conceptually present in the context: the fragment is taken from an article that discusses the need for special care for this kind of patient. A similar example is (70). This kind of modification of the causal relation characterizes 7 out of 31 occurrences of *daarom* in my sample. It never occurs with *dus*. What is more, usage of *dus* is impossible in the contexts of (70) and (71). Whether this kind of 'non-performative conclusion relations' should be regarded as epistemic causality at all remains a matter of debate³². This characteristic is in line with the inherent 'argumentativity' of *dus* already observed above; a characteristic that is lacking in *daarom*.

In sum, although differences between epistemic *dus* and *daarom* are less clearcut than the difference between volitional *dus* and *daarom*, they can be related to characteristics of their respective hypothesized prototypes. A first difference concerns modality type. Proportionally *daarom* is more often used in deontic contexts than *dus* is, and *dus* has a clear preference for epistemic modality that is lacking in *daarom*. Generally, deontic modality is regarded as being more 'objective' than epistemic modality. A second difference is that epistemic relations marked with *daarom* seem to be more descriptive than the ones marked with *dus*; conclusion relations marked with *dus* are performative by definition, while in those marked with *daarom* the conclusion may have already been conceptually present.

The difference between *dus* and *daarom* can be characterized with reference to the concept SOC speaker distance. Epistemic *daarom* seems to have the effect of

³² Cf. Sanders & Spooren (to appear: 20): A(...) distinguishing feature of epistemic relation is that they involve the generation/inference of *new* knowledge (as opposed to the conveying of existing knowledge that occurs frequently in speech act relations)

increasing the distance between SOC and speaker, that is, *daarom* marked relations can in many cases be interpreted as reporting epistemic relations that possesses some kind of general validity. In presenting it this way, the speaker does not accept exclusive responsibility, and thus distances himself from the performative process.

4.6.4 Conclusion: family resemblances

Although the analysis reported in the present section was explorative, the observations reported above suggest that the non-prototypical usage contexts of each of the connectives show family resemblance to their proposed prototypes. Non-prototypical usage-types of *daardoor*, *daarom* and *dus* share one or more characteristics with their own prototype and share one (or more in very peripheral cases) characteristics with the prototype of their counterparts, but they *never* share *all* of the characteristics of the counterpart's prototype.

Combined with the observation that in my data, no evidence for the 'SoC speaker distance cline' of Pander Maat & Sanders 2000 has been found, the findings from the present analysis seem to support the general hypothesis of this study, that meaning and use of *daardoor*, *daarom* and *dus* is centered around conceptual prototypes, rather than ordered on a scale.

The analyses present indications of the nature of a 'superschema' encompassing all possible usage-types of the connectives, and indicating restrictions on their usage possibilities. All of the usage contexts of *dus* show elements of 'argumentativity' enhancing or stressing a 'speaker involvement' or 'subjective' construal of the causal relation. *Daarom* stresses or enhances 'objectivity' and 'animacy' in the construal of the relation. *Daardoor*, finally, amends any of these characteristics, while stressing 'objectivity' in the construal of the relation.

4.7 Conclusion and discussion

This chapter tested the main hypothesis of the present study with respect to the meaning and use of causal connectives *daardoor*, *daarom* and *dus*: can their semantic content be related to the conceptual understanding of causality? An affirmative answer had been suggested by previous studies. But this chapter argued that their proposals resulted in a paradoxical situation. This paradox was solved by elaborating on previous research, proposing to describe the meaning of *daardoor*, *daarom* and *dus* with reference to the distinctions between (non-)subjectivity (starting from Langacker's speaker involvement definition of subjectivity 1998; 1990) and (in-)animacy.

Starting point: previous research

Studies carried out in the mid-nineties (e.g. Pander Maat & Sanders (1995); Pit (1997) on *doordat*, *omdat* and *want* found that a rather robust parallel existed between the meaning of Dutch causal connectives and Sweetser's (1990) concepts of 'content,' 'epistemic' and 'speech act causality,' that had proven to be relevant in the broader field of textlinguistic research, and to the concept of 'intentionality' that had proven to be relevant in the field of linguistics in general (cf. Delancey (1984); Talmy (1988; 2000); Lakoff (1987)). In terms of usage frequency, *daardoor*,

daarom and *dus* are each firmly tied to one of the domains of use: *daardoor* is almost exclusively used in content non-volitional relations, *dus* specializes strongly in epistemic relations and *daarom* is predominantly used in content volitional relations.

But the domains of use concepts could not describe *all* of the usage-contexts of *dus*, *daarom* and *daardoor*. Particularly *dus* and *daarom* tend to occur in non-prototypical usage contexts as well. This led to the conclusion that the domains of use concepts lack descriptive adequacy (Pander Maat & Sanders 2000, 2001; Pit 2003; Pander Maat & Degand 2001). Subsequent studies abandoned the domains of use concepts in favour of the concept of 'subjectivity'. They proposed that the meaning of (Dutch) causal connectives is adequately described with reference to their relative position on a subjectivity scale. 'Subjectivity' is a cognitively fundamental concept that is also relevant at many places in the linguistic system (cf. Langacker 1987, 1990; Lyons 1995). Therefore, it must be concluded that a semantic theory for connectives making use of this concept has cognitive plausibility as well. Its greater descriptive adequacy in terms of 'number of cases' that can be characterized with reference to the subjectivity scale, is generally considered a conclusive argument in favour of the 'subjectivity approach'.

However, the present chapter argued that the subjectivity approach also has drawbacks. A first drawback concerns the abstractness of the 'scalar subjectivity' concept. Its greater numerical descriptive power exists at the expense of descriptive detail and specificity: describing the connectives in terms of a relative amount of a rather abstract scalar concept loses sight of the fact that usage of all of the connectives tends to cluster at well-defined, articulate points on the 'scale'. Further drawbacks concern the cognitive plausibility of the concept of scalarity itself. Firstly, from a conceptual perspective, the 'scalarity' of the employed subjectivity notion can be questioned. Rather than forming a continuum, the proposed scale appears to contain different notions that do not produce a gradable homogenous concept. This fits in with the cognitive semantic assumption that causality markers function as 'categorization devices'.

Proposal: categories of (non-)subjectivity

The present chapter proposed a perspective that combines the strengths of the domains approach and the subjectivity approach, while eliminating their drawbacks. It was argued that the domains of use approach and the subjectivity approach complement each other by constructing a theory that is both descriptively adequate and cognitively plausible.

A first argument is of a conceptual nature. The subjectivity scale proposed by Pander Maat & Sanders (2000; 2001) contains three clearly distinct conceptual cores. These were identified in terms of Pander Maat & Sanders' (2000) concept of Subject of consciousness and with reference to Langacker's (1985; 1990) definition of subjectivity. This study's proposal differs from Pander Maat & Sanders' proposal in the way that subjectivity in causal relations is defined. Pander Maat & Sanders use segmental as well as relational characteristics in establishing 'degree of subjectivity'. The present proposal only takes the relational aspect into account: causal relations are taken to be *subjective* if the ground (speaker) is construed as the source of the causal relation. Causal relations are *objective* if the ground is *not*

construed as the source of the causality. Following Pander Maat & Sanders (1995 and 2000), it is assumed that within the objective domain a fundamental conceptual distinction is made between objective causal relations containing an *animate* Locus of Effect, acting as an SOC, and objective causal relations containing an *inanimate* Locus of Effect. It was observed that the resulting categories are more or less synonymous to the categories distinguished in Pander Maat & Sanders' (1995) account of the domains of use: content non-volitional, content volitional and epistemic causality.

A second argument is based on usage-data. It is maintained that the redefined subjectivity approach explains why usage contexts of Dutch causal connectives tend to cluster around the conceptual cores described above. This fact is observed by all of the 'subjectivity approaches' (Pander Maat & Sanders 2000; Pit 2003; Pander Maat & Degand 2001), but is not incorporated in their semantic theory. The present study proposes to do so, by assuming that the semantic categories of *daardoor*, *daarom* and *dus* have a complex structure. The conceptual cores of non-volitional/ non-SoC causality, volitional/ explicit SOC causality and epistemic/ implicit SOC causality function as prototypical usage schemas. Non-prototypical usage types were also shown to occur, these were called 'domains crossing usage types' in previous studies. However, non-prototypical usages can only be considered as belonging to the same category if they show family resemblance to their proposed prototype. The present chapter proposed that restrictions on non-prototypical usage of each of the connectives, or restrictions on the 'extendibility' of usage of *daardoor*, *daarom* and *dus* can be adequately characterized with reference to the concept of subjectivity. A corpus analysis testing this hypothesis suggested that the meaning of *daardoor*, *daarom* and *dus* can be characterized as summarized in Figure 4.11:

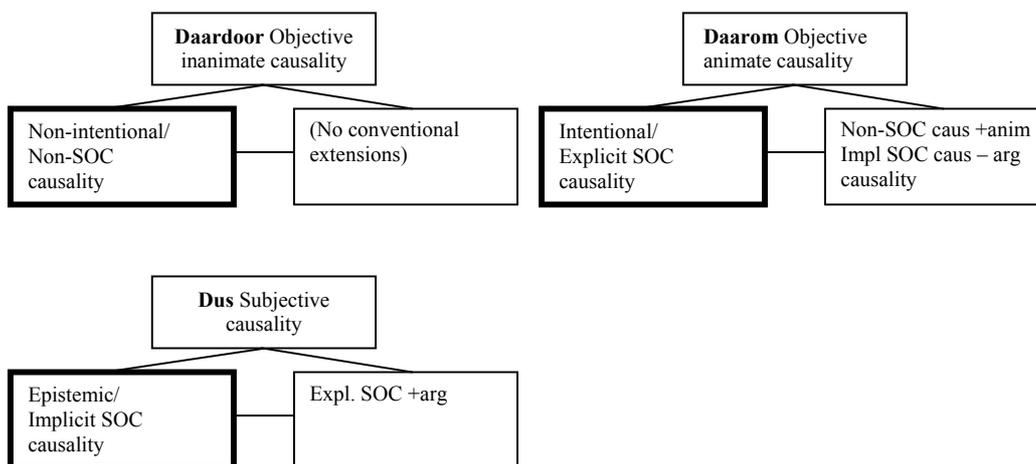


Figure 4.11 Semantic categories of *daardoor* (above, left), *daarom* (above, right) and *dus* (below). (Anim = animacy; arg = argumentativity).

This hypothesis was corroborated in an analysis of usage of *daardoor*, *daarom* and *dus* in a corpus of newspaper texts. Prototypical usage was reflected in high usage-frequency. Each of the connectives is linked to just one of the causality concepts in a statistically significant way: *daardoor* is typically used in contexts containing content causality of the non-volitional type, or non-SOC causality; *daarom* is typically used in content causality of the volitional type, or explicit SOC causality; and *dus* is typically used in contexts containing epistemic causality, or implicit SOC causality. Speech act causality was hardly found in the corpus analyzed here. As was expected, analysis of the data in terms of domains categories and analysis in terms of SOC types led to exactly the same categorizations.

The relation between concepts and connectives holds both from a semasiological and from an onomasiological perspective. Each one of the connectives specializes in expressing just one of the proposed causality types, and conversely, each one of the causality types is typically expressed by just one of the connectives. This suggests that as far as conceptual prototypicality is reflected in high usage frequency, meaning and use of the causal connectives is centered around a prototypical core.

All of the connectives under investigation were used in non-prototypical usage contexts as well. As hypothesized, these domains crossing usages showed relations of family resemblance with their prototypical usage-types. These conceptual relations could be characterized with reference to the concepts ‘intentionality’ and ‘argumentativity’ (related to epistemicity), but also in terms of the relative amount of speaker involvement in the causal relation. However, a surprising finding was that the family resemblances to the prototype could *not* be characterized with reference to (linguistic) SOC type, as was predicted by Pander Maat & Sanders (2000).

Conclusion

The present study assumes that the relation between meaning and conceptual understanding is reflected in the functioning of causality markers as ‘categorization devices’. It was also assumed that the relation between semantic categories and conceptual categories may hold not only on the level of content, but also on the level of the *organization* of this content: like conceptual categories, semantic categories may be ‘complex’ – consisting of a prototypical core and extensions from the prototype. Finally, it was assumed that linguistic knowledge (including semantic knowledge) has the form of procedural, usage knowledge. In other words, knowing what a word means is equivalent to knowing which contexts the word should be used in.

In this chapter, these assumptions were applied to an analysis of the meaning of *daardoor*, *daarom* and *dus*. It was proposed that the perspective adopted here combines the strengths of earlier approaches, while eliminating their drawbacks. Starting from the usage based perspective taken in this study, it was proposed that the semantic categories of *daardoor*, *daarom* and *dus* are ‘complex’. Prototypical usage can be characterized making use of the domains notions of content non-volitional, content volitional and epistemic/ speech act causality, but also by making use of the concepts of SOC type: non-SoC, explicit SOC, implicit SOC.

The fact that the usage of the connectives is not restricted to their proposed prototypes is easily accommodated within the usage-based approach: variation is a normal aspect of language use, and membership to semantic categories, as similar to conceptual categories, is a matter of degree. A semantic category may contain prototypical and less-prototypical usage types. Results of the corpus analysis showed that non-prototypical usage types of the connectives show clear family resemblance to their proposed prototypes. These were defined as relative amounts of conceptual notions that defined their prototypes.

Finally, by identifying the conceptual similarity between the concepts of subjectivity and the concepts of the domains of use approach, the link with an important body of research on textlinguistic phenomena: coherence relations, was restored. It can be concluded then, that reinterpreting the findings of previous studies in a more elaborate usage based approach contributed to formulating a cognitively plausible and descriptively adequate semantic theory of causal connectives.

Chapter 5

The diachronic development of *daarom* and *dus*: subjectification or prototypicality?

5.1 Introduction¹

Chapters 3 and 4 provided empirical evidence from language use supporting the basic assumption underlying this study. For Dutch causal verbs as well as Dutch causal connectives, a clear link could be established between the meaning of each of the markers and alleged cognitively fundamental concepts, such as ‘animacy’ and ‘subjectivity’. These concepts have been identified in previous research as playing an important role not only in the linguistic expression of causality, but in a variety of other linguistic phenomena as well. Therefore, at this stage of the study, we can provisionally conclude that the main hypothesis of this study is supported by data from the *synchronic* level of language use.

But if this relation between linguistic and conceptual structure holds, we would expect it to be manifest not only synchronically, but *diachronically* as well. The present chapter will elaborate this idea further and test it empirically. The idea that the relation between conceptual structure and its linguistic expression *must* be rather robust diachronically is intuitively clear: IF there is a relation between meaning and use of causality markers and our conceptual understanding of causality, we don’t expect the first to have changed fundamentally during the past centuries. That is, unless changes occurred in the conceptual understanding of causality itself.

This intuitive idea is corroborated by theories and empirical findings from the field of cognitive semantics. Studies of lexical and grammaticalized expressions suggest that, in spite of the obvious tendencies of languages to change, there is a great amount of stability as well in the overall organization and diachronic development of the language system (cf. Geeraerts 1997; Kortmann 1997). The present chapter focuses on the special status that the prototype of a complex semantic category may have. Its hypothesis is that prototypical usage contexts of causality markers are stable over time.

Interestingly, this is *not* what is suggested by recent studies of the diachronic development of connectives. In recent years, several authors working in the paradigm of grammaticalization theory have claimed that grammatical items,

¹ Parts of this chapter (Sections 5.3.1, 5.4.2 and 5.5) appeared earlier as Evers-Vermeul & Stukker (2003). Content of these parts was sometimes slightly altered.

including markers of clause combining, are subject to a unidirectional trend toward semantic ‘subjectification’. The subjectification hypothesis states that diachronically, meanings become increasingly based in the speaker’s subjective knowledge or attitude with respect to the uttered proposition (Traugott 1995a).

This chapter will investigate both lines of reasoning in relation to the diachronic development of *dus* and *daarom*. By investigating the diachronic development of the meaning and use of *daarom* and *dus* from the 13th-20th century, the present study serves the following purposes. Firstly, it will empirically test the diachronic ‘robustness’ of the link between the meaning of connectives and the conceptual understanding of causality. Secondly, by investigating the two connectives that were least clearly delineated synchronically (*dus* and *daarom* share some usage contexts), the diachronic analysis provides an additional test for ideas put forward in Chapter 4. Finally, it hopes to contribute to understanding the interaction between different recurrent patterns that have been attested in diachronic research: those related to general tendencies manifest in language, and those associated with characteristics of individual linguistic items.

The chapter is organized as follows: Section 5.2 clarifies the problem at hand. In 5.3 an overview of accounts of causes and mechanisms of diachronic semantic change is given. Two approaches are highlighted: grammaticalization theory (mainly Traugott 1989; 1995), being the approach that has relatively frequently addressed the diachronic development of ‘clause combiners’; and prototypicality theory (mainly Geeraerts 1992; 1997) as the theory of diachronic semantic change that links up with the approach to word meaning that has been pursued in the present study. In 5.4 a hypothesis is formulated concerning the way principles identified in grammaticalization theory and the principles identified in prototype theory might interact. Next, this hypothesis is applied to the connectives *daarom* and *dus*. It will be argued that testing the ‘interaction hypothesis’ will shed light on the diachronic development of *dus* and *daarom*. Section 5.5 contains a report of a corpus analysis in which the development of *dus* and *daarom* between the 13th and 20th centuries is empirically investigated. Finally, 5.6 discusses the answer to the central question of this chapter: what can we learn from diachronic development of *dus* and *daarom* concerning their synchronic meaning structure?

5.2 The relation between semantic structure and conceptual structure from a diachronic perspective

The relation between word meaning and conceptual structure is operationalized in the present study in terms of congruence between the semasiological and the onomasiological perspectives on word meaning. Thus, the relation between semantic structure and conceptual structure is investigated from two opposing directions. Analysis on the semasiological level answers the question: ‘given linguistic element x, what meaning does it express in terms of y?’. Analysis on the onomasiological level answers the question: ‘given concept y, what linguistic element or elements can it be expressed with?’ (cf. Chapter 2). Chapters 3 and 4 suggested that the semantic categories of causal verbs and causal connectives reflect the conceptual

categories of ‘directness’, ‘animacy’ and ‘subjectivity’. Findings presented in Chapters 3 and 4 support the assumption underlying this study that semantic structure reflects conceptual structure from a *synchronic* perspective.

Additional evidence may be obtained by investigating the same relation from a diachronic perspective. The reasoning presented above implies that the relation between semantic categories and conceptual categories must be diachronically robust. For *if* usage of causality markers and our conceptual understanding of causality are interrelated, it should be assumed that usage of causality markers does *not* change (fundamentally) unless the corresponding understanding changes at the same time. Stating the hypothesis that no change in the meaning of *dus* and *daarom* (in their causality marking function) is to be expected unless our understanding of causality itself changes in one respect or the other, boils down to saying that within the causality marking function, no semasiological change can occur unless induced by an onomasiologically motivated one.

Strong indications that semasiological semantic change and conceptual factors are related indeed, come from the study of the diachronic development of the Dutch causal verb *doen* by Verhagen (1998; 2000). Verhagen shows that a relative change in distribution of this causal verb over animacy configurations that occurred (from the 18th century onward) is paralleled by a change in our understanding of how the social world functions. The change will be illustrated with reference to the fragment in (1) (from the 1872 Dutch novel *Sarah Burgerhart*, written by Betje Wolff and Aagje Deken; taken (including translation) from Verhagen 2000: 277)

- (1) Ja, ik heb genoeg gezegd om u te **doen** weten, dat ik u bemin...
*Yes, I have said enough to you in order to **make** [lit: **do**] you know that I love you...*

Modern speakers of Dutch are perfectly able to interpret this sentence, but experience a ‘strangeness’ that resides in the marking of the sentence with *doen* (Verhagen 2000: 262). Nowadays, similar events would rather be linguistically reported making use of *laten* as a causality marker, as in (2):

- (2) Ja, ik heb genoeg gezegd om u te **laten** weten, dat ik u bemin...

Verhagen contends that it is not (only) *doen*’s meaning that has changed since the time (1) was written, but rather our understanding of the way people may interact in their social environments. Modern speakers of Dutch would typically categorize the event depicted in (1) and (2) as a case of ‘indirect causation’: as a matter of principle, nobody can interfere with other people’s minds directly, at least if it concerns processes or states of cognition, emotion or intention to act (Verhagen & Kemmer 1997; D’Andrade 1987; cf. discussion in Chapter 3). This understanding is typically marked by choosing *laten* as a marker of the causal relation, signaling that the causee, *u* (‘you’), is perceived as having a relevant amount of autonomy in this causal process.

Verhagen argues that the 18th century speaker’s choice of *doen* in this context must be interpreted along the very same lines: in the 18th century social relations, the concept of ‘authority’ played a far more important role than it does in

Dutch society nowadays. While people of similar social status were not perceived as being capable of interfering with each other's minds directly, people carrying authority were construed as having this power indeed. The causer in (1) derives authority from gender differences: the causer is male whereas the causee is female. Verhagen points out that according to 18th century culture (at least according to the system of morals present in this novel) the proper relationship between man and wife is one characterized by authority (2000: 276²). On these grounds, Verhagen argues, for 18th century speakers *doen* was a logical choice; while for speakers of 21st Dutch language gender differences would (on average) not license differences in the understanding and linguistic construal of personal interaction.

Verhagen's findings may be interpreted as an illustration that the close relationship between the linguistic expression of causality and its conceptual understanding, the central hypothesis tested throughout this whole study – may exist not only from a synchronic perspective, but from a diachronic perspective as well. The findings show that an important change in the usage pattern of *doen* is induced by a change in the conceptual models of personal and social interaction that guide the interpretation of causal processes marked by *doen* or its counterpart *laten*. In other words, in this case, a change in the language user's conceptualization of causal processes produced an onomasiological 'problem' that was solved by revising the relative distribution of usage-schemas over *doen* and *laten*, thus causing change at the semasiological level.

The present chapter explores the diachronic 'robustness' of the relation between semantic categories and conceptual concepts by investigating the diachronic development of the causal connectives *dus* and *daarom*. It aims at providing additional testing of the central hypothesis of this study. Moreover, under the assumption that the relation between concepts and meaning holds from a diachronic perspective as well, the diachronic analysis of *dus* and *daarom* is expected to shed more light on their synchronic semantic structure. The findings in Chapter 4 suggest that *dus* is prototypically used in subjective contexts with an 'implicit speaker SOC' and that *daarom* is prototypically used in objective, animate causality contexts with an 'explicit SOC'. The differences in distribution are significant (cf. Section 4.5), but the usage frequency of both *dus* and *daarom* in their 'non-prototypical contexts' is considerable. If the argumentation presented above holds, it is to be expected that the prototypical usage contexts of both *dus* and *daarom* remain unchanged over centuries, unless a change occurred at onomasiological level. This will be the hypothesis tested in the present chapter. If the hypothesis is corroborated, findings will be interpreted as additional evidence for the ideas presented in Chapter 4.

² As a matter of fact, Verhagen (2000: 273; 1998) did not only find evidence for this 'authority' explanation in gender factors, but he also found that causers that had to be classified as 'institutional authorities' in the particular context, were marked significantly more often with *doen*. In the 21st century still, institutional authority may license *doen* as a causality marker in inductive causative constructions (Verhagen 2000: 270; Verhagen & Kemmer 1997); cf. discussion in Chapter 2).

The argumentation presented in this section proceed from the assumption that a relation exists between synchronic meaning structure and diachronic semantic change. In the next section this idea will be elaborated.

5.3 Cognitive semantic perspectives on meaning change

Many cognitive linguists have proposed that a relation exists between synchronic meaning structure and diachronic change. Most cognitive linguistic theories would share the assumption that ‘language’ is an inherently dynamic system. As was discussed in Chapter 2, cognitive linguists react to the tendency present in formal linguistic theories to “focus on language as a more or less fixed system, which can be studied independently of context and use and independently of its interactions with other aspects of cognition” (Barlow & Kemmer 2000: viii). A ‘natural’ consequence of this assumption is the relative importance of synchronic variation in cognitive linguistic theories. Another one is the assumption that there is an “intimate relationship between usage, synchronic variation, and diachronic change” (Barlow & Kemmer 2000: xviii; the idea first stated by Langacker 1988), which can be explained as follows:

“(…) a dynamic usage-based conception of the internal linguistic system provides a natural framework for understanding why variation and change exist in the first place, as well as for understanding the mechanisms that produce and propagate patterns of variation and change. Acquisition, variation, and diachronic change are all reflexes of the dynamics of linguistic usage”(Barlow & Kemmer 2000: xviii).

A well-known, frequently discussed example is the phenomenon of ‘polysemy’, the interrelatedness of multiple senses. It is generally assumed that “synchronically adjacent senses are also diachronically adjacent, such that senses which are the source of derivation in language synchrony will also be the historically prior ones in language diachrony” (Kortmann 1997: 17; Traugott 1986; cf. Langacker 1988; Lakoff 1987, Sweetser 1990; Foolen 1993; Geeraerts 1997; Barlow & Kemmer 2000 and contributions to this book). Or as stated by Geeraerts:

“(…) polysemy is, of course, the synchronic reflection of diachronic semantic change. (...) The interest of theoretical semanticists for the study of meaning changes derives from their interest in polysemy, if only because the synchronic links that exist between the various senses of an item coincide with diachronic mechanisms of semantic extension such as metaphor and metonymy” (Geeraerts 1992: 183).

The present study also tacitly assumes some aspects of dynamicity. For example, the idea that ‘prototypicality of usage schemas’ can be equated with ‘entrenchment’ of this schema, and that this is influenced (if not caused) by frequency data (e.g. Langacker 2000: 3). There is also the notion of ‘extension from the prototype’ which implies some chronological ordering. This section will concentrate on a next aspect

of ‘dynamicity’, one that is particularly relevant to the overall purpose of the present chapter (and this study as a whole): the relation between conceptual structure and semantic structure. More specifically, it will focus on the role that ‘prototypicality structures’ may play in diachronic semantic change. It will also further narrow the focus on mechanisms of change structured from within a specific linguistic item, notably, it will concentrate on the structuring role that the prototype of a linguistic item may play in constraining its diachronic semantic development.

Within the field of cognitive linguistics, research into the diachronic development of meaning appears to center around two themes (Geeraerts 1992: 183; cf. Kortmann 1997). The first one is the search for regular patterns in diachronic semantic change. This is the focus of attention in grammaticalization theory (cf. Heine, Claudi & Hünnemeyer 1991; Hopper & Traugott 1993; Bybee, Perkins & Pagliuca 1994 – this chapter mainly takes Traugott’s (1995a) theory as a starting point). This research field focuses on regularities and general tendencies in the development of semantic change, identifying continua or clines along which *classes* of linguistic elements tend to develop, with respect to the development of grammatical functions (lexical items developing grammatical functions, and grammatical items developing ‘still more grammatical’ functions – cf. discussion in Section 5.3.1 below).

The other line of research focuses on the role of restrictive factors in diachronic semantic change. This is mainly studied from the perspective of prototype theory (cf. Geeraerts 1997, 1992; Langacker (1990; 2000), Lakoff 1987; Brugman 1983; Foolen 1993). This line of research tends to focus on explanation of the diachronic development of *individual* linguistic items with reference to its specific internal structure, for example, on the role of the prototype, the aspect that will be focused on in this chapter. Geeraerts (1997) observed in an elaborate study of lexical items that prototypes tend to remain relatively stable throughout time. He argues that prototype structure functions as an ‘efficiency principle’, organizing and restricting the possibilities of diachronic semantic change.

Although grammaticalization theory and prototypicality theory share many assumptions (Kortmann 1997: 19), their predictions concerning the diachronic semantic change of connectives are quite different. So far, the diachronic development of connectives has been studied mainly from a grammaticalization theory perspective. Results of these studies suggest that diachronically, connectives tend to move along a cline of unidirectional ‘subjectification’: in the course of time, the meanings of connectives tend to become more and more based in the speaker’s subjective knowledge or attitude with respect to the proposition uttered (Traugott 1995a: 31; cf. Keller 1995; Sweetser 1990). The subjectification hypothesis will be discussed in more detail in Section 5.3.1. At this point it is important to note that the findings from the grammaticalization perspective seem to contradict the expectations concerning the diachronic development of *daarom* and *dus* as formulated in Section 5.2. Subjectification does *not* predict that semantic prototypes have a special status in the diachronic development of a word.

But the expectations formulated in Section 5.2 *do* fit in with findings from diachronic prototype theory, especially as formulated in Geeraerts (1997; 1992), focusing on ‘stability factors’ in diachronic development, and finding that prototypes tend to be relatively stable through time. This situation raises questions

about the range of both theories. What is the exact scope of the subjectification tendency of connectives, found in the field of grammaticalization theory? Does it coincide only with changes in (grammatical or other) function as has been suggested? Or does it occur just ‘anywhere’, even on the level of the conceptual content of an item with a well-defined, unchanging function, as others suggest? The same question can be formulated with respect to the diachronic prototype theory. So far, it has principally been corroborated with evidence from the development of lexical items (cf. Geeraerts 1997; references cited in Lakoff 1987). However, several studies have suggested that prototypicality effects may also play a role in the diachronic development of grammatical items (cf. Nikiforidou 1991; Kemmer 1993; concerning grammatical causal expressions: the findings of Verhagen (2000; 1998) on *doen*, discussed in Section 5.2).

A further question, then, guiding the study presented in this chapter, is of a more theoretical nature: what is the relation between grammaticalization patterns and semantic prototypicality factors with respect to the diachronic development of *dus* and *daarom*? The hypothesis tested is that prototypicality factors constrain subjectification developments. This hypothesis will be elaborated in Section 5.3.3. First, the subjectification hypothesis will be discussed in more detail in Section 5.3.1; the diachronic prototype theory will be discussed in more detail in Section 5.3.2.

5.3.1 Grammaticalization theory: unidirectional subjectification

The diachronic development of (causal) connectives has been studied more or less extensively within the framework of grammaticalization theory (cf. Heine, Claudi & Hünnemeyer 1991; Hopper & Traugott 1993; Bybee, Perkins & Pagliuca 1994). Grammaticalization theory can be defined as: “(...) that part of the study of language that focuses on how grammatical forms and constructions arise, how they are used, and how they shape the language” (Hopper & Traugott 1993: 1). Among the topics addressed by grammaticalization theory are: the (non-)discreteness of the boundaries between (grammatical) categories and the interdependence between structure and use. One of the aims grammaticalization theory strives for is identifying recurrent patterns in diachronic change, such as ‘clines’ or ‘continua’ - to be understood as “having certain focal points where phenomena may cluster” (Hopper & Traugott 1993: 7), and along which transitional processes in grammaticalization take place (Kortmann 1997: 20).

It is generally assumed that grammaticalization processes comprise consecutive stages: shifts from content word (lexical phrase) to function word occur in a relatively early stage; in later stages more or less grammaticalized elements acquire other (more) or different functions (Lehmann 1988: 303; Traugott 1995a: 32). This process can be schematized as follows:

(3) lexical element → functional element 1 → functional element 2

Examples of alleged grammaticalization processes of two connectives in modern English are (4) and (5):

(4) by cause of → because

- (5) *Pa hwile De* → while ('during') → while ('although')
 ('at the time that') (discourse function)
 (deictic function)

The change of the lexical element *cause* in the adverbial construction *by cause of* in (4) into the causal connective *because* is an example of the first change. This type of grammaticalization is also exemplified by the first part of the change in (5): the adverbial phrase *Pa hwile De* ('at the time that') developed into the temporal connective *while*. The next change in (5), where *while* develops from a temporal into a concessive connective, can be seen as an example of the later stage in the grammaticalization process (Traugott 1995a: 39ff).

Part of these grammaticalization phenomena appear to co-occur with a specific change of conceptual meaning, defined as an 'increase in subjectivity' (cf. Langacker 1990 and contributions to Stein & Wright 1995). The 'subjectification hypothesis' states that – IF meaning change occurs in a grammaticalization process – meanings get to be based increasingly in the speaker's subjective knowledge or attitude with respect to the proposition uttered (Traugott 1995a: 31). Or, as formulated by Traugott & König – subjectification is a tendency to change:

from meanings grounded in more or less objectively identifiable extralinguistic situations to meanings grounded in the speaker's subjective attitude to or a belief about what is said. (Traugott & König 1991: 189)

So, subjectivity presupposes some degree of integration of the perceiver in the description of an object or a process. The subjectification hypothesis states that the degree of perceiver integration increases diachronically (Cuenca 1997:5). This hypothesis is assumed to hold for connectives as well (see for example Traugott 1995a; Dasher 1995; Keller 1995).

It is generally believed that subjectification is a unidirectional phenomenon; that is: if a meaning change occurs (of course, not every linguistic element undergoes semantic change), a form develops from less subjective usages to more subjective ones, but never the other way round. Traugott (1995a: 39) specifically claims that "historically, virtually all grammatical markers of clause combining can be shown to have developed out of some earlier more 'objective' function" (cf. also Bybee et al. (1994: 4). By way of illustration, consider the likely development of Dutch *nu* ('now'):

- (6) a. *nu* as a deictic element:
 Ik wil graag **nu** over dat probleem praten.
 b. *nu* as a temporal connective:
Nu ik je zie denk ik er weer aan dat ik met jou over dat probleem wilde praten.
 c. *nu* as a discourse marker:
 De oplossing van dat probleem ken ik, maar hoe zit het **nu** met dit probleem?

In terms of Schiffrin (1987: 230), who presents an analysis of usage of the related English *now*, the word *nu* in (6)a-c can be characterized consecutively as communicating ‘reference time’, ‘event time’ and ‘discourse time’. In (6)a *nu* refers to a specific point of time occurring in the real world; the word has a purely objective, deictic function, in which the speaker’s attitude is irrelevant/ absent. In (6)b, *nu* marks the temporal relation between two propositions. This temporal organization is produced by the speaker (although it may very well coincide with the course of events in the real world), and therefore this usage of *nu* can be considered as more subjective than its deictic usage. In (6)c, the temporal character of *nu* has disappeared. In this example, *nu* functions as a ‘discourse marker’: it marks the introduction of a new discourse topic. In this fragment, coherence is a purely mental phenomenon, a product of the speaker’s understanding of the world, licensing an interpretation of this kind of usage as the most subjective type of the three mentioned (cf. argumentation in Traugott 1995a: 40). ‘Subjectification’ of *nu* can be established if it turns out that the more subjective usage types appear later in time, and develop out of the less subjective ones (cf. approach presented in Traugott & König 1991)³.

The grammaticalization processes summarized in (4) and (5) can be analyzed as cases of ‘subjectification’ in the same vein. In the development of *while* for example, two subjectification trends can be found. The first case of subjectification is the change of *Pa hwile Be* into temporal *while*. Instead of profiling a specific time, *while* now profiles discourse structure which is the responsibility of the speaker. The second case of subjectification is the development of temporal *while* into concessive *while*. The new use construes a world that has no reference in the described situation, but only in the speaker’s world or, more specifically the speaker’s reasoning about coherence between the reported events.

How does subjectification, in essence a conceptual phenomenon, relate to functional (grammatical) change? Not surprisingly, grammaticalization theory focuses mainly on semantic developments that coincide with grammatical (or functional?) changes. Traugott (1995a: 32) concentrates on ‘subjectification in grammaticalization’, which is, broadly speaking: “the development of a grammatically identifiable expression of speaker belief or speaker attitude to what is said”. Moreover, she observes that “the tendency for subjectification is, to a large extent, correlated with the early grammaticalization of elements” (1995: 47).

But there is evidence that subjectification occurs in later stages of grammaticalization as well. An example of subjectification *within* function is reported by Keller (1995), who analyzes the recent development of the German causal connective *weil*, that seems to be extending its usage repertory from ‘content causality’ to ‘epistemic causality’ (cf. Chapter 4). But whereas this subjectification process does not involve ‘change of function’, it does coincide with a syntactic change (from ‘verb final’ to main clause word order).

³ That is, the development of *nu* from a deictic element to connective to discourse marker is in line with the ‘cline’ proposed by Traugott (1995a: 1): clause-internal adverbial > sentence adverbial > discourse particle (of which category ‘discourse marker’ is a subtype).

Moreover, it appears that subjectification can occur independently from functional or grammatical change. An example of ‘within function subjectification *without* syntactic change’ is Traugott’s (1995a) finding that the connective *while* extended its use diachronically from being a marker of temporal relations to a marker of concessive relations – subjectification *within* a specific grammatical function – already discussed above. Sweetser’s (1990) hypotheses with respect to the development in terms of ‘domains of use’ of the connectives *because*, *since* and *but* may be interpreted as a similar indication that subjectification can occur independently from functional or grammatical change. Sweetser advances a very specific hypothesis on the diachronic development that explicitly concerns a unidirectional cline within one and the same grammatical or functional category (cf. discussion in Chapter 4): “There is (...) a general tendency to borrow concept and vocabulary from the more accessible physical and social world to refer to the less accessible worlds of reasoning, emotion, and conversational structure” (Sweetser 1990:31). In other words, Sweetser predicts that, if a connective develops from a (combination of) content word(s), the connective will occur diachronically first only in content domain contexts, and only in later stages in epistemic and speech act contexts too.⁴

In sum, although ‘subjectification’ is a widely attested phenomenon in the diachronic development of connectives, some interesting questions remain unanswered. Does the ‘unidirectional subjectification’ hypothesis hold for all types of connectives? Are there any restrictions to the occurrence of subjectification? How does it relate to changes to or from the connective function? And does subjectification occur with changes within the connective function as well? These questions will be investigated by carrying out a quantitative analysis of the diachronic development of *dus* and *daarom*, reported in Sections 5.4 and 5.5.

5.3.2 Prototype effects in diachronic semantic change

Geeraerts (1992; 1997) analyzes diachronic semantic change with reference to prototypicality structure. The starting point of Geeraerts’ theory is the idea that principles structuring (synchronic mental representation of) linguistic knowledge must be relevant in diachronic development of these structures as well. He claims that prototypicality structure not only offers an adequate descriptive account of mechanisms of semantic change (‘the forms it may take’), but also forms in itself a ‘true cause’ of semantic change. Geeraerts argues that the importance of prototypicality structures in diachronic semantic change emerges directly from the “functional requirements that the conceptual system has to fulfill if it is to carry out optimally its task of storing categorial knowledge and making it accessible for cognitive and communicative purposes” (112; cf. discussion in Chapter 2).

Geeraerts (1997) singles out for investigation four specific ‘prototypicality effects’, derived from two fundamental characteristics of prototypicality structure, namely: ‘non-equality’ of the members of a prototypical category (salience effects, internal structure of core and periphery) and ‘non-discreteness’ (demarcation

⁴ What exactly may be similarities between subjectivity and domains of use was argued in Chapter 4. How this can be related to ‘subjectification’ will be discussed in following sections.

problems, flexible applicability –cf. discussion in Chapter 2). The four of them can be ordered according to their effects on either the extensional level (the ‘referential one’) or the intensional level (of ‘senses’)⁵ as summed up in Figure 5.1:

	Extensional	Intensional
Non-equality	Differences of salience among members of a category	Clustering of readings into family resemblances and radial sets
Non-discreteness	Fluctuations at the edges of a category	Absence of definitions in terms of necessary and sufficient attributes

Figure 5.1 Synchronic (lexical) prototype effects investigated by Geeraerts (1997: 22).

Each of the dimensions yields a specific hypothesis concerning ‘the structure of semantic change’, highlighted by prototype theory:

	Extensional	Intensional
Non-equality	Changes in the referential range of one specific word meaning may take the form of modulations on the core-cases within that referential range	Changes of word meaning may have a clustered set structure
Non-discreteness	Changes of word meaning may be incidental and transient	Changes in word meaning are encyclopedic of nature

Figure 5.2 Statements on the structure of semantic change, as highlighted by prototype theory (Geeraerts 1997: 23).

Two of these ‘prototypicality effects’ will be highlighted in this section, as they are especially relevant for the purpose of the present study. The first (and most important) one is the one referring to the fact that different members of a category may differ in degree of saliency within that category and Geeraerts’ observation that *if* semantic changes occur, they are likely to take the form of an expansion of the prototypical center of a certain category (=left most cell in the top row of Figures 5.1 and 5.2). Geeraerts specifies this hypothesis as follows: “(...) changes in the extension of a single sense of a lexical item are likely to take the form of an expansion of the prototypical centre of that extension. If the referents that may be found in the range of application of a particular lexical meaning do not have equal status, the more salient members will probably be more stable (diachronically speaking) than the less salient ones” (1997: 23). In other words, as it was formulated at the beginning of this chapter, no matter what extensions occur, the prototypical

⁵ Although Geeraerts does not seem to support the principled distinction between the intensional and the extensional level of semantic meaning, he maintains it in order to stay in line with the terminology used in formal, logical semantics (1997: 18).

center of the category tends to remain stable (unless fundamental change occurs in the conceptual understanding of the concept the word refers to).

This hypothesis is supported by a case-study of the ‘diachronic’ development of the concept ‘legging’ in the first five years of its existence in the Dutch language (Geeraerts 1997: 33-47). Geeraerts observes that ‘legging’, from its introduction as a garment by 1987 onwards, prototypically refers to ‘a tight-fitting pair of trousers for women, made of an elastic material’. Prototypicality was measured quantitatively, in terms of number of occurrences of this specific term-concept pairing. As predicted by the ‘differences in saliency/ modulations of core cases’ hypothesis, in the years to follow the form ‘legging’ started to be used for referents that differ from the prototypical one on the dimensions length, width, material, function, and sex of the person wearing it. Geeraerts observes that “from a diachronic angle, the category shows an increasing flexibility: from year to year, the periphery of the category becomes more and more extended”, allowing for a bigger degree of deviation from the prototype over the years. However, the core area itself remains intact from 1988 to 1992, the period of time under investigation. Geeraerts (1997: 43-7) shows that impact of ‘differences in salience’ at the semasiological level is mirrored by an entrenchment of the form *legging* as a referring expression to the garment discussed above. This can be interpreted as a prototypicality effect at the onomasiological level of word meaning.

The second of the ‘prototypicality effects’ identified by Geeraerts that is important for the purposes of the present study - especially as it plays a crucial role in the argumentation throughout the present chapter – is Geeraerts’ observation that the onset of semantic change may very well take its starting-point from the domain of encyclopedic information, too. Aspects of the ‘encyclopedic nature of changes in word meaning’ hypothesis (located in the rightmost cell in second row in Figure 5.1 and Figure 5.2) come close to the onomasiological level of analysis as it plays a role in the present chapter⁶. It states that semantic changes may take their starting-point in the domain of encyclopedic information as well as in the domain of purely semantic information – thus stressing the role of world-knowledge in onsetting semantic change. Geeraerts (1997: 69-70) discusses the diachronic development of the Dutch verb *kruipen*⁷ as an example.

Initially, this verb means ‘to crawl, to move on hands and feet’. But in the course of time, *kruipen* develops a new reading: ‘to go slowly’ – which can be used without reference to ‘crawling on hands and feet’ (for example, it can be said of cars in a traffic jam). This reading is a subset of the original reading, but by no means is it of a different ‘sense’: the distinction between ‘to crawl slowly’ and ‘to crawl swiftly’ is not a case of polysemy, but a case of vagueness. Therefore, the coming into being of the new reading cannot be understood to be an extension from a purely

⁶ As a matter of fact, Geeraerts discusses this phenomenon arguing against the theoretical distinction between the ‘extensional’ (encyclopaedic) and ‘intensional’ (purely semantic) levels of analysis. I will leave this discussion aside and will only ‘use’ his findings as an argument for my own purposes: identifying elements that affect semantic change on the onomasiological level.

⁷ With reference to Dik (1977), who initially observed the development discussed, and named it ‘inductive generalization’.

semantic sense, but originates from a subset that is *referentially* ('encyclopedically') salient (and 'statistically prominent' as Geeraerts puts it): most instances of crawling imply going slowly.

Geeraerts' proposal was formulated and empirically tested for lexical items only, but there is no principled reason why it should not apply to functional or grammatical elements as well (see for example Geeraerts 1997: 3; 114).

5.3.3 Toward a hypothesis: Prototypicality and subjectification in *daarom* and *dus*

The remainder of this chapter will explore the idea that the prototypicality theory of lexical semantic change is relevant for connectives as well. The idea explored will be that the way conceptual and linguistic knowledge is organized in terms of prototype structures, restricts the way linguistic elements can be subject to specific mechanisms of semantic change.

The theory of 'prototypicality effects' and the theory of 'subjectification' in their strongest unidirectional formulation seem to logically exclude each other. Arguing from the 'diachronic prototypicality effects' theory discussed in Section 5.3.2, we must assume that prototypicality structures restrict possibilities for subjectification. But the grammaticalization theory perspective discussed in Section 5.3.1 does not seem to incorporate any restrictions on the subjectification hypotheses. It seems to imply that prototypes do not have any diachronic stability. Both theoretical perspectives have been thoroughly investigated and empirically tested, which intimates that both of them give a valuable account of diachronic semantic change. So the question arises: how do grammaticalization theory and prototypicality theory relate to each other?

The distinction made by historical semanticists between 'mechanisms of semantic change' and their 'true causes' seems to offer a plausible starting-point for answering this question. According to Geeraerts, a proper theory of semantic change must address at least three levels of explanation:

“an overview of the range of possible changes, a definition of the factors that cause an individual speaker to realize one of those possibilities, and an analysis of the way in which such a change spreads through a linguistic community” (Geeraerts 1997: 102).

As the third aspect falls beyond the scope of the present study⁸, we will concentrate on the first aspect, the 'mechanisms' of change, and the second one, its 'true causes'. In the past, 'mechanisms' and 'causes' of semantic change have frequently been confounded (e.g. Keller 1995; Geeraerts 1997; Traugott 1995a: 36). Geeraerts defines 'mechanisms' as being “the set of *possible* (or plausible) semantic changes”

⁸ As it concerns sociolinguistic factors, which are not systematically taken into consideration in the present study. In addition, Geeraerts himself attributes a different status to the first two aspects compared to the third as he states: “From an explanatory point of view, the second step is the essential one (and this is the one we will be concentrating on): if you can explain why an individual speaker changes his linguistic habits, you can in principle also explain why a group of speakers does so” (1997: 102).

(1997: 103; author's italics). Among these are well-known and frequently studied phenomena such as 'patterns of extension' making use of metaphor (cf. Sweetser 1990), metonymy (cf. Hopper & Traugott 1993) and analogy (cf. Hopper & Traugott 1993). Extension may result in gradual loss of semantic content: 'semantic generalization' (Bybee et al. 1994), 'bleaching' (Givón 1975) or 'erosion' (Lehmann 1982). Other tendencies concern a change or reinforcement of semantic content called for example 'heightened expressivity' (cf. Keller 1995), 'conventionalization of implicature', 'inferencing' (Bybee et al. 1994) or 'pragmatic strengthening' (cf. Traugott 1989, 1995). The 'unidirectional subjectification' tendency is generally classified as an example of 'reinforcement of meaning' (Traugott 1995a; Keller 1995: 17).

"*Ultimate* causes of change" on the other hand, "will have to make clear, for instance, why a potential metaphorical extension of a lexical concept is actualized (Geeraerts 1997: 103; author's italics). In the literature, two types of 'causes of semantic change' have been identified: 'expressivity factors' (cf. Geeraerts 1997; Keller 1995) and 'efficiency factors' (cf. Geeraerts 1997). For the purposes of the present study, we will concentrate on the latter type. Geeraerts (1997) introduces 'prototypicality effects' as an important efficiency principle structuring diachronic semantic change. He argues that the importance of prototypicality structures diachronic semantic change descends directly from the "functional requirements that the conceptual system has to fulfill if it is to carry out optimally its task of storing categorial knowledge and making it accessible for cognitive and communicative purposes" (112; cf. discussion in Chapter 2).

An example of 'efficiency' related to prototypicality structure in diachronic change is the opportunity it offers to "lump as much information as possible in one's conceptual categories", a cognitively advantageous strategy from a diachronic perspective (Geeraerts 1997: 112, with reference to Rosch 1977). Another one is the opportunity to "combine structural stability with flexibility": the cognitive system should be flexible enough to adapt itself to changing circumstances in the outside world, but, on the other hand, the categorial system can only work efficiently if it does not change its overall structure every time it has to cope with new circumstances (1997: 113).

Geeraerts proposes that it is exactly these characteristics of prototypical organization of concepts that identify them as 'efficiency factors' organizing and restricting the possibilities of diachronic semantic change: the 'flexibility' referred to above cannot function randomly; it is restricted by conventional 'mechanisms of change' (discussed above), but perhaps even more importantly, it is also restricted by the nature of the prototype. At this point of the discussion the hypothesis formulated in general terms at the beginning of this section can be specified. A crucial point concerns the exact status of subjectification as an explanatory factor in the process of diachronic semantic change. According to Keller (1995):

"Subjectification' is the name of a descriptive generalization of different kinds of semantic changes which need explanation" (Keller 1995: 17). In other words: subjectification is to be understood as a mechanism rather than as a cause of semantic change, and therefore it cannot constitute "a proper explanation of semantic change" as advocated by Geeraerts (1997 – cf. discussion above).

If subjectification is a ‘mechanism of change’ and prototypicality functions as an ‘efficiency factor’, it is expected that possible subjectification tendencies in the diachronic development of *dus* and *daarom* will be restricted by prototypicality effects. This hypothesis will be operationalized in Section 5.4.

5.4 Corpus analysis: hypotheses and operationalization

In the remainder of this chapter, the diachronic development of *dus* and *daarom* will be empirically explored by systematically investigating their usage in a corpus of texts originating from the 13th, 16th and the 20th centuries respectively. In 5.4.1 the hypothesis tested in this study will be presented. In 5.4.2 operationalization of ‘subjectification’ will be discussed, followed by a description of sample and procedure in 5.4.3. Results of this corpus analysis will be presented in 5.5. Discussion of the results will concentrate on the clause connecting function of *dus* and *daarom*, but other functions, and their possible analysis in terms of subjectivity will be discussed as well.

5.4.1 Hypotheses

Chapter 4 suggested that the synchronic meaning of *dus* and *daarom* consists of a prototypical core meaning characterized as ‘subjective causality’ and ‘objective intentional causality’ respectively, and extensions that are conceptually related to their respective prototypes. The main hypothesis of the present study will be that, whether subjectification occurs or not, the relative importance of these concepts (in terms of frequency) will remain diachronically stable, unless an onomasiologically motivated change takes place (or a change in the conceptual understanding of causality resulting in a semasiological change).

In previous chapters synchronic meaning and use of causal connectives were characterized in terms of subjectivity and domains of use. The hypothesis of the present chapter implies that diachronic development of the connectives should be adequately characterized in terms of the very same concepts. This is exactly what is suggested by findings in the field of grammaticalization theory (cf. Section 5.3.1). Therefore, the hypothesis of this chapter can be tested by measuring the degree of subjectification that *dus* and *daarom* underwent between the 13th and the 20th centuries. If we find that subjectification occurs in one or in both of the connectives⁹ without corresponding conceptual change, to the extent that the conceptual prototype(s) change diachronically, the theories proposed in Chapter 4 will have to be reconsidered. On the other hand, finding that prototypes remain stable, or that semasiological changes occur in concert with onomasiologically motivated ones, may be interpreted as evidence in favor of the theories presented in Chapter 4. ‘Prototypicality’ of usage types will be measured in terms of usage frequency (cf. discussion in Chapters 2 and 4). The hypothesis tested can be summarized as follows:

⁹ Not necessarily in both of them: subjectification is not an ‘obligatory’ phenomenon (cf. Traugott 1995).

Hypothesis

From the 13th to the 20th century, *dus* is prototypically used in subjective causal relations and *daarom* is prototypically used in objective intentional causal relations; no change occurs in this pattern unless demonstrable onomasiological change takes place.

5.4.2 Operationalization of ‘subjectification’

In order to determine whether ‘subjectification’ occurs in the diachronic development of *dus* and *daarom*, for each of the causal relations in the sample, its relative subjectivity must be determined. Below, two instruments will be introduced for doing so. They are composed from the already well-known concepts of Subject of Consciousness (SoC) and Domains of Use as discussed in Chapter 4. These two concepts allow us to determine the degree of subjectivity at different levels and thus complement each other. As was already discussed in Chapter 3, the SOC method focuses on the linguistic realization of specific subjective elements within the propositions connected in the causal relation. Specifically, it focuses on the presence or absence of the speaker as the primary responsible source of the causal relation. The Domains of Use method determines the degree of subjectivity at a purely conceptual level, focusing on the subjectivity of the relation between the propositions itself.

Subjectification I: shifting SOC type

‘Subjectivity’ implies a certain degree of integration of the perceiver in the description of an object or a process (Cuenca 1997: 5). This integration may be signaled indirectly from the presence of all kinds of subjectivity signaling elements (Sanders & Spooren 1997: 91; Langacker 1990; Lyons 1995; cf. discussion in Pit 2003), such as evaluative expressions (*luckily*) and modal elements (adverbs such as *probably* or *maybe*, or verbs (*must*) expressing probability judgments). These factors share the function of increasing speaker involvement in the utterance (‘putting the ground onstage’; cf. discussion in Chapter 4).

However, in Chapter 4 it was argued that integration of the speaker in a causal relation (containing a connective or not) can also become manifest in a more direct way, by being linguistically expressed within (one of) the causally related propositions. For example, the speaker is visibly integrated in a linguistically reported causal relation if she presents herself as an ‘I’-subject that is responsible for the coming into being of the causal relation in the real world. Obviously, a similar fragment counts as ‘highly subjective’.

The first operationalization of ‘subjectivity’ focuses on this directly visible form of integration: subjectivity will be determined by investigating the relative distance between the speaker and the person that is responsible for the construction of the causal relation, the Subject of Consciousness (SoC, cf. discussion in Chapter 4). A causal relation is more subjective to the extent that this distance decreases: the smaller the distance between speaker and SOC, the stronger the speaker is conceptually integrated in the causal relation. Inversely, if the distance between speaker and SOC increases, the degree of integration of the speaker in the causal relation decreases.

The distance between speaker and SOC depends on two factors. The first factor is the presence or absence of an SOC and the resulting possibility of the speaker to identify with this SOC. The second factor is the way the SOC present is linguistically realized. Figure 5.3 presents an overview of the categories distinguished in this study:

SOC type	Examples of linguistic realization
1. Implicit speaker	1. \emptyset
2. Explicit speaker	2. <i>I, we, you and I, generic you</i>
3. Pronominal 2 nd or 3 rd person	3. <i>he, she, they, you</i>
4. Nominal (3 rd person)	4. <i>the man, Clara</i>
5. Unspecified	5. 'one', passive voice
6. No SOC	6. –
7. Not applicable	7. –

Figure 5.3 Overview of the SOC types in the Subjectification analysis.

At this point it should become clear why SOC type has been chosen as an indicator for subjectification. In the first place, SOC type is a factor that is necessarily linguistically present (or significantly absent) in each linguistically reported causal relation, in contrast with the 'subjectivity signaling' linguistic elements mentioned above. Secondly, the SOC types summed up in Table 5.3 constitute a scale of decreasing subjectivity (instead of e.g. a binary classification), which enable the identification of subtle subjectification trends.

SOC-speaker distance is 'minimal', and hence: subjectivity is 'maximal', if speaker and SOC coincide, as in fragment (7). In this fragment, the speaker herself is the source of the causal relation by connecting S1 and S2 as an argument and a conclusion. Her 'presence' as source constructing the causal relation is signaled by the modal adverb *probably*.

- (7) The sun is shining brightly; the temperature will probably rise in a minute.

The SOC type 'implicit speaker' constitutes one extreme of the subjectivity scale. The other one is the category 'no SOC' as exemplified in (8) and (9):

- (8) The sun was shining brightly; I felt that the temperature was rising quickly.
 (9) The sun was shining brightly; the temperature was rising quickly.

In this fragment the speaker cannot be held responsible for the coming about of the causal relation. Nor can the grammatical subject of the consequence-segment be held responsible; he just 'undergoes' the causal effect (in other words: he is only 'experiencer', not an 'agent'). In cases like these, the speaker cannot identify with another SOC and therefore she is conceptually absent. This kind of causal relation can be identified as being 'purely objective'.

Of the SOC types that *are* linguistically realized, category 2: explicit speaker is the most subjective type. An example is (10):

- (10) The sun is shining brightly; I reckon the temperature will probably rise in a minute.

As in category 1: implicit speaker, in this category SOC and speaker are one and the same person, but the speaker-SoC distance has increased somewhat. By referring to herself explicitly as an element in the causal relation, the speaker creates a certain amount of distance between herself as a ‘communicator’ and her role within the causal relation that is communicated, as a first person actor (Pander Maat & Sanders 2000; Langacker 1990).

The relative degree of subjectivity decreases further if the distance between speaker and SOC *increases* because of the fact that the SOC does *not* coincide with the speaker. In examples (11) and (12), the SOC is an animate actor in the consequence-segment. In both cases, the SOC carries out an action (described in the second segment) which is motivated by the situation depicted in the cause-segment.

- (11) The sun was shining brightly; we decided to go for a swim.
(12) The sun was shining brightly; the children decided to go for a swim.

In both cases, the actor is responsible for constructing the causal relation in the real world. The speaker doesn’t contribute to its construction except for communicating it; she reports, describes the causal relation ‘from the outside’. But still, in these examples too, there is room for subjectivity. It is possible, for instance, that the speaker identifies with the actor in the situation depicted. This is the case if she adopts the perspective of the actor (Pander Maat & Sanders 2001: 256). Think of narrative texts containing a protagonist that is not the speaker, but who is referred to nonetheless with ‘I’. In example (11), the speaker can identify with actors indicated by the pronoun ‘we’. Pronominal expressions are used in situations in which the person referred to has already been introduced and is therefore ‘known’. Identification with the protagonist is easier in cases like (11) than with nominal expressions, frequently used for introducing ‘new’ actors that are unfamiliar to the reader (cf. Kuno 1987: 204-206; Ariel 1990; Van Hoek 2002); an example is (12). The speaker-SoC distance is smaller with pronominal expressions than it is with nominal expressions, and therefore the degree of subjectivity slowly decreases from (11) to (12).

In SOC containing causal relations the SOC-speaker distance is maximal if the SOC is backgrounded by the formulation chosen, as in (13).

- (13) The sun was shining brightly; it was decided to go for a swim.

In (13) the 3rd person SOC is not linguistically realized, while it certainly is present at the conceptual level in the passive construction. Passives, but also expressions that do not directly denote a specific person (*men* (‘one’) in Dutch) fall within this category of ‘unspecified SOC’.

By determining the degree of subjectivity in terms of relative SOC-speaker distance, then the first subjectification hypothesis can be formulated:

Subjectification hypothesis in terms of SOC type

If a conceptual shift is found with *daarom* or *dus*, it is expected that an increase in subjectivity is found, that is manifest by the fact that the connective is used diachronically with increasing frequency with SOC types signaling a smaller SOC-speaker distance.

Subjectification II: shifting domain's type

The second operationalization consists of the (variant of) domains of use theory of Sweetser (1990), already introduced in Chapter 4. This perspective does not focus on specific elements signaling subjectivity such as 'SoC', but considers the conceptual relation between the two segments as a whole. As the domains of use categories were discussed extensively in Chapter 4, at this point a summary will suffice. Sweetser (1990: 77) claims that connectives can have meaning in three domains that are relevant in communication; the content domain, ((14) and (15)), the epistemic domain, (16) and the speech act domain (17). In Chapter 4, the desirability of cutting up the content domain into 'volitional' and non-volitional' relations in an analysis of Dutch causal connectives was already discussed.

- (14) The sun was shining brightly; the temperature was rising quickly.
- (15) The sun was shining brightly; the children decided to go for a swim.
- (16) The sun is shining brightly; the temperature will probably rise in a minute.
- (17) The sun is shining brightly; shall we go for a swim?

Starting again from the definition of subjectivity as implying: "a certain degree of integratedness of the perceiver in the description of an object or a process" (Cuenca 1997: 5), it is to be expected that the domains of use categories presented above can be ordered on a scale of subjectivity as well. A speaker involved in the construction of a content causal relation offers a description of facts that can be objectively established. A content non-volitional relation like the one in (14) comes into being without any intentional intervention of animate beings (except for their being 'experiencer' locus of effect) and is to be categorized as 'least subjective'. In a volitional causal relation (15) on the contrary, the causal relation comes into being because the actor interprets the situation in the cause-segment as a reason for performing the intentional action reported in the consequence-segment. The speaker gets involved implicitly: in order to be able to report the situation in the cause-segment as a valid reason, she has to (temporarily) adopt the actor's viewpoint.¹⁰ For this reason, volitional causal relations must be understood as being more subjective

¹⁰ Note that in the operationalization of subjectification presented in this chapter, the scalar aspect of subjectivity as combined with causal connectives is stressed. This approach does not contradict the claims presented in Chapter 4, rather, the present chapter focuses on a different level of analysis. Whereas Chapter 4 focused on the prototypical cores of the semantic categories of *daarom* and *dus*, the present chapter focuses on the more abstract 'super-schema' level (cf. Langacker 1990 (Chapter 10); 2000; cf. discussion in Section 2.3), which takes the whole range of usage possibilities into account, including non-prototypical usages and more subtle nuances of meaning than are defined in the connectives' prototypes.

than non-volitional ones, in spite of the fact that relations of both types are ‘objectively’ perceivable.

Even more subjective are epistemic causal relations (16), the consequence of which does not consist of a state of affairs in the real world, but of the mental state of the protagonist. The causal relation as a whole is not objectively observable and the speaker who reports an epistemic relation must necessarily adopt the protagonist’s perspective. Maximally subjective, however, are speech act causal relations (such as (17)), as they are totally ‘rooted’ in the speech situation, without a (further) link to the reality outside the communicative ‘here and now’. Ordering is summarized in Figure 5.4:

Domain types	Examples of linguistic realization
1. Speech act	The sun is shining brightly; 1. shall we go for a swim?
2. Epistemic	2. the temperature will probably rise in a minute.
3. Content volitional	3. the children decide to go for a swim.
4. Content non-volitional	4. the temperature is rising quickly.
5. Other type of use	5. all other types than ‘connective’; all other relations than ‘causal’

Figure 5.4 Examples of linguistic realization of types of domains of use

These considerations concerning the link between domains of use and subjectivity leads to a second subjectification hypothesis:

Subjectification hypothesis in terms of Domains of Use

*if a conceptual shift is found with *daarom* or *dus*, it is expected that an increase in subjectivity is found, that is manifest by the fact that the connective is used diachronically increasingly frequent in relatively more subjective domains of use.*

5.4.3 Sample and procedure

The aim of this study is the investigation of whether conceptual shifts in the diachronic development of the causal connectives *dus* and *daarom* occur in a time span of 800 years. If such is the case, is it possible to characterize them as unidirectional ‘subjectification’? For both *dus* and *daarom*, connective use was attested at least from the 13th century onward (cf. De Vries, Te Winkel et al. 1882-1998). In this section, text samples, selection of text fragments and procedure for analysis are described. Finally, the exact way the hypothesis is tested will be discussed.

Corpus of texts

For practical reasons, only texts that are available in electronic form were included in the sample. The oldest texts that meet this demand date from the 13th century; the most recent ones date from the end of the 20th century. To begin with, only one intermediate period of time was analyzed: the 16th century. For each of the time spans analyzed, a corpus of texts was compiled containing approximately 2000

pages of text each. In selecting texts, a control step was inserted for the factor ‘text genre’. In order to ensure consistency in terms of genre and volume, texts have been divided into two main ‘genres’. The first genre consists of ‘non-rhyming texts’; more specifically, official and other prose in the 13th and 16th centuries and newspaper texts in the 20th century. The second genre consists of ‘literary texts’: ‘rhyme texts’ in the 13th and 16th centuries, and narrative texts from the 20th century. An overview of the sources is presented in Appendix 5-1.

Sample of fragments

A sample of pages was randomly selected from the corpora.¹¹ From these, 50 *dus* and 50 *daarom* fragments were collected; per period 25 rhyme/literary texts and 25 non-rhyme/non-literary texts per connective were selected. Two more restrictions were added to the sampling process. Firstly, only productive uses of the forms were selected.¹² Secondly, only unambiguous forms were included in the sample.¹³ Other usage types than the clause connecting function were not excluded from the sample. Finally, it turned out that *dus* was used frequently (especially in the 13th century) in combination with another (particle) forming together the form *al dus* or *aldus*. As this form was never used as a clause combiner, at least in the sample presently analyzed, it was excluded from analysis.

Analyzing procedure

Per connective 150 fragments were selected (50 per period). Each of the fragments included in the sample consisted of the utterance containing *daarom* or *dus*, surrounded with as many contexts as necessary for interpreting the causal relation marked by the connective. If necessary, the fragments were explicitly translated, and all of the fragments were analyzed by two analysts in order to obtain a minimal amount of intersubjectivity.¹⁴

¹¹ This procedure could not be carried out for the texts taken from the INL 36 million words corpus, because the interface of this corpus doesn’t allow access to complete texts. Instead, distribution over different authors was ensured by selecting every tenth fragment from all editions occurring in odd months.

¹² This concerned mainly formulaic expressions of *daarom*. Every first instance was included in the sample, further occurrences were replaced by other fragments.

¹³ While constructing the sample it became clear that historically, a form existed that is a combination of modern *daarom* and *omdat*: *daar om dat*. An example is:

Di^e rede dar wi sunde v^omb duⁿ. dat is

dar v^ombe dat wi lange wanen leuen.

(NM, 1270-1290)

‘The reason why we commit sins is **‘therefore, that’** we think that we will live long.’

On the basis of orthography alone it is impossible to decide whether this form equals *daarom* or *omdat*. However, when analyzing its usage it becomes clear that *daar* and *om* refer cataphorically to the cause mentioned in the complement sentence introduced by *dat*. Thus, the form *daar om dat* appears to equal *omdat* better than *daarom*, and therefore it was excluded from the sample analyzed in the present study.

¹⁴ Cf. Evers-Vermeul & Stukker (2003). A pilot study carried out with four independently working analysts proved that the instruments used in this study resulted largely in univocal judgments. At points where divergence occurred, complementary criteria were formulated.

As was discussed above, ‘subjectification’ was operationalized at two different levels. With ‘SoC type’ the distance between the Subject of Consciousness (the person conceptualized as being responsible for constructing the causal relation) and the speaker is assessed. For each of the analyzed fragments, the linguistic expression of SOC was determined according to the categorizations presented in the previous section. As ‘domains type’ is seldom linguistically evident (except for the connective perhaps), an objectified procedure of analysis is called for. As in Chapter 4, the ‘Basic operation paraphrase test’ (Sanders 1997a) was used. This test consists of replacing the connective with a paraphrase, making the causal relation between two segments maximally explicit (cf. discussion in Chapter 4). Obviously, SOC type and Domains type could only be established if *dus* and *daarom* are used in clause connecting function. Other usage types were categorized as ‘other’. These cases will be discussed separately in Section 5.5.3.

Testing of the subjectification hypothesis

Of each of the fragments, SOC- and domains type were established following the protocol described above. In order to determine whether in the course of time significant differences occurred in the usage of *dus* and *daarom* in terms of the categories under investigation, a loglinear analysis was carried out. This statistical method allows for analyzing interaction effects in terms of ‘time’ and ‘subjectivity’ in non-parametric data.

A final, but important question is: how can ‘subjectification’ be established in a reliable way? Per operationalization (SoC or domains) subjectification is taken to have occurred if two demands have been met: a) a significant *increase* in frequency of use in relatively subjective contexts occurs, AND b) this finding coincides with a *decrease* in frequency of use in more objective contexts. This second demand is necessary because it is theoretically possible that a significant increase in a relatively subjective category (such as ‘epistemic causality’) is caused by a decrease of usage frequency in a still more subjective category: speech act causality.

Finally, a note of caution is in order: if we do not find any increase in subjectivity in the usage contexts of *dus* and *daarom*, this does not automatically imply that the subjectification hypothesis is falsified for causal connectives. Subjectivity is not an obligatory phenomenon. Therefore, the hypothesis is only rejected if a trend *opposite* to subjectification can be established: ‘objectification’. Objectification is taken to occur if a significant *increase* in usage frequency is found in relatively objective contexts, coinciding with a *decrease* of usage frequency in relatively subjective contexts.

5.5 Corpus analysis: results

Section 5.5.1 reports the results of the SOC type analysis. Did subjectification occur in the usage of *daarom* and *dus* in terms of SOC type? In Section 5.5.2, the same question is investigated with respect to domains types. It was found that in previous centuries, both connectives were frequently used in functions other than ‘causality marker’ as well. These functions will be described in Section 5.5.3, and their

relation to the subjectification hypothesis will be discussed. It turned out that developments in terms of subjectification are not necessarily continuous in character. Section 5.5.4 discusses and evaluates this phenomenon: to what extent can these be understood as evidence for or against the subjectification hypothesis?

5.5.1 Subjectification in terms of SOC type?

Analysis of the usage of *daarom* and *dus* in terms of domains type reflects the results of the SOC type analysis to a great extent. Table 5.1 and Table 5.2 show the distribution of *dus* and *daarom* over the different SOC types distinguished in this study. Only ‘clause combining’ usage of the connectives is shown.

Table 5.1. *Daarom* - frequencies of use per period: SOC type.

SoC type	Period			Total
	13 th century	16 th century	20 th century	
1. Implicit speaker	18	16	6	40
2. Explicit speaker	9	5	7	21
3. 2nd or 3rd person pronominal	5	6	14	25
4. 3rd person nominal	3	3	11	17
5. Unspecified	1	2	4	7
6. No SOC	6	9	8	23
Total	42 ¹⁵	41	50	133

Table 5.2. *Dus* - frequencies of use per period: SOC type.

SoC type	Period			Total
	13 th century	16 th century	20 th century	
1. Implicit speaker	6	12	29	47
2. Explicit speaker	0	5	5	10
3. 2nd or 3rd person pronominal	1	2	2	5
4. 3rd person nominal	0	0	1	1
5. Unspecified	0	2	1	3
6. No SOC	0	1	1	2
Total	7	22	39	68

In the 13th and 16th centuries, *daarom* shows a preference for implicit speaker SOC¹⁶, albeit not as strong as the preference *dus* shows for the same type of contexts. Typical examples are:

¹⁵ Only usage as a causal connective was included in the analysis. Therefore, the sum total does not equal 50 in all columns.

¹⁶ Note that the resulting statistical main effect for SOC type ($X^2(5) = 27.51$; $p < 0.001$), is an artefact of the analytical tool used in this corpus analysis, due to dividing the category ‘explicit speaker SoC’ into four subtypes; a methodological step aimed at capturing possible subtle changes in degree of subjectivity (cf. discussion in Section 5.6.1). In other words: once these subtypes are re-united, the main effect has disappeared.

- (18) Die arm is is al ene. dan besuokt die man sinen vrint. Mar man vinder dan luttel. Want si vlin den armen. Inde **dar uombe** en ist gene regte minne. (NM 1275-1300) *“A poor person is lonely. Then this man visits his friend. But one won’t find many, because they avoid the poor. And **that’s why** it isn’t real charity.”*
- (19) En denct niet dat ic vervaert ben voer die Sarasinen, **daer om** lieve swager maect u bereet (Droefliken strijt van Roncevale, 1510-1530). *“And do not think that I am afraid of the Saracens, **therefore**, dear brother in law, prepare yourself”*

The usage type in (18), in which *daarom* marks an epistemic causal relation, is still common nowadays. The speech act causality present in (19), on the contrary, that was rather common in the 13th and 16th centuries (see below), is hardly found anymore in modern Dutch (at least, in written language; cf. discussion in Chapter 3).

Between the 13th and 16th centuries no significant changes in *daarom*’s SOC type profile take place. In the 20th century, on the contrary, an important shift occurs in the way *daarom* is distributed over SOC types. Although usage in these categories was not uncommon in the previous centuries, in the 20th century all of the ‘non-speaker SOC’ categories frequency of use increases significantly, specifically: ‘3rd person pronominal’ ($p < 0.001$), ‘3rd person nominal’ ($p < 0.001$) and ‘unspecified SOC’ ($p < 0.02$). Examples of ‘3rd person pronominal’ causal relations from the 13th, 16th and 20th centuries are (20), (21) and (22) respectively. All of these examples contain causal relations involving intentional actions of the SOC; *daarom*’s prototype from a diachronic perspective.

- (20) Die keiser gheboet doe dat hi wilde / Dat men eene warscap hilde / Van Eustaas wiue ende sine kinder / die so waren vonden ghinder / **Daer ombe** so hildsi in die port / Alle utermate feeste groet (Sente Eustaes 1290-1300) *“The emperor then ordered that he wanted / the people to arrange a feast / in honour of Eustace’s wife and children / that were found over there / **that’s why** they gave an extremely big feast at the gate.*
- (21) Die dit liedeken dichte / Dat was een ruyter fijn / Sinen buydel was seer lichte / **daer om** drinct hi selden wijn (Antwerps liedboek 1544) *The one who made this poem / was a fine knight / his pouch was very light / **that’s why** he seldom drinks wine.*
- (22) (*A baker’s shop was rebuilt*) Het werd weer eens tijd voor een nieuw gezicht. **Daarom** hebben we een bureau in de arm genomen die het nieuwe uiterlijk tot stand heeft gebracht (MC 1995) *“It was high time for a change of appearance. **That’s why** we hired a company that was able to realize the new appearance.*

The ‘non-speaker SOC’ categories are located at the objective extreme of the subjectivity scale, constituted by the ordering of SOC type categories. This ‘increase in objectivity’ coincides with a decrease in usage frequency of *daarom* in the most

subjective category: ‘implicit speaker SOC’. We have to conclude, then, that in *daarom*’s usage pattern in the 20th century, a trend opposite to subjectification occurs, namely, a tendency toward *objectification*.

As Table 5.2 makes clear, in the earliest of the centuries investigated, *dus* is hardly used as a marker of causal relations. It is most frequently used as a marker of anaphoric relations, which will be described in Section 5.4.3. We can conclude then, that the ‘connective use’ is relatively young. In all of the time spans under investigation, *dus* is almost only used in contexts with ‘speaker SOC’, of which ‘implicit SOC’ contexts form a vast majority¹⁷. This pattern remains constant throughout the centuries; no patterns of subjectification or objectification have been found ($X^2(10) = 6.23$; $p < 0.80$). An interesting finding is that *dus* is used in causal relations at the subjective end of the spectrum as soon as the connective function comes into existence. Typical examples are:

- (23) Dits die loon die knapen hebben sullen van pleinen lakenen onghesodenen .xix. d. ende van ghesodene .xxij.d .ijj. d van anslane ende .vi. d van scherme ant rechte ende .i. d van persierne achter tsceren ende .vi. d van der auerechte tescherne ende .i. d van strikene eement vout, ende .ij. d van voudene Ende van den ysodenen pleinen lakenen sal men gheuen .i. d van persierne nat, Ende .ijj. van anslane, **dus** sal men hebben .xix. d van onghevaerweden pleinen lakenen. ende van yvarwenden pleinen lakenen .xxij. d. (CG1 1294). “*This is the wages boys must receive for flattening undyed cloth: 19 d and for dyed cloth 23 d. 3 d for ‘anslane’ and 6 d for shaving it at the ‘straight’ side and 1 d for pressing it after shaving and 6 d for shaving the ‘inverted’ side and 1 d for ironing before folding and 2 d for folding. And for flattening dyed cloth one should pay 1 d pressing ‘in wet’, and 3 for ‘anslane’ so one should receive 19 d for flattening undyed cloth: 19 d and for dyed cloth 23 d*”
- (24) En nu die sommige out en cout / sy hebben niet waer mee / dat sij haer hongerige buyck / sullen versaeden / **dus** toont aen haer u lief / die eewige vree (Spel van sinnen 1597) “*And now those few old and cold / they don’t have anything with which / to satisfy their hungry stomachs / so show them your love / that eternal peace.*”
- (25) Tom dacht even na. Patrick woonde in een zijstraat van de Laan van Nieuw-Guinea, **dus** Hendriks kwam er vlak langs. (De kunstrijder 1989) “*Tom thought about it for a while. Patrick lived in a side-street of the Avenue of New Guinea, so Hendriks came right past it.*”

Fragment (23) contains a clear example of an epistemic causal relation, uttered by a speaker who remains implicit in the constructed relation. A deductive reasoning relation is presented (as the one in (25)); the writer argues by summing up wages per ‘sub-task’ why boys should receive nineteen ‘d’ for working undyed cloth, and

¹⁷ There is a strong main effect for SOC type ($X^2(5) = 101.7$; $p < 0.001$). Evidently, this effect remains even if the four ‘explicit SOC’ categories are recombined into one category.

twenty-three for working dyed cloth. Fragment (24) contains an example of speech act causality: a relation is constructed between the situation sketched in the first four lines cited and the summons for showing ‘the old, cold and hungry people’ our love. In summary, in terms of SOC type, no subjectification trends are found in the diachronic development of *dus* and *daarom*. On the contrary, *daarom* shows a trend in the opposite direction: between the 16th and the 20th century it undergoes a process of objectification. Interestingly, this development takes place at the moment that the clause connecting usage of *dus*, clearly the more ‘subjective’ of the two connectives under investigation, becomes more frequent.

5.5.2. Subjectification in terms of domains of use?

Table 5.3 and Table 5.4 show distribution patterns of *dus* and *daarom* over Domains type.

Table 5.3. *Daarom* - frequencies of use per period: Domains-type.

Domains	Period			Total
	13 th century	16 th century	20 th century	
1. Speech act	8	9	0	17
2. Epistemic	13	8	8	29
3. Content volitional	15	16	33	64
4. Content non-volitional	6	8	9	23
5. Other	8	9	0	17
Total	50	50	50	150

Table 5.4. *Dus* - frequencies of use per period: Domains-type

Domains	Period			Total
	13 th century	16 th century	20 th century	
1. Speech act	0	9	0	2
2. Epistemic	5	3	29	9
3. Content volitional	2	8	8	37
4. Content non-volitional	0	1	1	18
5. Other	43	29	12	84
Total	50	50	50	150

In all periods of time under investigation, *daarom* shows a strong preference for ‘content volitional causal’ relations.¹⁸ Until the 16th century, *daarom*’s usage pattern in terms of domains type appears to be rather stable. On the contrary, from the 20th century onwards, a number of shifts take place. In the first place, usage frequency in the category ‘speech act causality’ decreases significantly ($X^2(1) = 16.47$; $p < 0.001$). This decrease coincides with an increase in usage frequency in the relatively objective category ‘content volitional causal’ ($X^2(1) = 4.21$; $p < 0.04$). Because this increase co-occurs with an increase of the overall frequency of *daarom* in its clause combining function (cf. Section 5.4.3), it is impossible to draw conclusions concerning subjectification within the clause combining function based on the

¹⁸ There is a main effect for Domains type ($X^2(4) = 43.95$; $p < 0.001$).

present data alone. However, an important conclusion is licensed if the place of the first-mentioned change is taken into consideration. This concerns a decrease at the subjective extreme of the subjectivity scale constituted by the ordering of domains types as proposed in Section 5.3.1, so we must assume that at the level of Domains type, too, objectification of *daarom* takes place.

As Table 5.4 makes clear, in the earliest of the centuries investigated, *dus* is hardly used as a marker of causal relations. The connective *dus* is characterized by frequent usage in the ‘epistemic causal domain’ throughout all of the periods of time under investigation.¹⁹ In the 16th century frequency of use in the category ‘speech act causality’ increases significantly ($X^2(1) = 9,88$; $p < 0.005$). However, this increase is only temporary in character, because in the 20th century the usage frequency of *dus* in this category decreases again significantly ($X^2(1) = 9.04$; $p < 0.05$). The question whether these developments are to be interpreted as subsequent trends of subjectification and objectification is discussed in Section 5.5.4.

In the 20th century, usage of *dus* in the category ‘epistemic causal’ increases significantly ($X^2(1) = 43.78$; $p < 0.001$). In combination with the decrease of usage frequency in the category ‘speech act causality’ discussed earlier, the increase in epistemic use seems to signal an objectification trend.

On the basis of these findings it can be concluded that no persistent subjectification in terms of ‘domains type’ is found within the clause connecting function of *dus* and *daarom*. On the contrary, an opposite tendency is found: *daarom* seems to undergo ‘objectification’ between the 16th and the 20th centuries. Interestingly, a temporary peak in subjectivity is found in the 16th century. The impact of this observation with respect to the main hypothesis of this study is discussed in Section 5.5.4.

5.5.3 Subjectification with function shift?

In the preceding sections, analysis of the data focused on developments *within* the connective (clause-combining) function of *dus* and *daarom*. However, both connectives have been used in other functions as well. In this section these usage types are described, and their diachronic development is analyzed in terms of subjectification.

More frequently than nowadays, *daarom* was used in the 13th and 16th centuries as an anaphorical expression. An example is presented in (26):

- (26) Die portwerder hadde groot ghepeins ende was in anxte in sire herten binnen, hoe hi den cop moghe ghewinnen. [...] Ende seide, dat hi gherne soude / duser maere **daer om** gheven van goud (Floris ende Blanchefloer, 1260) “*The gatekeeper was thinking hard and worried his mind / how he could get hold of the cup [...] And he said that he would gladly / give a thousand marcs of gold ‘for that’*”

¹⁹ There is a strong main effect for Domains type ($X^2(4) = 136.60$; $p < 0.001$).

In this fragment, *daer om* refers back to an object (*den cop*; ‘the cup’) that was mentioned earlier in the text; it does not mark a causal relation that could exist between the propositions connected by *daer om*.

Furthermore, in previous centuries *daarom* was sometimes used as a relative pronoun. This usage type has become obsolete in the course of time. An example is presented in (27):

- (27) Met enen rowe also beuaen / Dat si daer sitten es gegaen / Ter rechter hant beneuen hare / Om onderuinden wat het ware / **Daer** si hare **omme** so meslit (Sente Lutgard, 1263-1280)
 “Overcome with mourning to such an extent that she sat down there, at her right hand side, to find out **for what reason** she misbehaved.

Both usage types of *daarom* concern deictic functions: objectively perceptible phenomena in the real world are referred to. In these usage types, the speaker’s attitude hardly plays a role (cf. discussion in Section 5.5.1). Therefore, anaphorical and relative usage can be characterized as ‘less subjective’ than its connective usage (cf. discussion of the diachronic development of *nu* (‘now’) at the beginning of this chapter). Deictic usage of *daarom* decreases significantly between the 16th and 20th centuries, in favor of its connective function²⁰, that is to be characterized as relatively ‘more subjective’ in itself. This development of *daarom* can be understood as concerning subjectification that coincides completely with a change in function.

Dus shows a similar pattern. In the 13th century, *dus* is rarely used as a connective. The form (*al*) *dus*²¹ is most frequently used as an anaphorical expression, comparable to anaphorical usage of *daarom*. An example is (28):

- (28) Met goeden vrede biddic di. / Mi es beter die dod dan dat lijf. / **Dus** bat die oude om dat sijn wijf. / Sulke ouertale vp hem sprac (Rijmbijbel, 1275-1300) “With good peace I tell you/ Death is prettier to me than life/ **thus/so** spoke the old one, since his wife so unashamedly of him did speak ”

In the 16th century sample analyzed here, this usage type still characterizes half of the occurrences. Anaphorical usage of *dus* has disappeared in the 20th century; this function is completely taken over by the form *aldus*. As with *daarom*, increasing frequency of the usage of *dus* as a connective can be interpreted as an overall

²⁰ Diachronic development of *daarom* in ‘other functions’ (in terms of frequency): 13th century: 8; 16th century: 9; 20th century: 0. The decrease of ‘other functions’ between the 16th and the 20th century is statistically significant ($X^2(1) = 13.87$; $p < 0.001$). However, anaphorical use of *daarom* has not become obsolete (e.g. *Een tuintje met daarom een hek* ‘a garden **surrounded by** a fence’).

²¹ Especially in the 13th century (and in the 16th century still sometimes), *dus* frequently occurred in combination with *al*; the forms *dus*, *al dus* and *aldus* are taken to be variants of the same form and function (cf. De Vries et al. 1882-1998). In the present sample, all forms are found in an anaphorical function, however, *dus* is the only form that can express ‘connective function’.

subjectification across functional boundaries. By the 20th century, *dus* appears to have developed a third function. An example is given in (29):

(29) [Context: this is a report of the opening of a swimming pool. The information that the opening was done by Hilde Zoer had been mentioned earlier in the text.]

Op het moment dat de eerste burger zich openlijk afvroeg wie de openingshandeling wilde verrichten, ging een groot aantal vingers de lucht in. Het werd **dus** Hilde Zoer. (MC 1995) “At the moment the mayor explicitly asked who wanted to do the opening ceremony, many people raised their hands. Hilde Zoer became ‘**then**’ the person to do it.”

The fact that the person mentioned will perform the opening ceremony has been mentioned earlier in the text. The function of *dus* in this fragment cannot be characterized as anaphorical, nor as marking a causal relation. *Dus* is used in this fragment as a signal of information status: the reader is already familiar with the information marked with *dus*. This function of *dus* signals how the information within its scope is to be interpreted with respect to the rest of the information presented in the text, and is often referred to with the term ‘discourse marker’. In terms of the classification proposed by Schiffrin (1987), *dus* can be characterized as a marker of information management²². In this function, *dus* is to be interpreted as marking the speaker’s attitude towards the uttered proposition (cf. discussion Section 5.5.1); the relation marked with *dus* exists exclusively in the speaker’s mind, it has no equivalent in the real world. Therefore, discourse marker use of *dus* can be considered as being ‘more subjective’ than the connective use (cf. discussion of *nu* (‘now’) in Section 5.1).

Taking non-connective functions into account can add interesting information to the pattern that emerged from the previous sub-sections. Whereas no evidence was found for subjectification patterns *within* the connective function of *dus* and *daarom*, a clear subjectification *is* found if other functions of *dus* and *daarom* are taken into account. This type of subjectification seems to coincide with extension from ‘other functions’ *to* the connective function, as well as *from* the connective function to ‘other function’.

5.5.4 Temporary trends in subjectification

In the analysis of meaning shifts *within* the connective function, no enduring subjectification trends were found. With *dus*, however, between the 13th and the 16th centuries a temporary ‘peak’ in frequency of use in the speech act domain was found (see Section 5.4.1). This temporary increase can be interpreted as an instance of ‘subjectification’ – and consequently, it could be interpreted as evidence in favor of the ‘unidirectional subjectification’ hypothesis. But in this case, the subsequent *decrease* in frequency of *dus* marking speech act relations would have to be interpreted as an instance of ‘objectification’ – thereby functioning as counter-evidence for the ‘unidirectional subjectification’ hypothesis.

²² Cf. Ariel (1990); see Evers-Vermeul (2005) for a more elaborate discussion.

However, an alternative explanation seems plausible; namely, that the temporary subjectification trend observed is caused by the specific nature of the source material in the sample.²³ It is possible that the overall picture emerging from the analysis is at least partly influenced by changing genre conventions or heterogeneity of the corpus (cf. discussion in Section 6.5.2). In order to explore this candidate-alternative explanation, the origin of *dus* marked speech act fragments in the 16th century was scrutinized. More than half of the cases (5/9) were found in ‘moralistic texts’ like the *Antwerps liedboek* (1544), the *Devoot ende profitelyck boecxken* (1539) and the *Suverlijc boecxken* (1508). An example taken from the latter is presented in (30):

- (30) Gabriel om onser alder profijt / Ghesonden was van gode. / Dien God die vader heeft / Als hemels hoochste bode / **Dus** laet ons al ghemeyne / Louen Maria die suuer iuecht (Suverlijc boecxken 1508) “*Gabriel was for profit of all of us / sent by god / Who has God the father / as heaven’s foremost messenger / So let us all / praise Maria, the pure youth*”

In ‘moralistic’ texts (that occur much more frequently in the sample presently analyzed than in the 13th and the 20th centuries), the reader is presented with advice and commands that, if followed, lead to a (good)way of life. These commands and advices are frequently supported by motivations for the speech act realized. Interestingly, the proportion of this pattern on the total pattern of *dus*-usage is paralleled by the connective *want*: 10/14 of the speech act causal fragments studied in a highly similar diachronic analysis came from moralistic texts (Evers-Vermeul & Stukker 2003: 131). *Want* can, considering its diachronic development, be considered the ‘backward causal relations marking’ equivalent of *dus*.

These facts support the idea that the temporary peak in speech act use in the 16th century is due to an effect of genre specific features, and thus cannot be interpreted as evidence for or against the unidirectional subjectification hypothesis.

5.6 Conclusion and discussion

In this chapter, the diachronic development of *dus* and *daarom* between the 13th and the 20th centuries was investigated. The main aim of this study was to collect additional evidence for (or against) the theory on the synchronic meaning structure of *dus* and *daarom* proposed in Chapter 4. This chapter explored the diachronic development of *dus* and *daarom* with reference to two specific (bodies of) theories of diachronic semantic change: the grammaticalization theory and the prototypicality structure theory. These theories can be viewed as focusing on different aspects of the same phenomenon (cf. Geeraerts 1997: 1):

Grammaticalization theory detects regular patterns in the diachronic development of linguistic elements, identifying unidirectional clines, such as the subjectification trend discussed in this chapter. Prototypicality theory on the other hand, identifies

²³ The idea that a relation exists between ‘text type’ and ‘type of coherence relation’ has been proposed by Sanders (1997a).

prototype structure that organizes conceptual (and linguistic, as is believed here) knowledge, as a major principle shaping diachronic semantic change.

In this section, the results of the corpus analyses reported in the previous section will be interpreted and evaluated against the tested hypothesis, which was, to reiterate, “From the 13th to the 20th century, *dus* is prototypically used in implicit SOC causal relations and *daarom* is prototypically used in explicit SOC causal relations; no change occurs in this pattern unless demonstrable onomasiological change takes place.” In 5.6.1 results have been interpreted against the predictions of the unidirectional subjectification hypothesis and the prototypicality hypothesis respectively. Implications of these findings for the theory on synchronic meaning structure of *dus* and *daarom* are discussed. Section 5.6.2 explores possible theoretical implications of the findings presented in this chapter.

Interpretation of the results

Between the 13th and the 20th centuries, no enduring ‘subjectification trends’ occur *within* the connective function of *dus* and *daarom*. A trend toward subjectification was found with *dus* between the 13th and 16th centuries, but it was proposed that this temporary effect is due to an effect of text genre. It can be concluded, then, that the present data do not support the unidirectional subjectification hypothesis. Quite the contrary, evidence *against* this hypothesis was found. An opposing tendency, identified in this study by the term ‘objectification’, occurred between the 16th and the 20th century with *daarom*, in terms of SOC type as well as in terms of domains type.

However, clear unidirectional subjectification was found in the diachronic development of *daarom* and *dus* across functions. Subjectification occurs between the 16th and the 20th centuries in both *daarom* and *dus* with transitions (in frequency of use) from deictic functions to connective function, and with *dus*, it occurs with extension of the connective function to discourse marker function.

These findings are in line with the hypotheses concerning the development of *dus* and *daarom* derived from prototypicality theory. This theory focuses on the way internal semantic structure ‘organizes’ semantic change. A central assumption is that diachronic development of a linguistic element is reflected in its synchronic meaning structure. The prototypical meaning’ of *dus* was, following the proposal in Chapter 4, defined as implicit SOC causality, and the prototypical meaning of *daarom* was defined as explicit SOC causality.

Dus’s prototype in causality marking contexts remained unchanged ever since its development as a causality marker between the 13th and 16th centuries: from its beginning onward it is mainly used in epistemic causal contexts. Only from the 16th century onwards, usage of *dus* as a marker of causal relations becomes common. Interestingly, from the time of its coming into existence (somewhere before the 13th century) onwards, *dus* has shown a strong preference for maximally subjective causal relations: ‘implicit SOC’ relations. Up to that point, these relation types had been marked with other connectives, e.g. *daarom*. Further research is called for in order to fully grasp the relation between *dus* and *daarom* with respect to expressing subjective causal relations.

Daarom on the other hand *did* change, even in its function as a causality marker. Between the 16th and 20th centuries, semasiological specialization took

place. Possibly, this path of development can be reconstructed as follows: an onomasiological need of expressing the fundamental concept of ‘subjective causation’, invoked development of *dus* as an anaphorical expression into a causal connective. As a reaction to this development, *daarom* retreats from the ‘subjective causation’ domain and specializes in objective causal relations. Thus, the changes observed can be interpreted as an onomasiologically motivated change (*dus* adopts a new function, appears as a new connective marking a causality type that had no specific expression before; was lumped together with another type), provoking a semasiological change in *daarom*. As a result, in the 20th century, *daarom* has specialized itself towards explicit SOC or content volitional causality.

This chapter’s main goal was to collect evidence for or against the overarching hypothesis investigated throughout this dissertation: “meaning and use of causality markers are adequately characterized as complex categories, consisting of a prototypical core-meaning and extensions of the prototype”. To what extent does the present chapter add any information to the preceding ones? If it had turned out that both connectives were subject to a unidirectional diachronic tendency towards ‘subjectification’, an important foundation of the conclusions of Chapter 4 would have been undermined. A major assumption in the analysis of the synchronic meaning and use was that ‘prototypicality’ of a usage type is reflected in its high frequency relative to other usage types. If the present study had shown that usage frequencies were ‘floating’ along a subjectivity cline without any restriction, this hypothesis would have been undermined.

But for *dus* and *daarom*, things turned out differently. The usage profiles of both *dus* and *daarom* proved to be rather stable throughout a period of 800 years. In itself, this finding can be interpreted as evidence for the idea that there is a solid relation between conceptual understanding of causality and its linguistic expression, and that the meaning categories proposed in Chapter 4 are diachronically solid. To the reasoning presented in Chapter 4 a new argument can be added: the ‘division of labor’ of *dus* and *daarom* and the way this comes into being, as summarized above. Interestingly, the nature and range of the specialization is in complete agreement with ideas presented in Chapter 4. This idea is supported by the fact that a similar marker already existed for backward causal relations: *want*; the supposed mirror-image of *dus* (cf. Evers-Vermeul 2005; Evers-Vermeul & Stukker 2003: 125-7). If this reasoning holds, this is another argument in favor of the proposal advanced in Chapter 4.

In the same vein, the findings of the present study provide a nice illustration of another point put forward in Chapter 4: the conceptual parallel between classification in terms of domains of use and classification in terms of ‘degree of subjectivity’ as measured by SOC type. It was hypothesized that ‘domains’ and ‘subjectivity’ are parallel diagnostic tools that determine causality types at different levels: domains of use categories characterize causal connectives at the level of the conceptual relation they can express; subjectivity/SOC focuses on the linguistic realization of a specific subjective element within the causal relation: the Subject of Consciousness. In Chapter 4 it was observed that these operationalizations lead to parallel results/characterizations of meaning and use of the causal connectives *daardoor*, *daarom* and *dus*.

The results in this chapter indicate that the same conclusion holds concerning the way domains and subjectivity characterize the diachronic development of *daarom* and *dus*: these different operationalizations lead to a highly similar indication of the degree of subjectivity of these connectives. Non-volitional causal relations lack an SOC, speech act and epistemic relations are in a great majority of cases characterized by having ‘implicit speaker’ SOCs, and almost all types of ‘explicit speaker SOC’-relations are adequately typified as volitional causal relations.

At one point in the analysis of the results, the parallel seemed to be imperfect: the temporary subjectification of *dus* by the 16th century (probably caused by an effect of text genre) and the subsequent objectification of *dus* by the 20th century was only observed in the domains analysis: a relative increase in speech act usage was followed by a relative decrease in this usage type. That the characterization in terms of SOC remained constant throughout the whole period under investigation comes as no surprise: both epistemic and speech act relations are characterized by having ‘implicit speaker SOCs’.

Implications for theories on diachronic semantic change?

This chapter also had a more theoretical aim: gathering information about the possible interaction between different factors (causes, patterns, mechanisms) identified in the literature on diachronic semantic change. It is certainly not this chapter’s ambition to formulate a definitive answer to this question. The scope of the study reported is far too limited and the matter at stake far too complicated. Some notes of caution are in order.

In the first place, although the belief that ‘synchronic meaning structure reflects diachronic semantic change’ is widely accepted (cf. discussion in Section 5.4.2), it should not be taken for granted. Traugott & Dasher (2002: 44) state that “although it is plausible in many cases to organize synchronic variation in such a way as to replicate diachronic development, the historical validity of the relationship cannot be assumed. It must be tested in each instance.” Geeraerts (1997: 115) also warns against “exaggerated optimism” concerning the idea that prototypicality effects found with lexical items can be generalized to other aspects of linguistic structure. Still, for the reasons mentioned throughout this chapter, exploring the diachronic development of *dus* and *daarom* seemed to be a valuable investment. Secondly, it is interesting to note that advocates of the subjectification hypothesis themselves relativize its impact: subjectification is not an obligatory phenomenon; it does not necessarily or inevitably occur. This raises the question to what extent findings on the development of only two linguistic elements can be generalized to a complete theory.

Notwithstanding these notes of caution, the study reported in the present chapter yielded some interesting observations. Two theories were contrasted: one focusing on general tendencies of change that affect the linguistic system as a whole (as identified within grammaticalization theory), and one focusing on tendencies shaped by characteristics of individual linguistic items (as identified within prototypicality theory). It was hypothesized that the latter kind of tendencies restricts the range of application of the first kind. So far, the ‘grammaticalization principles’ are assumed to hold for grammatical elements, and the ‘prototypicality principles’ have mainly been tested and investigated for lexical elements.

Interestingly, as far as changes within the connective function are concerned, the present findings are corroborated by an analysis of *want* and *omdat* that was carried out simultaneously (cf. Evers-Vermeul 2005; Evers-Vermeul & Stukker 2003). A summary of these findings is presented in Table 5.5. The present data suggest that subjectification is a phenomenon that occurs if forms change function, but it is *not* a characteristic of the diachronic development of forms within the connective function.

Table 5.5: Overview of the subjectification and objectification tendencies

Connective	Evidence in line with subjectification hypothesis?	Evidence against subjectification hypothesis?
want	no	no
omdat	no	yes (within connective function)
daarom	yes (across connective function)	yes (within connective function)
dus	yes (across connective function)	no

The results of the present analysis suggest that prototypicality mechanisms play a role in the diachronic development of causality markers as well: the prototypical usage context of *dus* remained unchanged since its coming into existence around the 13th century. *Daarom*'s prototypical usage context *did* change, but this change can be interpreted as a 'splitting up' along the lines of a fundamental cognitive concept, that recruited an exclusive form in *dus* (= "specialization provoked by coming into existence of a new form-function pairing by onomasiological need"). Whether prototypicality mechanisms of function words have exactly the same nature as those found with content words is a question to be answered in future research.

In this study, the diachronic developments of *dus* and *daarom* were analyzed at two different levels: *within* the function of connective, and *across* different functions. Is it possible to specify the places where 'subjectification' does and does not occur on the basis of the present findings? A first specification is that 'subjectification' occurs with changes from one function to another (from deictic and/or anaphorical to connective, and from connective to discourse marker). But the results of the present study also suggest that there are factors constraining 'subjectification' effects: it does not occur within the clause combining function of the causality markers under investigation. This finding is completely in line with the idea that the main function of a marker of intersentential causal meaning relations (or perhaps all types of coherence relations) is: categorizing a causal process in terms of meaningful concepts, relating to human cognitive understanding of causality. As was discussed in Section 5.3.2, language can only fulfill this function if the relation between concept and (prototypical) expression is stable. The findings in the present study seem to confirm this idea.

However, in order to pin down the exact lower limit to 'subjectification', additional research is called for. Connectives can be categorized at a higher level than was done in the present study, which focused on differences within the class of *causal* coherence relations. As was discussed in Chapter 2, other classes distinguished in taxonomies of coherence relations are: additive and contrastive relations. The present study does not license conclusions concerning different usage-

types within the connective function at this more intermediate level. Traugott's work (cf. 1995) strongly suggests that subjectification *does* occur with changes from one class to another class: the extension of English *while* as a marker of temporal relations to *while* as a marker of contrastive relations involved 'subjectification' (cf. discussion in Section 5.2.3).

A second aspect where the present study may refine the subjectification hypothesis indeed concerns the exact moment in the diachronic development of linguistic items where 'subjectification' may occur. As was noticed in Section 5.2.3, in grammaticalization processes different phases can be distinguished. Traugott (1995a: 47) suggests that 'subjectification' mainly occurs during the early stages of the grammaticalization process (the shift of content word/ lexical noun phrase to function word/ functional phrase). From this perspective, the development of *dus* is interesting. The extension of *dus* into the function of discourse marker is to be located in the later stages of the grammatical development of the form *dus* (an already grammaticalized element develops a new function). With this extension of *dus*, 'subjectification' takes place. This observation implies that 'subjectification' may occur in later stages of the grammaticalization process, too.

Conclusion

In conclusion then, the findings of the present study suggest that there are limits to the unidirectional process of 'subjectification' as it has often been observed by grammaticalization theorists. At least in the diachronic development of *dus* and *daarom*, 'subjectification' seems to be restricted by cognitive principles of 'information management' and principles of the way cognitive concepts are coded in language. In order to fulfill its communicative function properly, language maintains a certain amount of stability concerning the relation between cognitive concepts and their linguistic expression. In the case of *dus* and *daarom*, it is possibly their categorizing function that requires that the prototypical meanings remain constant.

An explanation along these lines is in line with Keller's (1995) remark that "'Subjectification' is the name of a descriptive generalization of different kinds of semantic changes which need explanation" (cf. Traugott (1995a) and Geeraerts (1997)). This implies that 'subjectification' in itself is not to be identified as a 'true cause' of diachronic semantic change, but rather as a 'mechanism', set off, and also: restricted, by other factors. Perhaps, this hypothesis offers an explanation for the often observed fact that 'subjectification' is not an obligatory phenomenon (Traugott 1995a). It would be interesting to investigate whether apparent limits to this hypothesis interact with predictions on the grounds of Geeraerts' ideas on prototypicality effects. Furthermore, the patterns that occur diachronically provide interesting evidence in favor of this study's main hypothesis: that meaning and use of causality markers are appropriately described as complex structures with prototypicality structure.

Chapter 6

Causality marking at the clause-level and at the discourse-level: Language users' intuitions on similarities

6.1 Introduction

The previous chapters analyzed meaning and use of causal verbs and causal connectives in isolation. Evidence was found in favor of the basic assumption of this study, that a link exists between the meanings of causal verbs and causal connectives and conceptual categories relevant for interpreting causal relations in reality. The findings suggested that important conceptual parallels exist in the way language users (speakers of Dutch) categorize causal relations at different levels of the linguistic structure. Both in causality marking at the clause-level with causal verbs, and in causality marking at the inter-clausal level with causal connectives, the conceptual notions of 'interaction of forces' and 'animacy' play a crucial role.

The next two chapters will investigate these similarities further. As was argued in Chapter 1 and Chapter 2, presence of fundamental similarities between categorizations of causal relations at different levels of the language structure is taken as important evidence in favor of the main hypothesis of the present study: that the meaning of causality markers reflects the conceptual understanding of causal relations. Chapter 7 will investigate the exact range of the parallels between causal verbs and causal connectives at an analytical level and in a corpus analysis. Thus, it contributes specifically to this study's goal of formulating a descriptively adequate theory.

The present chapter reports an experiment testing language users' intuitions on conceptual similarities between causal verbs and causal connectives. Subjects were asked to paraphrase intrasentential causal relations marked with a verb with intersentential causal relations marked with a connective. Testing the similarity hypothesis this way adds important additional evidence to the results of the corpus analyses reported in previous chapters. The conceptual distinctions that causal verbs and causal connectives make are confronted and compared more directly than is possible in analyzing text corpora. Moreover, the hypothesis is tested for psychological plausibility: comparison is made not by way of theoretical and analytical means, but by way of natural intuitions of speakers of Dutch. In other words: the theoretically motivated hypothesis is tested in 'naïve speakers' own terms. The general claim under investigation is: Language users experience similarities between the causal verb *doen* and the causal connective *daardoor*; and between the verb *laten* and the connective *daarom*.

6.2 Experimental task and hypotheses

Investigating intuitions of language users as a method for testing theoretical ideas empirically is gaining ground in cognitive linguistics. In recent years, theories concerning the relation between language and conceptualization have been successfully investigated making use of methods originally rooted in the fields of psycholinguistics and psychology. A specifically useful method turns out to be experimental tasks in which non-expert language users are asked to judge usage situations, or to carry out meta-linguistic tasks (cf. Sanders 1997b: 248). This type of experimental task has been used in recent years to investigate the relation between semantic structure of causal expressions and the conceptual understanding of causality. Examples are: investigating the semantic structure of linguistic expressions of causality by means of a categorization task (e.g. Wolff 2001; Wolff & Song 2003; Pit 2003; Pander Maat & Sanders 2001), by means of eliciting text material (e.g. Guilquin 2003), or by means of a sorting task (e.g. Sanders, Spooren & Noordman (1993).

In the present study, experimental testing is considered a useful addition to the method of analyzing language use in corpora of texts, the empirical method used in the previous chapters. While the latter is indispensable for attaining descriptive adequacy, the former allows for testing for cognitive plausibility. Biases due to an overly analytical perspective are controlled for. The corpus analyses reported in the previous chapters enabled us to reveal similarities at an analytical level. This is important and suggestive evidence, but even though empirical and objective methods have been employed, interpretation risks relying to some extent on the analyst's intuitions and decisions. Therefore, finding that the analytical reconstruction is paralleled in the intuitions of non-expert language user's, in other words, that it has cognitive plausibility, would be important complementary evidence.

Moreover, an advantage of experimental tasks is that they allow for adapting the test for specific theoretical questions more than corpus analyses do. In the corpus analyses parallels were demonstrated rather indirectly by mediation of theoretically motivated categories. And what is more important, the possibility of demonstrating parallels was to a large extent dependent on text material that was 'accidentally' there, in a randomly selected text sample. With designing an experiment, it becomes possible to manipulate text material and, thus, to put the hypothesized parallels on edge.

Findings reported in the previous chapters suggest that important parallels exist in the way language users categorize causal relations at the clause-level with causal verbs, and the way they categorize causal relations at the discourse-level with causal connectives. First, in both types of expressions, the force dynamic notion of 'interaction of forces' plays an essential role. More specifically, it is the nature of the interaction between the cause factor and the effect factor that determines categorization. A further parallel exists in the way these force interactions are conceptualized. Both with verbs and with connectives, it is the distinction between animate and inanimate entities that determines categorization of causal events. Thus, a provisional conclusion at this point of the study is that *doen* parallels *daardoer* in

marking 'inanimate causality' and that *laten* parallels *daarom/ dus* in marking 'animate causality'.

However, as this summary up suggests, the parallel between verbs and connectives is not perfect. An important difference is that connectives allow for expressing more causality types than verbs do: subjective causality, prototypically expressed with *dus* does not seem to have a parallel at the clause-level. Parallels and differences will be investigated more extensively in Chapter 7. In the present chapter, the intuitive observation that *doen* parallels *daardoor* and *daarom* parallels *laten* suffices. The parallels can be summarized as follows:

Level	Clause-level: verbs	Discourse-level: connectives
Concept		
Animate causality	<i>Laten:</i> Indirect causation	<i>Daarom:</i> Objective intentional causation
Inanimate causality	<i>Doen:</i> Direct causation	<i>Daardoor:</i> Objective non-intentional causation

Figure 6.1. Summary of conceptual parallels between verbs and connectives.

The aim of the experiment is: investigating whether categorizations that language users make with *doen* and *laten* parallel the categorizations they make with *daardoor* and *daarom* in situations of 'real' language use. This will be operationalized by way of an experimental task asking language users to paraphrase intra-clausal causal relations marked with either *doen* or *laten* with an inter-clausal paraphrase of the relation, marked with *daardoor* or *daarom*¹. By doing so, verbs and connectives can be confronted as directly as necessary for testing similarities. Performance of the task will be directed by prefabricating usage-contexts and response options. Thus, homogeneity of the output of the experiment is favored. Moreover, by doing so, the experimental task will be simplified to some extent. This may be necessary, as the task of 'paraphrasing one causal relation with another one' demands considerable skills in abstraction and metalinguistic reasoning.

In a paper and pencil experiment subjects were presented with items like the following²:

- (1) [Context: *In the year 1938 the radio play 'War of the worlds' caused a lot of fuss*]
De nogal realistische nieuwsberichten over marsmannetjes **deden** de
The rather realistic news messages about Martians **did** the
mensen in paniek de straat op rennen.

¹ This experimental design was inspired by Sanders & Verhagen 1996. However, the exact purposes of their test and the way items were constructed differ from the version presented here.

² These items were tested as items G2 and L6 respectively in the experiment reported in Section 6.5; see also Appendix 6-3. Underlining is added here only for convenience; in the layout of the real experiment it was of course absent.

people in panic the street on run

“The rather realistic news reports about Martians caused the people to run into the street in panic.”

Paraphrase

De nieuwsberichten over marsmannetjes waren nogal realistisch, en
The news messages about Martians were rather realistic, and

”The news reports about Martians were quite realistic and”

a. **daardoor** renden de mensen in paniek de straat op.

because of that ran the people in panic the street on.

”because of that, people ran into the street in panic.”

b. **daarom** renden de mensen in paniek de straat op.

that’s why ran the people in panic the street on.

“that’s why the people ran into the street in panic.”

- (2) [Context: *The workers have little interest in the ins and outs of the company and it is difficult to change such a culture.*]

Vanwege de opgetreden problemen **laten** we de veranderingen

Because of the occurred problems let we the changes

slechts geleidelijk plaatsvinden.

only gradually take place.

“Because of the problems which occurred, we are changing things only gradually.”

Paraphrase

We zien dat er problemen optreden en

We see that there problems occur and

”We see that problems occur”

a. **daardoor** vinden de veranderingen slechts geleidelijk plaats.

because of that take the changes only gradually place.

“because of that, changes only take place gradually.”

b. **daarom** vinden de veranderingen slechts geleidelijk plaats.

that’s why take the changes only gradually place.

“that’s why changes only take place gradually.”

In each item, a causative sentence was marked with a causal verb, either *doen* or *laten*. This sentence was followed by two intersentential paraphrases of the same causal relation. The paraphrases differed in only one respect: they were marked with either the connective *daarom* or *daardoor*. Subjects were asked to choose “the paraphrase that, according to their intuitions, resembled the original intrasentential causal relation best”. The hypothesis tested is:

Hypothesis

I: If the original causative construction is marked with *doen*, subjects will prefer the paraphrase marked with *daardoor*.

II: If the original causative construction is marked with *laten*, subjects will prefer the paraphrase marked with *daarom*.

6.3 Material and construction of items

Material used in this experiment had to meet a number of demands. In spite of the similarities between verbs and connectives summed up in Section 6.2, there are important differences as well. A fundamental difference is located in the grammatical structure of analytic causative constructions and intersentential causal relations. These differences influence the exact structure and content of the causal relation expressed (cf. Section 2.3.5; cf. discussion in Section 7.4). As a consequence, the causal sentences used in this experiment will necessarily and inevitably differ from their intersentential 'paraphrases'. This implies that comparing verbs and connectives as directly as is proposed here is not a self-evident undertaking. It does *not* imply that the comparing task proposed is meaningless. It *does* mean, however, that items should be constructed with great care; it should notably be taken care of that the causal sentence and its intersentential paraphrase correspond at points that are essential in the act of categorization. In providing for comparability of the causal constructions used in this experiment, two aspects are of essential importance: the *content* of the causal relation ("what elements in the causal chain are related?") and the *structure* of the causal relation ("how exactly are these elements related?"). The way these aspects were handled constructing experimental items is discussed in Section 6.3.2.

Furthermore, both the aim of the experiment and the experimental design require that the selection of usage-contexts meet specific demands. Firstly, the original causal sentence must allow for extension into an intersentential causal relation in a natural way. Secondly, only a small part of all occurring usage contexts are suitable to test this experiment's hypothesis. All items were constructed starting from an analytical causative construction, and extending it into a intersentential causal relation³. To start with, characteristics of the material used to construct items are reported in section 6.3.1.

6.3.1 Material

In order to enhance representativity and generalizability of the sample tested, usage-contexts were selected from natural text corpora⁴. From the perspective of representativity, the sample would ideally have been built proportionally from prototypical and non-prototypical usage-contexts. However, this was prevented by the experimental design chosen. There is specifically one demand that places considerable restrictions on the material to be used: that in the intersentential paraphrases, alternative markers (*daarom* or *daardoor*) fit equally well. Obviously,

³ Elaborating the cause noun phrase (the causer - cf. Chapter 3) of an analytic causative construction into a full clause in a natural way proved far more simple than reducing a full clause into a natural cause noun phrase.

⁴ Mainly newspaper texts, e.g. Meppeler Courant 1995 (INL) and Krantenbank Factlane (Lexis Nexis), but also popular novels (Pit 2003). A few items originated from other sources: websites or Eindhovens Corpus (Van den Boogaart 1975). The latter were taken from Verhagen & Kemmer 1997 or Sanders & Verhagen 1996.

the task ‘choose the paraphrase that resembles the causal sentence best’ is credible only if the paraphrases don’t differ in quality between themselves. The selected usage contexts must prevent that subjects make their choice for one of the alternatives on the grounds of differences in appropriateness of the markers in those contexts. All factors that can possibly interfere with this specific task must be precluded, because of the risk of inducing judgements on appropriateness on different grounds.

Chapter 4 suggested that categorization of intersentential causal relations is based on the nature of the relation’s ‘locus of effect’ (LOE - cf. Section 4.3.2). *Daarom* is used in contexts of intentionally acting animate LOE that are part of the object of conceptualization. *Daardoor* is used in contexts with inanimate LOE or animate LOE that do *not* act intentionally. Of these contexts, only a subset of types can be used in the present experiment – contexts that allow in a natural way for marking with *daardoor* as well as with *daarom*. Findings from Chapter 4 suggest that these are contexts found at the ‘fuzzy edges’ of the respective semantic categories, rather than their prototypical centers. *Daarom* is prototypically used in relations which effect contains an agent and an action predicate. *Daardoor* is prototypically used in causal relations which effects contain an inanimate LOE and a predicate that refers to a physical process or situation. Beside these prototypical usage-contexts, there is a small number of contexts in which both *daarom* and *daardoor* fit in. Examples are relations in which ‘mental’ conditions and processes are caused, or relations in which inherent volitionality or non-volitionality is modified by other factors present in the linguistic context (cf. Section 4.6). For the purposes of this experiment, only analytic causative constructions will be selected that report causal processes involving ‘mental’ causality or other predicates that are ambiguous for the feature ‘volitionality’, affecting animate beings.

In selecting usage contexts, an attempt was made to balance iconicity of the causal relations and ‘interestingness’ of texts. As the experimental task is rather demanding in itself, as least energy as possible should be devoted to other cognitive activities, such as interpreting the text fragments in isolation. Complex and ‘unusual’ causal processes are to be avoided. At the same time the items’ contexts should be interesting enough to capture subjects’ attention. Only ‘productive usage events’ of causal verbs were selected; fixed expressions with causal verbs may not be analyzable (anymore) for language users and may thus impede carrying out the task properly.

6.3.2 Construction of items

The structure and content of analytic causative constructions and intersentential causal relations used in the experiment should correspond at crucial aspects. No variation must occur at essential points with respect to the cause-part, the effect-part and the relation between the two elements in the paraphrasing relation as compared to the original relation.⁵ Because of the constructional differences between the two

⁵ Note that in the case of analytical causatives rigidly separating ‘cause’ from ‘effect’ is violating the conceptual model related to the construction (Kemmer & Verhagen 1994; cf. discussion in Chapter 3). But for the present analytical purposes, it is helpful to do so: in

construction types, it is not self-evident that a connective always marks exactly the same elements in the causal chain as a causal verb would do in an otherwise similar causal relation. However, in order to make the present experimental design work, it is of vital importance that it *does*. So, of all items tested in the experiment, the causal relation in the intersentential paraphrase should parallel the one reported in the analytical causative construction exactly with respect to the *structure* of the causal relation, at points that are vital for categorization. This means specifically that in constructing intersentential paraphrases, elements that are essential in determining the choice for a causality marker must be left unchanged.

In chapter 3 and chapter 4 these elements were identified. Relative findings of these chapters will be summarized below with reference to example (3)⁶

- (3) [Context: On Saturday night, the open air festival of Blokzijl was about to start]
 [Enkele spetters regen]_{CR} **deden** [de organisatoren]_{CE} het ergste vrezen.
 [A few splashes rain] **did** [the organisers] the worst fear.
 "A few drops of rain made the organisers fear for the worst."

Paraphrase

Er vielen enkele spetters regen.
 There fell some splashes rain.
 "Some drops of rain fell"

- a. **Daardoor** vreesden [de organisatoren]_{LOE} het ergste.
Because of that feared [the organisers] the worst.
 "Because of that the organisers feared for the worst."
 b. **Daarom** vreesden [de organisatoren]_{LOE} het ergste.
That's why feared [the organisers] the worst.
 "That's why the organisers feared for the worst."

It is assumed that the elements determining categorization analytic causative constructions are: the causer (the participant that is viewed as the 'initiator' of causal process – referred to in (3) with subscript 'CR') and the causee (the participant that carries out the causal effect; referred to with subscript 'CE')⁷. It is the nature of the interaction between these participants that determines the marking of the causal relation. If the *causer* is construed as bringing about the causal effect (expressed with the infinitive) directly, the relation is categorized as an instance of 'direct

order to grasp differences between entities, describing one thing making use of the conceptual model of the other may clarify things.

⁶ This is an adaptation of item G2, tested in the experiment reported in Section 4.5. It was simplified for the sake of the discussion.

⁷ It is not entirely clear yet whether this statement holds for *all* possible types of analytic causative constructions. Kemmer & Verhagen (1994) suggest that the construal of the causee's role in the process may vary with grammatical type of the effected predicate of the construction, especially if the causee is not left unexpressed. As this experiment will make use of constructions with explicit causee only, we may assume that for all of the items tested, the statement holds (cf. discussion in Section 3.3.1 and 3.4.3).

causation' with *doen*. If, on the other hand, the *causee* is construed as the most direct source in bringing about the causal effect, the relation is marked with *laten* as an instance of indirect causation. The causal process in (3) is construed as being directly caused by the causer; the infinitive *fear* can not be controlled by its experiencer, the causee. Thus, the causal relation is categorized with *doen* as 'direct causation' (for a more elaborate discussion: cf. Section 3.2).

Turning to *daarom* and *daardoor*, it was found that categorization is determined by an equivalent of the causee, the locus of effect. The LOE was defined in Chapter 4 as "the participant that is most directly influenced by the event or situation conceptualized as the cause"; in general, it is the grammatical subject of sentence that denotes the causal effect. The nature of its contribution is decisive for categorization. If the LOE carries out some intentional act, *daarom* is chosen to mark the causal relation as 'objective intentional causation'. If the LOE is an inanimate entity, or an animate being not acting intentionally, *daardoor* is chosen to mark the causal relation as 'objective non-intentional causation' (cf. discussion in Section 4.6).

From this discussion, a first prescription for constructing paraphrases can be deduced: when constructing an intersentential paraphrase out of an analytical causative construction, it is important that the role of the Locuses of Effect (i.e.: their identity and the process they 'carry out') remain constant. Generally this is not a problem, since the only conversion needed is to replace the infinitival form in the analytic causative construction by the corresponding finite form in the effect clause of the intersentential causal relation (cf. (3) in which infinitival *vrezen* ('fear') from the causal sentence is replaced by the finite form *vreesden* ('feared')).

But what about paraphrasing the cause-part? In analytical causal constructions, the 'causing event' is generally relatively unspecified (cf. discussion in Section 3.2). A vast majority of cases only conveys information about the entity that is viewed as the 'onset' of the causing event: the causer. In intersentential causal relations, on the other hand, the cause-part is by definition elaborated in (at least) one complete clause. So, it is mainly with respect to the expression of the cause-part that construction types under investigation in the present study diverge. Since in both construction types categorization can be determined by the role of the effect-part⁸, the incongruity of the expression of the cause is not insuperable.

However, this aspect needs careful attention. At this point, a second principle for constructing intersentential paraphrases from analytic causative constructions can be deduced: in extending the (nominal) causer to a complete clause, adding new (extra) elements to the causal chain should be avoided. More specifically, no new elements must be introduced in the process of interaction between the causer and the causee (cause-clause and LOE in intersentential relations), as it is this interaction that determines categorization in analytic causative constructions. Transitive predicates, for example are to be avoided, as these can be understood as lexical causatives themselves, and will therefore add extra elements to the causal chain (cf. Kemmer & Verhagen 1994: 118). But clauses that predicate

⁸ As a matter of fact, categorization in analytic causative constructions can be analyzed from the causer-perspective as well as from the causee-perspective.

properties to entities, on the other hand, or clauses that denote static situations are very appropriate.

This prescription also has implications for the process of selecting analytic causative constructions that may form the basis for experimental items. The mentioning of the causer may be accompanied by different kinds of specifying information in modifier (adjectival and adverbial) phrases. It is this kind of analytical causative construction that is especially appropriate for the purposes of the present experiment, for they are relatively easily 'paraphrased' in an intersentential structure without adding any extra content. Extending modifier phrases to complete clauses is very well possible without changing the structure of the causal relation at crucial points.

This point, too, can be illustrated with reference to (3). In the analytic causative construction, the causal relation is constructed between the causer *drops of rain* and the causee *the organizers who feared for the worst*. The cause-part consists of only an NP: the noun *drops*, complemented with the modifiers *some* and *of rain*. In the intersentential paraphrase, the causer is extended into a complete clause by adding the verb *fell* and Dutch presentative 'er'. An important difference lies of course in the switching of a noun phrase (part of proposition) to a situation (complete proposition), but the change in conceptualization that is brought about is limited to 'zooming out' on the causal process: the content remains constant, it is only the relative attention different elements receive that has changed.

Unfortunately, it turned out to be rather difficult to find enough natural examples that met all of the criteria mentioned in this section, *and* that provided 'neat' and complete causal relations in one analytical construction. Therefore, a part of the constructions that are included in the experiment have been supplemented with elements that were present in their immediate linguistic or conceptual context. Examples of strategies used in constructing material are: extending a subject noun phrase with nominalization into a simple clause (4)⁹; extending subject NP + instrument role associated with it into simple clause (5)¹⁰; extending subject NP + cause prepositional phrase associated with it into a simple clause 0¹¹.

- (4) [Context: During a press conference the Minister for Education presented the proposed cut-backs.]
 De kritisch doorvragende journalisten **deden** hem vrezen voor de
*The critically through asking journalists **did** him fear for the*
 weergave van zijn plannen in de media.
representation of his plans in the media.
 "The persistently critical journalists made him worry about the
 representation of his plans in the media."

Paraphrase

De journalisten bleven kritisch doorvragen;
The journalists stayed critically through asking;
 "The journalists continued to pose critical questions."

⁹ Included in the experiment reported in Section 4.5 as item D2

¹⁰ Included in the experiment reported in Section 4.5 as item G8

¹¹ Included in the experiment reported in Section 4.5 as item G16

a. **daardoor** vreesde hij voor de weergave van zijn plannen in de media.

because of that feared he for the representation of his plans in the media

“because of that, he worried about the representation of his plans in the media.”

b. **daarom** vreesde hij voor de weergave van zijn plannen in de media.

that's why feared he for the representation of his plans in the media.

“that's why he worried about the representation of his plans in the media.”

- (5) [Context: Karen enjoys attracting all the attention at parties]
Met haar zeer gewaagde jurk **deed** ze de gesprekken
With her very bold dress did she the conversations
stokken toen ze zaterdagavond binnenkwam.
halt when she Saturday night entered.
“With her very provocative dress she stopped conversations when she came in on Saturday night.”

Paraphrase

Ze droeg een zeer gewaagde jurk en
She wore a very bold dress and

”She wore a provocative dress and”

a. **daarom** stokten de gesprekken toen ze zaterdagavond binnenkwam.

that's why halted the conversations when she Saturday night entered.

“that's why the conversations halted when she came in Saturday night.”

b. **daardoor** stokten de gesprekken toen ze zaterdagavond binnenkwam.

because of that halted the conversations when she Saturday night entered

“because of that, the conversations came to a halt when she came in Saturday night.”

- (6) [Context: It took a while before we were able to speak to Martijn again.]

Vanwege de enorme drukte met zijn verhuizing **liet** hij
Because of the enormous busyness with his moving let he for
wekenlang niets van zich horen.
Weeks nothing of himself hear.

“Due to his being busy with moving house, no one heard from him for weeks.”

Paraphrase

Hij had het enorm druk met zijn verhuizing, en
He had it enormously busy with his moving, and
"He was very busy moving house and"

a. **daarom** hoorden we wekenlang niets van hem.

that's why heard we for weeks nothing of him.

"that's why we didn't hear from him for weeks."

b. **daardoor** hoorden we wekenlang niets van hem.

because of that heard we for weeks nothing of him.

"Because of that we didn't hear from him for weeks."

6.4 Pilot experiment

The experimental design described in Sections 6.2 and 6.3 was tested in a pilot experiment¹².

6.4.1 Material and task

Five *doen*-marked items and five *laten*-marked items were tested. Items were constructed following the procedure sketched in Section 6.2 and 6.3. Ambiguity of the paraphrases was evaluated intersubjectively: three persons evaluated the items constructed independently from one another for appropriateness of both *daarom* and *daardoor* in the context given. (cf. discussion in Section 6.3.1). The items tested are included in Appendix 6-1.

In order to distract subjects' attention from the experiment's goal, one third of the experiment consisted of fillers. For the purpose of concealing a solid quantity of *doen-daardoor/daarom* and *laten-daardoor/daarom*-combinations, the fillers differ only minimally from the 'real' items. The fillers were constructed following the same principles used for constructing the test items: an intersentential causal relation followed by two intersentential paraphrases that vary only in the connectives marking the causal relation. The only difference with 'real' test items was that either the causal sentence, or the intersentential relation, or both, are marked by other means. That is, some of the fillers' causal sentences were marked with *doen* or *laten*, but in those cases the paraphrases were not marked with *daardoor* or *daarom*. This principle was also applied the other way round: some of the fillers' paraphrases were marked with *daardoor* or *daarom*, but in these cases the causal sentences were marked otherwise. 'Other markers' for intrasentential relations were: other causal verbs (e.g. *maken dat* ('cause to'), *veroorzaken* ('cause')), causal prepositions (*door* ('by'), *om* ('in order to')) and temporal and relative clauses with causal interpretation. All of the intersentential relations were marked with pairs of other connectives that are close in meaning, marking either forward or backward causal relations (*daarom/dus*, *omdat/want*, *omdat/doordat*, *daar/aangezien*). Just like the test items, the fillers were based on natural text samples too.

¹² It was prepared and carried out as a part of the master's thesis of Van Maaren (2002).

Before subjecting the pilot test instrument ‘for real’, it was pretested on seven test subjects who were representative of the intended population of subjects on essential points: university or higher vocational education trained adults with a more than average interest in linguistic matters. The pretest’s aim was to test the naturalness of formulation and clarity of content of the test items, the clarity of the (written) instruction and the workability and credibility of the experimental task.

Informants were first asked to carry out the complete experimental task. In order to facilitate procedural planning of the final experiment, the time span needed to carry out the experimental task was timed. Next, subjects were asked to re-read the instruction text, and evaluate it for clarity. Then they were asked to re-read the experimental material and evaluate it for clarity and for acceptability with respect to standards of language use.¹³ The instruction text was evaluated as being clear and easy to read. On average test items were judged accessible and easy to read too. However, some test items were assessed as being ‘too long’, ‘too abstract’ or ‘too complicated’. These items were simplified or shortened by leaving out unessential information or replacing complicated formulations with simpler ones.

Finally, subjects were asked to evaluate the task itself. None of the subjects reported problems related to feasibility. However, some of the subjects evaluated the task as being “abstract” and mentioned as specific difficulty that “it was sometimes hard to rule out one of the paraphrases because they resembled each other a lot”. As making these subtle judgments is an inherent aspect of the task and the experimental design, nothing could be done to change this aspect. However, this is information to be kept in mind when interpreting the results of the experiment. With respect to the experiment’s goal, almost all of the subjects were aware of the fact that it had something to do with causal relations and the words used to express them, but none of them noticed that it focused on *doen*, *laten*, *daarom* and *daardoor* specifically.

6.4.2 Subjects and procedure

Subjects were 88 first-year students of Dutch Language and Culture and 9 students of other Language studies at Utrecht University attending a course on Text analysis, and 42 second-year students of Speech Therapy at the school of Higher Vocational Education in Rotterdam (HRO) attending a course on statistics.¹⁴ The experiment was presented in print. In both groups of subjects, the experiment was carried out during a course meeting. All subjects were instructed on the task by the experimenter and were asked to read a summary of the instruction in print before starting to fill the experiment out.

The statistical analysis was carried out with an itemized, one sample T-test. This test compares means per item with ‘chance’, which is the expected score value

¹³ The latter two tasks were performed making use of the ‘plus en min-methode’ (Vroom 1994). Subjects were asked to note ‘+’ when judging something (concerning content matters or formulating matters) ‘well-done, nice, clear’ or with other positive qualifications, and noting ‘-’ when judging something ‘bad, unclear’ or with other negative qualifications. When finished, subjects were asked to explain and elaborate their judgements verbally.

¹⁴ This differentiation in education level was put in for the purpose of an extra hypothesis in Van Maaren (2002) that won’t be reported here.

if subjects' choice of paraphrase were *not* influenced by the preceding causal verb ($=H_0$). Each time an individual response was in accordance with H_1 , a score '1' was allotted. If an individual response was contradicting H_1 , score '0' was allotted. Thus, the effect per item was computed on the sum of individual scores. The direction of the effect is indicated by the value of these mean scores: if it is $> .5$, subjects that considered *daardoor* as the best paraphrase of *doen* outnumber the ones that chose *daarom*; if it is $< .5$, it is the other way round.

The level of acceptance was set to 5% ($p = .05$). Since the T-test output is 2-tailed and the hypothesis tested in this study is one-sided, a value of $p < .05$ does *not* automatically entail that the results of the item involved should be regarded as 'in accordance with hypothesis'; this can only be concluded if $p < .05$ AND the mean score $> .5$.

6.4.3 Results

Findings for *doen* are summarized in Table 6.1. Three of the five *doen*-items tested (1, 2 and 4; see Appendix 6-1) confirm the hypothesis "*doen* parallels *daardoor*". In these cases, a statistically meaningful majority of subjects preferred the *daardoor*-marked intersentential paraphrase to the *daarom*-one as the best paraphrase of a *doen*-marked causal sentence. Item 3 does not show an effect. The effect of item 5 contradicts the hypothesis: in this case the majority of subjects preferred *daarom* to *daardoor* as the best paraphrase of *doen*.

Table 6.1. Scores per item testing hypothesis '*doen* parallels *daardoor*'. Significant results are indicated with an asterisk (*).

Item code	Degree of correspondence	t (df)	p ¹⁵
Doen 1	.74	6.302 (139)	<.001*
Doen 2	.70	5.146 (139)	<.001*
Doen 3	.48	-.506 (139)	.307
Doen 4	.59	2.228 (139)	.014*
Doen 5	.36	-3.515 (139)	.001

The findings for *laten* reveal a surprising pattern. All of the items show a strong effect, but the effect of only items *laten* 4 and *laten* 5 corroborate the hypothesis "*laten* parallels *daarom*". Only in these two cases, subjects preferred *daarom* to *daardoor* as the best intersentential paraphrase of a *laten*-marked causal sentence. With the remaining three items, subjects preferred, contrary to H_1 of this experiment, *daardoor* to *daarom* as the best paraphrase of a *laten*-marked causal sentence.

¹⁵ Since the T-test output is 2-tailed and the hypothesis tested in this study is one-sided, a value of $p < .05$ does *not* automatically entail that the results of the item involved should be regarded as 'in accordance with hypothesis'; this can only be concluded if $p < .05$ AND the mean score $> .5$. Significant results are indicated with an asterisk (*)

Table 6.2. Scores per item testing hypothesis ‘*laten* parallels *daarom*’. Significant results are indicated with an asterisk (*).

Item code	Degree of correspondence	t (df)	p
Laten 1	.0214	-38.964 (139)	<.001
Laten 2	.0714	-19.619 (139)	<.001
Laten 3	.10	-15.720 (139)	<.001
Laten 4	.76	7.070 (139)	<.001*
Laten 5	.65	3.708 (139)	<.001*

6.4.4 Discussion and evaluation

The data for *doen* support the hypothesis tested in this study to a great extent, but the findings for *laten* absolutely do not. How are these results to be interpreted and evaluated? The findings for *laten* are unexpected and contradictory to previous findings to such an extent that examination for alternative explanations seems to be justified. Two factors specifically attract attention as possible explanation of the patterns found: characteristics of the test instrument, and characteristics of the test subjects.

Test instrument

In Section 6.3.1 it was stated that a prerequisite for valid test items is that *daardoor* and *daarom* fit equally well in the contexts used. We tried to meet this demand by allowing only causal sentences with effected predicates that were neither markedly ‘intentional’ nor ‘non-volitional’. Instead, either predicates denoting mental states or processes were used, or action predicates combined with a non-volitional modifier. The ambiguity with respect to volitionality of all of the resulting paraphrases was established intersubjectively by three judges.

However, closer (post hoc) scrutiny of the set of paraphrases as a whole suggests that there may be a relation between the solidity of this ambiguity, and the individual score of items. Moreover, there appears to be a relation between the ‘ambiguification’ strategy chosen and the effect of the item in the experiment. The items that contained effect predicates denoting a mental state or a mental process appear to have been least successful. Although in these contexts both *daarom* and *daardoor* seem to be perfectly acceptable, there appear to be subtle differences in appropriateness of one connective or the other. These difference can be attributed to ‘degree of controllability’ of the states or processes denoted.

According to findings from research in the field of folk psychology, in human conceptualization mental states or processes differ in terms of controllability (D’Andrade 1987) or even intentionality (Malle 2002). In categorizing mental events in terms of controllability and/or intentionality, the notions ‘intentional thoughts’ and ‘experience’ appear to be of crucial importance (Malle 2002). The first category comprises thoughts that can be evoked intentionally, therefore, are controlled by the ‘thinker’, the second category comprises ‘uncontrollable mental events’ such as perceptual and emotional verbs (notice, understand, recognize, fear (Malle 2002: 71).

The distinction between the categories ‘intentional thoughts’ and ‘experiences’ seems to be reflected in the response patterns of participants in the

experiment. In Table 6.3 and Table 6.4 scores for individual items are repeated and their effectuated predicates are summed up.

Table 6.3. Controllability of effect denoting predicate: *laten* items.

Item code	Effect denoting predicate	Controllable?	t (df)	p
Laten 1	Inzien	-	-38.964 (139)	<.001
Laten 2	Zien	-	-19.619 (139)	<.001
Laten 3	Beseffen	-	-15.720 (139)	<.001
Laten 4	Staan	+/-	7.070 (139)	<.001*
Laten 5	Passeren	+/-	3.708 (139)	<.001*

Table 6.4. Controllability of effect denoting predicate: *doen* items.

Item code	Effect denoting predicate	Controllable?	t (df)	p
Doen 1	Voelen	-	6.302 (139)	<.001*
Doen 2	Vrezen	-	5.146 (139)	<.001*
Doen 3	Geloven	+	-.506 (139)	.307
Doen 4	Rennen	+/-	2.228 (139)	.014*
Doen 5	Toestromen	?	-3.515 (139)	.001

Items *laten* 1, 2 and 3 were the three items that contradicted this experiment's hypothesis. These items were meant to be 'ambiguous for intentionality' because of their effect denoting predicates referring to mental states or processes. The predicates were embedded in the contexts of the following paraphrases¹⁶:

- (7) Tijdens de lezing toonde Greet Bierema ons dia's van 18e eeuwse tuinen.
During the lecture showed Greet Bierema us slides of 18th Century gardens
 "During the lecture, Greet Bierema showed us slides of 18th C gardens."
Daardoor/daarom zagen we in hoe de inrichting van tuinen
Because of that/that's why saw we in how the decoration of gardens
 in de loop der jaren is veranderd.
in the run of the years is changed.
 "That's how/because of that, we saw how the decoration of gardens has changed over the years."
 Het trotse zwembadbestuur gaf een rondleiding in het vernieuwde zwembad.
The proud pool board gave a tour in the renewed pool.
 "The proud swimming pool board gave a tour of the renovated pool."

¹⁶The perception of *inzien* as 'uncontrollable' in the context of (7) may be enhanced by the specific context of the cause-denoting segment. This 'event' does not contain any element evoking 'intentional considerations'. Cf. the other two contexts, where the cause-denoting segments are compatible with such an interpretation.

Daardoor/daarom zagen geïnteresseerden de resultaten van de verbouwing
Because of that/that's why saw interested people the results of the redecoration.
 "Because of that/That's how the interested parties saw the results of the renovation."

- (8) De boeren protesteerden fel tegen het nieuwe mestbeleid.
The farmers protested vehemently against the new manure policy.
 "The farmers protested vehemently against the new manure policy."
Daarom/daardoor beseftte het college dat zij bezorgd zijn over hun toekomst.
That's why/because of that realized the board that they concerned are about their future.
 "That's why/how the board realized they were concerned about their future."

All three of the effect denoting predicates are categorized in the classification system of Malle (2002) as 'experiences': unintentional mental states and processes. This classification is in accord with a categorization of the folk model of the mind, in which perception is classified as being 'uncontrollable' (D'Andrade 1987: 117)¹⁷. Uncontrollable processes are unintentional by nature. So, in this respect the preference subjects showed to have for *daardoor* as the 'best fitting paraphrase' of the preceding causal sentences is not at all surprising.

A similar line of reasoning holds for the three *doen*-items with 'mental' effected predicates: *voelen* (doen 1), *vrezen* (doen 2) and *geloven* (doen 3). The predicates were embedded in the contexts of the following paraphrases:

- (9) De journalisten zijn in groten getale aanwezig.
The journalists are in large number present.
 'The journalists are present in large numbers.'
Daarom/daardoor voelt de minister-president zich enigszins ongemakkelijk.
That's why/because of that feels the prime minister himself somewhat uncomfortable.
 'That's why/because of this (that) the prime minister feels somewhat uncomfortable.'

¹⁷ Although *inzien* and *beseffen* contain aspects of 'belief', mental states that are categorized according to the Folk model of the mind as being 'usually controllable', there is a clear link to perception as well: neither *inzien* nor *beseffen* seem to be processes that can be consciously evoked by the experiencer. Rather, these seem to denote processes that occur spontaneously and uncontrolled. Note that Malle mentions the closely related concepts of 'notice' and 'understand' as typical examples of 'experiences' (Malle 2002: 71).

- (10) De lucht vulde ich met dreigende, donkere wolken en er
The air filled itself with threatening, dark clouds and there
 vielen enkele spetters regen.
fell some splashes of rain.
 "The sky filled with threatening, dark clouds and some drops of rain
 began to fall."
Daarom/daardoor vreesden de organisatoren van de
That's why/because of that feared the organizers of the
 festiviteiten in Blokzijl zaterdagavond het ergste.
festivities in Blokzijl Saturday night the worst
 "That's why/Because of that the organizers of the festivities in Blokzijl
 Saturday night feared for the worst."
- (11) De nationalistische leiders investeren niet in de wederopbouw van
The nationalist leaders invest not in the rebuilding of
 voormalig Joegoslavië.
former Yugoslavia
 "The nationalists leaders are not investing in the reconstruction of the
 former Yugoslavia."
Daarom/daardoor gelooft het volk dat daar geen
That's why/because of that believes the people that there no
 kans meer op is.
chance more on is.
 "That's why/because of that, the people don't believe there's any chance
 of it happening."

Voelen in item *doen* 1 and *vrezen* in item *doen* 2 are clear cases of 'experiences' according to the model of Malle (2002). According to folk model of the mind too, feelings are 'usually not controllable' (D'Andrade 1987: 117). The effects of these items supported the hypotheses tested. But within the present line of reasoning, it is plausible that their effect cannot be attributed to the fact that the preceding causal sentence was marked by *doen*. Rather, preferences for *daardoor* may be caused by the predicates' inherent unintentionality.

A final interesting observation with respect to the line of argumentation set up here, is the score of item *doen* 3 in relation to its effected predicate. This is the only item of the 'mental predicate' type that shows a trend *contradicting* this experiment's hypothesis: subjects showed a slight (though not statistically significant) preference for *daarom* as the best fitting paraphrase. This pattern can be accounted for once more with reference to the conceptual understanding of causal processes 'in the mind'. *Geloven* is a mental process that is not likely to be categorized as a clear unintentional 'experience', in terms of Malle (2002). *Geloven* is a case of *belief*, a mental state that according to D'Andrade (1987) should be viewed as being 'usually controllable' (for a more elaborate discussion of the 'controllability' of *geloven*, cf. Verhagen & Kemmer 1997: 75).

No such patterns are found in the items containing an effect-denoting predicate that referred to an intentional act, combined with a modifier that possibly

(but ambiguously) amends the intentional aspect. Two of the *laten* items (4 and 5), and two of the *doen* items (4 and 5) were of this type.

- (12) De autodieven konden niet verder toen de benzine op was,
The car-thieves could not farther when the gasoline empty was,
"The car-thieves couldn't go any further once the petrol was gone,"
daardoor/daarom stond het voertuig aan het begin van de
Vollenhoofsedijk.
because of that/that's why stood the vehicle at the start of the
Vollenhoofsedijk
"because of that/that's why the car stood still at the top of the
Vollenhoofsedijk."
- (13) De politie constateerde tijdens alcoholcontroles dat enkele fietsers
The police determined during alcohol checks that some cyclists
teveel gedronken hadden.
too much drank had.
"At an alcohol check-point, the police confirmed that some cyclists had
consumed too much alcohol."
Daarom/daardoor passeerden deze mensen niet zonder
That's why/because of that passed these people not without
bekeuring de controlepost.
ticket the check-point
"That's why/because of that/ For this reason, these people did not leave
the checkpoint without a ticket."
- (14) De nieuwsberichten over marsmannetjes waren nogal realistisch, en
The news messages about Martians were rather realistic, and
"The news reports about Martians were quite realistic and"
daardoor/daarom renden de mensen in paniek de straat op.
because of that/ that's why ran the people in panic the street on.
"because of that, people ran into the street in panic."
- (15) Het basketbal was afgelopen zaterdag erg spectaculair.
The basketball was last Saturday very spectacular.
"Last Saturday's basketball was quite spectacular."
Daarom/daardoor stroomde het publiek ook deze week
That's why/because of that streamed the audience also this week
weer massaal naar de sporthal toe.
again in masses to the gymnasium to.
"That's why/because of that crowds flocked to the gymnasium this week
as well."

In (14), the effect-denoting predicate *rennen*, that in itself is inherently intentional, is modified by *in paniek*. The mental state of 'panicking' is by definition non-intentional. Because of the juxtaposition of these two elements, the effect-denoting sentence has an ambiguous reading. It can be interpreted focusing either on the intentional aspect or on the non-intentional aspect. In (13) and (12), the ambiguity seems to reside in the perspective chosen for interpretation. If the effect-sentence in (12) is interpreted within the perspective of the 'police officers', the effect-denoting predicate plus its modifier 'not without a fine' may be interpreted as an intentional act. Within the perspective of the 'passers by', on the other hand, the effect-denoting predicate plus modifier, may be interpreted as unintentional. A similar line of reasoning holds for (12) (once it is recognized that *stond* 'stood' may be interpreted as the outcome of *zetten* 'put' or 'park'). Subjects' judgment on these items confirmed the hypothesis tested. Only item *doen* 5 does not conform the pattern: it is built making use of a similar strategy but subjects preferred *daarom* as a paraphrase. However, the overall pattern is clear: 'action + controllability amending modifier' does not *necessarily* lead to categorization as 'controllable', and thus can be considered 'real ambiguous items'.

The post-hoc analysis presented here, detecting a skewing in data for the factor 'controllability of effected predicate', is corroborated by a logistic regression analysis (reported in Appendix 6-2). This analysis took into account a number of factors contributing to categorization patterns in causal verbs and causal connectives: agency of causer and causee, and intentionality of the effect denoting predicate (cf. Chapter 3 and Chapter 4). The relative contribution of each of these factors is reported in column *B* of Table 6-2.2 in Appendix 6-2. As this table shows, the factor 'intentionality of the effect-predicate in *laten*-items' contributes relatively heavily to the overall effect found (positive value of *B*; $p < .001$).

Subjects' task

A second alternative explanation for the unexpected results is a 'mismatch' between the subjects that participated in the experiment and the level of abstractness of the task. The experimental task is rather complex; it probably demands subjects with considerable abstract-analytical capacities. The question presents itself whether first year university students and second year students in higher vocational education already have these competences to an extent sufficient for this task (cp. Sanders, Spooren & Noordman 1993: 109). An indication for the contrary is the fact that several subjects reported finding the task 'difficult'. Furthermore, there are indications that part of the subjects didn't carry out the task the way it was meant to be; they appeared to compare the paraphrases with each other and pick out the 'nicest one', instead of comparing each paraphrase with the preceding causal sentence and picking out the paraphrase that 'resembled the original sentence best', as they were instructed to do. Some subjects reported having proceeded that way,¹⁸ and another strong indication for 'picking out the nicest paraphrase' as a response strategy, is the patterning of scores that correspond systematically with

¹⁸ Deduced from comments like "well, I actually didn't need those introducing sentences, I can tell which one is best just like that!"

characteristics of the usage contexts - discussed above as a first alternative explanation.

Conclusion

It is difficult to tell whether the two possible alternative explanations discussed here are really ‘alternatives’, or whether they are closely connected – one situation provoking the other. If one or both of the explanations holds, we must conclude that the present findings, at least those resulting from the items containing an ‘mental’ effected predicate, *cannot* be attributed to the idea that was to be tested with this experiment: “with *doen*-marked sentences, subjects show preference for *daardoor* as the best fitting paraphrase, with *laten*-marked sentences, preferences are with *daarom*”. The ‘bad’ scores of the *laten*-items as well as the ‘good’ scores of the *doen*-items may have to be attributed to other factors, either characteristics of the test population, or insufficient quality of the test instrument - or even a combination of the two. Patterns found in the responses suggest that categorization choices rather depended on other factors present in the linguistic and conceptual context of the sentences, notably in their effected predicates. Therefore, it was decided to replicate the experiment, with modifications at two points: better trained subjects and better quality of the test instrument with respect to ambiguity of the paraphrases. As objective and unambiguous criteria for determining ‘intentionality’ and ‘controllability’ beforehand don’t exist, a more sophisticated way of testing the ambiguity was called for.

6.5 Experiment

In the final version of the experiment, refinements were added on the level of item construction and with respect to selection of subjects. The experimental design of the pilot version was basically maintained.

6.5.1 Material and task

In the second version of the experiment the hypothesis was tested somewhat more extensively: 30 items were tested, instead of 10 items in the pilot version. In order to reduce error variance as much as possible, this time, different types of items were used. Figure 6.1 presents an overview.

Item type	Number of items
Natural text items (N)	16
Laten-marked:	7
Doen-marked:	9
Chameleon items	
Laten-versions (L)	10
Doen-versions (D)	10
Fillers (F)	30
Sum total	56

Figure 6.1. Item types included in the final version of the experiment

All of the items were newly constructed. A first adjustment to material construction was the character of the items constructed. Of these items, 20 were constructed following the procedure described in Sections 6.2 and 6.3. These will be referred to as 'natural text items'.

In an attempt to test the hypothesis more directly, a new type of items was added: the 'chameleon items'. These items differed from the 'natural text items' in the characteristic that their usage context was ambiguous *not only* with respect to the use of *daarom* and *daardoor* in the paraphrases, but *also* with respect to the causal verbs. The analytic causative constructions in these could be marked with both *doen* and *laten*.

- (17) [Context: During a press conference the Minister for Education presented the proposed cut-backs.]

De kritisch doorvragende journalisten **deden** hem vrezen voor de
*The critically through asking journalists **did** him fear for the*
weergave van zijn plannen in de media.
representation of his plans in the media.

"The persistently critical journalists made him worry about the representation of his plans in the media."

Paraphrase

De journalisten bleven kritisch doorvragen;

The journalists stayed critically through asking;

"The journalists continued to pose critical questions."

a. **daardoor** vreesde hij voor de weergave van zijn plannen in de media.

because of that feared he for the representation of his plans in the media

"because of that, he worried about the representation of his plans in the media."

b. **daarom** vreesde hij voor de weergave van zijn plannen in de media.

that's why feared he for the representation of his plans in the media.

"that's why he worried about the representation of his plans in the media"

This 'double ambiguity' enables us to test the hypothesis in the same usage context in two directions, as follows:

Each 'chameleon item' was inserted in the test instrument twice: once marked with *doen* and once marked with *laten*. If H_1 holds, expectations are that a chameleon item marked with *doen* leads to overall preference of the *daardoor*-paraphrase. If, on the contrary, the same chameleon item is presented with *laten*, expectations are that in paraphrasing, preferences will shift to *daarom*. Findings like these would constitute even more direct and finegrained evidence for H_1 of this experiment.

Furthermore, on theoretical grounds it might be argued that results for this item type will be more clearcut. Both the intraclausal and the interclausal relations are ambiguous with respect to causality type. This implies that the text fragments in chameleon items contain as least contextual elements as possible that may interfere with the categorization choice. It is to be expected that subjects base their categorization decision maximally on the inherent semantics of the causality markers present in the test items. If this holds true, it might be argued that 'chameleon items' test the similarity hypothesis in its 'purest' form.

One important drawback of 'chameleons', however, is that they don't occur in real language use very frequently. Consequently, not all of the chameleon items included in the material are natural examples. The best 'chameleon candidates' were causative constructions in which a rather typical *laten*-context had been marked with *doen*. This kind of 'exploitative use' of *doen* is described by Verhagen & Kemmer (1997: 74-7; cf. discussion in Chapter 3). Because of this specific character of the chameleons (animate causer, animate causee), we were quite sure that *laten* fitted the context as good as *doen* would; therefore the ambiguity of the causative constructions for usage of *doen* and *laten* was not tested. The intersentential paraphrases of the chameleons were tested along with those of the regular items.

Another adjustment was that this time, the material was extensively and empirically pretested for ambiguity. To that end, all intersentential paraphrases (i.e.: all test items, leaving out the preceding intrasentential causal relation) were presented as 'causal text fragments' in print to thirteen test subjects representative of the test population. They were asked to mark the connective that, in their opinion, fitted the context best. It was assumed that the more ambiguous a given context was, the more dispersed the judgements of the group of subjects as a whole would be.

It was found indeed that with some items, preferences were distributed evenly, while with others there appeared to be a clear collective preference for one of the two options. Only contexts with a minimal score proportion of 3 : 10 (three subjects preferring one option; ten subjects preferring the alternative; up to 6 : 7) were admitted, assuming that in these cases *daarom* and *daardoor* fitted equally well in the given contexts. If the score proportion was 2 : 11 or worse (down until 0 : 13), it was assumed that the connective least frequently chosen was less appropriate in the given context than its counterpart. The items to which these paraphrases belonged were either revised or replaced by other contexts. Before including them in the test instrument, the resulting new paraphrases were pretested following the same procedure over again.

Finally, in order to facilitate the performance of the experimental task, special attention was given to 'interpretability' of the test items. This was done with respect to the causal relations reported, as well as to the text fragments as a whole. This time, only 'iconic'(-like) relations were admitted. To further facilitate interpretation, each item was introduced by a single sentence adding some context for interpreting the causal relation to follow. Information that was part of the original material for the 'natural text items' that was not essential to interpreting the causal process reported (mainly modifiers), was left out. In order to distract subjects' attention from the experimental goal, about half of the material consisted of fillers, constructed

following the procedure described in 6.4.1. An overview of the items tested in the final version of the experiment is presented in Appendix 6-3.

6.5.2 Subjects and procedure

With the results of the pilot experiment in mind, advanced university students were selected as test subjects in the final version of the experiment. The experiment was presented as an integrated part of an advanced level course on cognitive processes of reading and writing. As an obligatory preparation for taking part in this course, all students had attended a course on text analysis. So all of the subjects were familiarized with the idea that sentences in a text are connected by 'coherence relations' (cf. discussion in Chapter 4), and with the idea that different types of causal relations may exist. Furthermore, all of the subjects were advanced level students either in Dutch language and culture, or in study Liberal Arts (specializing in 'verbal communication'). On these grounds, expectations were that the present subjects were more experienced analysts of language data, and more proficient in performing an abstract analytical task such as the one at hand, than the test subjects of the pilot version.

Approximately 40 students enrolled for this course. The experimental sessions were held at fixed moments during three of the four seminars scheduled. Attendance per session fluctuated between 25 and 30 persons total. Each session lasted about 15 to 20 minutes. Preceding the first session, an instruction was spoken by the experimentator. A summary of this instruction was attached as a title page to each copy of the experiment; participants were asked to reread it each session before they started working on the task. With the results for the pilot version in mind, in the written as well as in the oral instruction, the need to compare the intersentential paraphrases to the intrasentential version of the causal relation was emphasized.

Because of the heavy workload of a task of this size, it was split up into three parts (A, B and C). Obviously, this experiment starts from the assumption that language users' intuitions concerning meaning and use of grammaticalized items such as causality markers are solidly stable. Nevertheless, the data we are collecting in this experiment can only give a rough indication of an individual subject's intuition, and these may fluctuate under the influence of learning effects or circumstantial factors such as distraction/ degree of concentration. Therefore, all of the subjects were assigned a number ranging 1 to 3. The experiment parts were presented to the sub-groups of subjects in random order, as summarized in Figure 6.2. Measurements were carried out with time intervals of one week.

	Measurement 1	Measurement 2	Measurement 3
Group 1	A	B	C
Group 2	C	A	B
Group 3	B	C	A

Figure 6.2. Distribution of experiment parts over measurement moments.

The different types of items (cf. Figure 6.1) were distributed evenly (per 'type cluster') over the three subparts (A-C) of the experiment. The order of items was randomized. Randomization was also applied to order of appearance of *daarom* and

daardoor as paraphrases, and also to types of punctuation between the two segments of the intersentential causal relation in the paraphrases (full stop, semicolon, or comma + coordinator *en* (*and*)).

6.5.3 Results

The results were analyzed per cluster of items (cf. Figure 6.1). Statistical analysis was done, as in the pilot version of the experiment, with an itemized, one sample T-test (cf. Section 6.4.2). The overall picture that emerges from the data suggests that there are clear (statistically significant) tendencies in favor of the hypothesis. The results will be discussed per cluster of items.

Natural text items

Table 6.6 summarizes the findings for the *doen*-marked items. Though the exact strength varies over items, overall the *doen*-items show a strong tendency in the expected direction. Eight out of nine items have a mean score value $> .5$, which indicates that in these cases a majority of subjects judged in accordance with the hypothesis tested: that the *daardoor*-paraphrase resembled the original *doen*-marked sentence best. Five out of these eight items show a strong effect.

Table 6.6. Results hypothesis '*doen* parallels *daardoor*': natural text items.

Item code	Degree of correspondence	t (df)	p ¹⁹
Doen 1	.23	-3.195 (25)	.002
Doen 2	.59	.961 (26)	.173
Doen 3	.84	5.044 (30)	<.001*
Doen 4	.77	3.592 (30)	<.001*
Doen 5	.54	.386 (25)	.352
Doen 6	.81	3.904 (25)	<.001*
Doen 7	.77	3.195 (25)	.002*
Doen 8	.70	2.275 (26)	.016*
Doen 9	.81	.900 (25)	.189

How should these findings be interpreted? There is a clear trend in the expected direction, and five out of the nine items tested support the hypothesis 'according to language users *doen* resembles *daardoor*' in a statistically significant way, but the remaining four don't. In order to determine the significance of these results, the probability that the present findings must be attributed to chance can be estimated. In other words: we have to compute the probability that H_0 is true while finding 'good' and 'bad' results in the present proportion. To that end, a binomial test was carried out. It was found that the chance that H_0 holds in the present situation approaches zero ($p = .00003$). This result indicates that the findings for *doen*-marked natural text items can be interpreted as support for One of the hypotheses tested in

¹⁹ Since the T-test output is 2-tailed and the hypothesis tested in this study is one-sided, a value of $p < .05$ does *not* automatically entail that the results of the item involved should be regarded as 'in accordance with hypothesis'; this can only be concluded if $p < .05$ AND the mean score $> .5$. Significant results are indicated with an asterisk (*)

this experiment: "language users experience similarities between the causal verb *doen* and the causal connective *daardoor*".

The natural text items marked with *laten* reveal a highly similar pattern. Of the 7 items tested, 5 show a tendency in the expected direction. Four of these items show a strong statistically significant effect. The significance of the proportion of items supporting the hypothesis and items that don't was estimated with a binomial test. It was found that the probability that the present findings for *laten* must be attributed to chance is very small again ($p = .0002$). This finding can be interpreted as an indication that H_1 of this study holds for the *laten*-items as well: language users experience similarities between the causal verb *laten* and the causal connective *daarom*.

Table 6.7. Results hypothesis '*laten* parallels *daarom*': natural text items.

Item code	Degree of correspondence	t (df)	p
Laten 1	.58	.895 (30)	.189
Laten 2	.11	-6.310 (26)	.000
Laten 3	.96	12.500 (26)	.000*
Laten 4	.50	.000 (25)	.5
Laten 5	.71	2.530 (30)	.009*
Laten 6	.85	5.505 (26)	.000*
Laten 7	.74	3.028 (30)	.003*

Still, with *doen* as well as with *laten*, there are items that do not support H_1 in a statistically significant way, although most of them show trends in the expected direction. Given the strong effects for the items that *do* score significantly, and, of course the estimation of significance of the proportion of supporting and non-supporting items found, it does not seem likely that the 'bad scores' imply that H_1 must be rejected on the basis of findings for the 'natural text items'.

Chameleon items

The 'chameleon items' show a dramatically different picture. The results of the *doen*-marked versions of the items are summarized in Table 6.8. The results of the *laten*-marked versions are summarized in Table 6.9. None of the expectations formulated in Section 6.5.1 are borne out by this data.

Seven of the *doen*-marked chameleon items show a trend in the expected direction ('degree of correspondence $>.5$ '; cf. discussion in 6.4.2). But of only two of them, the effect is statistically significant. Three items score in the opposite direction. As a consequence, the 'statistical significance' of these items can be ignored. Can these findings be attributed to H_1 of this study: language users experience similarities between *doen* and *daardoor* as causality markers? According to an estimation based on the binomial test, the probability that the present results must be attributed to chance, is much bigger than with the 'natural text'-items: $p =$

.07. We must conclude, therefore, that the findings with the *doen*-versions of the chameleon items are most probably *not* caused by an effect of H_1 .²⁰

Table 6.8. Results hypothesis ‘*doen* parallels *daardoor*’: chameleon items.

Item code	Degree of correspondence	t (df)	p
Chameleon D1	.61	1.270 (30)	.107
Chameleon D2	.52	.189 (26)	.426
Chameleon D3	.55	.533 (30)	.299
Chameleon D4	.52	.189 (26)	.426
Chameleon D5	.77	3.195 (25)	.002*
Chameleon D6	.30	-2.275 (26)	.016
Chameleon D7	.65	1.617 (25)	.059
Chameleon D8	.88	6.019 (25)	<.001*
Chameleon D9	.45	-5.33 (30)	.299
Chameleon D10	.15	-5.050 (26)	<.001

A similar picture emerges from the *laten*-versions. Here, only three out of ten items show a trend in the expected direction. Of these items, two items’ scores are statistically significant. Not surprisingly, the binomial testing of these findings produces the same result as with the *doen*-items: the probability of finding these proportions when H_0 is true, is .07. Therefore, for the *laten*-versions H_0 cannot be rejected either.

Table 6.9. Results hypothesis ‘*laten* parallels *daarom*’: chameleon items.

Item code	Degree of correspondence	t (df)	p
Chameleon L1	.52	.189 (26)	.426
Chameleon L2	.39	-1.270 (30)	.107
Chameleon L3	.35	-1.617 (25)	.059
Chameleon L4	.50	.000 (25)	.500
Chameleon L5	.44	-.570 (26)	.287
Chameleon L6	.69	2.083 (25)	.024*
Chameleon L7	.39	-1.270 (30)	.107
Chameleon L8	.23	-3.592 (30)	<.001
Chameleon L9	.37	-1.369 (26)	.092
Chameleon L10	.90	7.470 (30)	<.001*

For the chameleon items, the specific hypothesis tested is: “changing of causal verbs entails changing of preference for connective”. In order to interpret the data with respect to this hypothesis, the scores of *doen*- and *laten*-versions of the chameleon items must be analyzed in relation to one another. If the hypothesis holds, it is expected to find that a mean score > .5 on one version is accompanied by a similar high score on the other version as well (since both scores are coded as a measure of accordance with the hypothesis stated).

²⁰ Starting from a level of acceptance of $p < .05$

However, the only conclusion can be that this hypothesis is not supported by the findings reported in Table 6.8 and Table 6.9. Six of the items (1, 2, 3, 4, 7 and 9) don't show any effect in either direction. Apparently, in these cases none of the preceding verbs influenced the subjects' preference for one of the paraphrases in a statistically significant way. Nor do the data reveal any trend signaling the hypothesized effect of alternation of the verbs.

The four remaining items (5, 6, 8, 10) show a slightly different pattern. In these cases, one or both of the *doen*- or the *laten*-version show a significant effect for paraphrase preference, but without exception this effect is 'one sided': the preference for a paraphrase appears not to be influenced by the preceding causal sentence. Twice subjects seem to prefer *daarom* in a certain context, regardless of the preceding verb marking (6 and 10), and twice they prefer *daardoor* after having read both the *doen*- and the *laten*-version of the causal relation. In a weaker form, a similar trend can be perceived in items 1-4, 7 en 9. With respect to the chameleon items, then, the final conclusion must be that none of the items supports the hypothesis tested in this experiment.

6.6 Discussion and conclusion

This chapter's aim was to empirically test the idea that categorizations made by causal auxiliary verbs and causal connectives show parallels. More specifically, the present chapter investigated intuitions language users might have at this point. On the basis of findings reported in Chapters 3, 4 and 5, it was hypothesized that the meaning of causal auxiliary *doen* parallels the meaning of causal connective *daardoor*, and that the meaning of causal auxiliary *laten* parallels the meaning of causal connective *daarom*. An experiment was reported that tested the following hypothesis: if subjects are asked to paraphrase a causal relation marked with *laten* with *daardoor* or with *daarom*, they show a preference for *daarom*; if subjects are asked to paraphrase a causal relation marked with *doen* with *daardoor* or with *daarom*, they show a preference for *daardoor*.

The overall hypothesis is supported by the findings. This section starts with an overview of the findings. Next, the overall significance of the results with respect to the hypothesis tested will be assessed. Finally, the significance of the results with respect to the major aim of this experiment will be discussed: can the results be interpreted as evidence for this study's main hypothesis, that categorizations made by causal verbs parallel categorizations made by causal connectives?

Summary of the results

The hypothesis was tested with different types of experimental items. These types turned out to 'behave' differently. Starting with the 'natural text items', based on 'real life' occurrences of *doen* and *laten*: 8 out of 9 *doen*-marked items tested showed a trend in the expected direction. The majority of these showed a statistically significant effect: 5 out of 9 items support this experiment's hypothesis. With the *laten*-items, a highly similar picture was found. Of the 7 items tested, 5 showed a trend in the expected direction. The result of 4 out of these items is statistically significant. And again, this level of significance indicates a strong effect.

Although not all of the items support the H_1 of this experiment individually, overall the *doen*-marked items as well as the *laten*-marked ones do. A statistical assessment of the overall (statistical) significance of these results suggested that the chances that the specific pattern found are *not* to be attributed to H_1 , is well approaching zero.

The other type of items tested were the ‘chameleon items’. These items differed from the ‘natural text’ ones in that they were ambiguous not only with respect to marking with *daarom* or *daardoor*, but also with respect to marking with *laten* or *doen*. The ‘chameleons’ reveal a totally different picture. Each ‘chameleon item’ was inserted in the test instrument twice: once marked with *doen* and once marked with *laten*. With the individual *doen*-variants as well as the *laten*-variants, only two of the ten items showed statistically significant effects in the expected direction. According to an estimation based on the binomial test, these findings are most probably *not* caused by an effect of H_1 . Similarly, there was no effect for alternation of *doen* and *laten* in the causal sentences: either there was no effect at all, or preferences for one of the paraphrases remained constant, in spite of alternating *doen* and *laten*.

Discussion

How can the fact that the chameleons differ from the natural text items so strongly be accounted for? Considering the way the chameleon items were constructed, an important difference with the natural text items attracts attention. Contexts of the latter type were either literally adopted from natural texts, or they were slightly edited to facilitate intersentential paraphrasing. The chameleon items on the other hand were often entirely constructed texts. Natural examples of analytical constructions with contexts that allow for *doen*- as well as *laten*-marking do exist, but they are rare. Natural examples of this kind of analytical constructions with effected predicates that allow for both *daarom* and *daardoor* when extended to intersentential versions were almost non-existent in the corpora used in this study. Even making them up was a difficult job.

The invented items have one characteristic in common: the contexts have become rather ‘faded’ in terms of the features that determine the categorization of causality in normal contexts. A possible explanation for the difference in behavior may be that in these contexts, unlike the contexts of natural texts, subjects just didn’t have enough ‘ground’ for identifying causality type in the causal sentence. As a consequence information could have been lacking to make an apt comparison between an intrasentential and intersentential version of the same causal relation.

An explanation along these lines is of course speculative, but it is in accordance with response patterns found in the pilot experiment (cf. Section 6.4.4). These patterns suggest that the task has become too abstract for the subjects; they either seemed not to know at all what to choose (result: no effect whatsoever), or they seemed to base their choice solely on input from the paraphrase contexts, in other words: forgot about ‘comparing’ and just picked out the nicest intersentential version of the causal relation. Assuming then, for the time being, that the natural text items are better suited for testing parallels between causal verbs and causal connectives, the assessment of the overall significance of the results will rely on these items.

It is evident that the results of the second version of the experiment form a pattern that is more stable than the one found with the first version. There are still items that behave differently, but no systematic patterning is found in their behavior. The most obvious conclusion then is that *overall* the instrument measured the intended construct, but that not all items measured it to the same extent. The findings of this experiment and the analysis of the findings suggest that limits exist to the kind of issues that can be tested with experimental tasks.

The possibility that the task used here was simply too difficult, at least for first year university students and second year students in higher vocational education (selected as test subjects in the first version of the experiment) was discussed in section 6.4.4. Speculatively, the fact that results for the second version of the experiment were more univocal may be interpreted as an indication that the present subjects are better up to the task. But still, the low reliability score on this version of the experiment signal inconsistencies in judgements of the test subjects, that may very well be caused by difficulties in carrying out the task.

Methodological considerations

A last point to be addressed is the question of the validity and generalizability of the experimental design presently used for investigating the question “do language users experience parallels between meaning and use of causal verbs and causal connectives?” As noted at the outset of this chapter, it has important advantages as well as certain drawbacks. A clear advantage is the possibility of manipulating text material so as to put the comparability of causal verbs and causal connectives on edge. A serious drawback however is the complexity of the experimental task just discussed.

A second potential drawback is that the parallels between the causal verbs and causal connectives tested are not 100%. Direct comparability as suggested in this experiment is principally impossible: verbs and connectives are inherently different. This fact has been accounted for by selecting only usage-contexts that were part of overlapping usage spaces of *doen* vs. *daardoor* on the one hand and *laten* vs. *daarom* on the other. But as noted before, the set of usage contexts that meets the demands of this experiment’s design and goal is rather limited. They can be characterized as *non*-prototypical examples, at the ‘fuzzy edges’ of the usage categories of the respective markers identified in previous chapters. Still, these usage-contexts too are ‘natural ones’. Therefore it doesn’t seem obvious that generalizability of results is put at risk beforehand. Finally, the parallel was tested in only one direction: analytic causative constructions were paraphrased with intersentential relations. Testing in the opposite direction (from intersentential relations to analytic causative constructions) is logically conceivable.²¹

Conclusion

The present chapter has shown that testing the similarity hypothesis *is* possible and worthwhile. Although the experimental task is still complex, the results can be interpreted meaningfully as a first empirical indication that the meanings of causal

verbs and causal connectives show parallels, according to the intuition of language users. This finding supports the cognitive plausibility of the integrative perspective on causality markers proposed in this study. The next chapter will provide evidence at a more analytical level, adding to the descriptive adequacy of the proposal.

Chapter 7

Causality marking at the clause-level and at the discourse-level: similarities and differences

7.1 Introduction

The central assumption of this study is that the meaning and use of the causal verbs *doen* and *laten* and the causal connectives *daardoor*, *daarom* and *dus* are related to the conceptual understanding of causal relations. In the previous chapters, a number of studies were reported that aimed at testing this hypothesis. Chapter 2 set out by introducing a body of theories that were expected to be helpful in answering the research question. Chapters 3, 4 and 5 tested this study's hypothesis for the marker types 'in isolation'. Chapter 6 introduced an integrative perspective on this study's central hypothesis. If the hypothesis holds true, the assumed parallel between semantic and conceptual structure should not only be evident at the clause level or the discourse level in isolation, but it should also be demonstrably present *across* different levels of the language structure. Chapter 6 reported an experiment that aimed to test language users' intuitions with respect to parallels at the conceptual level. Again, the results provided support for the hypothesis.

The present chapter will elaborate on the findings of Chapter 6, by investigating the exact range and nature of the parallels. The first two sections focus on the parallels in the categorizations with verbs and connectives. In Section 7.2 hypotheses will be formulated on the basis of the findings so far. Section 7.3 tests these hypotheses in a corpus analysis. The results will be used for evaluating this study's central hypothesis. Section 7.4, finally, focuses on limits to the parallels found. Differences between the meaning of verbs and connectives will be investigated and analyzed. The guiding assumption will be that differences in overall lexical semantics of the markers can be related to construction-related properties.

7.2 Conceptual similarities between causal verbs and causal connectives: hypotheses

This chapter takes an integrative perspective on mechanisms governing the categorization of causal relations with causal verbs and causal connectives. As was noted in Chapter 2, there are in fact *two* types of categorizations involved in this study. The first type is *intra-level categorization*: the selection of a specific verb or connective for marking a given causal relation formulated at the clause-level or at

the discourse level. This categorization type has been at the center of attention in this study. But selecting a level of linguistic representation for a given causal relation, either clause-level or discourse-level, may be taken to be an act of categorization too - it can be termed *cross-level categorization*.

The constructions in which causal verbs and causal connectives are used differ in crucial aspects. Within the field of cognitive semantics, it is generally assumed that 'structural' aspects of the construction may influence the overall conceptualization of a linguistically reported event. In the linguistic construal of a causal relation, lexical factors may interact with constructional factors. In an ideal situation then, an analysis of conceptual similarities would separate the two levels of categorization; an analysis of 'intra-level' similarities should be conducted in isolation of the 'cross-level', constructional factors. However, as was already discussed in Chapter 6, this is principally impossible. But it *is* possible to separate intra- and cross-level factors in an analytical manner. This is where the present investigation will start.

First, a short summary of considerations so far will be presented. As was already noted in Chapters 1 and 2, the most obvious difference between the constructions in which causal verbs and causal connectives are used is the nature of the event that represents the cause-part. Consider once more the difference between (1) and (2), based on Talmy's (1976; 2000) 'basic causative situation', discussed in Section 2.3.5:

- (1) S (event) CAUSE S (event)
De zon schijnt. **Daardoor** loopt de temperatuur op.
*The sun is shining. **That is why** the temperature is rising.*
- (2) S (Causer CAUSE event)
De stralende zon **doet** de temperatuur oplopen.
*The shining sun **is making** the temperature rise.*

In (1) a causal relation is constructed between two (or more) completely specified events, expressed in grammatically complete clauses, symbolized with the letters S. In analytical causative constructions, on the other hand, the causing event is left relatively unspecified. If the causal relation in (1) were to be expressed in an analytical causative construction, it would probably look something like (2).

This study follows Kemmer & Verhagen's (1994) proposal to view analytical causative constructions as simple clauses (symbolized in (2) with the letter 'S'). In these constructions, the 'cause' part has the form of a noun phrase, and contains generally less specific information than a full clause would. There are also differences in the way the effect part is realized in the constructions, but these differences are smaller: in both constructions the effect part is formulated in some kind of clause, the 'only' difference being that in the intersentential construction the verbal element is finite, while in the analytical causative construction, it is non-finite (cf. discussion in Chapter 6).

An important parallel, however, exists in the construal of the causal relation itself. Whereas the overall conceptualization of the causal relation may very well differ, in both constructions it is one and the same element, the Locus of Effect (LOE), that is of crucial importance for categorization of a given causal relation

reported in either one of the constructions¹ (cf. discussion in Section 6.3 and Section 7.3 below). This is a first important conceptual parallel between causal verbs and causal connectives; to be more precise: it is its nature that crucially influences categorization. To what extent are they ‘real’ parallels? Are there any differences in delineation of the concepts found to be relevant? In this section, further parallels in meaning and use of causal verbs and causal connectives are investigated. LOE patterns will be related to conceptual models that were found to be relevant.

7.2.1 Categorizations of *doen* and *laten* in *daardoor*, *daarom* and *dus*?

This section analyzes the conceptual parallel between causal verbs and causal connectives by investigating to what extent categorizing mechanisms of verbs can be used to characterize usage-patterns found with connectives. It will be proposed that in spite of small differences, a clear parallel can be established.

Chapter 3 proposed that meaning of Dutch *doen* and *laten* can be described in terms of ‘animacy’ (prototypical cases) and ‘directness of causation’ (cf. Verhagen & Kemmer 1997; Kemmer & Verhagen 1994). For convenience, the examples of Verhagen & Kemmer (1997) discussed in Chapter 3 are repeated below:

- (3) De extreme koude **deed** de rivieren bevroeren.
*The extreme cold **caused** the rivers to freeze.*
- (4) De koude wind **deed** haar verlangen naar een beker warme chocolademelk.
*The cold wind **made** her long for a hot cup of chocolate milk.*
- (5) Hij **liet** zijn soep afkoelen.
*He **let** his soup cool.*
- (6) Ze **lieten** de kinderen nog wat extra rondjes schaatsen.
*They **had** the children skate some extra rounds.*

If a causative event is conceptualized as being under complete control of its onsetter, the causer, the process is categorized with *doen* as an instance of direct causation ((3) and (4)). If, on the other hand, the causal process is conceptualized as such that some other force besides the causer is the ultimate source of energy in bringing about the causal effect, the process is categorized with *laten* as an instance of indirect causation ((5) and (6)). In Chapter 3 it was proposed that this ‘second force’ is systematically related to the *causee*. The difference between *doen* and *laten* in terms of ‘directness of causation’ is summarized in Figure 7.1:

¹ However, this is only part of the explanation for analytical causative constructions: in these cases it is actually the nature of the *interaction* between causer and causee that defines categorization (cf. Section 8.3)

Doen	Laten
<i>Direct causation</i>	<i>Indirect causation</i>
The causer is conceptualized as causing the effected predicate immediately and directly	Some other force besides the causer is the <i>most</i> immediate source of energy in the effected event
-> <i>non-autonomous causee</i>	-> <i>autonomous causee</i>
Prototypically	Prototypically
- inanimate CR – inanimate CE	- animate CR – animate CE
- inanimate CR – animate CE	

Figure 7.1. Semantic categories of *doen* and *laten*.

Verhagen & Kemmer (1997) identified several conceptual models that influence categorization of a given causal relation as an instance of either ‘direct’ or ‘indirect causation’. Firstly, the conceptual model of Force dynamics (Talmy 1988) was found to be relevant. However, in Dutch, only the basic concept of ‘opposition between forces’ seems to be coded in causal verbs. Categorization of these ‘interaction of forces’ was shown to be strongly influenced by a model that Verhagen & Kemmer termed Naïve dualism. This model distinguishes the mental world of animate beings as crucially different from their physical environments, consisting of ‘things’, characterized by ‘inanimacy’. Concrete categorizations in terms of animacy were found to be influenced by a third model: the Folk model of the mind, specifying “how situations and processes in the mind may be caused” (D’Andrade 1987).

The remainder of this section will investigate possible parallels between categorization in terms of directness of the causal relation and the categorizations made by causal connectives. The venture will start by exploring the possible presence of the three conceptual models just mentioned: Force dynamics, Naïve dualism and the Folk model of the mind.

Force dynamics

Chapter 3 proposed that in intrasentential causal relations marked with the verbs *doen* and *laten*, the type of interaction between the causer and the causee determines categorization of the causal relation. It was concluded that in analytical causative constructions, it is the “balancing of forces”, or: the relative importance of the causer’s force and the second force’s contribution - that determines categorization. If the causer’s contribution is interpreted as ‘controlling the causative situation completely’, the causal relation is categorized as ‘direct’; if, alternatively, the causee is understood to be most directly involved in bringing about the causal effect, the causal relation is categorized as an instance of indirect causation.

Daardoor, *daarom* and *dus* mark causal relations *between* clauses. These interclausal causal relations are also easily understood as ‘interaction between forces’: the cause-part (represented by at least one clause) interacts with the effect part of the causal relation (again, represented by at least one clause). Chapter 4 proposed that categorization patterns are determined by the Locus of Effect (LOE), the point where the cause-part ‘contacts’ the effect part of the causal relation (cf.

discussion in Chapter 4). In causal relations marked with *dus* and *daarom* the LOE was identified as the ‘Subject of Consciousness’ (SOC), responsible for constructing the causal relation. In causal relations marked with *daardoor*, it is the ‘non-SOC’ grammatical subject of the effect clause. By way of illustration, consider the examples below:

- (7) [Het regende]_{S1}. **Daardoor** [werden de straten nat]_{S2}.
[It was raining]_{S1}. Because of this [the streets became wet.]_{S2}
- (8) [Het regende]_{S1}. **Daarom** [gingen we snel naar binnen]_{S2}.
[It was raining]_{S1}. That is why [we hurried inside.]_{S2}
- (9) [Het regent]_{S1}. **Dus** [we kunnen beter naarbinnen gaan]_{S2}.
[It was raining]_{S1}. So [the laundry would have gotten wet.]_{S2}

In (7), which contains a non-intentional or objective causal relation marked with *daardoor*, it is the grammatical subject of the second sentence, *de straten*, ‘the streets’, that is directly affected by the situation in S1: the fact that it is raining. The same goes for (8), an intentional or explicit SOC-causal relation marked with *daarom*: the situation in S1 directly affects the grammatical subject of S2, *we*, (‘we’), functioning as the SOC who interprets the situation of ‘rain’ as a reason ‘to go inside’. Finally, in (9), a prototypical *dus*-marked causal relation, it is not an element within the proposition functioning as the causal effect that is relevant for categorizing the causal relations as an instance of ‘subjective causality’, but it is the speaker, only conceptually present as the source of the causal relation that is understood to be the LOE.

In sum, the discussion so far suggests that at a conceptual level, in the construal of intersentential causal relations, the concept of force dynamics also seems to be relevant. There is however a slight difference in the relative importance of the ‘interacting forces’. The meaning of *doen* and *laten* is defined in terms of ‘balancing of forces’ of the causer and the causee in the causal process; causer and causee are equally important in determining categorization patterns. The semantic distinction between *daardoor*, *daarom* and *dus*, on the other hand, focuses attention only on the role of the LOE.

Naïve dualism

Chapter 3 proposed that the distinction between animate and inanimate core-participants defines the meaning difference between *doen* and *laten* at the level of their prototypes. The corresponding conceptual model of ‘naïve dualism’ appears to play a role in the categorization patterns of connectives too. The conceptual notion of ‘animacy’ proved to be crucial in distinguishing meaning and use of *daardoor*, marking ‘purely objective, SOC-less’ causal relations from the meaning and use of *daarom* and *dus*, marking ‘SOC-containing, subjective’ causal relations (cf. Chapter 4 and 5). Following Pander Maat & Sanders (2000), the distinction between objective and subjective causal relations was crucially defined by the presence or absence of a ‘Subject of Consciousness’ (SOC) in the causal relation. Subjective causal relations can be characterized by:

Dimension	Perception	Belief	Feelings	Desires	Intentions	Resolutions
Source of cause	Cause outside mind	Cause inside mind	Cause inside and outside mind	Cause inside and outside mind	Cause inside mind	Cause inside mind
Objects	Takes simple objects	Takes propositional objects	Takes either	Takes propositional objects	Takes propositional objects	Takes propositional objects
Role of 'self'	Self usually agent	Self usually agent	Self usually object	Self usually agent	Self always agent	Self always agent
Control	Not controllable	Usually controllable	Usually not controllable	Not controllable	Controls itself	Control of control
Count or mass	Count noun	Count noun	Mass noun	Count or mass	Count noun	Count noun
Number	Have many at once	Have one at a time	Have many at once	Perhaps have many at once	Perhaps have many at once	Perhaps have many at once

Figure 7.2 Characteristics of internal states according to the Folk model of the mind (based on D'Andrade 1987: 117).

“[...] the involvement of an animate subject, a person, whose intentionality is conceptualized as the ultimate source of the causal event, be it an act of reasoning or some ‘real world activity’” (2000: 64).

The distinction between ‘SOC-less’ and ‘SOC-containing’ causal relations is one of the conceptual dimensions that play a crucial role the categorizing function of the three causal connectives under investigation here: it sets *daardoor* apart from *daarom* and *dus*, as a marker of objective, SOC-less, non-intentional causation. SOC’s are animate by definition. At this point, a clear parallel with causal verbs emerges: *laten*, and *daarom* and *dus* are prototypically characterized by animate core-participants; *doen* and *daardoor* are not.

However, as will become clear below, this parallel is not perfect - differences exist in the exact way ‘animacy’ is defined in causal verbs and causal connectives: the latter discriminate prototypically at the concept of ‘intentionality’, which is only a subset of the category of ‘animacy’. Yet, the parallel between ‘intentionality’ and ‘animacy’ is clear: intentionality is exclusively restricted to human beings. ‘Things’ *cannot* act intentionally (at least in our understanding of the world). We can conclude, then, that the concept of Animacy is a concept of major importance both in the meaning and use of causal verbs and in the meaning and use of causal connectives.

Folk Model of the Mind

Verhagen & Kemmer (1997) pointed out that the categorizations of *doen* and *laten* made within the conceptual model of Naïve Dualism is strongly influenced by another conceptual model: the Folk Model of the Mind (D’Andrade 1987), see Figure 7.2..

The model distinguishes six types of mental processes, which differ from each other in the ways they may be ‘caused’ in a person. The differences are characterized on six dimensions (see left most column). Although dimensions and categories do not coincide completely, the categories of internal states appear to be ordered on a scale, ranging from ‘perception’ (that is minimally internal and maximally external to its experiencer) to ‘resolutions’ (that are maximally internal and minimally external to their experiencer).

The semantic description of *doen* and *laten* proposed in Chapter 4 suggests that, among the six dimensions, it is specifically the dimension ‘source of cause’ (“either inside or outside the mind”) at the first row of the table, that is relevant for categorization with causal verbs. In terms of the interaction of forces between causer and causee, if the effect has its origin in the causee’s mind, the causer cannot bring out this effect directly. The causal process is construed as ‘indirect causation’; the causee has a certain amount of autonomy in the causal process. If, conversely, the effect *can* be caused directly from outside, the causal process is construed as ‘indirect causation’: the causer can interfere directly with the causee’s state of being; the causee is conceptualized as being ‘non-autonomous’ (cf. discussion in Chapter 3).

This Folk model of the mind reveals that there are slight differences in the way the previously discussed models of force dynamics and naïve dualism are manifest in causal verbs and in causal connectives. The semantic description of *daardoor*, *daarom* and *dus* proposed in Chapter 4 suggests that in connectives on the other hand, it is *not* the dimension ‘source of cause’, but rather the concept of ‘intentionality’ that defines an LOE’s ‘SOC-hood’ and therefore determines categorization with causal connectives.

‘Intentionality’ is a category in the folk model of the mind, but not a dimension. However, taking a closer look, it becomes clear that its definition corresponds closely with the dimension of ‘control’ at the fourth row. Assuming that the folk model of the mind represents an increasing scale of ‘control’ (from left to right), it follows that ‘intentions’ are the first category of internal mental states that is (unambiguously) conceptualized as being ‘controllable’; ‘perception’, ‘belief’, ‘feelings’ and ‘desire’ being conceptualized as being (at least partly) *uncontrollable* (cf. discussion in Section 6.4.4).

This observation further specifies the difference in the way the concept of animacy is manifest in causal verbs and causal connectives further. At this point in the discussion, a plausible hypothesis would be that both the distinctions between *doen* and *laten* and the distinctions between *daardoor* and *daarom/dus* can be characterized with reference to the folk model of the mind. It is to be expected that in both verbs and connectives, the distinction between ‘animate’ and ‘inanimate’ participants in the causal relations marked does not completely coincide with the notion of ‘sentiency’ per se. That is, both *doen* and *daardoor* causality are prototypically related to the domain of ‘non-sentient’ inanimate LOE. But *laten* and *daarom/dus* differ in the way in which they are prototypically related to the domain of an animate LOE. The category of *laten* causality comprises prototypically mental states of sentient LOE that can only be caused from inside the experiencing subject. The category of *daarom* on the other hand, is prototypically related to ‘intentionally acting’ LOE, or to internal states that are controlled by the LOE. In other words, there is a range of internal states of LOE that fall under prototypical *laten* causation, but *not* under prototypical *daarom* causation: feelings, desires and possibly beliefs as well.

Hypothesis

The discussion so far suggests that an important conceptual parallel exists in the way causal relations are categorized with verbs and connectives. In both marker types, the degree of ‘autonomy’ of the Locus of Effect is of crucial importance. However, the conceptualization of the notion of ‘autonomy’ seems to differ slightly. In causal verbs the distinction ‘autonomous – non-autonomous causee’ appears to be located in the source of the causal effect:

- (10) ‘Autonomy’ for the LOE in causal verbs:
 cause *inside* the mind of the experiencing subject: indirect causation
 cause *outside* the mind of the experiencing subject: direct causation

With causal connectives it seems not to be ‘source of effect’ that is a relevant distinguishing notion, but rather ‘intentionality’, or its equivalent, ‘control’, that

causes conceptualization of the LOE as either autonomous or non-autonomous, as follows:

- (11) ‘Autonomy’ for the LOE in causal connectives:
 LOE controls coming about of the causal effect: indirect causation
 LOE does *not* control coming about of the causal effect: direct causation

Notwithstanding this difference in conceptualization of ‘autonomy’ in connectives as compared to verbs, characterizing the meaning of causal connectives in terms of ‘animacy’ and ‘directness of causation’ is very well conceivable. The already familiar examples discussed above, repeated here for convenience, can illustrate this point:

- (12) [Het regende]_{S1}. **Daardoor** [werden de straten nat]_{S2}.
 [It was raining]_{S1}. **Because of this** [the streets became wet.]_{S2}
 (13) [Het regende]_{S1}. **Daarom** [gingen we snel naar binnen]_{S2}.
 [It was raining]_{S1}. **That is why** [we hurried inside.]_{S2}
 (14) [Het regent]_{S1}. **Dus** [we kunnen beter naarbinnen gaan]_{S2}.
 [It is raining]_{S1}. **So** [we’d better go inside.]_{S2}

Fragment (12) does not contain an SOC; the causal effect ‘became wet’ in S2 comes about without any human intervention. The situation ‘it was raining’ can be conceptualized as causing the situation in S2 immediately and directly; the LOE in S2 ‘the streets’, to be understood as ‘the other force’ in the causal relation, cannot be understood as having any influence on the progress of the process depicted. Hence, the causal relation in (12) is plausibly conceptualized as an instance of direct causation.

Fragments (13) and (14) on the other hand, *cannot* be understood this way. It would be utterly strange to interpret the ‘rain’ in S1 in as directly causing the situation that ‘they hurried inside’ in (13), or the speaker’s conclusion in (14) that ‘we’d better go inside’. On the other hand, it makes perfect sense to interpret them as instances of indirect causation, as in (13): not the situation in S1, but the SOC’s decision to act is most directly involved in bringing about the causal effect of ‘going inside the house’ in the real world. And similarly in (14), it is not the situation in S1 itself, but rather the SOC’s decision to interpret this situation as an argument for the conclusion presented in S2 that is most directly causing the actual utterance of S2 and hence, the construction of the causal relation in the (communicative) real world.

At this point in the discussion, the following hypothesis concerning possible parallels between categorizations made by causal verbs and causal connectives respectively:

Hypothesis ‘direct vs. indirect causation in causal connectives’

- (1) *Daardoor* parallels *doen* for having a Locus of Effect conceptualized as [– Control], therefore: causal relations marked with *daardoor* can be understood as instances of Direct causation.

(2) *Daarom* and *dus* parallel *laten* for having a Locus of Effect conceptualized [+Control], therefore: causal relations marked with *daarom* can be understood as instances of Indirect causation.

A perfect parallel with the categories of *doen* and *laten* is not to be expected. Since *laten* can be combined with non-controllable animate LOE too, it can be expected that its usage possibilities stretch into the domain of *daardoor*-causality. So, usage contexts containing causal effects referring to uncontrollable mental states, such as feelings and desires, categorized as instances of indirect causation at the intrasentential level, would be marked with *daardoor* at the intersentential level. However, the reverse will not hold true. Because of their association with ‘control’ and hence ‘autonomy’, usage contexts of *daarom* and *dus* will never be understood as instances of direct causation. The hypothesis formulated in this section will be put to the test in Section 7.3.1.

7.2.2 Categorizations of *daardoor*, *daarom* and *dus* in *doen* and *laten*?

In this section the conceptual parallels between causal verbs and causal connectives will be investigated in the reverse direction. Hypotheses will be formulated for answering the following question. To what extent does transposing ‘connective categories’ to usage contexts of causal verbs lead to an adequate description of the meaning and use of the latter? In Chapter 4 it was hypothesized that the connectives under investigation here are prototypically related to specific causality types. The examples already discussed in Section 7.2.1 are repeated here for convenience:

- (15) [Het regende]_{S1}. Daardoor [werden de straten nat]_{S2}.
“It was raining. Because of this the streets became wet.”
- (16) [Het regende]_{S1}. Daarom [gingen we snel naar binnen]_{S2}.
“It was raining. That is why we hurried inside.”
- (17) [Het regent]_{S1}. Dus [de was zal wel nat zijn geworden]_{S2}.
“It was raining. So the laundry would have gotten wet.”

Chapter 4 suggested that the first categorization dimension in causal connectives is ‘presence vs. absence of an SOC’. This dimension distinguishes prototypical causal relations marked with *daardoor* from prototypical causal relations marked with *daarom* or *dus* (Fragment (15) vs. (16) and (17)). The second categorization dimension which distinguishes causal relations with an explicitly expressed SOC is present from causal relations in which a speaker- SOC is conceptually present at the level of construction of the relation itself, but is linguistically absent in the related segments (cf. Chapter 4). This dimension distinguishes prototypical use of *daarom* from prototypical use of *dus* (cf. (16) vs. (17)). Categorizations made by *daardoor*, *daarom* and *dus* can be summarized as follows:

Daardoor	Daarom	Dus
<i>Objective inanimate causality</i>	<i>Objective animate causality</i>	<i>Subjective causality</i>
Prototypically:	Prototypically:	Prototypically:
- Content non-volitional causality	- Content volitional causality	- Epistemic or Speech act causality
- SOC-less	- Explicit SOC	- Implicit SOC

Figure 7.3. Semantic categories of *daardoor*, *daarom* and *dus*.

The previous sections observed an obvious parallel between the usage categories of *daardoor* and *doen* on the one hand, and *daarom/dus* and *laten* on the other. This section will scrutinize this parallel's mirror image: to what extent can differences between usage contexts of *doen* and *laten* be accounted for making use of the distinction of [\pm intentionality] or [\pm SOC]?

Categorization with causal connectives is determined mainly with reference to the role of the LOE; the cause-part does not play a very prominent role in categorization (cf. discussion in 7.2.1; Chapter 4). Therefore, for the present purposes discussion will be limited the LOE part of analytical causative constructions, the effected predicate and the participant that brings it about, the causee (Verhagen & Kemmer 1997; cf. discussion in Chapter 3).

Presence or absence of an SOC in the causal relation

The argumentation used above for bringing out parallels between verbs' categories and connectives' categorization can be transposed for making visible the parallel in the reverse direction. A crucial notion for defining an LOE as an SOC is 'intentionality'. Only an animate LOE can function as an SOC, but within the set of animate LOE, it is only a subset of animate LOEs that can function as an SOC, namely, those acting intentionally in bringing out the causal effect. As was argued above, the concept of 'intentionality' is related to the concept of 'control' over the bringing about of the causal effect. Applied to the categorizations made by *doen* and *laten*, 'control' must be mapped onto the crucial notion in categorizing causative events in terms of 'directness of causation' – 'autonomy of an intermediary force in the causal event'.

However, this parallel is not expected to be perfect. Since *laten* can also be combined with a non-controllable animate LOE, it is to be expected that its usage possibilities stretch into the non-SOC domain. However, the reverse is *not* expected to hold for *doen*. This verb can only mark Non-SOC causation and can never be used in contexts of SOC causation, where the notion of [+intentionality] is standardly present (cf. findings in Chapter 4). The already familiar examples discussed above, repeated here once more, can illustrate this point:

- (18) De extreme koude **deed** de rivieren bevroren.
*The extreme cold **caused** the rivers to freeze.*

- (19) De koude wind **deed** haar verlangen naar een beker warme chocolademelk.
*The cold wind **made** her long for a hot cup of chocolate milk.*
- (20) Hij **liet** zijn soep afkoelen.
*He **let** his soup cool.*
- (21) Ze **liet** de agent haar rijbewijs zien.
She showed ('let see') the officer her driver's license.
- (22) De sergeant **liet** ons door de modder kruipen.
*The sergeant **made** us crawl through the mud.*

Examples (18) and (19) can be understood as instances of 'non- SOC' causality; the former because of its inanimate LOE, the latter because the LOE carries out an uncontrollable and hence non-intentional causal effect ('longing' is not controllable according to the folk model of the mind). Examples (20) and (22) on the other hand, can be categorized as instances of SOC-causality. In both examples the effected predicate refers to controllable actions which are necessarily carried out 'intentionally' by the respective LOEs. Example (21) finally, displays the 'imperfection' of the parallel. The effected predicate, *zien* ('let see'; 'show'), is not controllable for the LOE, therefore, the LOE cannot be understood as an SOC. Still, categorization with *laten* as indirect causation is licensed, because of the fact that the coming about of the causal effect is not under complete control of the causer in the event. These considerations lead to the hypothesis below, that will be put to the test in Section 7.3.2.

Hypothesis 'SOC vs. non- SOC causality in causal verbs'

(1) *Doen* parallels *daardoor* for having a Locus of Effect conceptualized as [–Intentionality], therefore: causal relations marked with *doen* can be understood as instances of Non- SOC causation.

(2) *Laten* parallels *daarom* and *dus*, for being the only causal verb that can be combined with an LOE conceptualized as [+Intentionality], therefore: *only* causal relations marked with *laten* can be understood as instances of SOC causation.

Explicit or implicit SOC in the causal relation

The characteristic [\pm intentionality] separates *daardoor* from *daarom* and *dus*; in other words: the markers of 'SOC-containing' causal relations from the marker of 'SOC-less' ones. A second characteristic that has proven to be of crucial importance is the distinction between markers of causal relations with an LOE that is part of the proposition (be it an SOC or not) and causal relations with an LOE that is *not* part of the propositions that function in the causal relation. In the present study, epistemic causal relations in particular were studied as a species of these 'implicit speaker SOC' relations (cf. Chapter 4). This characteristic proved to separate (prototypical instances of) causal relations marked with *dus* from (prototypical instances of) causal relations marked with *daarom* and *daardoor*.

Theoretically, this distinction could have a parallel in the categorization function of causal verbs as well. But it is not very likely that this should be the case. If we assume that causal verbs mark causal relations at the clause level (cf. discussion in Section 2.4.1), a logical consequence is that the content of analytical causative constructions be viewed as just *one* single proposition; a clause with a complex predicate (a conceptual fusion of the causal auxiliary and the infinitive) and the core-participants functioning as its ‘semantic roles’.

Intuitively, it is highly unlikely that epistemic causality, operationalized in Chapter 4 with a paraphrase stating “this situation leads to the following conclusion” be expressed *within* one proposition. And if the construction is analyzed as was done above, this would even be a logical impossibility. At least, it is hard to imagine what such a causal relation would look like. Consider two types of intersentential epistemic causal relations in (23) and (24). The former is of the ‘abductive’ type and the latter is ‘causality based’ (cf. Degand 2001; Pander Maat & Degand 2001). Neither type can be transposed to the level of the clause. The ‘abductive’ equivalent in (25) is ungrammatical. The relation in (26) lost its epistemic character and is only interpretable, albeit perfectly grammatically, as an instance of content causality.

- (23) De straten zijn nat, dus het regent.
“The streets are wet, so it is raining.”
- (24) Het regent, dus de straten worden nat.
“It is raining, so the streets are getting wet.”
- (25) *De natte straten laten/doen het regenen.
*“The wet streets are making it rain.”
- (26) De regen doet/?laat de straten nat worden.
The rain is making the streets get wet.

It can be hypothesized, then, that there is no equivalent for *dus*-causality, or ‘implicit SOC causality’, in analytical causative constructions. This point will be elaborated in Section 7.4.

7.3 Corpus analysis: conceptual similarities

The discussion of similarities and differences at the conceptual level in the previous sub-sections suggested that there *are* important similarities indeed in the ways in which verbs and connectives categorize causal relations, but also, that there are some interesting differences. Parallels and differences could be characterized with reference to D’Andrade’s Folk model of the mind (1987). In this section, the resulting hypotheses will be put to the test in a corpus analysis. Making use of the samples investigated in Chapters 3 and 4, the following question will be investigated: to what extent can conceptual notions found to be relevant for causal verbs lead to a descriptively adequate account of the of causal connectives, and vice versa?

In Section 7.3.1, methods for testing the hypotheses will be operationalized. Section 7.3.2 reports the findings of these analyses in relation to the ‘verbs’ categories in connectives’ hypothesis. Section 7.3.3 reports the findings of these

analyses in relation to the ‘connectives’ categories in verbs’ hypothesis. The discussion in Section 7.2.2 suggests that there is no equivalent of *dus*-causality at the clause-level. Therefore, *dus* was excluded from analysis. This issue will be taken up again in Section 7.4.

7.3.1 Operationalization

The corpus analyses reported in the present sections aim to empirically test the ‘similarity’ hypotheses presented in Section 7.2. As it is expected beforehand that the parallel between verbs and connectives will not be perfect, the hypotheses will only be tested qualitatively. This is done by characterizing the crucial notions for categorizing with verbs and connectives in terms of an ‘autonomy scale’, defined with reference to the folk model of the mind. The autonomy scale offers a conceptual grid that makes it possible to systematize observations concerning parallels and differences between categorizations with verbs and connectives. The hypotheses will be tested against two different sources of evidence. Firstly, corpora of language use are analyzed with the aim of detecting actual usage patterns. Secondly, the boundaries of the parallel will be investigated by way of a ‘substitution analysis’ (cf. Chapters 3 and 4).

Capturing similarities and differences: degrees of autonomy

The discussion concerning similarities and differences so far revolved mainly around the different roles the Locus of Effect (LOE) might have in causal relations. Crucial notions turned out to be ‘autonomy’ for the LOE in analytical causative constructions, and ‘intentionality’ or ‘non-intentionality’ for the LOE in intersentential causal relations. It was observed that both notions could be characterized with reference to the Folk model of the mind: ‘intentionality’ is related to ‘control’ of the LOE over the coming about of a particular causal effect, while ‘autonomy’ for the LOE in analytical causative constructions is crucially related to the notion ‘source of the effect’: either inside or outside the LOE.

These characterizations highlight the conceptual *differences* in categorizations of verbs and connectives. However, closer analysis revealed conceptual *parallels* as well: the categorizing notions of verbs and connectives can be ordered on a scale of ‘increasing autonomy’. The starting assumption for doing so is that both the dimensions in the model ‘source of effect’ and ‘control’ proved to be reasons for conceptualizing an LOE as ‘having some degree of autonomy in the causal event’. Differences as to the degrees of autonomy associated with specific states of mind, can be associated with the role of the experiencing subject (coinciding in our discussion with the LOE) in the causal relation. These relative differences in ‘degree of autonomy’ are symbolized in Figure 7.4:

Perception	Belief	Feelings	Desires	Intentions	Resolutions
					+
				+	+
			+	+	+
		+	+	+	+
	+	+	+	+	+
+	+	+	+	+	+

Figure 7.4. Autonomy scale based on the folk model of the mind.

In the case of ‘feelings’ and ‘desires’ the LOE’s autonomy can only be defined in relation to the causer of these mental states: as the experiencing subject does not control the coming about of feelings or desires (she cannot prevent their coming about), her ‘overall autonomy’ in the causative event is necessarily conceptualized as relatively low. This is different in the case of ‘intentions’ and ‘resolutions’. In these cases, the experiencing subject truly controls the coming about of the causal effect. Thus, the LOE’s autonomy can be defined *not* only relative to the causer, but *also* with respect to the causal effect (the LOE can prevent it if she wants). ‘Resolutions’ differ from intentions as to the degree of control: deciding to carry out an intentional act in the future may be conceptualized as ‘self control’, ‘will’, or ‘control of control’ (D’Anrade 1987: 116-7). According to the Folk model of the mind, since ‘beliefs’ are ambiguous in terms of controllability, the relative amount of autonomy of the LOE must be somewhere in-between. The mental state of perception, finally, can be understood as rendering the LOE minimally autonomous: she cannot control it, neither is she the ultimate source of the occurrence of ‘perception’.

This reformulation of the Folk model of the mind in terms of ‘degree of autonomy’ will be used to test the hypotheses formulated in Sections 7.2.1 and 7.2.2. However, in order to make the model’s distinctions maximally relevant for the purposes of this study, it will be slightly adapted. As the model is (logically) restricted to causal processes with animate LOE, a first adaptation will be to extend the model with a category ‘inanimate LOE’.

A second adaptation is extending the category ‘perception’. Perception is only one member of a broader category of processes ‘caused from the outside’ taking a sentient LOE, and ‘not controllable’ for the LOE. The notion of ‘undergoer causality’ as defined by Talmy (2000: 517) seems to adequately capture this category. Undergoer causality can be characterized as “affecting one’s personal state” without this person having “agentively undertaken actions that culminate in that event”² ‘Feelings’ and ‘desires’ must be distinguished from ‘undergoer causality’ for the fact that they may be caused from inside *and* may be controllable. Therefore, for the present purposes they will be combined into one category,

² Actually Talmy discusses the notion of ‘undergoer’ in the context of non-causative, or: ‘autonomous’ events. Examples presented by Talmy are: “The hapless fellow (by misfortune) broke his arm when he fell” and “I caught my sweater on a nail”. To my opinion, the semantic category in itself is equally useful in causative situations.

equivalent to two categories; Lyons's 'feelings' (1995) and Malle's 'experiences' (2002).

As a last adaptation, the categories of 'intentions' and 'resolutions' are combined into one category, because the distinction between the two categories only holds at a metalevel (cf. discussion in D'Andrade 1987). These adaptations and extensions result in the following 'autonomy scale' (see Figure 7.5). In the corpus analyses to be reported below, this 'autonomy scale' serves as a grid capturing similarities and differences.

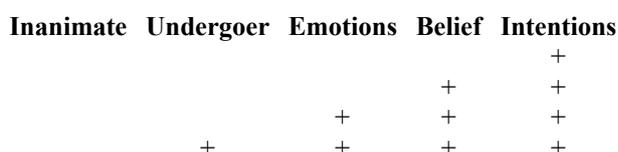


Figure 7.5 Scale of increasing autonomy.

The categories present in the folk model of the mind and its adaptation used here, are reflected in discussions of 'animacy' and 'subjectivity' by several authors, in linguistic literature as well as in the fields of psychology and anthropology. To start with the former, for example, all of its dimensions are explicitly mentioned in Lyons's definition of 'subjectivity' (1995: 337):

[Subjectivity is] "the property (or set of properties) of being either a subject of consciousness (i.e., of cognition, feelings and perception) or as a subject of action (an agent). It denotes the property of being what Descartes calls a 'thinking entity'."

It will be noted that the model contains all of the categories of 'animacy' that are present in Lyons' definition: containing the categories of 'cognition' (=belief), feelings (=feelings and desires), perception and agency (=intentions and resolutions). All of these dimensions show close relations to concepts such as 'control', 'intention', 'volition' and 'autonomy', that have been attested by many authors in the field of linguistics (e.g. Jackendoff 1985; D'Andrade 1987; Malle 2002) and that have proven to be essential notions in characterizing meaning and use of causal verbs and causal connectives in the present study. Many authors consider these concepts as the constituting aspects of the well-known semantic category of Agency (cf. Talmy 1976: 81-86; 2000: 9; Delancey 1994; Frawley 1992; cf. discussion in Chapters 3 and 4)

Sample and procedure

The analysis will consist of two steps. Firstly, the findings from Chapters 3 and 4 are reinterpreted in relation to the autonomy scale. In doing so, the hypotheses are tested for 'actual language use'. Causal relations are categorized on the grounds of the inherent lexical meaning of the verb in the 'effect part' of the causal relation.

Secondly, a 'substitution test' will be carried out. By substituting each of the connectives in the other's usage contexts, lexical boundaries are investigated:

what context is compatible with the lexical content of the connective or verb at hand, and what context is not? What effect does a specific connective or verb produce in a non-standard context? Effects of substitution will be assessed in terms of the ‘original’ concepts (SOC with connectives; directness with verbs) and with reference to the autonomy scale. This ‘substitution test’ (Knott & Dale 1994; Pander Maat & Sanders 1995; cf. discussion in Chapter 4) is useful for investigating subtle differences between connectives, which is the ultimate aim of the present section.

In examples cited by way of illustration, both markers taking part in the test will be inserted. The order of presentation indicates original marking of the fragment: the original marker precedes the substituted one. The effect of substituting will be indicated with a symbol: if substitution leads to an incoherent interpretation, the symbol ‘#’ will be used (cf. Chapters 3 and 4). If acceptability is questionable, the symbol ‘?’ will be inserted. If the overall interpretation of the fragment in terms of causality category is altered by the substituted marker, the symbol ‘><’ will be used. In cases where substitution does not affect overall interpretation in terms of acceptability or categorization, no symbol will be used.

For the present analysis, text corpora from Chapters 3 (verbs) and 4 (connectives) were used. Of these corpora, only a subset of the fragments was involved in the analysis. Of the connectives, only *daardoor* and *daarom* will be included in the analysis for reasons set forth in Section 7.2.2: it is not likely that there are any parallels with *dus* causation at the clause level. For evident reasons, for the causal verbs, only fragments containing an animate causee were involved.

7.3.2 Results: Directness of causation in *daardoor* vs *daarom*

Table 7.1 summarizes the distribution of *daarom* and *daardoor* over the categories in the autonomy scale, as found in the corpora used in Chapter 4.

Table 7.1. Distribution of *daardoor* and *daarom* over the autonomy scale.

	Inanimate	Undergoer	Emotions	Belief	Intentions	Total
<i>Daardoor</i>	56	28	8	4	4	100
<i>Daarom</i>	6	7	1	7	46	67
Total	62	35	9	11	50	167

This table reveals that ‘inanimate LOE causality’, ‘undergoer causality’ and ‘emotion causality’ (together constituting the category of ‘non-SOC’ or ‘non-volitional causality’) are typically marked with *daardoor*. ‘Intentional causality’ is typically marked with *daarom*. And again, as already was found in Chapter 4 too, *daarom* occurs (albeit seldom) in any of the other categories, whereas in rare cases, *daardoor* occurs in the category of intentional causality.

This pattern is confirmed in the substitution test. In each of the ‘in-between categories’ (undergoer, emotion and belief causation), substituting *daardoor* for *daarom* and vice versa is always possible, while it may or may not lead to subtle differences in overall meaning of the fragments at hand. Although it is not easy to grasp these differences in an objectified manner, generalizing, it can be stated that they have to do with the concept of [\pm control], a notion that, as was argued above, is

closely related to the notion of [\pm intentionality]. Moreover, the possibility of substitution seems to be restricted along the lines of the very same concept(s): in the majority of cases, *daarom* cannot be substituted for *daardoor* in ‘Inanimate LOE’ contexts, while the same goes for *daardoor* in ‘intentional causation’ contexts. Some illustrative examples are presented below.

Inanimate LOE and Animate LOE: undergoer causality

Causal relations with an inanimate LOE or undergoer causality are typically marked with *daardoor*. However, both types of relations may sometimes be marked with *daarom* too. In Chapter 4 it was observed that both connectives have preferences: *daarom* is far more often used in ‘undergoer’ contexts than in ‘inanimate LOE’ contexts, while in the case of *daardoor* it is the other way round. Interestingly, there does not seem to be a clear difference between the categories of ‘inanimate LOE’ and ‘undergoer causality’ as for substitutability of *daarom* for *daardoor* and vice versa. To start with the latter, it proved possible for only 19/56 (19 out of 56) of the *daardoor*-marked ‘inanimate LOE’ cases and only 11/28 of the *daardoor* marked ‘undergoer causality’ cases to substitute *daarom* for *daardoor* without changing the interpretation of the causal relations. These turn out to be cases that have a solid and exclusive interpretation as ‘non-intentional causality’. A ‘substitutable’ example of inanimate LOE causation is (27); an example of undergoer causation is (28).

- (27) (Zelfs het kuilvoer vroom vast.) “We moesten het werkelijk lossteken. Het werd **daardoor/?daarom** zo zwaar dat ik het niet meer met de kruiwagen de stal in kreeg. (ac170123).
*(Even the silage froze in.) “We really had to dig it out. **That’s why** it became so heavy that I wasn’t able to get the wheelbarrow into the stable.*
- (28) Mag je een onderzoek van vorige week geloven, dan speelt in Amsterdam een derde van de kinderen tussen zeven en negen nooit buiten. [...] **Daardoor/daarom** leren ze niet goed om te gaan met andere kinderen en dat is weer slecht voor later, als ze voortdurend nieuwe mensen leren kennen (co240126).
*Should you believe a study from last week, one third of the children between seven and nine in Amsterdam never play outdoors. **That’s why** they don’t learn to deal with other children adequately, which is bad for the future, when they will constantly meet new people*

Arguably, in all of the cases, *daarom* appears to invoke some SOC-element, without really altering the overall interpretation of the relations in terms of causality category. In fragment (27), *daarom* appears to suggest elements of argumentativity without turning the fragments into real epistemic relations. Still, the argumentative elements do not fit the context very well, hence the ‘?’ symbol. There is no difference in effect in terms of degree of ‘autonomy’. In this example, other than ‘inanimate LOE’ or ‘undergoer’, interpretation seems mainly to be prevented by (con)textual factors such as tense, factuality or our world knowledge.

Interestingly, as soon as these elements are absent, *daarom* selects an SOC-causality interpretation of the fragment, bringing about effects that were clearly not

intended by the text's author. This happens in 37/56 cases of the 'inanimate LOE' contexts and in 17/28 cases of the 'undergoer' contexts. Substituting *daarom* in the former type leads to an 'epistemic' interpretation, successfully (yet unintended) or not, depending on the context, an example is (29). Similarly, substituting *daarom* in the latter type turns the causal relation into an (unintended) 'content intentional' or 'epistemic' causal relation, depending on what type of SOC is available in the context; an example of an undergoer-turned-into-intentional SOC causal relation is (30). Both substitution effects can be related to the autonomy scale: *daarom* makes interpretation jumps from either 'inanimate LOE' or 'undergoer' to 'intentional' causality

- (29) Prijskaartjes van producten worden gemakkelijker vergelijkbaar. (...) **Daardoor/ >< daarom** zal de concurrentie toenemen, wat weer lagere prijzen tot gevolg moet hebben (ac100115)
Price tags of products will become easily comparable. (...)
Consequently, the competition will increase and this should result in lower prices.
- (30) Ervaren bestuurders bleken na een ritje van vijf minuten over een stille rechte weg een voorligger te ver voor zich uit te zien. **Daardoor/ >< daarom** begonnen ze een kwart tot halve seconde later met inhalen dan rijders die in de simulator eerst vijf minuten over een bochtig parkoers reden (...).(Ac190133)
*Experienced drivers appeared to see the vehicle in front too far ahead after a five minute drive along a quiet and straight road. **Because of this**, they started overtaking drivers a quarter of a second up to half a second later than drivers who first spent five minutes driving a winding track (...).*

Not surprisingly, *daardoor* can be substituted for *daarom* in all of its 'undergoer' or 'inanimate LOE' contexts, without changing the interpretation to/with more than a suggestion of 'control' of a potential SOC. Some examples:

- (31) (De prof verhuisde ooit voor zijn beroep naar het badmintonwalhalla Denemarken.) Er is weinig dat Van Dijk heeft nagelaten om van zijn sport een succes te maken. Juist **daarom/daardoor** was het voor hem zo moeilijk om zich neer te leggen bij een andere toekomst. (op1701)
*(The pro once moved to the Valhalla of badminton, Denmark, for his vocation.) There is not much Van Dijk didn't do to make his sport a success. **That's exactly why** he found it so hard to reconcile himself to another career.*
- (32) De wereldpremière in het Londense Alhanbra Theatre deed de gemoederen direct hoog oplaaien. Werd hier muzikale heiligschennis gepleegd of was Massine door a stroke of genius getroffen? Leskova: „Voor de dansers was duidelijk het laatste het geval. Veel gezelschappen gingen op tournee naar Amerika, maar omdat het publiek daar amper met ballet vertrouwd was werd het nog niet rijp geacht voor

deze revolutionaire aanpak. Ook **daarom/daardoor** raakte het ballet uit roulatie. (op030109)

*The world premiere in London's Alhambra Theatre immediately set off feelings. Was musical sacrilege being committed or had Massine been struck by a stroke of genius? Leskova: „ For the dancers it's the latter. Many companies have been to America, but because the audiences there are hardly familiar with ballet, the time wasn't considered to be ripe for this revolutionary approach. **That is also why** the ballet was out of circulation.*

Emotions and belief

In the text corpora investigated, neither *daarom* nor *daardoor* were frequently used in causal relations concerning processes of 'emotion' and 'belief'. Interestingly, in all cases both *daardoor* and *daarom* fit the context without changing the overall interpretation of the fragment beyond some subtleties that, parallel to the contrast discussed above in 'inanimate LE' and 'undergoer causality' contexts, can be captured with reference to the concept of [\pm autonomy]. The only example in the sample of *daarom* with a context of 'feeling', an emotion that we understand to be uncontrollable, is (33). An originally *daardoor*-marked example is (34).

- (33) In de NZR, legt Van Butselaar uit, zitten ook groepen om de tafel die elkaar in kerkelijk verband nergens anders treffen (...).
Daarom/daardoor doet het hem pijn dat de Sow-kerken (...) fors in de NZR willen snijden. (op130133)
*There are groups as well in the NZR, Van Butselaar explains, which would never meet each other anywhere else in connection with the church. **That is why** it hurts him that the so-called Sow-churches want to cut down on the NZR.*
- (34) In de boek- en tijdschriftenhandel is het mechanisch oog alom aanwezig. De verkoopsters voelen zich **daardoor/daarom** een stuk veiliger (ac220139)
*In the book and magazine business the mechanical eye is present everywhere. The salespersons feel a whole lot safer **because of this**.*

According to D'Andrade, 'belief' states are understood as being 'usually controllable'. Substitution of connectives suggests that in Dutch data too, conceived controllability may differ between different types of belief states. Although the effect of substitution differs, in all of the cases, *daardoor* and *daarom* fit the context without dramatically changing the overall interpretation of the fragments in terms of causality categories or degree of autonomy. Below are some examples, ordered along a scale of increasing effect for 'degree of autonomy'.

- (35) De privatisering van bedrijven: De Verenigde Staten hebben er, naar eigen zeggen, 'honderd jaar' ervaring mee. Door schade en schande wijs geworden, weten ze **daardoor/daarom** aan de andere kant van de oceaan inmiddels dat 'liberalisering' niet zaligmakend is. (rec240127)

*The privatisation of companies: The United States say that they have had experience with that for “a hundred years.” **That is why** they have learned on the other side of the Atlantic by experience, in the mean time, that “liberalisation” is not sanctifying.*

- (36) Hoe dan ook, als eenzame fietser dwong Kok altijd respect af, en meer dan dat. Hij kon ook rekenen op de sympathie van een fietsend volk. Het verbaast me **daarom/daardoor** niets dat H.J.A. Hofland dezer dagen in een overzichtsartikel in NRC zonder schroom sprak over ‘vorst Wim’ (co030106)

*Anyhow, as a lone cyclist, Kok had always commanded respect and even more than that. He could rely on the sympathy of a cycling nation. **That is why** it does not surprise me that, nowadays, H.J.A. Hofland speaks without diffidence of “King Wim” in a retrospective article in the NRC.*

- (37) Wat van buiten oogt als een piepklein krot van ijzeren golfplaten, blijkt van binnen een bijna compleet huis. (...) “**Daarom/?daardoor** vind ik het zo belangrijk dat er toeristen komen”, zegt de 30-jarige Vicky. (rec060101)

*Something that looks like a tiny hovel of corrugated iron from the outside, turns out to be a complete house on the inside. “**That is why** it is so important to me that the tourists come,” says thirty-year-old Vicky.*

In (35), the effect of substituting *daardoor* for *daarom* is very subtle, while (37) presents the strongest effect found in the sample: acceptability of *daardoor* becomes questionable; only under special circumstances (e.g. reasoning about the origins of ones opinions) *daardoor* is perfectly natural. Still, it is not ‘out’. In all of the cases used as an illustration, the effect for substituting *daardoor* for *daarom* or the other way round comes down to a difference in the perceived controllability by the LE of the animate causal relation.

Intentions

Daardoor can never be substituted for *daarom* in intentional causal context without drastically changing its overall interpretation. Doing so immediately results in evoking an interpretation of the fragment as non-intentional causality. In other words, there is a very strong effect in terms of ‘degree of autonomy’ of the LOE. In some cases, such as (38) and (39), this interpretation fits the context well (although it is clear that the relation is constructed between different aspects of the situations depicted – substitution leads to a different construal of the relation in terms of autonomy), but in most cases it doesn’t, as in (40).

- (38) Toen Napoleon ook Holland in bezit kreeg, was de vaart ineens niet meer nodig. De Noordervaart is **daarom/daardoor** nooit verder gegraven dan tot Beringe. (Rep060121)
*When Napoleon subdued Holland as well, the waterway suddenly was not necessary anymore. The Noordervaart was never dug beyond Beringe, **because of that**.*
- (39) Gernika is het hart van Baskenland, en **daarom/daardoor** doelwit van de fascistten in 1937. (ac030101)

- Gernika is the heart of the Basque Country, and **therefore** it was the target of the fascist regime in 1937.*
- (40) Ook Koert Bakker en Jessica Gysel van ‘relatiebemiddelingsbureau’ Fanclub menen dat de traditionele reclame klinisch dood is. **Daarom/#daardoor** organiseren zij voor Adidas hiphopparty’s en straatvoetbalfeesten. (rec170150)
*Koert Bakker and Jessica Gysel of “dating service” Fanclub also think that traditional advertising is clinically dead. **That is why** they are organizing hip hop and street soccer parties for Adidas.*

Summary and conclusion

Both the corpus analysis and the substitution test confirm the hypothesis formulated in section 7.2.1: The distinction [\pm autonomy] in connectives is determined by the dimension ‘degree of control of the LOE’ rather than ‘origin of cause’ (internal or external to LOE). According to the data from the present sample, not all of the categories distinguished in the ‘autonomy scale’ are equally reflected in meaning and use of *daardoor* and *daarom*. Actual usage concentrates in the ‘inanimate LOE’ category (*daardoor*) and the ‘intentions’ category (*daarom*). Neither marker is frequently used in any of the in-between categories. Moreover, the amount of occurrences in the categories of ‘Emotion’ and ‘Belief’ causation are too small to be significant.

The substitution test confirmed this picture. If substitution changed the overall interpretation at all, the (subtle) differences that *do* occur can best be characterized with reference to the concept of ‘controllability’, which is closely related to the concept of ‘intentionality’. Therefore, we can conclude that it is not ‘origin of cause’, but only [\pm controllability] that describes differences in meaning and use of *daarom* and *daardoor* adequately.

7.3.2 Results: SOC-type in *doen* vs *laten*

The findings from Chapter 3 suggest that causer type influences overall interpretation of causal relations expressed in analytical causative constructions. In order to capture possible interactions of causer type with the elements under consideration here, fragments with animate causer and animate causee (inductive causation) and fragments with inanimate causer and animate causee (affective causation) are analyzed separately.

Inductive causation

Table 7.2 summarizes the distribution of *doen* and *laten* over the categories in the autonomy scale, as found in the corpora used in Chapter 3.

Table 7.2. Distribution of *doen* and *laten* over the autonomy scale (inductive causation).

	Undergoer	Emotions	Belief	Intentions	Total
<i>Doen</i>	4	1	1	0	6
<i>Laten</i>	9	0	1	42	52
Total	13	1	2	42	58

In Chapter 3, it was argued that inductive causation is prototypically marked with *laten* (and at the same time is *laten*'s prototypical usage context). This fact is reflected in Table 7.2. Moreover, *all* instances of 'intentional' LOE are marked with *laten*. In view of the present analysis, this is in itself a very interesting effect. Although the differences are less clear in the category 'undergoer' LOE, this category is more frequently marked with *laten* than with *doen*. Very few instances of 'emotions' and 'belief' were found.

Intentions

In the sample, intentional LOE were always marked with *laten*. In the large majority of cases, *laten* cannot be replaced by *doen* without changing the overall interpretation of the causative event drastically; as is clearly illustrated in (41):

- (41) (Interview met repetitor Leskova) Omdat de techniek van de huidige dansers beter is geworden, mag en moet je een oud ballet daaraan wel aanpassen (...) Dus **laat/#doe** ik enkele pirouettes van destijds nu dubbel draaien (op030117).
*(Interview with coach Leskova) Because the technique of contemporary dancers is much better, you can, and you should, adapt old ballets accordingly. So I **make** them turn the single pirouettes of those days double.*

With *doen*, this relation cannot be interpreted coherently, because of the suggestion that the coming about of the causee's activity is under complete control of the causer.

However, under special circumstances, *doen* can be substituted (in the present sample, 8/42 cases). In these cases, the effect of substitution on overall interpretation can be characterized with the notion of [\pm control] as well as [\pm intention]. At the same time, categorization of the causal relation shifts from 'indirect' to 'direct causation'.

An already well-known type (Verhagen & Kemmer 1997; Verhagen 2000; cf. discussion in Chapter 3) is contexts in which the social notion 'authority' plays a role. In (42), for example, *doen* evokes an archaic flavor to the text that fits the context well. As part of our world knowledge, we know that emperors (and their chancellors) used to be so mighty that their instigating subjects into doing something licensed categorization of such an event as an instance of direct causation.

- (42) Toen de Duitse keizer Frederik Barbarossa de stad in 1158 innam **liet/ ><deed** zijn kanselier Reinald van Dassel ze (=stoffelijke resten van de drie koningen, ns) overbrengen naar Keulen (ac060151)
*When the German emperor Frederik Barbarossa took the city in 1158, his chancellor Reinald van Dassel **had** them transported to Cologne.*

Substituting *doen* for *laten* has an effect on the conceptualization of both the causer's and the 'other force's' role. *Doen* maximizes the control that the Chancellor exerts over the (occurrence of the) total causal event, and thus, minimizes, or

backgrounds, the control that the ‘other factor’, the implicit causee (the conceptual subject of the ‘carrying over’) – must have had in the real world, specifically: his intention or resolution to carry out the orders given. Of course, this analysis is tantamount to saying that in the *doen*-version of (42), the role that the Causee’s intentions must necessarily have played in the coming about of the causal effect, are backgrounded.

Another circumstance in which *doen* can be substituted for *laten*, is in cases in which the type of LOE is somewhat ambiguous in terms of the autonomy scale. An example is (43):

- (43) (Rode Kruis bereidt introductie voor van nieuw logo) Als het zover is (...) wordt er een forse reclamecampagne tegenaan gegooid om iedereen, in alle uithoeken van de wereld, kennis te **laten/ ><doen** nemen van het embleem. (por030106)
(The Red Cross is preparing the introduction of a new logo). When it’s ready (...) there will be a considerable publicity campaign to give everyone, to the farthest corners of the world, notice of the symbol.

The effected predicate, ‘to give notice’, is somewhat ambiguous with respect to its ‘autonomy’ category. Marking with *laten* favors the (to my intuitions: strongest) interpretation as an intentional act, while *doen* favors its ‘undergoer’ interpretation. Under the second interpretation, the overall conceptualization of the event switches from ‘indirect causation’ to ‘direct causation’.

The contrast between *doen* and *laten* in inductive contexts becomes maximally clear in causative situations that (without context) allow for both a permissive and a causative situation, as in (44):

- (44) (Jari Litmanen) krijgt medewerking van Barcelona, dat hem ondanks een contract tot 2002 tranfervrij **laat/ # doet** vertrekken. (bio040142)
(Jari Litmanen) gets the cooperation of Barcelona, which –in spite of a contract until 2002- lets him leave without transfer.

With *laten*, causer ‘Barcelona’ allows causee Litmanen to carry out his wish to leave the soccer club. *Doen* on the contrary, enforces a reading in which Litmanen is forced to leave the soccer club against his will. Once more, the difference can be described with reference to the concepts of ‘intentionality’ and ‘controllability’. However, this interpretation does not fit the specific context of (44).

Belief

The sample under investigation contains only two examples of causative situations with an LOE that can be characterized in terms of ‘belief’. According to the Folk model of the mind (and cf. findings in Chapter 7), belief is ambiguous with respect to ‘controllability’. This is perhaps reflected in the fact that one of the occurrences in the sample was marked with *laten* and the other one with *doen*. In both cases, the causal auxiliary can be substituted by its counterpart:

- (45) Eigenaar J. Veerman van De Wirwar **laat/ ><doet** via zijn woordvoerder, H. van der Weijden, weten dat zijn bedrijf aan alle brandveiligheidseisen voldeed (...) (op020115)
*Owner J. Veerman of The Wirwar **made** known by way of his spokesman H. van der Weijden, that his company satisfied all the fire safety requirements (...).*
- (46) De VVD is er alles aan gelegen zich aan de kiezer te presenteren als de partij (...) die zich (...) heeft **doen/ ><laten** kennen als de bewaker van een solide begrotingsbeleid. (ac200263)
*The VVD finds it very important to present itself to the voter as the party that **made** itself known as guardian of a solid Budget policy.*

In both fragments, the effect of substitution can be characterized as follows: *laten* accentuates the contribution of the ‘second force’ to the coming about of the causal effect, and minimizes the contribution of the causer. *Doen* reverses the picture. While with substitution, categorization in terms of directness inverses too, it is not entirely clear how the effect is to be characterized with reference to the autonomy scale. Depending on the perceived ‘controllability’ of the causal effect by the LOE, it may be ‘control’ or ‘origin of cause’.

Emotions

Feelings and desire are considered to be uncontrollable. In the sample, only one instance of inductive causal processes marked with *doen* was found. Although there does not seem to be a principled reason why this should be the case³, *laten* cannot be substituted in this fragment:

- (47) Zo kan ik dan weer andere mensen verbijsterd **doen/ ? laten** staan als hun grasmaaier niet meer verder wil. Ik weet namelijk waar de bougie zit. (co130252)
I myself can amaze other people when their lawn mower breaks down. I know where the spark is located, you see.

Undergoer

Finally, ‘undergoer causation’ is found in the sample marked with *doen* as well as with *laten*. In causative contexts, they can easily be substituted. The differences in effect in terms of degree of autonomy are rather subtle: *laten* highlights the contribution of the ‘second force’, *doen* backgrounds it. The relevant dimension here seems not to be ‘control’, but ‘origin of the cause’. But categorization in terms of ‘directness of causation’ varies with the marker chosen.

- (48) Askew raakt meer en meer de weg kwijt (...) Kit weet contact met hem te krijgen en hem te **doen/ ><laten** inzien dat hij (...) ook de sterke schouder kan zijn waarop zijn disfunctionele gezin kan leunen. (rec130105)

³ The combination *iemand verbijsterd doen staan* (‘amaze someone’) may be a lexicalized expression, comparable to *iemand versteld doen staan* (‘astonish someone’).

*Askew is losing his way more and more (...) Kit manages to stay in contact with him and to **make** him see that he can also be a strong shoulder for his dysfunctional family to lean on.*

- (49) De Dikke en de Dunne waren het en Mr Bean is het. Eenvoudige, universele humor, een raar gezicht trekken, iemand **laten/ ><doen** struikelen (co030108).
*Laurel and Hardy had it and Mr. Bean has it. Simple, universal humor, making funny faces, **making** someone trip over.*

A fragment that illustrates the respective effects of *doen* and *laten* in a telling manner is (50), taken from an article that discusses the sensitive question of euthanasia.

- (50) De oplossing die deze commissie koos, was om de kunstmatige voeding te staken, niet om de vrouw te **laten/ ><doen** sterven, maar (...) (ac050112).
*The solution which this committee chose was to cease artificial feeding, not to **let** the woman die, but...*

Laten minimizes the influence of the causer on the coming about of the causal effect (up to the suggestion of a permissive reading, which is in fact impossible in this context), *doen* maximizes it. Each one of the marking options appears to coincide with one of the opposite stances that can be taken in the societal discussion about this topic.

Affective causation

Table 7.3 summarizes the distribution of *doen* and *laten* over the categories in the autonomy scale, as found in the corpora used in Chapter 3.

Table 7.3 Distribution of *doen* and *laten* over the autonomy scale (affective causation).

	Undergoer	Emotions	Belief	Intentions	Total
<i>Doen</i>	8	13	6	15	42
<i>Laten</i>	0	1	0	5	6
Total	8	14	6	20	48

Causal interactions between an inanimate causer and an animate causee are in the vast majority of cases marked with *doen* (cf. Chapter 3), and thus are categorized as being instances of direct causation. As was already noted in Chapter 3, one would expect these cases to contain *only* causal effects with predicates that are inherently uncontrollable for the LOE. A surprising finding was that only half of the Affective causal relations have effected predicates with an inherently ‘uncontrollable’ lexical meaning. The other half contains inherently *controllable* predicates. In Chapter 3, however, it was observed that the vast majority of these cases were to be considered ‘uncontrollable’ for contextual reasons.

A surprising finding is that *laten* can hardly ever be substituted for *doen* in affective causation. The main explanation does not seem to be located in differences in degree of autonomy. Rather, it seems to be related to unconventionality of the usage pattern ‘inanimate causer + *laten*’. To many speakers of Dutch, *laten* appears to cause metonymical personification of the causer, that is incongruent with the contexts of use.

Intentions

- (51) Deze hal suggereert dat we uit het heelal komen, ze **doet/#laat** ons tenminste erover nadenken waar we vandaan komen. (rec240123)
*This hall suggests we are from the universe; it **makes** us think about where we are from.*

Belief

- (52) Een volk krijgt de leider die het verdient, wil een gangbare stelling binnen de diplomatie **doen/#laten** geloven.⁴ (ac020101)
*A people gets the leader it deserves, is what a prevailing position in diplomacy wants to **make** us believe.*

Emotions

- (53) „Het lichaam wordt gezien als een last, door de naar verlossing strevende godsdiensten, maar ook door Socrates, die uitriep: 'het lichaam is de kerker van de ziel.' Het **doet/#laat** ons lijden en maakt ons onderhevig aan vrijwel oncontroleerbare verlangens (ac080243).”
“The body is seen as a burden by religions in pursuit of redemption, but also by Socrates, who exclaimed: ‘the body is the dungeon of the soul’.
*It **makes** us suffer and liable to almost uncontrollable desires.”*

Undergoer

- (54) Een dubbele fout en een volley in het net **deden/#lieten** hem zijn eigen opslag inleveren: (...) (sp210241)
*A double fault and a volley in the net **made** him give up his serve.*

The sample presently investigated suggests that in natural language use, affective causation is hardly ever marked with *laten*. The six ‘affective’ causative situations originally marked with *laten* are of a non-standard type. One of these fragments ((55) below) contains an unambiguously ‘permissive’ process, and the remaining five concern causeless reflexive constructions (cf. Section 3.4). Neither type is suitable for carrying out the substitution test because the effects will not be attributable to the concept of [\pm Intentionality].

- (55) (...) een paar knuppelbruggen (...) die ons zonder gevaar van de natuur **laten/#doen** genieten. (rep060131)

⁴ Verhagen & Kemmer (1997) suggest that the combination *doen geloven* has an idiomatic character. This may be the reason why *laten* is ‘out’ in this context.

(..) *a few rustic bridges (...) that cause us to enjoy nature without risks.*

Summary and conclusion

Interestingly, the actual usage of *doen* and *laten* in the sample of ‘inductive causative’ fragments, shows a clearer parallel to the usage patterns of *daardoor* and *daarom* than expected. Intentional effected predicates occur in the sample only marked with *laten*. However, this picture is not corroborated in the substitution test. Only within the category ‘intentional processes’, do the substitution effects of *doen* for *laten* parallel patterns of *daardoor* and *daarom*. Differences in overall interpretation can be described with reference to the dimension of ‘controllability’, but this is probably caused by the inherent lexical semantics of the predicates in question. The predicted imperfection of the parallel became manifest in the substitution of the other categories. Differences in overall interpretation could be characterized plausibly only with reference to the dimension of ‘origin of cause’ of the folk model of the mind. The sample of ‘affective causative’ fragments contained a relatively great number of idiosyncratic examples, that are either non-productive or non-analyzable as standard causative constructions (cf. discussion in Chapter 4).

7.3.4 Conceptual similarities: conclusion

The hypotheses formulated in Sections 7.2.1 and 7.2.2. are borne out in the corpus analysis. The parallels were found as expected, but the expected imperfections of the parallels were found too. The hypotheses were:

Hypothesis ‘Direct vs. Indirect causation in causal connectives’

(1) *Daardoor* parallels *doen* for having a Locus of Effect conceptualized as [– Control], therefore: causal relations marked with *daardoor* can be understood as instances of Direct causation.

(2) *Daarom* and *dus* parallel *laten* for having a Locus of Effect conceptualized [+Control], therefore: causal relations marked with *daarom* can be understood as instances of Indirect causation.

Indeed, the results of the corpus analysis suggest that ‘directness of causation’ may also characterize differences between *daardoor* and *daarom* adequately. But in contrast to the distinction between *doen* and *laten*, the relative degrees of ‘autonomy of the LOE’ cannot be characterized as being the ‘source of the effect: internal or external to the LOE’; instead, ‘autonomy of the LOE’ is adequately characterized in terms of ‘control’ of the LOE over the coming about of the causal effect.

Hypothesis ‘SOC vs. Non- SOC causality in causal verbs’

(1) *Doen* parallels *daardoor* for having a Locus of Effect conceptualized as [–Intentionality], therefore: causal relations marked with *doen* can be understood as instances of Non- SOC causation.

(2) *Laten* parallels *daarom* and *dus*, for being the only causal verb that can be combined with an LOE conceptualized as [+Intentionality], therefore: *only* causal relations marked with *laten* can be understood as instances of SOC causation.

The results of the corpus analysis suggest that the distinction between SOC-containing and non- SOC-containing is to some extent relevant in the contrast between *doen* and *laten*, too. In natural language use, as well as in artificial contexts where differences are put on sharp (cf. substitution test), it turns out that *doen* can never be combined with intentional LOE, which can be analyzed as SOC in terms of Pander Maat & Sanders (2000). But once more, this parallel is imperfect, because *laten* cannot be described with reference to the concept SOC because it is naturally used in both SOC and non- SOC contexts.

In sum, the conceptual analysis reported in Section 7.2 and the corpus analysis reported in Section 7.3 have substantiated the intuition that there are important conceptual parallels in causal verbs and causal connectives at the other. Another benefit of these analyses is that they allow the systematization of the remaining differences –at least, those manifest in the domain of ‘objective causality’. It was proposed that they can be understood as differences in degree of the concept of ‘autonomy’ of the Locus of Effect in the overall causative event.

7.4 Conceptual differences

This section focuses on the conceptual differences in categorizations with verbs as compared to connectives, as identified in the previous sections. A first difference can be attributed to the relative degrees of autonomy the Loci of Effect (LOE) are conceptualized as having in the causal processes reported. This difference was made explicit in Sections 7.2 and 7.3, making use of the ‘autonomy scale’ for animate LOE, repeated below for convenience:

Inanimate	Undergoer	Emotions	Belief	Intentions
			+	+
			+	+
	+	+	+	+
	+	+	+	+

Figure 7.5 Scale of increasing autonomy.

Daarom can only be used in contexts that leave room for an interpretation containing elements of ‘control’ by some animate locus of effect (SOC) explicitly expressed or inferable from contextual elements. *Laten* on the other hand appears to have fewer restrictions. Although it turned out to be used in contexts with an [+intentional] effect denoting predicate far more frequently than in contexts with an effect denoting predicate of the [-intentional] type (in a proportion of 4 : 1), the substitution test suggested that its usage potential included *all* of the other contexts as well. This finding suggests that it is *not* the concept of [+control] or [+intentionality] that defines the usage potential of *laten* adequately, but rather the concept of [+cause inside the mind] as defined within the folk model of the mind (D’Andrade 1987). Still, the idea that [+animacy] is indeed relevant in *laten* is strongly supported by a usage fact reported in Chapter 3, namely, that *laten* is hardly

used to mark causative situations that contain both inanimate causers and inanimate causees.

A second difference between causal verbs and causal connectives there doesn't seem to exist an equivalent of *dus* causality (subjective causality) at the clause-level. This type of causality cannot be expressed within an analytical causative construction.

How must these facts be interpreted in relation to the central hypothesis of this study, that a direct relation between the semantic content of causality markers and their conceptual interpretation must be signalled by cross-level parallels in categorization patterns? Although parallels between categorizations of causal verbs and causal connectives clearly exist, there must be an explanation for the fact that this parallel is somewhat 'imperfect'. In the present section it will be argued that a possible explanation is located in constructional differences.

Chapter 2 (Section 2.3.4) discussed the cognitive linguistic assumption that the overall conceptualization of a linguistically reported situation or event may be established not only on the basis of the semantics of (combinations of) lexical elements, but also in relation to the grammatical construction (conventionalized combination of elements) those lexical elements are structured in. This assumption entails that the overall interpretation of causal relations marked with a causal connective or a causal verb may be based not only on the lexical semantic content of the marker used, plus further linguistic and contextual elements - but that the *constructional* aspects, too, may systematically influence the mental representation of the causal relation. As semantic meaning is defined from a usage-based perspective in this study, these assumptions entail that the complete semantics of causality markers may consist of conceptual content derived from conceptual models relevant to the understanding of causality *plus* conceptual import from the construction.

The previous sections provided evidence for the first part of this definition. The present section will explore the validity of the assumption in the second part with respect to causal verbs and causal connectives. Testing this assumption empirically is beyond the scope of this study. Therefore, the discussion will be limited to an overview of relevant literature and to the formulation of hypotheses to be tested in future research.

The idea that constructional type may at least partly establish the interpretation of a causal relation has been proposed before. For example, Talmy (1976; 2000) elaborated this idea with respect to his concept of 'windowing of attention' and 'gapping'. These notions describe "the linguistic windowing of attention over a causal chain, and specifically, how the medial portion of such a chain is regularly omitted from attention in what appears to be a linguistic correlate of a general attentional pattern" (2000: 10). Apart from the fact that linguistic windowing of attention leads to highlighting and backgrounding alternative aspects of one and the same causal process in extra linguistic reality, the relation between the aspects, too, may be conceptualized in alternative ways. Within this line of reasoning, Talmy (1976; 2000) systematizes different grammatical types of causal constructions relative to the 'basic causative situation', discussed in Chapter 2 - its definition is repeated here for convenience:

The basic causative situation [...] consists of three main components: a simple event (that is, one that would otherwise be considered autonomous), something that immediately causes the event, and the causal relation between the two (Talmy 2000: 480).

According to Talmy, the ‘cause’ of the simple event is itself also a simple event rather than, for instance, a physical object. But a variety of grammatical constructions allow language users to depart from this ‘basic’ formulation and, as Talmy hypothesized, modify the architecture of causal relations as well as their conceptualization. For example, causal constructions may differ with respect to ‘continuity’. Examples from a ‘continuous causative chain’ and a ‘discontinuous causal chain’ are (56) respectively (57) (taken from Talmy 2000: 503):

- (56) I slid the plate across the table by pushing on it with a stick.
(57) I made the plate slide across the table by throwing a stick at it.

Talmy considers (57) as an instance of the basic causative situation, and (56) as a deviation. The causal relation in (56) is taken to be ‘continuous’ for the interpretation that the ‘cause’ has direct contact with the caused event. Understanding of (57) as a ‘discontinuous’ process, on the other hand, “is the presence in the chain of (what is considered by the speaker to be) an autonomous event”- the stick’s hitting the plate, without the thrower (the cause) being in direct contact with either of them. The conceptualization of the event as ‘continuous’ licenses the “use of the ‘conflated’ form”, whereas the more basic ‘discontinuous’ conceptualization is signaled by the causal verb *make* (2000: 503).

The idea that stronger grammatical integration coincides with stronger conceptual integration between cause and effect has been adopted by several other authors (cf. Kemmer & Verhagen 1994 and references cited, discussed in Chapter 3). Goddard (1998), for example, observes the following of the continuum of constructions ranging from analytic causatives via morphological causatives to lexical causatives (cf. discussion in Section 2.3.4):

As we pass from analytical to morphological to lexical, we find increasing ‘semantic cohesion’, in some sense, between the causing event and the caused event; for example, the analytic expression *cause to die* suggests a looser and more indirect causal link than that conveyed by the lexical causative *kill* (Goddard 1996: 260).

The general idea was corroborated by empirical findings of Wolff (2003). In an experiment, he found that participants tend to use lexical causative constructions and analytic causative constructions in different usage-contexts. The former type of expression was predominantly used for verbalizing causal relations in which a causer set in motion a causee via direct contact.

Continuing this line of reasoning beyond sentence level phenomena, it can be proposed that the constructional differences between causal verbs and causal connectives coincide with different degrees of conceptual integration of cause and

effect factors too. My hypothesis would be that both the fact that the delineation of the ‘animacy’ related distinction differs in causal verbs and causal connectives, *and* the fact that ‘subjective’ causality does not seem to have an equivalent in causal verbs, can be explained with reference to differences in conceptual integration between cause and effect.

The difference between the usage domains of *laten* and *daarom* in terms of ‘degree of control over the coming about of the causal effect by the locus of effect’, for example, could possibly be related to the grammatical position of their respective loci of effect. The fact that [+Animacy] in causal verbs exceeds the range characterized by [+Control] and stretches well into the [-Control] categories, may be congruent with the fact that in our understanding of analytic causatives it is *not necessarily* the Locus of Effect itself, the causee, that is responsible for bringing about the causal effect. On the contrary, the coming about of the causal effect is *always* conceptualized as *at least* partly controlled by the causer, that is, viewed as the onsetter of the causal relation, even in cases of Indirect causation. In other words, in analytic causatives a certain amount of control over the situation is by definition transferred to the causer. This is not the case in intersentential causal relations, where the animate SOC, the grammatical subject of the effect-clause, is necessarily conceptualized as the onsetter of the effected event, whenever ‘control’ over this event is part of the inherent semantics of the finite verb (or is otherwise present in the context). This analysis is congruent with the analysis of the semantic structure of analytic causative constructions proposed in Kemmer & Verhagen (1994) as ‘simple clauses’ (cf. Chapter 3).

A similar line of reasoning may apply for invoking constructional aspects as an explanation of the ‘inexpressibility’ of subjective causality in analytical causatives. In Chapter 4, the distinction between objective and subjective causal relations was defined in terms of speaker involvement: only causal relations where the speaker is the source of the actual construction of the relation are ‘subjective’ causal relations. All other types of causal relations are ‘objective’. In Section 7.2.2 it was argued that this kind of subjectivity is not self-evidently expressed in analytic causative constructions. This point was illustrated with reference to the contrast between (58) and (59) on the one hand, and (60) and (61) on the other:

- (58) De straten zijn nat, **du**s het regent.
The streets are wet, so it is raining.
- (59) Het regent, **du**s de straten worden nat.
It is raining, so the streets are getting wet.
- (60) *De natte straten **laten/doen** het regenen.
 **The wet streets are making it rain.*
- (61) De regen **doet/laat** de straten nat worden.
The rain is making the streets get wet.

Neither of the intersentential epistemic relations can be transposed to the clause-level. This either leads to ungrammaticality (60) or to an objective causality interpretation, where the causal relation holds in ‘the real world’ (61).

This observation parallels Degand's (2000, 2001) finding that prepositional markers of causal relations cannot mark 'subjective' causal relations either⁵ (roughly equivalent to Degand's interpersonal and textual domains; cf. discussion in Chapter 4):

"Contrary to the causal connectives, the functional potential of the (causal) prepositions is restricted to a single discourse level: the ideational one (=roughly equivalent to objective causal relations). In other words, prepositions may only be used to establish a relation between units referring to states of affairs in the world; not to justify or motivate a previous claim, belief or statement (interpersonal domain); nor to establish a purely rhetorical relation (textual domain). This is illustrated by the inadequacy (in the desired domain) of the following examples.

* *Vanwege zijn afwezigheid zal hij wel ziek zijn.*
* *Because of his absence he must be ill.*

* *Kom naar binnen, vanwege de regen!*
* *Come inside, because of the rain*

In fact, these examples sound awkward because the use of the prepositions forces them to be interpreted within the ideational domain, where they do not make any sense" (Degand 2001: 144)

An interesting additional fact is that intrasentential paraphrase of (58) and (60) becomes possible if the SOC is made explicit:

- (62) De straten zijn nat, **dus** ze concludeert dat het regent.
The streets are wet, so she concludes that it is raining.
- (63) Het regent, **dus** ze concludeert dat de straten nat worden.
It is raining, so she concludes that the streets are getting wet.
- (64) De natte straten **doen** haar concluderen dat het regent.
The wet streets cause her to conclude it is raining.
- (65) De regen **doet** haar concluderen dat de straten nat worden.
The rain causes her to conclude that the streets are getting wet.

But again, these examples can only be interpreted as cases of 'objective causality' and any 'subjective flavor' is lost.

⁵ Under special circumstances, a subjective interpretation of preposition-marked causal relations seems to become possible, .e.g.: *Gezien de regen worden de straten ongetwijfeld nat* ('In view of the rain the streets will undoubtedly become wet'). For obtaining this effect, inserting modality markers seems to be a necessary condition. However, at an analytical level, two propositions are visible. To many speakers of Dutch, this sentence sounds somewhat unconventional.

7.5 Conclusion

The previous chapters suggested that parallels exist between categorizations made by causal verbs at the clause level, and categorizations made by causal connectives at the discourse level. This chapter aimed to elaborate these suggestions by investigating the exact range and nature of the parallels. The parallel so far intuitively characterized as ‘some degree of animacy’ was specified making use of a ‘scale of increasing autonomy’, based on D’Andrade’s folk model of the mind (1987), as represented in Figure 7.5:

Inanimate	Undergoer	Emotions	Belief	Intentions
				+
			+	+
	+	+	+	+
+	+	+	+	+

Figure 7.5 Scale of increasing autonomy.

The autonomy scale was used to disentangle different aspects of ‘animacy’ as identified in linguistic literature as well as in the fields of psychology and anthropology. The findings from the present chapter have substantiated the intuition that there are important conceptual parallels in the way causal relations are categorized by causal verbs on the one hand and causal connectives on the other. This parallel is characterized with reference to the notion of ‘animacy’.

At the same time, the analyses carried out in the present chapter allowed for substantiating a second intuition, which is that there are also differences between categorizations with causal verbs and causal connectives. As was hypothesized in Chapter 2, these differences can be conceptually related to constructional differences. A first difference concerns the exact definition of the concept of ‘animacy’ as it is relevant in categorizations with verbs or connectives. It was proposed that they can be understood as differences in degree of the concept of ‘autonomy’ of the Locus of Effect in the overall causative event. In causal verbs, an LOE is categorized as being (non-)autonomous with respect to the dimension of ‘origin of cause: internal or external to the LOE’. Connectives, on the other hand, categorize an LOE with respect to the dimension of ‘intentionality’. It was proposed that these concepts can be ordered on a scale of increasing autonomy.

A second difference found was that subjective causality, at the interclausal level typically marked with *dus*, does not have a parallel in analytic causative constructions. This difference as well, could also conceptually be related to constructional factors: ‘subjectivity’ was defined in this study in terms of the speaker relating two or more propositions in the ongoing communicative situation. As analytic causative constructions contain only one proposition, subjective causal relations cannot be expressed in this construction type.

Chapter 8

Causality marking across levels of language structure: Conclusion and discussion

8.1 Reconstructing the scene

Causality markers are categorizing devices. When selecting a specific marker among the options available in a language, a language user assigns the causal relation expressed to a specific type of causality. Accordingly, a large number of studies have proposed that the meaning contrasts between these different options coincide with different conceptual categories of causality. Causality markers are manifest at different levels of linguistic structure. The range of causal expressions in many languages in the world contains markers of different grammatical types. So far, markers of a specific type have typically been studied in isolation. In spite of obvious commonalities in the functioning of causality markers, there are no theories that generalize over the meaning and use of markers of different types in a satisfying way. The present study aimed to formulate a theory that offers an integrative perspective on different types of markers.

That generalization *is* possible indeed has been suggested in the seminal work of Talmy (1976; 1988; 2000). He proposes that the conceptual notion of ‘force dynamics’ (“how entities interact with respect to force”) enables us to generalize over a range of causal expressions in English. Prototypically, causation is conceptualized as ‘two forces opposing each other’. Talmy claims that the conceptual system for force interaction that is ‘built’ into language structure can be related to other cognitive domains, such as naïve physics and folk psychology. As for the general validity of force dynamics explaining the linguistic expression of causality, Talmy claims that “Force dynamics [...] plays a structuring role across a range of language levels. [...] it has direct grammatical representation. In English [...] such representation appears not only in subsets of conjunctions, prepositions and other closed-class elements but, most significantly, also as the semantic category that most uniquely characterizes the grammatical category of modals as a whole” (2000: 409).

However, subsequent studies suggest that Talmy’s force dynamics theory does not offer a complete account of the mechanisms governing linguistic categorization of causal relations. For example, the notion of force dynamics alone is often not specific enough for characterizing categorization patterns manifest in specific types of causality markers. Marking patterns in individual languages may be co-determined with more general cognitive models (cf. Verhagen & Kemmer 1997;

Kemmer & Verhagen 1994). Moreover, cross-linguistic differences occur in the way causal processes tend to be categorized in specific languages (cf. Wierzbicka 1988). Furthermore, like many other cognitive semantic theories, Talmy's proposal predominantly focuses on expressions that function within clauses. Causal conjunctions, typically used to connect clauses at the level of discourse structure, are taken into account predominantly in their non-typical function as prepositional markers (*because of*).

8.2 Purpose of this study

The present state of research in the field of causality markers constitutes a somewhat paradoxical situation. It is rightly suggested that the generalizing theory of Talmy is not specific enough to offer a descriptively adequate account of individual marker types. But at the same time, the studies that *do* offer descriptive adequacy tend to lose sight from commonalities between marker types, characterizing the family of causality markers as a whole. At first sight, it is not at all obvious what notions such as 'directness of causation' or 'causing' and 'letting' (identified in previous research as categorizing concepts for causal verbs) have in common with a 'scale of subjectivity' (identified as a characterizing concept of the semantics of causal connectives). Still, commonalities *are* to be expected if the overall hypothesis holds – that the meaning of causality markers reflects our conceptual understanding of causality.

The present study has aimed to take seriously the integrative perspective on causality markers as suggested by Talmy, and to realize it in empirical research. Its main hypothesis was that semantic differences between causality markers may exist due to differences between the construction types they are used in. But more importantly, there must be fundamental conceptual parallels as well. This study focused on the Dutch causal auxiliary verbs *doen* and *laten*, and on the Dutch causal connectives *daardoor*, *daarom* and *dus*. Causal verbs were studied as causality markers that function at the *clause* level of language. Causal connectives relate clauses as a whole, and can thus be said to function at the *discourse* level of the linguistic structure. The latter type was taken into account with the aim of exploring whether discourse phenomena, previously neglected in cognitive semantic theories, are governed by the same mechanisms as clause-level phenomena.

8.3 Summary of the findings

The overall hypothesis of this study was that fundamental parallels exist between categorizations made by causal verbs and categorizations made by causal connectives. This hypothesis was empirically tested in a number of studies. The results of these studies largely support the hypothesis. This section presents an overview of the main findings.

The study started by constructing ('explicating') a theoretical framework where basic assumptions and findings of cognitive semantics that are relevant to the purposes of the present study were discussed (Chapter 2). Specifically, the

categorizing functions of causal verbs and causal connectives were related to the conceptual understanding of causality, as studied by cognitive psychological and cultural anthropological research (and already implemented in the body of cognitive semantic research). Another specific assumption that was adopted in this study is that the linguistic system is learned and employed as a usage-system.

These assumptions led to the following characterization of the notion of 'semantic category': 1. content and internal organization of semantic categories reflect general cognitive principles organizing conceptual knowledge; 2. semantic categories are usage-categories, entailing that usage-mechanisms are reflected in the content and internal structure of the categories. More specifically, it was assumed that semantic categories may exhibit prototypicality structure. This prototypicality structure is taken to be manifest at the level of language use, it is proposed that the semantic categories of causality markers may be built around conventional usage patterns that form the category's prototypical core, and also less conventional usage-patterns that constitute less-prototypical instances of the category, but are still considered to be 'true category members'. Because of the assumed 'usage-based character' of semantic knowledge, patterns of language use were taken to provide rather direct evidence for the content and form of the semantic categories.

In subsequent chapters, existing theories on Dutch causal verbs and Dutch causal connectives were related to this framework. It became evident that even approaches which explicitly ally themselves with the cognitive semantic framework tend to implement theoretical assumptions from the field of cognitive semantics in different ways. This is remarkable, given their strong orientation towards cognitive plausibility and descriptive adequacy with reference to language use. From these comparative analyses, hypotheses were derived. These were tested against samples of natural language use.

In Chapter 3, the meaning and use of the Dutch causal verbs *doen* and *laten* were investigated. The proposal of Verhagen & Kemmer (1997; Kemmer & Verhagen 1994) was taken as a starting point. It was found that *doen* is prototypically used in usage-contexts with inanimate core-participants (as in (1)) and in contexts where an inanimate causer interacts with an animate causee that does not have control over the causal process (as in (2)). *Laten*, on the other hand, is prototypically used in contexts with animate core-participants (as in (3)).

- (1) De extreme koude **deed** de rivieren bevriezen.
The extreme cold caused the rivers to freeze.
- (2) De koude wind **deed** haar verlangen naar een beker warme chocolademelk.
The cold wind made her long for a hot cup of chocolate milk.
- (3) Ze **lieten** de kinderen wat extra rondjes schaatsen.
They had the children skate some extra rounds.

Particularly *doen* is occasionally used in non-prototypical contexts. It is used for rhetorical purposes in typical *laten*-contexts, such as (4):

- (4) Zijn (king Boudewijn of Belgium) door de rooms-katholieke leer gevormd geweten, geraakte in conflict met hetgeen de landsregering

besloten had. En in hoeverre heeft de clerus getracht door middel van de kroon zijn opvattingen in de besluitvorming van kabinet en parlement te **doen** zegevieren? (opi090251)

*His (King Boudewijn of Belgium) conscience, formed by Roman Catholic teachings, was conflicted by what the government had decided. And to what extent had the clergy attempted to **make** their opinions triumph in the decision making of the cabinet and the parlement, by using the crown?*

The rhetorical effect of *doen* in this typical *laten*-context is that the causal process is construed as being beyond the control of the causee. These characteristics have been observed by Verhagen & Kemmer (1997) as well. However, they characterized the semantic content of *doen* and *laten* in terms of directness of causation, a notion that encompassed *all* usage contexts of *doen* (direct causation) and *laten* (indirect causation) respectively. From the perspective of the present study, descriptive adequacy and cognitive plausibility is enhanced if differences in conventionality of usage-patterns are accounted for. It was proposed that the semantic categories of *doen* and *laten* have the following form:

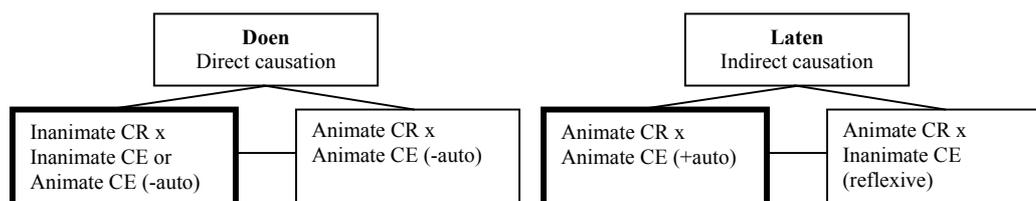


Figure 8.1 semantic categories of *doen* (left) and *laten*. (CR = causer; CE = causee; auto = autonomy)

In Figure 8.1, the bold print boxes symbolize prototypical usage types, the boxes located at the same level symbolize the extensions from the prototype. In the figure, only conventionalized patterns are indicated. Prototypes (in terms of animacy configurations) and extensions are related by way of ‘family resemblance’. The superschemas (boxes located at the upper level of Figure 8.1) indicate the limits to ‘extendability’ of the prototypes. For example, *doen* can only be used in contexts of “animate CR- animate CE [-autonomy]” if the usage context indicates that the causal process is to be construed as ‘direct causation’. This hypothesis was tested in a corpus analysis of newspaper texts. The findings supported the hypothesis.

In Chapter 4, meaning and use of the Dutch causal connectives *daardoor*, *daarom* and *dus* was investigated. The theory of Pander Maat & Sanders (1995) and their revised version, Pander Maat & Sanders (2000), were taken as a point of departure. These were selected as representatives of tendencies in the field of cognitive textlinguistics studying meaning and use of causal connectives. In the mid-nineties the meaning of causal connectives was taken to relate to discrete levels of representation, e.g. Sweetser’s (1990) ‘domains of use’. It was found that *daardoor* was typically used in contexts of content non-volitional causality (as in (5)), *daarom*

in contexts of content volitional causality (as in (6)) and *dus* (at least in written language) in epistemic causality (as in (7))

- (5) De zon scheen fel. **Daardoor** liep de temperatuur snel op.
*The sun shone fiercely. **Because of that** the temperature rose quickly.*
- (6) Het was erg warm die dag. **Daarom** vertrokken de kinderen naar het zwembad.
*It was very hot that day. **That's why** the children left to go to the swimming pool.*
- (7) Het is erg warm vandaag. **Dus** de kinderen zullen wel weer naar het zwembad willen.
*It is very hot today. **So** the children shall no doubt want to go to the swimming pool again.*

It was found that, in spite of clear tendencies in distribution patterns, especially *daarom* and *dus* could naturally be used in other domains as well. *Daarom* was frequently used in epistemic contexts, and *dus* could be used in content volitional contexts. Examples are (8) and (9) respectively:

- (8) „Maar bij ernstige brandwonden is het hele lichaam ziek“, zegt Hermans „De lever, de nieren, alle organen doen mee. **Daarom** is de zorg voor deze patiënten zo ingewikkeld.“ (ac020104)
*“Serious burns make the whole body ill” says Hermans. “The liver, the kidneys, all organs are affected **That's why** the care for these patients is so complicated.*
- (9) (Omstanders schieten te hulp bij cafebrand Volendam). “Ik woon vlakbij, **dus** ik ben brandwondencrème gaan halen.” (rep020107)
*ntext: Bystanders rush to help out at the Volendam pub fire. “I live nearby **so** I ran to get burn ointment.”*

Because of these observations, the ‘domains of use’ approach was abandoned in favor of a theory that proposed to order causal connectives on a scale of subjectivity (Pander Maat & Sanders 2000, 2001; Pit 2003; Pander Maat & Degand 2001). On this scale, *daardoor* occupies a ‘maximally objective’ position, *daarom* an ‘intermediate subjective’ position, and *dus* a ‘maximally subjective’ position.

In Chapter 4 it was argued that the scalar notion of subjectivity is not compatible with the assumption that causality markers function as categorization devices. Moreover, the proposed definitions of the subjectivity scale were analyzed to contain distinct conceptual cores. Conceptual distinctions between the cores were shown to reflect the domains of use concepts of earlier theories, as well as a distinction between ‘objective’ vs. ‘subjective’ causal relations, based on Langacker’s definition of subjectivity (2002). This hypothesis was tested in a corpus analysis of newspaper texts. The findings supported the hypothesis. It was proposed that the semantic categories of *daardoor*, *daarom* and *dus* have the form of Figure 8.2:

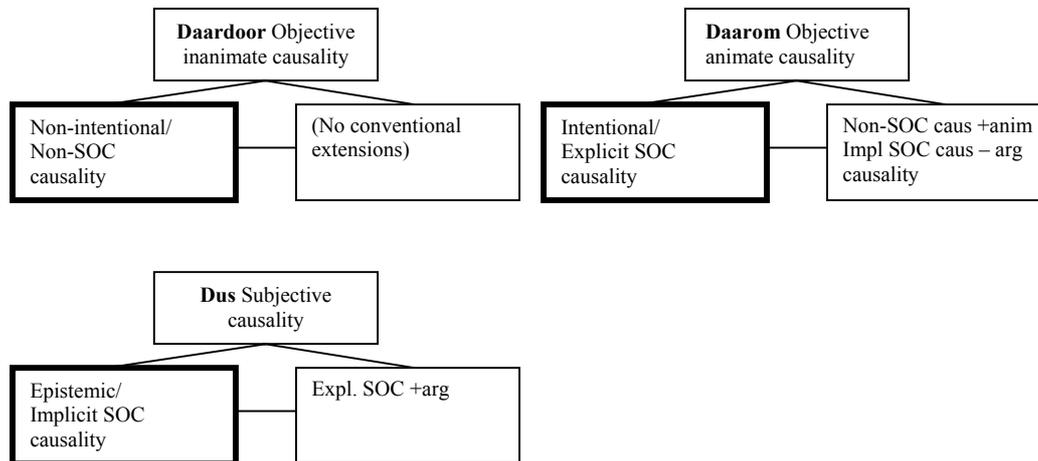


Figure 8.2 Semantic categories of *daardoor* (above, left), *daarom* (above, right) and *dus* (below). (Anim = animacy; arg = argumentativity).

Again, the bold print boxes symbolize prototypical usage types, the boxes located at the same level symbolize the extensions from the prototype. In the figure, only conventionalized patterns are indicated. As with the causal verbs categories, prototypes and extensions are related by way of ‘family resemblance’. The superschemas indicate the limits to ‘extendability’ of the prototypes. The finding that usage-patterns of causal connectives actually exhibit this pattern was interpreted as evidence against the concept of a scalar ordering on a subjectivity scale.

Chapter 5 reported a diachronic analysis of *dus* and *daarom* in texts from the 13th, 16th and 20th centuries. This corpus analysis revealed that the relation between *dus* and *daarom* and their proposed prototypes is diachronically stable. This finding was interpreted as supporting evidence in favor of the semantic description of *daarom* and *dus* (the least clearly delineated connectives) proposed in Chapter 4. The diachronic stability of the prototypes was also interpreted as supporting evidence for the general idea at the heart of this study, namely that semantic categories reflect conceptual categories.

Chapter 6 and Chapter 7 tested this study’s ‘cross-level’ hypothesis more directly. In Chapter 6, an experiment was reported that investigated language users’ intuitions with respect to the similarity between categorizations of verbs and connectives. Evidence was found in accordance with the prediction, that subjects experienced a parallel between categorizations made with *doen* and categorizations made with *daardoor* on the one hand and a similar parallel between *laten* and *daarom* on the other.

Finally, Chapter 7 approached the intuitive parallel between *doen* and *daardoor* on the one hand and *daarom* and *laten* on the other, from an analytical perspective. It was found that the hypothesized parallel is manifest in different

aspects of the causal relations marked. To start with, both the categorizations with verbs and connectives are adequately understood in terms of ‘force dynamics’, an interaction of forces. In both construction types, it is the ‘Locus of Effect’ (LoE), the point where the cause directly affects the effect-part of the causal relation, that plays a crucial role in categorization. A clear conceptual parallel with respect to the content of categorization turned out to exist as well: *laten* and *daarom* are strongly related to the concept of ‘animacy’, while *doen* and *daardoor* share their connection to the concept of ‘inanimacy’. The parallels identified in this study are summarized in Figure 8.6.

	Objective causality		Subjective causality
Discourse level	Daardoor Objective animate Non-intentional/ Non-SOC	Daarom Objective animate Intentional/ Explicit SOC	Dus Subjective Intentional/ Implicit SOC
Clause level	Doen Direct causation Inanimate participants	Laten Indirect causation Animate participants	/

Figure 8.3 Overview of similarities and differences between causal verbs and causal connectives.

Differences in categorizations with verbs and connectives were found as well. A first is that the concept of ‘animacy’ seems to be defined slightly differently in the construction types. Whereas in causal verbs, (non-)animacy per se determines categorization; in causal connectives it is the notion of (non-)intentionality, the agentive form of animacy, that seems to be relevant. Another obvious difference is the fact that there is no equivalent for *dus*-causality (epistemic or implicit SOC) at the clause-level. Chapter 7 proposed that both aspects can plausibly be related to inherent characteristics of the constructions verbs and connectives are used in.

8.4 Discussion: an integrative usage-based perspective on causality marking

The findings of this study allow for an integrative, usage-based perspective on the linguistic marking of causality. The fact that important conceptual parallels exist in categorizing mechanisms at the clause level and categorizing mechanisms at the discourse level of language can be interpreted as additional evidence for the cognitive semantic assumption that semantic categories reflect conceptual categories. Verhagen & Kemmer’s (1997) finding that the general Force dynamics model proposed by Talmy must be complemented with other cognitive models in order to describe meaning and use of causal verbs adequately, can be generalized to other types of causality markers. For example, the Folk model of the mind (D’Andrade 1987) proved to be relevant in causal connectives as well. In categorizations made with both verbs and connectives, the Cartesian dualism of

‘matter’ and ‘mind’ is clearly reflected. So far, this distinction was treated as being ‘of second order importance’ in theories on verbs as well as theories on connectives. Further investigation is needed for finding out whether the distinctions made in Dutch causal verbs and causal connectives can be generalized cross-linguistically (cf. Choi & Bowerman 1991 suggesting that conceptual domains may be split up somewhat differently in grammars of different languages, and Wierzbicka 1988; Kemmer 2001 suggesting that this may hold for causal expressions from a cross-linguistic perspective).

The findings of the present study can be interpreted from a more general cognitive semantic perspective as well. The fact that causal verbs and causal connectives are used just as naturally in conventional contexts as well as in unconventional contexts, underlines their identity as ‘construal operations’ (Langacker 1987; Verhagen 2005). Moreover, the categorizations made with Dutch verbs and connectives can be meaningfully interpreted with reference to Langacker’s ‘viewing arrangement’ (1987; 2002), see Figure 8.4, discussed as Figure 2.1 in Section 2.3.1, repeated here for convenience.

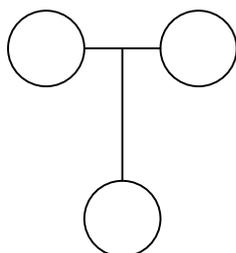


Figure 8.4 The viewing arrangement (Langacker 2002: 325)

Causal verbs can be understood to categorize causal relations that are construed at the *horizontal* level of object of conceptualization uniquely. A similar distinction is present in causal connectives as well (*daardoor* vs. *daarom*). At this level, the distinction in terms of ‘animacy’ plays a crucial role. Another major categorization at the discourse level, marked with *dus*, concerns the *vertical* level of the viewing arrangement: the distinction between causal relations where the subject of conceptualization plays a crucial role in constructing the causal relation, and causal relations where this is *not* the case – in other words: the distinction between ‘objective’ and ‘subjective’ causal relations (for an elaborate discussion of the relation between semantic categories of causal connectives and the viewing arrangement from a broader perspective, see Verhagen 2005).

Another benefit of the integrative perspective taken in this study is that understanding of categorization mechanisms of the markers in isolation is enhanced. For example, the integrative perspective allows for the disentangling of ‘general conceptual factors’ from ‘constructional-specific factors’ that probably interact in determining the overall semantic content of a specific causality marker. An example is, again, the importance of the conceptual distinction of (in)animacy that was shown to be of primary importance in both verbs and connectives. Moreover, this parallel between verbs and connectives can be interpreted as evidence in favor of the proposal presented in Chapter 4, that ‘explicit SOC’ causality is conceptually

distinct from ‘implicit SOC’ causality. The difference between these categories coincides with the distinction between ‘off-stage’ and ‘on-stage’ speaker subjectivity as summarized in Figure 8.6, as well as with the distinction between categorization at the ‘horizontal’ level and the ‘vertical’ level of the viewing arrangement as illustrated with Figure 8.7. The fact that subjective causality is not found with causal verbs may be interpreted as linguistic evidence in favor of this proposal.

The specific cognitive semantic perspective adopted in the present study has added to the understanding of categorizing mechanisms of causal verbs and causal connectives. To start with, the adoption of the assumption that semantic categories may reflect ‘prototypicality structure’, revealed conceptual parallels between verbs and connectives that were not at all evident beforehand. The same assumption made it possible to incorporate more usage-facts in a semantic description. In previous accounts, distinctions between conventional usage-types and less conventional usage-types could not be accommodated. Intuitive observations about conventionality and rhetorical effects are naturally accommodated in the usage-based approach adopted in this study.

The distinction between prototypical usage-contexts and less prototypical usage-contexts that are still ‘conventional’ was already discussed above. These constitute the semantic category’s prototype and one (or more) conventionalized extended usage-type. The prototype and the extension show a systematic type of family resemblance (of the type indicated in Figures 8.1 to 8.5), that is also captured by the superschema, that generalizes over all ‘acceptable’ usage contexts of a given expression. Furthermore, a type of extension exists that is *not* conventional, but still acceptable. This type of usage is ‘rare’, or at least ‘remarkable’. In the text corpora analyzed in this study, this type of usage was only found with *daardoor*. An even more illustrative, telling example is (10), taken from an interview with a member of the Dutch labor party ‘Partij van de Arbeid’, published in the Dutch magazine *Kinderen* (“Children”):

- (10) (...) toen we per toeval een keer wegwerpluiers probeerden, waren we om. Niet de eerste keuze van een milieubewust mens natuurlijk. Maar wél erg gemakkelijk en eindelijk geen lekkage meer. Mede **daardoor** pleit ik voor een landelijk recyclesysteem voor luiers.
*When we once used, by chance, disposable diapers, we were convinced. It's not an 'environment conscious' person's first choice, evidently. But it is very handy, and it finally put an end to leakage. Also **because of this**, I plead for a nation-wide recycling system for diapers.*

The fragment in (10) constitutes a usage-type observed earlier for causal connectives, and referred to as ‘rhetorical usage’ (cf. Van den Hoven (1997) on *zodat*, “so that”; Pit (2003), and on *doordat*, “because”, marking backward causality). The LoE is an intentionally acting agent, there is no way of *pleading for a nation-wide recycling system for diapers* unintentionally, so marking with *daarom* or with *dus* would have yielded a far more conventional marking pattern. The fragment can only be meaningfully interpreted with reference to the interviewee’s function and rhetorical purposes; he is a spokesman for ‘environmental matters’ for

his party in Dutch parliament. Marking with *daardoor* backgrounds intentionality on the part of the agent in the causal process depicted, which stresses the conventional opinion that a person of his profession should not promote usage of disposable products causing environmental pollution. Examples like these still show family resemblance to the prototype, and can still be characterized with reference to the superschema.

Finally, a type of usage exists that is unconventional and *not* acceptable. This kind of usage was not encountered in the samples analyzed in this study, but it is exemplified by the constructed examples (11) and (12):

- (11) # Ze **deden** de kinderen wat extra rondjes schaatsen.
*They **made** the children skate some extra rounds.*
- (12) # Het was erg warm die dag. **Daardoor** vertrokken de kinderen naar het zwembad
*It was very hot that day. **Because of that** the children left to go to the swimming pool.*

Fragments (11) and (12) are non-prototypical *and* unconventional. But they are also unacceptable. There are no indications in the linguistic or broader contexts that the acts of *performing an extra assignment* or *going to the swimming pool* are to be interpreted as non-intentional or beyond the control of the agents. They don't show any family resemblance to the prototypical usage contexts of *doen* and *daardoor*. Moreover, the proposed superschemas of 'direct causation' and 'objective inanimate causality' cannot account for their use.

This last point illustrates an important aspect of the cognitive semantic approach adopted here. It *seems* to be less restrictive because it does not formulate a priori restrictions on the descriptive notions that may be incorporated in a given semantic description (cf. Verhagen's (2000a) discussion of the diachronic development of *doen*). Moreover, by allowing for different levels of specificity in characterizing a linguistic item's meaning, it seems to violate principles of 'economy' and 'reduction' that are (rightly) highly valued in linguistic theory. It is important to realize that the usage-based cognitive semantic theory of causality markers proposed here is as restrictive, economical and reductive as any other semantic theory might be. The principled difference is that in the usage-based approach these concepts are defined from the perspective of the human cognitive system instead of logical analysis (cf. Langacker 2000; 2002). This advantage was clearly illustrated in the semantic theory on causal verbs and causal connectives proposed in the present study: its form and definition of restrictivity allows us to account for both language users' intuition *and* patterns evident in language use.

It goes without saying that the usage data collected in this study, in turn, may be interpreted as additional evidence for the fruitfulness of the cognitive semantic perspective on language. Hypotheses were empirically tested and data were carefully interpreted with methods that complemented each other.

8.5 Conclusion

This study has shown that it is possible to construct an integrative semantic theory on causality markers that is both cognitively plausible and descriptively adequate. The integrative perspective has refined the understanding of the phenomenon of linguistic expression of causality in general, as well as the understanding of mechanisms relevant at the level of individual constructions. The findings of this study suggest that (at least with respect to the linguistic expression of causality) discourse level phenomena are subject to the same principles and mechanisms as clause-level phenomena that are usually focused on in cognitive grammars. In addition, it has shown that cognitive semantic principles can successfully be used to refine textlinguistic theories. The results of this study underline the fruitfulness of the research strategy of 'converging evidence'. It is only by carefully selecting and combining different empirical methods that generalizing patterns of the type investigated in the present study could be brought to light. Finally, this study offers additional evidence for a basic assumption in cognitive semantic theory with respect to causality markers, namely, that a direct link exists between semantic categories and the conceptual understanding of causality markers.

APPENDICES

APPENDIX 3-1

Sample of texts

Table 3-1.1 Composition of text sample.

	Doen	Laten
Informative text genres	50	50
Persuasive text genres	50	50

Table 3-1.2 Specification of text genres in the sample

Informative text genres in 'Factlane'	Persuasive text genres in 'Factlane'
achtergrond (ac - 'background')	brief (br - 'letter')
biografie (bio - 'biography')	column (co - 'column')
opening (op - 'opening')	opinie (opi - 'opinion piece')
portret (por - 'portrait')	recensie (rec - 'review')
reportage (rep - '(running) commentary')	hoofdartikel (ha - 'leading article')
necrologie (nec - 'obituary')	
wedstrijdverslag (sp - 'sporting event article')	

Contrast analysis

In the contrast analysis, each of the hypotheses was restated in terms of expected relative frequencies. Actual distribution of *doen* and *laten* was compared to the expectations. The hypotheses are supported if the Z-score resulting of this analysis has as a value $Z > 1.96$ ($p < .05$).

Table 3-1.3 Expected relative distribution of *doen* and *laten* over animacy configurations.

	Doen	Laten
CR inam - CE inam	+1	-1
CR inam - CE anim	+1	-1
CR anim - CE inam	0	0
CR anim - CE anim	-2	+2

Table 3-1.4 Distribution of *doen* and *laten* over animacy configurations in the sample.

	Doen	Laten	Total
CR inam - CE inam	40	3	43
CR inam - CE anim	41	6	47
CR anim - CE inam	12	38	50
CR anim - CE anim	7	53	60
Total	100	100	200

$Z = 7.83$

$p < .001$

APPENDIX 4-1

Sample of texts

Table 4-1.1 Composition of text sample.

	Daardoor	Daarom	Dus
Informative text genres	50	50	50
Persuasive text genres	50	50	50

Table 4-1.2 Specification of text genres in the sample.

Informative text genres in 'Factlane'	Persuasive text genres in 'Factlane'
achtergrond (ac - 'background')	brief (br - 'letter')
biografie (bio - 'biography')	column (co - 'column')
opening (op - 'opening')	opinie (opi - 'opinion piece')
portret (por - 'portrait')	recensie (rec - 'review')
reportage (rep - '(running) commentary')	hoofdartikel (ha - 'leading article')
necrologie (nec - 'obituary')	
wedstrijdverslag (sp - 'sporting event article')	

Contrast analysis: domains of use

In the contrast analysis, each of the hypotheses was restated in terms of expected relative frequencies. Actual distribution of *daardoor*, *daarom* and *dus* was compared to the expectations. The hypotheses are supported if the Z-score resulting of this analysis has as a value $Z > 1.96$ ($p < .05$).

Table 4-1.3 Expected relative distribution of *daardoor*, *daarom* and *dus* over domains of use.

	Daardoor	Daarom	Dus
Content Non-volitional	+2	-1	-1
Content Volitional	-1	+2	-1
Epistemic/Speech act	-1	-1	+2

Table 4-1.4 Distribution of *daardoor*, *daarom* and *dus* over domains of use in the sample.

	Daardoor	Daarom	Dus	Total
Content Non-volitional	96	16	0	112
Content Volitional	4	50	22	76
Epistemic/Speech act	0	34	78	112
Total	100	100	100	300

$Z = 4.29$

$p < .001$

Contrast analysis: SOC type

Table 4-1.5 Expected relative distribution of *daardoor*, *daarom* and *dus* over SOC type.

	Daardoor	Daarom	Dus
No SOC	+2	-1	-1
Explicit SOC	-1	+2	-1
Implicit SOC	-1	-1	+2

Table 4-1.6 Distribution of *daardoor*, *daarom* and *dus* over SoC type in the sample.

	Daardoor	Daarom	Dus	Total
No SOC	96	16	0	112
Explicit SOC	4	50	22	76
Implicit SOC	0	34	78	112
Total	100	100	100	300

Z = 4.29
 p < .001

APPENDIX 5-1

Source texts¹ of corpus analysis

Table 5-1.1 List of abbreviations.

	Meaning	Digital source
cg1	Corpus Gysseling I – Ambtelijke Bescheiden ‘Corpus Judicial Texts’	CD-rom <i>Middelnederlands</i>
cg2	Corpus Gysseling II – Literaire Handschriften ‘Corpus Literary Texts’	CD-rom <i>Middelnederlands</i>
rijm	Corpus Rijmteksten ‘Corpus Rhyme Texts’	CD-rom <i>Middelnederlands</i>
pro	Corpus Proza ‘Corpus Prose’	CD-rom <i>Middelnederlands</i>
abc		CD-rom <i>Klassieke literatuur</i>
cos	text available on the website of the <i>Project Laurens Jansz. Coster</i>	http://cf.hum.uva.nl/dsp/ljc/
dur	text available on the website <i>De Tachtigjarige Oorlog</i> ‘The Dutch revolt’, Leiden University	http://dutchrevolt.leidenuniv.nl/

References

- CD-rom *Middelnederlands* ‘Middle Dutch’ (1998). Den Haag/Antwerpen: Sdu.
- CD-rom *Klassieke literatuur: Nederlandse letterkunde van de Middeleeuwen tot en met de Tachtigers* ‘Classical literature: Dutch literature from the Middle Ages to the Eightiers’ (1999). Utrecht: Het Spectrum.
- Oostendorp, M. van (ed.). *Project Laurens Jansz. Coster: Klassieke Nederlandstalige literatuur in elektronische edities* ‘Project Laurens Jansz. Coster: Classical Dutch literature in electronic editions’. Available on: <http://cf.hum.uva.nl/dsp/ljc/>.

¹ The corpora of texts dating from the 13th and 16th centuries were compiled by Jacqueline Evers-Vermeul and myself (Evers-Vermeul & Stukker 2003). I would like to thank Jacqueline Evers-Vermeul and Suzanne Aalberse for sharing their ‘word count’ administration and presentation format with me.

Primary sources 13th centuryTable 5-1.2 Non-rhyming texts 13th century²

Text	Source	Date	Author	# Words
Ambtelijke bescheiden	cg1	1240-1300	various	284081
Nederrijns moraalboek	cg2	1270-1290	nn	36265
Nederbergse geneeskundige recepten	cg2	mid 13th Century	nn	481
Noordlimburgse gezondheidsregels	cg2	Shortly after 1253	nn	674

Table 5-1.3 Rhyming texts 13th century

Texts	Source	Date	Author	# Words
Der naturen bloeme (Detm. handschrift)	cg2	1275-1300	J. van Maerlant	366
Limburgse Aiol (Aiol 1)	cg2	1220-1240	nn	4404
Esopet	abc	1215	nn	9240
Alexiuslegende	cg2	1280-1300	nn	342
De boec van Catone (Enaamse codex)	cg2	1290-1300	M. van Torhout?	2417
De boec van seden (Enaamse codex)	cg2	1290-1300	M. van Torhout?	2983
Boec vander biechten (Enaamse codex)	cg2	1290-1300	M. van Torhout	722
Boeve van Hamtone	cg2	1260-1270	nn	676
Der naturen bloeme: Munchense fragm.	cg2	1275-1300	J. van Maerlant	4866
Leven van sente Kerstine	cg2	1275-1300	Broeder Geraert	13311
Sente Lutgard	cg2	1263-1280	W. van Affligem	125274
Sinte Lutgard	cg2	1275-1300	Broeder Geraert	25266
Minnedichten uit Ter Doest	cg2	1290-1300	nn	227
Nevelingenlied, Brabantse vertaling	cg2	1260-1280	nn	1248
Ongeïdentificeerd fragment 1	rijm	1200-1250	nn	657
Parthonopeus van Bloys (Berlin)	rijm	1290-1310	nn	906
Parthonopeus van Bloys (Köln)	rijm	1290-1310	nn	571
Parthonopeus van Bloys (Brussels) ³	rijm	1350-1400	nn	50024

² Two other texts from the 13th century were not useful for a connective study (i.c. the *Plantenglossarium* 'Plant glossary') or were not available on the CD-rom despite its reference in the index (i.c. *Episch fragment uit de IJsselstreek* 'Epical fragment from the IJssel region' from the CD-rom *Middelnederlands*).

Reynaert 1 fragment E	cg2	1275-1300	Willem	1689
Reynaert 1 fragment G	cg2	1260-1280	Willem	435
Rijmbijbel (Scholastica)	cg2	1275-1300	J. v. Maerlant	186547
Roman van Perchevael	cg2	1275-1300	nn	4418
Van sente Caterinen (Enaamse codex)	cg2	1290-1300	M. v. Torhout (?)	758
Van sente Eustace (Enaamse codex)	cg2	1290-1300	M. v. Torhout (?)	2260
Van sente Marien Egyptiake (En. cod.)	cg2	1290-1300	M. v. Torhout (?)	4148
Sint Servaes legende (Enaamse codex)	cg2	1190-1210	H. v. Veldeke	1824
Van sente Waernere (Enaamse codex)	cg2	1290-1300	M. v. Torhout (?)	1475
Tristant	cg2	1240-1260	nn	768
Van den bere Wisselau	cg2	1280-1300	nn	3002
Van der sielen ende van den lichgame (Enaamse codex)	cg2	1290-1300	M. v. Torhout (?)	727
Van onser vrouwen gheslachte (Enaamse codex)	cg2	1290-1300	M. v. Torhout (?)	369
Van onser vrouwen lof (Enaamse codex)	cg2	1290-1300	M. v. Torhout (?)	392
Wrake van Ragisel	cg2	1260-1280	nn	5228
Floris ende Blanchefloer	abc	1260	Assenede	24894
Vanden vos Reynaerde	abc	1260	Willem	18916
Gedichten	cos	13 th century	Hadewijch	18835

Primary sources 16th century

Table 5-1.4 Non-rhyming texts 16th century

Texts	Source	Date	Author	# Words
(Dyalogus tusschen coninck) Salomon ende Marcolphus	pro	1501	nn	8097
Euangelien vanden spinrocke	pro	1510-1530	nn	11926
Exempel van een soudaensdochter	pro	1500-1520	nn	2145
(Historie van den) vier heemskinderen	pro	1508	nn	75451
Historie van den wonderlicken Merlijn	pro	1530-1550	nn	4361
Historie van Hughe van Bordeus	pro	1530-1550	nn	33236

³ The fragment of *Parthonopeus van Bloys* in the corpus dates from the 14th century. It was nevertheless selected for the 13th-century corpus, because the text shows an overlap with the fragment from Berlin, which does stem from the 13th century (cf. discussion of the text in CD-rom Middelnedderlands, entry 'Parthonopeus van Bloys').

Historie van Jan van Beverley	pro	1543	nn	5803
Historie van Malegijs	pro	1556	nn	105126
Historie van Margarieta van Lymborch	pro	1516	nn	98402
Droefliken strijt van Roncevale (non-rhyming parts)	pro	1510-1530	nn	10208
Historie van de borchgravinne van Vergi (non-rhyming parts)	pro	1550-1570	nn	6904
Leven van Sinte Clara	pro	1500-1520	nn	24192
Ulenspieghel	abc	1519	nn	22893
Boeventucht	abc	1587	D.V. Coornhert	4814
Loterijspel	abc	1596	Jan van Hout	10866
Super universas	dr	1559	De Lange (translator)	3413
Het verbond der edelen	dur	1566	several authors	1399
Smeekschrift der edelen	dur	1566	several authors	1704
Willem van Oranje roept op tot verzet	dur	1572	W. van Nassau	787
Holland en Zeeland dragen de hoge... (Dordrecht)	dur	1575	P. Buys	2268
Pacificatie van Gent	dur	1576	several authors	2872
Satisfactie van Schoonhoven	dur	1577	W. van Nassau	874
Satisfactie van Haarlem	dur	1577	W. van Nassau et al.	1785
Satisfactie van Heusden	dur	1577	W. van Nassau et al.	930
Satisfactie van Amsterdam	dur	1578	several authors	3444
Religievrede te Antwerpen	dur	1578	W. van Nassau et al.	1221
Unie van Utrecht	dur	1579	Lamzweerde	3489
Filips II doet Willem van Oranje in de ban	dur	1580	Filips II	5925
De Staten van Friesland verbieden...	dur	1580	several authors	1028
Holland en Zeeland dragen de Hoge... (Den Haag)	dur	1581	C. de Rechtere	2247
Plakkaat van Verlatinghe	dur	1581	J. van Asseliers	4883
De Staten-Generaal te Den Haag richten...	dur	1591	C. Aerssen	623
Reductie van de stad Groningen	dur	1594	several authors	1319

Table 5-1.5 Rhyming texts 16th century

Texts	Source	Date	Author	# words
Elckerlijc	abc	1500	P. Dorlandus?	6070
Mariken van Nieumeghen	abc	1501- 1515	nn	10480
Geuzenliedboek	cos	1581	nn	5815
Spel van sinnen	cos	1597	J. Prins	7977
Droefliken strijt van Roncevale (rhyming parts)	pro	1510- 1530	nn	7824
Historie van de borchgravinne van Vergi (rhyming parts)	pro	1550- 1570	nn	6004
Historie van Jan van Beverley	pro	1543	nn	5803
Antwerps liedboek (Schoon liedekens boeck)	rijm	1544	nn	65629
Spiegel der jongers, Der kinderen spiegel	rijm	1510- 1520?	L. Goetman	3199
Devoet ende profityck boecxken	rijm	1539	nn	83935
Eerste muziekboeksken van Tielman Susato	rijm	1551	nn	2047
Historie van Gaver Capeel	rijm	1500- 1520	nn	1341
Jan Splinters testament	rijm	1508 (?)	nn	1352
Suverlijc boecxken	rijm	1508	nn	10120
Tweede muziekboeksken van Tielman Susato	rijm	1551	nn	1475
Camp van der doot	cos	1503	J. Pertcheval (translator)	18466

Primary sources 20th centuryNon-rhyming / non-literary texts 20th century

The newspaper fragments were taken from the *Meppeler Courant* (1995-edition) available in the *38 Miljoen Woorden Corpus 1996* '38 million words corpus 1996' from the *Instituut voor Nederlandse Lexicologie* 'Institute of Dutch Lexicology'. See Kruyt & Dutilh (1997) for more information on this corpus. The interface of this corpus does not allow for counting words in subcorpora.

Table 5-1.6 Literary (narrative) texts 20th century⁴

Texts	Date	Author	Pages
<i>Literary novels</i>			
Indische duinen	1994	A. van Dis	5-135
Verborgen gebreken	1996	R. Dorrestein	9-115
Het woelen der gehele wereld	1993	M. 't Hart	11-105
Au pair	1992	W.F. Hermans	5-101
De Vriendschap	1995	C. Palmen	9-115
Hoffman's honger	1993	L. de Winter	5-101
Vals licht	1991	J. Zwagerman	7-100
<i>Popular novels</i>			
De laatste wens	1993	A. van Gils	7-99
De gouden handjes	1993	L. Saris	7-87
Vervuld van verlangen	1990	T. Schuitemaker-Commandeur	7-91
Het land aan de horizon	1993	S. van der Veen	7-101
Je weet toch waarom	1992	G. van Wageningen	5-89
Mooie woorden	1996	M. Wages	5-88
<i>Youth novels</i>			
Het raadsel van de ketting	1992	W. van den Akker	5-97
De doge-ring van Venetië	1994	Th. Beckman	7-99
<i>Jeans voor een matrjosjka</i>			
De voorspelling	1993	E. Hartman	5-101
Het verbroken zegel	1991	J. Marijn	7-97
Erin de Enige	1990	L. Rood	7-95
De kunstrijder	1989	J. Terlouw	5-95

⁴ I would like to thank Mirna Pit who made this corpus available to Jacqueline Evers-Vermeul and myself (cf. Pit (2003); Evers-Vermeul & Stukker 2003)

References Primary sources 20th century

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Dorrestein, R. (1996). *Verborgen gebreken*. Amsterdam: Contact, 9-115.
Hart, M. 't (1993). *Het woelen der gehele wereld*. Amsterdam: Arbeiderspers, 11-105.
Hermans, W.F. (1992). *Au pair*. Amsterdam: De Bezige Bij, 5-101.
Palmen, C. (1995). *De vriendschap*. Amsterdam: Prometheus, 9-115.
Winter, L. de (1993). *Hoffman's honger*. Amsterdam: De Bezige Bij, 5-101.
Zwagerman, J. (1991). *Vals licht*. Amsterdam: Arbeiderspers, 7-100.

Popular novels

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Schuitemaker-Commandeur, T.C. (1990). *Vervuld van verlangen*. Helmond: Westfriesland, 7-91.
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APPENDIX 5-2

Logit analysis ‘diachronic development of *daarom* and *dus*’

Data of the diachronic development of *daarom* and *dus* were analyzed in a loglinear analysis. This statistic method allows for analyzing interaction effects in terms of ‘time’ and ‘subjectivity’ in non-parametric data. The tables below reflect ‘goodness of fit’ of different models with respect to the data, as well as the way ‘fit’ is influenced by specific factors. The goodness of fit is characterized as a X^2 model, with degrees of freedom that apply in the specific situation, and a p-value. The model containing the fewest parameters that fits the data well (lowest X^2), the most parsimonious model, is considered to be the ‘best fitting model’; reflecting the data best.

Per aspect (domains categories or SOC categories) per connective, the first model (in first row) assumes that frequencies in all cells are equal (‘constant’). The second model (in second row, etc.) adds ‘time span’ as a factor, assuming that per connective, the number of words searched in order to obtain 50 instances of the connective per sample remained constant (frequency of use per period didn’t change). The third model adds either ‘domains of use’ or ‘SOC’ as a factor, assuming that no changes occurred in the way connectives were distributed over the categories distinguished in the analysis. The 2nd and the 3rd model identify main effects of ‘span of time’ and ‘domains’/‘SOC’ respectively. Any model added investigates presence of interaction between the factors ‘span of time’ and ‘domains’ or ‘SOC’. Interaction effects may be either ‘general’ (applying to all cells) or ‘specific’ (applying to specific relations in specific periods of time).

The ‘parameter estimate’ tables identify the individual factors that cause the main or interaction effects found. Each factor’s statistical significance was established by dividing ‘estimation’ by ‘standard error’ (estimate/ s.e.). The resulting Z-score indicates the effect, which is significant if $-1.965 < Z < 1.965$.

Diachronic development and differences in frequencies of use

Table 5-2.1 indicates the total number of words in corpus searched in order to obtain 50 usages per sample. The loglinear analysis performed corrects biases due to frequency differences.

Table 5-2.1. Relative frequencies of use of *dus* and *daarom* 13th – 20th centuries

	13 th century	16 th century	20 th century
<i>Daarom</i>	148679	134016	232378
<i>Dus</i>	146606	51516	95799

Results SOC-analysisTable 5-2.2. *Daarom* - frequencies of use per period: SOC-type

SOC-type	Period			Total
	13 th century	16 th century	20 th century	
1. Implicit speaker	18	16	6	40
2. Explicit speaker	9	5	7	21
3. 2nd or 3rd person pronominal	5	6	14	25
4. 3rd person nominal	3	3	11	17
5. Unspecified	1	2	4	7
6. No SOC	6	9	8	23
Total	42 ⁵	41	50	133

Table 5-2.3. *Daarom* - results logit analysis SOC type

Logit (fr)	X ² model	df	p model	X ² factor	df	p model
1. constant	52.92	17	<.001	-	-	-
+ 2. period	49.71	15	<.001	3.21	2	<0.25
+ 3. SOC-type	22.20	10	<.025	27.51	5	<0.001
+ 4. period x SOC-type	0	0	1	22.20	10	<0.025

Table 5-2.4. *Daarom* – parameter estimate SOC

Parameter	estimate	s.e.
constant	-9.02*	0.24*
period: 16th century	-0.01	0.34
period: 20th century	-1.55	0.47
SOC-type: explicit speaker	-0.69	0.41
SOC-type: 3rd person pronominal	-1.28* ⁶	0.51*
SOC-type: 3rd person nominal	-1.79*	0.62*
SOC-type: unspecified	-2.89*	1.03*
SOC-type: no SOC	-1.1*	0.47*
period x SOC-type: explicit speaker 16th cent.	-0.47	0.66
period x SOC-type: 3rd pers. pron. 16th cent.	0.30	0.70
period x SOC-type: 3rd pers. nominaal 16th cent.	0.12	0.89
period x SOC-type: unspecified 16th cent.	0.81	1.27
period x SOC-type: no SOC 16th cent.	0.52	0.63
period x SOC-type: explicit speaker 20 th cent	0.85	0.69
period x SOC-type: 3rd pers. pron. 20 th cent	2.13*	0.70*
period x SOC-type: 3rd pers. nominaal 20 th cent	2.40*	0.80*
period x SOC-type: ongespecificeerd 20 th cent	2.49*	1.21*
period x SOC-type: geen SOC 20 th cent	1.39	0.2 ⁷

* indicates significant results : $-1.965 < Z < 1.965$; $p < 0.05$.

⁵ Only usage as a causal connective was included in the analysis. Therefore, not in all columns the sum total equals 50.

⁶ Main effect for SOC type diachronically.

⁷ ‘Almost significant’: $Z=1.94$.

Table 5-2.5. *Dus* - frequencies of use per period: SOC-type

SOC-type	Period			Total
	13 th century	16 th century	20 th century	
1. Implicit speaker	6	12	29	47
2. Explicit speaker	0	5	5	10
3. 2nd or 3rd person pronominal	1	2	2	5
4. 3rd person nominal	0	0	1	1
5. Unspecified	0	2	1	3
6. No SOC	0	1	1	2
Total	7 ⁸	22	39	68

Table 5-2.6. *Dus* - results logit analysis SOC type

Logit (fr)	X ² model	df	p model	X ² factor	df	p model
1. constante	155.77	17	< 0.001	-	-	-
+ 2. periode	107.92	15	< 0.001	47.85	2	< 0.001
+ 3. SOC-type	6.23	10	< 0.9	101.7	5	< 0.001

Table 5-2.7. *Dus* – parameter estimate SOC

Parameter	estimate	s.e.
Constant	-10.27*	0.38*
Periode: 16th century	2.14*	0.42*
Periode: 20th century	2.09*	0.40*
SOC-type: explicit speaker	-1.54*	0.35*
SOC-type: 3rd person pronominal	-2.20*	0.47*
SOC-type: 3rd person nominal	-3.67*	0.92*
SOC-type: unspecified	-2.72*	0.59*
SOC-type: no SOC	-3.11*	0.70*

* indicates significant results : $-1.965 < Z < 1.965$; $p < 0.05$.

⁸ Only usage as a causal connective was included in the analysis. Therefore, not in all columns the sum total equals 50.

Results Domains analysisTable 5-2.8. *Daarom* - frequencies of use per period: Domains-type

Domains	Period			Total
	13 th century	16 th century	20 th century	
1. Speech act	8	9	0	17
2. Epistemic	13	8	8	29
3. Content volitional	15	16	33	64
4. Content non-volitional	6	8	9	23
5. Other	8	9	0	17
Total	50	50	50	150

Table 5-2.9. *Daarom* - results logit analysis Domains-type

Logit (fr)	X ² model	df	p model	X ² factor	df	p factor
1. constant	89.69	14	<0.001	-	-	-
+ 2. period	80.91	12	<0.001	8.78	2	<0.025
+ 3. domains	36.97	8	<0.001	43.95	4	<0.001
+ 4. period x domain: other 20 th century	23.10	7	<0.005	13.87	1	<0.001
+ 5. period x domain: speech act 20 th century	6.62	6	<0.5	16.47	1	<0.001
+ 6. period x domain: content volitional 20 th century	2.41	5	<0.9	4.21	1	<0.05

Table 5-2.10. *Daarom* – parameter estimate Domains-type

Parameter	estimate	s.e.
constant	-9.77* ⁹	0.26*
period: 16 th century	0.10	0.20
period: 20 th century	-0.48	0.31
domain: epistemic	0.14	0.32
domain: volitional	0.60*	0.30*
domain: non-volitional	-0.09	0.33
domain: other	1,789 ^e -16	0.34
period x domain: speech act 20 th century	-4.41	3.18
period x domain: other 20 th century	-4.41	3.18
period x domain: volitional 20 th century	0.78*	0.39*

* indicates significant results : $-1.965 < Z < 1.965$; $p < 0.05$.

⁹ Main effect for SOC type diachronically.

Table 5-2.11. *Dus* - frequencies of use per period: Domains-type

Domains	Period			Total
	13 th century	16 th century	20 th century	
1. Speech act	0	9	0	2
2. Epistemic	5	3	29	9
3. Content volitional	2	8	8	37
4. Content non-volitional	0	1	1	18
5. Other	43	29	12	84
Total	50	50	50	150

Table 5-2.12. *Dus* - results logit analysis Domains-type

Logit (fr)	X ² model	df	p model	X ² factor	df	p factor
1. constant	237.21	14	<0.001	-	-	-
+ 2. period	211.14	12	<0.001	2607	2	<0.001
+ 3. domain	74.54	8	<0.001	136.60	4	<0.001
+ 4. period x domains: epistemisch 20 ^e eeuw	30.77	7	<0.001	43.78	1	<0.001
+ 5. period x domains: other 20th century	27.04	6	<0.005	3.73	1	<0.01
+ 6. period x domains: other 16th century	20.49	5	<0.005	6.56	1	<0.05
+ 7. period x domains: speech act 16 th century	10.59	4	<0.025	9.88	1	<0.005
+ 8. period x domains: speech act 20 th century	1.56	3	<0.75	9.04	1	<0.005

Table 5-2.13. *Dus* – parameter estimate Domains-type

Parameter	estimate	s.e.
constant	-12.42*	0.71*
period: 13th century	1.41* ¹⁰	0.22*
period: 20th century	0.51	0.47
domain: speech act	2.72*	0.79*
domain: epistemic	1.71*	0.79*
domain: content volitional	2.56*	0.75*
domain: other	3.91*	0.72*
period x domain: epistemic 20 th century	2.09*	0.63*
period x domain: other 20 th century	-0.99	0.58
period x domain: other 16 th century	-1.71*	0.82*
period x domain: speech act 16 th century	-4.87	3.19
period x domain: speech act 20 th century	-4.59	3.21

* indicates significant results: $-1.965 < Z < 1.965$; $p < 0.05$.

¹⁰ Main effect for SOC type diachronically.

APPENDIX 6-1

Test items of pilot experiment

DOEN-MARKED ITEMS

Fragment 1:

Het grote aantal journalisten doet de minister-president zich enigszins ongemakkelijk voelen.

Parafrase bij 1:

De journalisten zijn in groten getale aanwezig.

- a. Daarom voelt de minister-president zich enigszins ongemakkelijk.
- b. Daardoor voelt de minister-president zich enigszins ongemakkelijk.

Fragment 2:

Een dreigende, donkere lucht en enkele spetters regen deden de organisatoren van de festiviteiten in Blokzijl zaterdagavond het ergste vrezen.

Parafrase bij 2:

De lucht vulde zich met dreigende, donkere wolken en er vielen enkele spetters regen.

- a. Daardoor vreesden de organisatoren van de festiviteiten in Blokzijl zaterdagavond het ergste.
- b. Daarom vreesden de organisatoren van de festiviteiten in Blokzijl zaterdagavond het ergste.

Fragment 3:

De nationalistische leiders investeren niet in de wederopbouw van voormalig Joegoslavië en doen zo het volk geloven dat daar geen kans meer op is.

Parafrase bij 3:

De nationalistische leiders investeren niet in de wederopbouw van voormalig Joegoslavië.

- a. Daarom gelooft het volk dat daar geen kans meer op is.
- b. Daardoor gelooft het volk dat daar geen kans meer op is.

Fragment 4:

De nogal realistische nieuwsberichten over een horde marsmannetjes deden de mensen in paniek de straat oprennen.

Parafrase bij 4:

De nieuwsberichten over een horde marsmannetjes waren nogal realistisch.

- a. Daardoor renden de mensen in paniek de straat op.
- b. Daarom renden de mensen in paniek de straat op.

Fragment 5:

Het spectaculaire basketbal van afgelopen zaterdag deed het publiek ook deze week weer massaal naar de sporthal toestromen.

Parafrase bij 5:

Het basketbal was afgelopen zaterdag erg spectaculair.

- a. Daardoor stroomde het publiek ook deze week weer massaal naar de sporthal toe.
- b. Daarom stroomde het publiek ook deze week weer massaal naar de sporthal toe.

LATEN-MARKED ITEMS

Fragment 1:

Greet Bierema liet ons met dia's van 18^e eeuwse tuinen inzien, hoe de inrichting van tuinen in de loop der jaren is veranderd.

Parafrase bij 1:

Tijdens de lezing toonde Greet Bierema ons dia's van 18^e eeuwse tuinen.

- a. Daardoor zagen we in hoe de inrichting van tuinen in de loop der jaren is veranderd.
- b. Daarom zagen we in hoe de inrichting van tuinen in de loop der jaren is veranderd.

Fragment 2:

Binnen liet het trotse zwembadbestuur tijdens een rondleiding aan geïnteresseerden de resultaten van de verbouwing zien.

Parafrase bij 2:

Het trotse zwembadbestuur gaf een rondleiding in het vernieuwde zwembad.

- a. Daardoor zagen geïnteresseerden de resultaten van de verbouwing.
- b. Daarom zagen geïnteresseerden de resultaten van de verbouwing.

Fragment 3:

De boeren lieten het college met hun felle protesten beseffen dat zij door het nieuwe mestbeleid bezorgd zijn over hun toekomst.

Parafrase bij 3:

De boeren protesteerden fel tegen het nieuwe mestbeleid.

- a. Daarom besepte het college dat zij bezorgd zijn over hun toekomst.
- b. Daardoor besepte het college dat zij bezorgd zijn over hun toekomst.

Fragment 4:

Toen de benzine op was lieten de autodieven het voertuig staan aan het begin van de Vollenhoofsedijk.

Parafrase bij 4:

De autodieven konden niet verder toen de benzine op was,

- a. daardoor stond het voertuig aan het begin van de Vollenhoofsedijk.
- b. daarom stond het voertuig aan het begin van de Vollenhoofsedijk.

Fragment 5:

De politie constateerde tijdens alcoholcontroles dat enkele fietsers teveel hadden gedronken. Ze liet deze mensen niet zonder bekeuring de controlepost passeren.

Parafrase bij 5:

De politie constateerde tijdens alcoholcontroles dat enkele fietsers teveel gedronken hadden.

- a. Daarom passeerden deze mensen niet zonder bekeuring de controlepost.
- b. Daardoor passeerden deze mensen niet zonder bekeuring de controlepost.

APPENDIX 6-2

Logistic regression analysis of the factor ‘intentionality’

In Section 6.4.4 an explanation was sought for the unexpected results of the pilot version of the experiment reported in Chapter 6. It was proposed that they may be caused by uneven distribution of the concept of ‘intentionality’ (or the related concept ‘control’) over the effect-denoting predicates in the items.

Plausibility of this proposal was investigated quantitatively in a logistic regression analysis. This analysis allows for investigating the relative contribution of the factor ‘intentionality’ to overall effect. Effect is defined as ‘degree of correspondence between *laten* and *daarom* or *doen* and *daardoor*’ in overall scores on the experiment. The concept of intentionality is potentially relevant with respect to three elements in the causal relation (Table 6-1.1). Contribution to overall effect was determined for *doen* and *laten* separately.

Table 6-2.1 Aspects of ‘intentionality’ relevant in categorizations with causal verbs and causal connectives.

Element	Intentionality aspect
Animacy of Causer	Agent or non-agent
Animacy of Causee	Agent or non-agent
Semantics of effect-denoting predicate	Intentional act or intentional mental process or not

Before interpreting the results, we have to assess this model’s fit to the data. Table 6- 2.2 shows that the model predicted 72.9% of the outcome correctly.

Observed \ Predicted	Intentional	Non-intentional	Percentage correct
Intentional	520	276	65.3%
Non/intentional	179	704	79.7%
Overall percentage			72.9%

One of the factors analyzed (see Table 6-2.1) involved was (rather arbitrarily) chosen as a benchmark: the overall effect of *doen* (indicated in the last row of Table 6-1.2). The value of this factor (1.914) functions as the (arbitrary) ‘constant value’ against which the relative contribution of ‘intentionality’ in the other factors to overall effect is analyzed¹. The second column in Table 6-1.2 sums up their relative contribution.

¹ The factor ‘Causer *laten*’ is omitted from the table because all of the *laten*-items had an animate causer

Table 6-2.2 Contribution of ‘intentionality’ to effect strength.

	B*	S.E.	Significance
Laten overall	-1.699	.280	<.001
Causer doen	-1.020	.215	<.001
Causee doen	-0.980	.285	.001
Effect pred doen	-1.034	.179	<.001
Causee laten	-2.893	.232	<.001
Effect pred laten	3.317	.267	<.001
Constant (=doen overall)	1.914	.252	<.001

*‘Animacy’ was allotted a score of 1; ‘inanimacy’ was allotted a score of 0

The outcome of this analysis can be interpreted as strong support for the analysis proposed in Section 6.4.4. The analysis reveals that ‘intentionality’ contributes greatly to the overall effect. For each element, its contribution is significant (rightmost column). Not surprisingly, increase of ‘intentionality’ to all of the *doen*-elements would lead to a *decrease* of correspondence of *doen* to *daardoor* (H1 for *doen*). Also in line with the analysis presented in Section 6.4.4 is that an increase of ‘intentionality’ of the effect-denoting predicates of *laten* would *increase* of the correspondence of *laten* to *daarom*.

APPENDIX 6-3

Test items of experiment

1. Dubbel-ambigu *doen 1*

[D1]

Tijdens een persconferentie lichtte de minister van Onderwijs de voorgestelde bezuinigingen toe.

De kritisch doorvragende journalisten deden hem vrezen voor de weergave van zijn plannen in de media.

Parafrase

De journalisten bleven kritisch doorvragen;

- daardoor vreesde hij voor de weergave van zijn plannen in de media.
- daarom vreesde hij voor de weergave van zijn plannen in de media.

2. Dubbel-ambigu *doen 2*

[D2]

De PvdA-kiezers hebben zich bij de laatste verkiezingen vergevingsgezind betoond.

De nieuwe lijsttrekker, die veel succes had, deed hen de verkiezingsnederlaag van vorig jaar welwillend vergeten.

Parafrase

De nieuwe lijsttrekker had veel succes, en

- daarom vergaten ze welwillend de verkiezingsnederlaag van het jaar ervoor.
- daardoor 'vergaten' ze welwillend de verkiezingsnederlaag van het jaar ervoor.

3. Dubbel-ambigu *doen 3*

[D3]

In eerste instantie lijkt het alsof er in dit artikel objectief verslag wordt gedaan van de gemeenteraadsvergadering.

De ironische toon van het verhaal echter doet je heel wat méér vermoeden.

Parafrase

De toon van het verhaal is echter nogal ironisch, en

- daarom vermoed je heel wat méér.
- daardoor vermoed je heel wat méér.

4. Dubbel-ambigu *doen 4*

[D4]

Achteraf vroeg Joeri zich af of hij zich niet wat gemakkelijk had laten inpakken door dat meisje.

Met haar veelbetekenende blikken deed ze hem denken dat ze hem helemaal zag zitten.

Parafrase

Ze wierp hem veelbetekende blikken toe, en

- daarom dacht hij dat ze hem helemaal zag zitten.
- daardoor dacht hij dat ze hem helemaal zag zitten.

5. Dubbel-ambigu doen 5

[D5]

Mijn neefje van vier is een echte acteur.

Met zijn luide gekerm heeft hij ons doen geloven dat hij echt gewond was.

Parafrase

Hij lag luid te kermen, en

a. daardoor geloofden we dat hij echt gewond was.

b. daarom geloofden we dat hij echt gewond was.

6. Dubbel-ambigu doen 6

[D6]

De werknemers voelen zich weinig betrokken bij het reilen en zeilen van het bedrijf, en het veranderen van zo'n cultuur heel moeilijk.

Vanwege de opgetreden problemen doen we de veranderingen slechts geleidelijk plaatsvinden.

Parafrase

We zien dat er problemen optreden en

a. daardoor vinden de veranderingen slechts geleidelijk plaats.

b. daarom vinden de veranderingen slechts geleidelijk plaats.

7. Dubbel-ambigu doen 7

[D7]

Tijdens een optreden van Zuco 103 kan niemand stil blijven staan.

Met zijn multiculturele oriëntatie doet de band funk, bossanova en jazz moeiteloos in elkaar overlopen.

Parafrase

De band heeft een multiculturele oriëntatie, en

a. daarom lopen funk, bossanova en jazz moeiteloos in elkaar over.

b. daardoor lopen funk, bossanova, jazz en drum n bass moeiteloos in elkaar over.

8. Dubbel-ambigu doen 8

[D8]

Petra speelde een scène na uit een of andere kong-fu film.

Ze heeft ons met haar geschreeuw en wilde armgezwaai nogal doen schrikken.

Parafrase

Ze schreeuwde en zwaaide wild met haar armen;

a. daardoor schrokken we nogal.

b. daarom schrokken we nogal.

9. Dubbel-ambigu doen 9

[D9]

De bijbelverkoopster op straat vertelde dat ze lange tijd in zonde had geleefd.

Met zijn barmhartigheid heeft Jezus haar doen terugkeren naar de goede weg.

Parafrase

Jezus betoonde zich barmhartig en

a. daarom keerde ze terug naar de goede weg.

b. daardoor keerde ze terug naar de goede weg.

10. Dubbel-ambigu doen 10

[D10]

Na maandenlange stilte maakte Madonna eindelijk bekend hoe haar nieuwe CD zou gaan heten.

Om het gretige publiek tevreden te stellen deed de platenmaatschappij het nieuws dezelfde dag nog naar buiten gaan.

Parafrase

De platenmaatschappij wilde het gretige publiek tevreden stellen;

a. daardoor ging het nieuws dezelfde dag nog naar buiten.

b. daarom ging het nieuws dezelfde dag nog naar buiten.

11. Dubbel-ambigu laten 1

[L1]

Tijdens een persconferentie lichtte de minister van Onderwijs de voorgestelde bezuinigingen toe.

De kritisch doorvragende journalisten lieten hem vrezen voor de weergave van zijn plannen in de media.

Parafrase

De journalisten bleven kritisch doorvragen;

a. daardoor vreesde hij voor de weergave van zijn plannen in de media.

b. daarom vreesde hij voor de weergave van zijn plannen in de media.

12. Dubbel-ambigu laten 2

[L2]

De PvdA-kiezers hebben zich bij de laatste verkiezingen vergevingsgezind betoond.

De nieuwe lijsttrekker, die veel succes had, liet hen de verkiezingsnederlaag van vorig jaar welwillend vergeten.

Parafrase

De nieuwe lijsttrekker had veel succes, en

a. daarom vergaten ze welwillend de verkiezingsnederlaag van het jaar ervoor.

b. daardoor vergaten ze welwillend de verkiezingsnederlaag van het jaar ervoor.

13. Dubbel-ambigu laten 3

[L3]

In eerste instantie lijkt het alsof er in dit artikel objectief verslag wordt gedaan van de gemeenteraadsvergadering.

De ironische toon van het verhaal echter laat je heel wat méér vermoeden.

Parafrase

De toon van het verhaal is echter nogal ironisch, en

a. daarom vermoed je heel wat méér.

b. daardoor vermoed je heel wat méér.

14. Dubbel-ambigu laten 4

[L4]

Achteraf vroeg Joeri zich af of hij zich niet wat gemakkelijk had laten inpakken door dat meisje.

Met haar veelbetekenende blikken liet ze hem denken dat ze hem helemaal zag zitten.

Parafrase

Ze wierp hem veelbetekende blikken toe, en
a. daarom dacht hij dat ze hem helemaal zag zitten.
b. daardoor dacht hij dat ze hem helemaal zag zitten.

15. Dubbel-ambigu laten 5

[L5]

Mijn neefje van vier is een echte (goed?) acteur.

Met zijn luide gekerm heeft hij ons laten geloven dat hij echt gewond was.

Parafrase

Hij lag luid te kermen, en
a. daardoor geloofden we dat hij echt gewond was.
b. daarom geloofden we dat hij echt gewond was.

16. Dubbel-ambigu laten 6

[L6]

De werknemers voelen zich weinig betrokken bij het reilen en zeilen van het bedrijf, en het veranderen van zo'n cultuur heel moeilijk.

Vanwege de opgetreden problemen laten we de veranderingen slechts geleidelijk plaatsvinden.

Parafrase

We zien dat er problemen optreden en
a. daardoor vinden de veranderingen slechts geleidelijk plaats.
b. daarom vinden de veranderingen slechts geleidelijk plaats.

17. Dubbel-ambigu laten 7

[L7]

Tijdens een optreden van Zuco 103 kan niemand stil blijven staan.

Met zijn multiculturele oriëntatie laat de band funk, bossanova en jazz moeiteloos in elkaar overlopen.

Parafrase

De band heeft een multiculturele oriëntatie, en
a. daarom lopen funk, bossanova en jazz moeiteloos in elkaar over.
b. daardoor lopen funk, bossanova en jazz moeiteloos in elkaar over.

18. Dubbel-ambigu laten 8

[L8]

Petra speelde een scène na uit een of andere kong-fu film.

Ze heeft ons met haar geschreeuw en wilde armgezwaai nogal laten schrikken.

Parafrase

Ze schreeuwde en zwaaide wild met haar armen;

a. daardoor schrokken we nogal.

b. daarom schrokken we nogal.

19. Dubbel-ambigu laten 9

[L9]

De bijbelverkoopster op straat vertelde dat ze lange tijd in zonde had geleefd.

Met zijn barmhartigheid heeft Jezus haar laten terugkeren naar de goede weg.

Parafrase

Jezus betoonde zich barmhartig en

a. daarom keerde ze terug naar de goede weg.

b. daardoor keerde ze terug naar de goede weg.

20. Dubbel-ambigu laten 10

[L10]

Na maandenlange stilte maakte Madonna eindelijk bekend hoe haar nieuwe CD zou gaan heten.

Om het gretige publiek tevreden te stellen liet de platenmaatschappij het nieuws dezelfde dag nog naar buiten gaan.

Parafrase

De platenmaatschappij wilde het gretige publiek tevreden stellen;

a. daardoor ging het nieuws dezelfde dag nog naar buiten.

b. daarom ging het nieuws dezelfde dag nog naar buiten.

21. Gewoon 1

[G1]

De organisatoren van het festival hoopten dat het de hele dag mooi weer zou blijven.

Maar een dreigende, donkere lucht deed ze het ergste vrezen.

Parafrase

Maar de lucht vulde zich met dreigende, donkere wolken en

a. daarom vreesden ze het ergste.

b. daardoor vreesden ze het ergste.

22. Gewoon 2

[G2]

Het hoorspel 'War of the worlds' maakte in het jaar 1938 heel wat emoties los.

De nogal realistische nieuwsberichten over marsmanneltjes deden de mensen in paniek de straat oprennen.

Parafrase

De nieuwsberichten over marsmanneltjes waren nogal realistisch, en

a. daardoor renden de mensen in paniek de straat op.

b. daarom renden de mensen in paniek de straat op.

23. Gewoon 3

[G3]

Versie doen

De psychiater was al wat ouder en veel aardiger dan ik had verwacht.

Met een opmerking die ze maakte deed de psychiater me aan mijn moeder denken.

Parafrase

De psychiater maakte een opmerking, en

a. daarom dacht ik aan mijn moeder.

b. daardoor dacht ik aan mijn moeder.

24. Gewoon 4

[G4]

Wat Assepoester ook deed, het was nooit goed genoeg.

De zoveelste tirade van haar stiefmoeder deed haar in tranen uitbarsten.

Parafrase

Haar stiefmoeder begon de zoveelste tirade af te steken;

a. daardoor barstte ze in tranen uit.

b. daarom barstte ze in tranen uit.

25. Gewoon 5

[G5]

Voorzichtig inspecteerde de onderzoeker het boekwerk.

De kleurrijke illustraties en de met bladgoud versierde initialen deden hem vermoeden dat het een kostbaar handschrift was.

Parafrase

De illustraties waren kleurrijk en de initialen waren met bladgoud versierd;

a. daarom vermoedde hij dat het een kostbaar handschrift was.

b. daardoor vermoedde hij dat het een kostbaar handschrift was.

26. Gewoon 6

[G6]

Ik genoot in het zonnetje op het balkon van mijn middag alleen thuis.

Het dichtslaan van de voordeur deed me opschrikken.

Parafrase

De voordeur sloeg dicht;

a. daarom schrok ik op.

b. daardoor schrok ik op.

27. Gewoon 7

[G7]

De onderhandelingen over de fusie verliepen stroef.

De nieuwe deadline van de directie deed tussen de onderhandelaars een grimmige sfeer ontstaan.

Parafrase

De directie stelde een nieuwe deadline en

a. daarom ontstond tussen de onderhandelaars een grimmige sfeer.

b. daardoor ontstond tussen de onderhandelaars een grimmige sfeer.

28. Gewoon 8

[G8]

Karen geniet er van om op feesten alle aandacht naar zich toe te trekken. Met haar zeer gewaagde jurk deed ze de gesprekken stokken toen ze zaterdagavond binnenkwam.

Parafrase

Ze droeg een zeer gewaagde jurk en
a. daarom stokten de gesprekken toen ze zaterdagavond binnenkwam.
b. daardoor stokten de gesprekken toen ze zaterdagavond binnenkwam.

29. Gewoon 9

[G9]/ [sd1]

Het gaat niet goed met de economie in Nederland.
De pessimistische berichtgeving over de recessie doet mensen verlangen naar betere tijden.

Parafrase

De berichtgeving over de recessie is pessimistisch van toon;
a. daardoor verlangen mensen naar betere tijden.
b. daarom verlangen mensen naar betere tijden.

30. Gewoon 10

[G10]/ [sd2]

De hemel werd verlicht door bliksemflitsen.
Een knetterende donderslag deed me de adem inhouden.

Parafrase

Er klonk een knetterende donderslag;
a. daardoor hield ik de adem in.
b. daarom hield ik de adem in.

31. Gewoon 11

[G11]

Het jonge turnstertje had verwacht dat haar trainer heel tevreden zou zijn over haar vorderingen.
Zijn onverwacht kritische woorden deden haar naar adem snakken.

Parafrase

Zijn kritische woorden kwamen onverwacht;
a. daarom snakte ze naar adem.
b. daardoor snakte ze naar adem.

32. Gewoon 12

[G12]

Het was niet moeilijk de gestolen auto terug te vinden.
Toen de benzine op was lieten de autodieven het voertuig staan midden op de Vollenhoofsedijk.

Parafrase

Toen de benzine op was verlieten de dieven de auto, en
a. daarom bleef het voertuig staan midden op de Vollenhoofsedijk.
b. daardoor bleef het voertuig staan midden op de Vollenhoofsedijk.

33. Gewoon 13

[G13]

In mijn therapie word ik vaak gestimuleerd om stil te staan bij mijn ouders.

Met een opmerking die ze maakte liet de psychiater me aan mijn moeder denken.

Parafrase

De psychiater maakte een opmerking, en

a. daardoor dacht ik aan mijn moeder.

b. daarom dacht ik aan mijn moeder.

34. Gewoon 14

[G14]

De verhuizers hadden er een hele klus aan om onze spullen het smalle, hoge grachtenpand in te dragen.

Om het huis gemakkelijk in en uit te kunnen lieten ze de voordeur de hele dag open staan.

Parafrase

Ze moesten het huis gemakkelijk in en uit kunnen, en

a. daarom stond de voordeur de hele dag open.

b. daardoor stond de voordeur de hele dag open.

35. Gewoon 15

[G15]

Gisteren wilde ik even snel iets langsbrengen bij mijn praatgrage bureu.

Met al hun verhalen lieten ze me pas twee uur later weer vertrekken.

Parafrase

Ze hadden een heleboel verhalen, en

a. daardoor vertrok ik pas twee uur later.

b. daarom vertrok ik pas twee uur later.

36. Gewoon 16

[G16]/ [s11]

Het duurde even voordat we Martijn weer te spreken kregen.

Vanwege de enorme drukte met zijn verhuizing liet hij wekenlang niets van zich horen.

Parafrase

Hij had het enorm druk met zijn verhuizing, en

a. daarom hoorden we wekenlang niets van hem.

b. daardoor hoorden we wekenlang niets van hem.

37. Gewoon 17

[G17]/ [s12]

De docente Inleiding economie vertelde nooit iets nieuws, vond Joost.

Vanwege haar vreselijk ongeïnspireerde docerstijl liet hij het hoorcollege een beetje langs zich heengaan.

Parafrase

Ze had een vreselijk ongeïnspireerde docerstijl, en

a. daardoor ging het hoorcollege een beetje langs hem heen.

b. daarom ging het hoorcollege een beetje langs hem heen.

38. Gewoon 18

[G18]

De huiskamer was een vreselijke puinhoop.

Hij vond het kennelijk niet nodig om de kranten op te ruimen en liet ze gewoon op de grond liggen.

Parafrase

Hij vond het kennelijk niet nodig om de kranten op te ruimen, en

- a. daardoor bleven ze gewoon op de grond liggen.
- b. daarom bleven ze gewoon op de grond liggen.

39. Gewoon 19

[G19]

Wouter heeft niet hard genoeg gewerkt om de slechte cijfers op zijn kerstrapport op te halen.

Vanwege de tegenvallende resultaten laat de lerarenvergadering hem dit jaar niet overgaan naar de volgende klas.

Parafrase

De lerarenvergadering vond dat zijn resultaten tegenvielen;

- a. daardoor gaat hij dit jaar niet over naar de volgende klas.
- b. daarom gaat hij dit jaar niet over naar de volgende klas.

40. Gewoon 20

[G20]

Onze kat is heel populair bij de buurkinderen.

Vanwege zijn goedhartigheid laat hij lekker met zich omsollen.

Parafrase

Hij is goedhartig;

- a. daarom wordt er lekker met hem omgesold.
- b. daardoor wordt er lekker met hem omgesold.

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Samenvatting in het Nederlands

Summary in Dutch

Causaliteitsmarkeringen op verschillende niveaus van taalstructuur

Een cognitief-semantische analyse van causale
werkwoorden en causale connectieven in het Nederlands

1. Inleiding

Het Nederlands kent verschillende uitdrukkingen om causale relaties weer te geven. Het onderzoek in dit proefschrift richt zich op twee typen daarvan: causale connectieven en hulpwerkwoorden van causaliteit. Connectieven zijn voegwoorden of voegwoordelijke bijwoorden die worden gebruikt om betekenisrelaties *tussen* zinnen in een tekst expliciet te maken. Dit onderzoek kijkt naar de causale connectieven *daardoor*, *daarom* en *dus*. Een paar voorbeelden:

- (1) Het was extreem koud. **Daardoor** waren de rivieren bevroren.
- (2) Het was extreem koud. **Daarom** besloten we een café op te zoeken.
- (3) Er ligt ijs op de vijver. **Dus** het heeft vannacht gevroren.

De voorbeelden hierboven geven de (proto-)typische gebruiksccontexten van *daardoor*, *daarom* en *dus* weer, zoals ze zijn geïdentificeerd in eerder onderzoek. In voorbeeld (1) geeft de eerste zin een oorzaak voor de situatie in de tweede zin ('oorzaakaanduidend'). In voorbeeld (2) presenteert de eerste zin een reden voor de handeling die 'we' in de tweede zin verrichten ('redengevend'). In voorbeeld (3) geeft de eerste zin een argument voor de conclusie dat 'het vannacht heeft gevroren' die wordt gepresenteerd in de tweede zin.

De Nederlandse hulpwerkwoorden van causaliteit *doen* en *laten* markeren causale relaties *binnen* zinnen. Voorbeelden zijn:

- (4) De extreme kou **deed** de rivieren bevroren.
- (5) Ze **lieten** de kinderen wat extra rondjes schaatsen.

In (4) en (5) bestaat de relatie tussen een of andere, niet nader gespecificeerde, activiteit van het onderwerp van de zin (bijvoorbeeld een opdracht van 'ze' in (5), en het optreden 'de extreme kou' in (4)) en de rest van de zin: het 'bevroren van de rivieren' en 'extra rondjes schaatsende kinderen'. Uit eerder onderzoek blijkt dat *doen* (proto-)typisch wordt gebruikt in causale relaties waarin fysische processen een rol spelen, en dat *laten* (proto-)typisch wordt gebruikt in relaties waarin interactie tussen mensen een cruciale rol speelt.

2. De betekenis van causaliteitsmarkeringen: relatie tussen ‘taal’ en ‘denken’

Het is niet verbazingwekkend dat er in een taal verschillende typen uitdrukkingen bestaan op causale relaties weer te geven. Causaliteit is een fundamenteel concept in ons denken, en logischerwijs dus ook in onze communicatie. Wat misschien wél verwondering wekt, is dat er zoveel verschillende uitdrukkingen bestaan om causale relaties in eenzelfde constructie te markeren (bv. tussen zinnen of binnen zinnen, zoals hier bestudeerd). Het Nederlands staat hierin niet alleen, het geldt voor bijna alle talen van de wereld. Kennelijk verschillen de markeringen in betekenis, en vinden taalgebruikers die betekenisverschillen belangrijk genoeg om ze te handhaven.

Ondersteuning voor deze gedachte is het feit dat je de markeringen in de bovenstaande voorbeelden niet zomaar onderling kunt verwisselen, zonder dat het geheel ‘oninterpreteerbaar’ wordt, of op z’n minst: zonder dat de interpretatie van het geheel fundamenteel verandert (probeer dat vooral even zelf in de bovenstaande voorbeelden). Maar de betekenisverschillen zijn lang niet altijd even duidelijk. Zo bestaan er contexten waarin *alle* markeringen probleemloos kunnen worden ingepast:

- (6) (Context: de minister houdt een persconferentie om de voorgestelde bezuinigingen toe te lichten.) De journalisten bleven kritisch doorvragen; **daardoor** vreesde hij voor de voor de acceptatie van zijn plannen in de media.
- (7) De journalisten bleven kritisch doorvragen; **daarom** vreesde hij voor de voor de acceptatie van zijn plannen in de media.
- (8) De journalisten bleven kritisch doorvragen; **dus** vreesde hij voor de voor de acceptatie van zijn plannen in de media.
- (9) De kritisch doorvragende journalisten **deden** hem vrezen voor de acceptatie van zijn plannen in de media.
- (10) De kritisch doorvragende journalisten **lieten** hem vrezen voor de acceptatie van zijn plannen in de media.

Nog verwarrender is dat markeringen soms ook worden gebruikt in atypische contexten. Zo stond er onlangs in een krantenbericht over plagiaat door studenten:

- (11) Job van der Meer (24, Communicatiewetenschappen) vindt het plan van Rutte oneerlijk: ‘Eerst komen we zwaar onder druk te staan door zijn prestatiebeurs. Als we **daardoor** de fout in gaan, worden we straks wel erg hard afgestraft.’ (de Volkskrant, 20 september 2005)

Oorzaakaanduidend *daardoor* wordt hier gebruikt in een onmiskenbaar redengevende context, een typische *daarom*-context, en toch ervaren we deze zin niet echt als ‘fout Nederlands’. Hetzelfde fenomeen doet zich voor in (12), waar *doen* wordt gebruikt in een standaard *laten*-context van communicatieve interactie.

- (12) God heeft Hem echter op de derde dag **doen** opstaan [...] (Handelingen 10, 40-KBS Willibrordvertaling 1977)

Deze paradoxale situatie – enerzijds hebben causaliteitsmarkeringen duidelijk een eigen betekenis, anderzijds blijken ze in alledaags taalgebruik bijzonder flexibel – kan worden verklaard door aan te nemen dat ze een specifieke communicatieve functie hebben: ze worden gebruikt om causale relaties te *categoriseren* in termen van conceptuele modellen van causaliteit. Deze modellen maken deel uit van ons cognitieve systeem, we gebruiken ze om causale processen te interpreteren. Ze bestaan los van het taalsysteem. Als een taalgebruiker een specifiek connectief of causaal werkwoord kiest om een relatie te markeren, voert hij een daad van categorisering uit. Hij wijst de causale relatie die hij markeert toe aan een specifieke causaliteitscategorie. Die categorisering is niet altijd gebaseerd op de werkelijkheid, maar vaak ook op de wijze waarop de spreker de werkelijkheid graag wil presenteren.

Met deze begrippen kunnen we de voorbeelden (6)-(12) tot begrijpen. De betekenisverschillen die we observeren in (6)-(10) kunnen worden verklaard met de verschillende conceptuele causaliteitsmodellen die ze oproepen. Het vreemde, en tegelijk ‘passende’ effect van *daardoor* in (11) kunnen we begrijpen aan de hand van de retorische bedoelingen van de spreker: die heeft er alle belang bij zijn eigen inbreng en verantwoordelijkheid in de beschreven situatie naar de achtergrond te brengen. De spreker roept met zijn formuleringskeuze een beeld van de werkelijkheid op dat hem goed uitkomt; hij presenteert zijn eigen *construal* van de situatie in (11). Iets vergelijkbaars geldt voor (12); de schrijver ‘construeert’ God als een instantie die rechtstreeks, zonder communicatie, kan ingrijpen in iemands gedrag.

De begrippen talige categorisering en *construal* zijn afkomstig uit de cognitieve semantiek. Deze stroming binnen de taalwetenschap onderzoekt hoe het taalsysteem samenhangt met algemene (niet-talige) conceptuele kennis van mensen, populair gezegd: ‘ons alledaagse denken’. De afgelopen jaren is er in onderzoek naar de betekenis van causaliteitsmarkeringen veelvuldig gebruikgemaakt van de begrippen categorisering en *construal*.

3. Probleem bij cognitief-semantische analyses van causaliteitsmarkeringen

Als deze cognitief-semantische analyse van causaliteitsmarkeringen klopt, dan zou je verwachten dat *dezelfde* conceptuele modellen terugkomen in de betekenisbeschrijvingen van *verschillende* typen causale constructies – bijvoorbeeld: dat het onderscheid tussen de verschillende causale werkwoorden conceptueel overeenkomt met het onderscheid tussen verschillende causale connectieven. Te verwachten valt immers dat er weliswaar verschillen bestaan tussen talige constructies (zie bijvoorbeeld de wijze waarop het ‘oorzaak’-deel van de relatie bij connectieven verder is uitgewerkt dan bij causale werkwoorden), maar *niet* dat het begrip van causale relaties fundamenteel verandert met het type talige constructie waarin die relatie wordt weergegeven.

Er bestaat een klassieke cognitief-semantische theorie die aanneemt dat dit inderdaad het geval is. Deze theorie beschrijft de betekenis van causale constructies in termen van ‘interacties van krachten’ (*force dynamics*). Recentere benaderingen

echter stellen dat deze theorie te weinig specifiek en empirisch is om een volledige en descriptief adequate beschrijving te geven van de relatie tussen taal en denken zoals die tot uitdrukking komt in causale expressies.

Maar als we kijken naar recent onderzoek naar causale connectieven en causale werkwoorden dat zichzelf plaatst binnen het cognitief-semantic kader, en dat wél is gebaseerd op empirische gegevens, is van de veronderstelde overeenkomsten weinig meer te zien. De betekenis van connectieven is in recent onderzoek beschreven in termen van een 'subjectiviteitsschaal'. 'Subjectiviteit' wordt hier begrepen als: de mate waarin de stem van de spreker doorklinkt in de causale relaties die ze presenteert. 'Zeer subjectief' zijn de argumentatieve (of: 'epistemische') relaties gemarkeerd met *dus*: de verbinding tussen argument en conclusie is per definitie een product van de spreker zelf. Iets minder subjectief zijn de redengevende (of 'intentioneel causale') relaties gemarkeerd met *daarom*: daarin is altijd sprake van een handelende persoon, waarmee de spreker zich meestal zal identificeren. Minimaal subjectief zijn de oorzaakaanduidende (of 'non-intentioneel causale') relaties met *daardoor*: met fysische processen kan de spreker zich niet identificeren; dit soort relaties wordt begrepen als 'objectieve weergave van de werkelijkheid'.

Dit zijn de prototypische gebruikscontexten (waarin de resp. connectieven het meeste voorkomen). Het schaalidee is nodig om de minder prototypische gebruiksvormen die we zagen in de voorbeelden (6)-(12) een plaats te geven in een semantische beschrijving. De 'subjectiviteitsbenaderingen' nemen aan dat de connectieven tot op zekere hoogte kunnen 'bewegen' op de schaal van subjectiviteit. Dit zou dan verklaren waarom bv. *daardoor* in sommige gevallen in een *daarom*-context kan worden gebruikt (zoals in (11) hierboven), maar nooit in een *dus*-context. Andere, vaker voorkomende 'domeinoverschrijdingen' zijn het gebruik van *daarom* in argumentatieve contexten en het gebruik van *dus* in redengevende contexten.

De betekenis van causale werkwoorden is beschreven in termen van 'directheid van het oorzakelijk verband'. Fysische processen, de prototypische gebruikscontext van *doen*, worden begrepen als 'directe veroorzaking': in ons alledaagse begrip van dit type causale relaties veroorzaakt het ene fysische proces het volgende proces automatisch, rechtstreeks. Intermenselijke interactie daarentegen, de prototypische gebruikscontext van *laten*, kan niet zo worden begrepen. Een mens kan nooit zomaar een gedragsverandering bewerkstelligen in een ander mens, daar is altijd een omweg voor nodig, bijvoorbeeld processen van communicatie en interpretatie. Dit type veroorzaking wordt begrepen als 'indirecte veroorzaking': de oorzaakfactor leidt niet rechtstreeks, maar via een omweg tot het causale effect. Ook causale werkwoorden kunnen worden gebruikt in atypische contexten, zie (12), waarin een proces waarin noodzakelijkerwijs interactie moet hebben plaatsgevonden met *doen* wordt 'geconstrueerd' als een geval van fysische causaliteit. De abstractere categorie van 'directe veroorzaking' maakt het mogelijk dit soort gevallen op te nemen in een semantische beschrijving.

4. Een integratieve cognitief-semantische analyse van causaliteitsmarkeringen

De huidige stand van het cognitief-semantische onderzoek naar causaliteitsmarkeringen is onbevredigend. Recente theorieën zijn gebaseerd op empirisch onderzoek, en dat is een vooruitgang, maar het integratieve perspectief op de talige uitdrukking van causaliteit is verloren gegaan. In dit proefschrift wordt aangenomen dat dit vooral komt doordat causale werkwoorden en causale connectieven op verschillende manieren gebruik maken van inzichten uit de cognitieve semantiek. Dit kan te maken hebben met de verschillende disciplines waarbinnen deze markeringen van oudsher worden bestudeerd. De cognitieve semantiek richt zich vooral op verschijnselen op zinsniveau waarvan causale werkwoorden een voorbeeld zijn. Connectieven daarentegen worden voornamelijk bestudeerd binnen het kader van de tekstlinguïstiek.

Het onderzoek dat wordt beschreven in dit proefschrift herstelt het integratieve perspectief op causale uitdrukkingen. De leidende gedachte is dat er weliswaar verschillen bestaan tussen causale connectieven en causale werkwoorden, maar dat er ook fundamentele conceptuele overeenkomsten moeten zijn in betekenis en gebruik van deze causaliteitsmarkeringen. De centrale hypothese van dit onderzoek luidt:

Hypothese

Er bestaan fundamentele conceptuele overeenkomsten tussen verschillende typen causaliteitsmarkeringen, en deze verschillen zijn zichtbaar in vergelijkbare gebruikscondities.

Deze hypothese wordt onderzocht en getoetst in verschillende deelstudies. Onderwerp van studie zijn de betekenis en het gebruik van de causale connectieven *daardoor*, *daarom* en *dus* en de causale werkwoorden *doen* en *laten*. In hoofdstuk 2 worden inzichten uit de cognitieve semantiek besproken die relevant zijn voor het onderzoeken van de hypothese. Vier aannames uit de cognitieve semantiek spelen een centrale rol. In de eerste plaats is dat het idee dat al was uitgewerkt in eerder onderzoek naar causaliteitsmarkeringen, dat betekenis categorieën worden bepaald door conceptuele categorieën. Deze basisaanname wordt in dit onderzoek specifiek ingevuld.

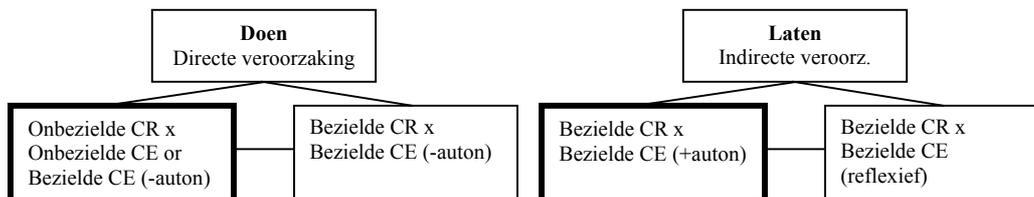
Een tweede aanname is namelijk dat de ‘taal = denken’-hypothese niet alleen geldt voor de *inhoud* van betekenis categorieën, maar ook voor de *vorm*. Uit psychologisch onderzoek blijkt dat conceptuele categorieën kunnen zijn opgebouwd uit ‘prototypische’ en ‘minder prototypische voorbeelden van de categorie. Cognitief-semantisch onderzoek heeft aangetoond dat deze ‘prototypiestructuur’ ook een rol kan spelen in talige categorieën. Dit onderzoek neemt aan dat causaliteitsmarkeringen ook prototypische en minder prototypische voorbeelden kent. Meer in het bijzonder wordt aangenomen dat prototypiestructuren een rol spelen op het niveau van het *gebruik* van de markeringen.

Deze gedachte komt voort uit de derde aanname in dit onderzoek: dat taal een communicatief systeem is, dat onderzocht moet worden in zijn hoedanigheid als ‘gebruikssysteem’. In dit onderzoek wordt daarom aangenomen dat de ‘meest prototypische gebruiksvorm’ van causaliteitsmarkeringen is: de meest

conventionele; de meest ‘gewone’ soort die we in alledaags taalgebruik het vaakst tegenkomen. Daarnaast bestaan er minder prototypische gebruiksvormen: de minder conventionele gevallen. Het gebruik van *daardoor* in een causale relatie tussen fysische processen (zoals in (1)) is een prototypische gebruikcontext. De causale relatie in (11) is duidelijk een veel minder prototypisch voorbeeld van *daardoor*-gebruik, maar wel een lid van de *daardoor*-categorie. Uit de derde aanname volgt dat de betekenis van causaliteitsmarkeringen gedefinieerd moet worden als een ‘gebruikcontext’.

Deze drie aannames staan centraal in de hoofdstukken 3, 4 en 5. Er worden hypothesen opgesteld over de betekenis van de causale werkwoorden *doen* en *laten* (hoofdstuk 3) en de betekenis van de causale connectieven *daardoor*, *daarom* en *dus* (hoofdstukken 4 en 5) *afzonderlijk*. Deze hoofdstukken zetten een homogeen raamwerk op met theoretische concepten, methoden en tekstcorpora, dat nodig is om de causaliteitsmarkeringen goed te kunnen vergelijken.

Hoofdstuk 3 richt zich op het semantisch contrast tussen *doen* en *laten*. Bevindingen uit eerder onderzoek en de theoretische aannames 1-3 worden gebruikt om een hypothese op te stellen in termen van gebruikcontexten met een prototypiestructuur. Deze hypothese wordt vervolgens getoetst in een analyse van het gebruik van causale werkwoorden in een corpus krantenteksten. Schema 1 vat de resultaten samen:

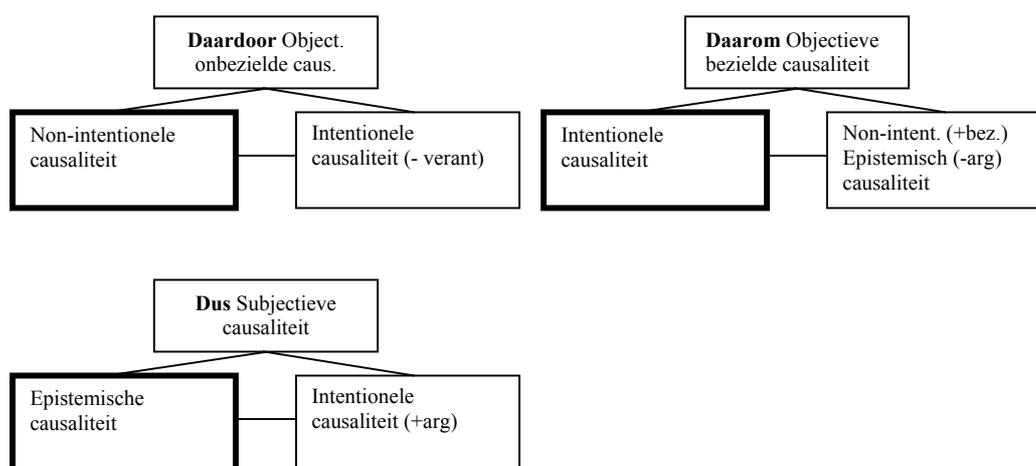


Figuur 1. De betekenis van *doen* (links) en *laten* (CR = causer; CE = causee; auton = autonomie).

De blokjes met vetgedrukte rand geven het prototypische gebruik weer, het blokje dat op hetzelfde niveau staat geeft niet-prototypisch gebruik weer (de ‘extensies’). Het bovenste blokje geeft de term die over de verschillende gebruikswijzen generaliseert.

De notie ‘directheid van het oorzakelijk verband’ blijkt een generalisatie te zijn over *alle* gebruikstypen van *doen* en *laten*. Binnen de supercategorieën ‘directe’ en ‘indirecte veroorzaking’ blijkt duidelijk onderscheid te bestaan tussen prototypische (veelvoorkomende) en minder prototypische (veel minder vaak voorkomende) gebruikcontexten. *Doen* komt in de overgrote meerderheid van de gevallen voor in contexten met een onbezielde causer, en slechts in bijzondere gevallen in contexten met een bezielde causer. Voor *laten* geldt het omgekeerde. Naast deze conventionele gebruikspatronen zijn er incidentele patronen: creatief taalgebruik van individuele taalgebruikers dat wel herkenbaar is als lid van de categorie, maar niet algemeen wordt gebruikt.

Het voordeel van deze semantische beschrijving van *doen* en *laten* boven eerder voorgestelde theorieën is dat er meer gebruiksfeiten kunnen worden beschreven. Hierbij gaat het om aantoonbare patronen in het taalgebruik, maar ook over intuïties over ‘gewoon’ en ‘minder gewoon’ gebruik. Hoofdstuk 4 laat zien dat de uitgangspunten van dit onderzoek vergelijkbare voordelen opleveren voor de semantische beschrijving van *daardoor*, *daarom* en *dus*. Ook in dit hoofdstuk worden hypothesen getoetst aan een corpus krantenteksten. Figuur 2 vat de resultaten samen:



Schema 2. De betekenis van *daardoor* (boven links), *daarom* (boven rechts) en *dus* (onder) (verant. = verantwoordelijkheid; bez. = bezielde; arg. = argumentatief).

In de meeste gevallen is er sprake van een gradueel verloop in prototypie. ‘Conventionele extensies’ delen vaak een aantal kenmerken met het prototypisch gebruik van de markering (bijvoorbeeld *daarom* in epistemische of non-intentionele contexten), ‘retorische extensies’ daarentegen delen soms maar een enkel kenmerk met het prototype (bijvoorbeeld *daardoor* in intentionele contexten). De prototypestructuur maakt het veronderstellen van een subjectiviteitsschaal voor de betekenis van connectieven overbodig. Dit sluit aan bij de observatie in hoofdstuk 4 dat de verschillende subjectiviteitstypen zoals onderscheiden in eerder onderzoek naar connectieven *niet* scalair zijn geordend.

Hoofdstuk 5 analyseert het gebruik van *daarom* en *dus* in historische teksten uit de 13^e, 16^e en 20^e eeuw. Het laat zien dat de verbondenheid van *daarom* met intentionele causaliteit en *dus* met epistemische causaliteit historisch gezien stabiel is. Dit is extra ondersteuning voor de bevindingen in hoofdstuk 4.

De hoofdstukken 6 en 7 onderzoeken de centrale hypothese van dit onderzoek, dat er bestaan fundamentele conceptuele overeenkomsten tussen verschillende typen causaliteitsmarkerings. In deze hoofdstukken speelt de vierde cognitief-semantische aanname een belangrijke rol. Die betreft het ‘cross-level’-aspect van het onderzoek; de vergelijking tussen causale werkwoorden (gebruikt

binnen zinnen, het ‘zinsniveau’ van de taalstructuur) en causale connectieven (gebruikt *tussen* zinnen, het ‘tekstniveau’ van de taalstructuur). Uit cognitief-semantisch onderzoek blijkt dat niet alleen de betekenisinhoud van individuele woorden, maar ook kenmerken van de grammaticale constructie waarin het woord gebruikt is, een bijdrage levert aan de *construal* van een causale relatie. Dit aspect is in dit onderzoek belangrijk om de conceptuele inhoud van de causaliteitsmarkeringen (het eigenlijke onderzoeksobject) te kunnen onderscheiden van de conceptuele bijdrage die de grammaticale constructies waarin ze worden gebruikt mogelijk leveren aan de totale interpretatie van de causale relatie.

Hoofdstuk 6 rapporteert een experiment waarin de veronderstelde vergelijkbaarheid tussen causale werkwoorden en connectieven wordt getoetst aan de intuïties van taalgebruikers. De proefpersonen bleken overeenkomst te ervaren tussen *doen* en *daardoor*, en tussen *laten* en *daarom*. In hoofdstuk 7 worden de gevonden overeenkomsten nader geanalyseerd. Een belangrijke conceptuele overeenkomst blijkt te zitten in het onderscheid tussen causale relaties met bezielde actoren (‘mensen’) en causale relaties met onbezielde actoren (‘dingen’). *Laten*, *daarom* en *dus* worden prototypisch gebruikt in het eerste type; *doen* en *daardoor* in het tweede.

Maar er komen ook verschillen aan het licht tussen causale werkwoorden en causale connectieven. In de eerste plaats blijkt het onderscheid tussen ‘bezielde’ en ‘onbezielde’ iets verschillend te zijn gedefinieerd. In categorisering met *doen* en *laten* is het concept ‘bezielde’ per se relevant. In categorisering met connectieven daarentegen gaat het om ‘intentionaliteit’; de ‘agentieve’ vorm van bezielde. Een ander groot verschil tussen connectieven en werkwoorden is dat de werkwoorden niet kunnen worden gecombineerd met ‘epistemische causaliteit’. Er is op zinsniveau dus geen equivalent voor *dus*-causaliteit. Hoofdstuk 7 laat zien dat deze verschillen te verklaren te zijn door verschillen tussen de grammaticale constructies waarin werkwoorden en connectieven worden gebruikt – de vierde theoretische aanname die in dit onderzoek werd gebruikt.

De overeenkomsten en verschillen tussen de causale werkwoorden *doen* en *laten* en de causale connectieven *daardoor*, *daarom* en *dus* kunnen als volgt schematisch worden samengevat:

	Objectieve causaliteit		Subjectieve causaliteit
Tekstniveau	Daardoor Objectief onbezielde Non-intentioneel	Daarom Objectief bezielde Intentioneel	Dus Subjectief Epistemisch
Zinsniveau	Doen Directe veroorzaking Onbezielde	Laten Indirecte veroorzaking Bezielde	

Schema 3. Overzicht van overeenkomsten en verschillen tussen causale werkwoorden en causale connectieven.

Subjectieve causale relaties worden geconstrueerd door de spreker, op het moment van spreken zelf. In objectieve causale relaties is dat niet het geval; de spreker ‘doet verslag’ van een causale relatie die zich heeft voltrokken (of nog gaat voltrekken) *buiten* het moment van spreken.

5. Conclusie en aanbevelingen

Het integratieve perspectief van dit onderzoek geeft een aanzet tot een theorie die kan generaliseren over verschillende typen causaliteitsmarkeringen. Tegelijkertijd heeft dit perspectief het inzicht in de afzonderlijke typen ‘causale werkwoorden’ en ‘causale connectieven’ verdiept: de semantiek van afzonderlijke markeringen blijkt te worden bepaald door een interactie tussen (niet primair talige) causaliteitsconcepten én kenmerken van de talige constructie waarin ze worden gebruikt. De bevindingen van dit onderzoek vormen nieuwe evidentie voor de cognitief-semantische hypothese dat semantische categorieën van causaliteitsmarkeringen samenvallen met conceptuele categorieën van causaliteit.

De resultaten van dit onderzoek suggereren verder dat talige uitdrukkingen op het ‘tekstniveau’ van taalstructuur onderhevig zijn aan dezelfde mechanismen als talige uitdrukkingen die worden gebruikt op het ‘zinsniveau’. Dit betekent wellicht dat cognitieve grammatica’s – die traditioneel zijn ontworpen voor ‘binnenzinsverschijnselen’ – kunnen worden uitgebreid met ‘tekstniveau’-fenomenen. Omgekeerd laat dit onderzoek zien dat cognitief-semantische inzichten tekstlinguïstische theorieën kunnen verrijken. Tot slot heeft dit onderzoek laten zien dat een combinatie van verschillende onderzoeksmethoden een meerwaarde oplevert: zo wordt het mogelijk om een integratieve theorie over causaliteitsmarkeringen te ontwikkelen die tegelijkertijd descriptief adequaat én cognitief plausibel is.

Curriculum Vitae

Ninke Stukker was born in Assen, on November 1st 1971. She attended gymnasium A at Rijksscholengemeenschap J.H. Tromp Meesters in Steenwijk, and graduated in 1990. From 1991 till 1997, Ninke Stukker studied Liberal Arts at Utrecht University, specializing in Communication. In September 1997, she graduated ('cum laude'), on a comparative investigation of linguistic expressions of causation in Dutch. In 1998, she was employed as a text writer by the professional association of medicine KNMG. In 1999, she continued her MA thesis' research in a (part time) Ph.D. project at the Utrecht institute of Linguistics OTS. She also worked as a freelance text writer and editor. Since 2004 she is an instructor in the department of Dutch Language and Culture of Utrecht University.