ELIZABETH COUPER-KUHLEN
BERND KORTMANN · Editors

Cause
Condition
Concession
Contrast

Cognitive and
Discourse Perspectives

Cause – Condition – Concession – Contrast

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Editors

Bernd Kortmann
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Cognitive and Discourse Perspectives

Edited by

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Bernd Kortmann

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Introduction

The theme of this book—endearingly referred to by its editors and contributors as the CCCC or four-Cs volume—is a set of relations, conceptual in nature but instantiated linguistically, which can be said to hold typically between clauses or sequences of clauses in discourse. Most, if not all, of our contributors will undoubtedly agree that each of these relations can be realized or marked by different linguistic means, e.g. by adverbials, particles, coordinating and subordinating conjunctions, word order (see, for instance, the chapters by Barth, Dancygier/Sweetser, Gohl, Montolío and Pander Maat/Sanders, which compare and contrast different lexical connectives in the fields of causality, conditionality and concessivity). Some of our contributors will undoubtedly maintain that the C-relations can even hold in the absence of specific lexical or syntactic markers (see, for instance, the chapters by Crevels, Gohl and Meyer). Yet many of our contributors may disagree on whether these relations are fundamentally semantic (see, e.g., the contribution by König/Siemund) or fundamentally rhetorical/interactional in nature (see, e.g., the chapters by Barth, Couper-Kuhlen/Thompson, Gohl and Meyer). Those who think of the C-relations as semantic will be concerned to represent their meaning (or the meanings of their markers) in a context-independent, perhaps even a formal fashion, whereas those who see them as basically rhetorical or interactive will address their interpretation (or the interpretation of their markers) in specific—although perhaps generalizable—contexts. Yet in this divergence—or rather, diversity—of opinion we see one of the strong points of our endeavor. Indeed, the novelty of the present volume lies not only in the cutting-edge research which it presents but also in the fact that it embodies work at the frontier of two very different approaches to language—cognitive linguistics and discourse or interactional linguistics. By bringing these two traditions together in one volume, we hope to initiate a dialogue in which the respective bodies of work can be evaluated for their relevance to one another.

The contributions collected here have been grouped roughly into sections according to C-relation in the order: cause, condition, contrast, concession. However, since some chapters explicitly address the relationship between more than one relation, the section boundaries are by no means rigid. In fact, this permeability is a reflection of deep-lying

affinities and *wahlverwandtschaften* between the C-relations, which make themselves apparent in both cognition and discourse.

Cause, condition and concession have long been known to have a special relationship with one another as adverbial relations of circumstance (cf. e.g. Halliday 1985, Thompson/Longacre 1985, Kortmann 1997). At times they have even been conceptualized in terms of one another, a conditional relation being seen e.g. as a hypothetical variant of a causal relation, a concessive relation as an inoperant cause (Harris 1988, König 1986, 1988). The conceptual similarity between cause, condition and concession is also reflected in the fact that languages may encode them in the same way (Kortmann 1997). All three relations lend themselves to expression via syntactic subordination; moreover, single subordinators may be polysemous between cause, condition or concession (e.g., *if* can express both condition and cause, *for* both cause and concession; see the chapter by König/Siemund in this volume). Dancygier/Sweetser (this volume) explore how this functional overlap can be accounted for with respect to the connectives *if, since* and *because*.

The relation of contrast, on the other hand, is typically expressed by syntactic coordination and not unanimously thought of as an adverbial circumstantial relation (Halliday 1985, Thompson/Longacre 1985). Yet especially when it is considered from a pragmatic and/or discourse perspective, contrast begins to have more in common with concession (see e.g. Rudolph 1996) and even with cause and certain kinds of condition. Sweetser (1990), for instance, applies her three-domain model not only to causal, conditional and concessive sentences but also to adversative sentences with the coordinator *but* (see Lang, this volume). Moreover, as several of the discourse-based papers in this collection argue, contrast is centrally implicated, e.g., in counterfactual conditionality (Akatsuka/Strauss) and in concession (Barth, Couper-Kuhlen/ Thompson). Contrast, specifically adversativity, is furthermore involved in the discourse-marker use of Spanish *si*, a canonical conditional conjunction (Schwenter) and in the discourse-marker use of German *obwohl*, a canonical concessive conjunction (Günthner). Finally, contrast enters into *wahlverwandtschaften* with circumstantial C-relations, in particular with causality, in that justifications recurrently follow contrasts in discourse, as Ford (this volume) shows. These findings suggest then that the affinity between contrast on the one hand, and cause, condition and concession on the other, has been underestimated in the past. For this reason contrast has been included as a fourth C-relation here.

Despite the division of our collected papers into sections, there are—as might be expected—recurrent themes which cut across the C-relations. One of the motifs in the cognitively oriented papers, for instance, is Sweetser's (1990) seminal work on domains or levels of interpretation. Noordman/de Blijzer (this volume) adopt her distinction between content and epistemic level and show how it will help account for differing degrees of cognitive complexity in causal sentences. Other papers are more critical of Sweetser's model: Lang (this volume) takes issue with her claim that content, epistemic and speech-act levels of interpretation can be determined independently of syntactic structure and, like Crevels (this volume), finds it necessary to supplement Sweetser's three domains with a fourth, textual level. Given a fourth level, Crevels finds the model useful for investigating the formal means which typologically different languages deploy in each domain. Pander Maat/Sanders (this volume), on the other hand, reject Sweetser's model as a means of accounting for the distribution and interpretation of specific causal markers in Dutch and propose in its stead a notion of subjectivity.

Another recurrent motif in several of the chapters collected here is Fauconnier's theory of Mental Spaces (1985, 1997). Dancygier/Sweetser (this volume) show that important distinctions can be drawn based on the ways in which causal and conditional conjunctions participate in the configuration of mental spaces. Verhagen (this volume) uses a mental-space model to account, e.g., for the relationship between concession and (negated) causality, with which König/Siemund (this volume) are also concerned. Yet Akatsuka/Strauss (this volume) are critical of a mental-space account, because it neglects what they see as an inherent dimension of counterfactual conditionality, namely that speakers are expressing a stance towards the events in question as desirable or undesirable. Akatsuka/Strauss advocate a subjective dimension in the analysis of counterfactual conditionality and in this sense are in agreement with Pander Maat/Sanders, who see subjectivity as responsible for the behavior of specific causal connectives in Dutch discourse. It is perhaps worth noting that both Akatsuka/Strauss and Pander Maat/Sanders take a corpus-based approach to C-constructions and for this reason belong more in the discourse than the cognitive tradition. Significantly, it is in relying on real data rather than on introspection that these two studies independently establish a need—above and beyond mental-space or domain considerations—for taking the speaker's (or subject of conscious-ness's) stance into account in the analysis of C-constructions, especially for counterfactual conditionality and causality. In this sense they are initiating the kind of dialogue between cognitive and discourse

approaches to the C-relations which the editors have envisaged (cf. also the chapters by Meyer and König/Siemund in this respect).

A second notion to be found in both cognitive and discourse-oriented papers collected here is polyphony (Verhagen), or multiple viewpoints (Schwenter). For Verhagen, the interpretation of concessive and negated causal sentences as well as of all sentences involving epistemic C-relations calls for the construction of two nearly similar mental spaces in Fauconnier's theory—or, equivalently, for the assumption of polyphony in Ducrot's sense of the term (1984, 1996). Schwenter also mentions Ducrot's theory of polyphony as one way of conceptualizing viewpoints and linguistic structure. He opts, however, for Roulet's (1984) distinction between one viewpoint (monological) and two viewpoints (dialogical), both of which can be found with either one speaker or two. Schwenter finds that dialogicality is not only conceptually present in adversative constructions but also (to a lesser degree) in 'exhortative' and epistemic causals (i.e., ones which accompany exhortative speech acts and inferential conclusions). The notion of polyphony or multiple viewpoints then appears to be relevant to both cognitive and discourse-based understandings of the C-relations. And it is clearly implicated in the interactional model of concession which Couper-Kuhlen/Thompson (this volume) propose, where multiple viewpoints often go hand in hand with multiple speakers—although, as Barth (this volume) shows, they need not do so.

Related to the dimension of multiple speakers is of course the question of whether a piece of discourse—specifically, a C-construction—is spoken or written. This is a recurrent motif in several of the discourse-oriented papers collected here. Aside from questions of overall frequency of use (see, for instance, Altenberg 1984, 1986 or Ford 1993), medial considerations are relevant for C-constructions in at least two other ways. One of these is with respect to the order of clauses, which Auer's chapter in this volume investigates with respect to *wenn*-clauses in German (cf. English 'when'/'if'-clauses). A second issue relating to C-relations in spoken and written discourse is the question of whether mediality has an influence on the choice of C-marker. Montolío (this volume) argues that, as in English, complex conditional constructions in Spanish such as *a condición de que* ('provided that') and *a menos que* ('unless') express a more restricted conditional relation than *si* 'if' and are reserved for formal written registers. And Barth (this volume) shows that the set of concessive markers as well as the relative frequency of parataxis as opposed to hypotaxis is significantly different when spoken English is compared to written English.

A further recurrent motif in the papers dealing with spoken discourse is the use of C-connectives as discourse markers. This is an aspect of C-relations which has been neglected in cognitively oriented studies. In fact, the development of discourse markers from adverbial subordinators of cause, condition, contrast and concession has only recently come to the attention of discourse and interactional linguists (see e.g. Gohl/Günthner 1999 for discussion of a causal discourse marker in German, and Lenk 1997 for discussion of contrastive discourse markers in English). In the present volume it is the chapters by Schwenter on Spanish *si* and Günthner on German *obwohl* which deal with C-relations as discourse markers. Whereas the *obwohl* phenomenon is comparable to paratactic uses of *although* in English, the adversative and causal use of *si* has no real equivalent with English *if.* But the evidence in both cases casts doubt on developmental claims made in the literature to the effect that conditional markers develop into concessive conditionals and from there into concessives, while concessives do not develop any further (König 1986, 1988, Kortmann 1997). A line of development from conditionality to adversativity and (paratactic) causality as with *si*, or from concessivity to adversativity as with *obwohl* has gone unnoticed until now. Once again, it is not insignificant that such insights have come from corpus-based studies of spoken language. In fact, as Auer (this volume) points out, a full understanding of spoken-language constructions can only be achieved through corpus-based investigation. And this is another recurrent theme in virtually all the discourse-oriented papers collected here.

The interactional linguistic papers in this volume (Auer, Barth, Ford, Gohl, Günthner, Couper-Kuhlen/Thompson) go one step further with respect to corpus-based language study. They take it as axiomatic that spoken language is first and foremost a tool for social action and that in order to be understood fully it must be examined in its original habitat, i.e. in everyday interaction. Viewed from this perspective, the C-relations can be thought of as ways of carrying out social actions—causality being instrumental in providing justifications or accounts (Gohl), contrast and concession in negotiating agreement/disagreement (Barth, Couper-Kuhlen/Thompson, Ford). C-constructions in turn can be conceptualized as linguistic resources or practices for carrying out the actions in question, e.g. for conceding a point or correcting a prior claim (Günthner). In an interactional perspective, C-constructions are seen as especially appropriate for or adapted to situated interactional needs and tasks: a German *wenn*-clause in post-position—as Auer shows—is not merely a positional variant of a pre-posed one (and thereby freely

interchangeable with it) but a tool 'designed' for or tailored to specific contexts of usage.

A final motif—relevant to both cognitive and discourse-oriented studies—is the relationship between asyndetic, paratactic and hypotactic means of expressing C-relations. Although none of our chapters looks at C-connectives diachronically, the implicational hierarchy for concession that Crevels (this volume) offers in her typological study, namely Content > Epistemic > Illocutionary > Textual, in conjunction with her marking hypotheses has clear implications for language development. She hypothesizes that the higher the semantic level, the more likely a concessive relation is to be realized asyndetically. Moreover, if a concessive relation is realized syndetically, the higher the semantic level at which it is realized, the more likely it is that q rather than p will be marked—where q-marking corresponds to parataxis and p-marking to hypotaxis. The implicational hierarchy above corresponds, of course, to what are thought to be increasing levels of cognitive complexity (see also Noordman/de Blijzer, this volume), whereas the cline asyndesis-parataxis-hypotaxis corresponds to the unidirectionality hypothesis of grammaticalization theory (Hopper/Traugott 1993). Yet evidence from spoken language does not fully conform to these hypotheses: asyndesis is widespread, even for content-domain causality (Gohl, this volume) and parataxis is more frequent than hypotaxis for the expression of (epistemic) concessive relations (Barth, this volume). Furthermore, as Schwenter's and Günthner's chapters show, discourse markers which originate from adverbial subordinators create parataxis out of hypotaxis and thus reverse the unidirectional cline. In order to resolve such contradictions we anticipate that more dialogue between cognitive and discourse-oriented approaches to the C-relations will be necessary in the future.

Meanwhile the reader is invited to appreciate the state-of-the-art research documented here for cause, condition, contrast and concession. In line with the title of the series, the present collection focuses on English; yet it does not eschew the world beyond. Indeed, the contributions by Noordman/de Blijzer and Pander Maat/Sanders (Dutch), by Auer, Gohl, Günthner and Lang (German), by Akatsuka/Strauss (Korean, Japanese) and by Montolío and Schwenter (Spanish) serve, each in their own way, as a valuable corrective on what would otherwise be a perhaps excessively Anglocentric perspective. In this sense the volume presents a picture of the C-relations which is enriched by cross-linguistic research.

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The relevance of causality[*]

Paul Georg Meyer

"In der Natur gibt es keine Ursache und keine Wirkung". (Mach [4]1901: 513)
"The law of causality, I believe, like much that passes muster among philosophers, is a relic of a bygone age, surviving, like the monarchy, only because it is erroneously supposed to do no harm." (Russell [1912] 1921: 180)
"The most fundamental fact of the world" (Kamlah 1991, title)
"The cement of the universe" (Mackie 1974, title)

This article discusses interrelations between relevance and causality from different angles: first, it is shown that the very notion of causality is subject to a relevance constraint. In communicating about causes people tend to seek out one or at most a limited number of possible causes from a possibly infinite number of logically admissible conditions. The criterion for selecting this limited number is obviously relevance. This interrelation between causality and relevance is analysed by way of a critical application of relevance theory, with the result that the conditions of relevance of causal statements are more similar to felicity conditions of speech acts than to a cognitive relevance principle.
Second, causality is described as a major device for creating relevance in discourse. The relevance of causality in discourse cannot easily be overstated. Nevertheless, causality is only one among several principles of text organisation, though obviously the most relevant one.

Causality is an "elusive" concept (Ziv 1988: 543). We all seem to know a causal relation when we see one, but as soon as we try to explain why it is a causal relation, or to communicate what it is precisely that we have seen, we run into problems. Like time and space, causality is taken for granted by everybody and fully understood, so it seems, by nobody. And, what is most disconcerting to scientifically-minded people, "knowledge of causes is possible without a satisfactory grasp of what is involved in causation" (Anscombe [1971] 1975: 67). Scientists have

consequently sought to eschew the notion in their considerations altogether (see mottoes). Philosophers, on the other hand, partly drawing on scientific results (Reichenbach 1991), have stressed its crucial importance for the functioning of the world (see mottoes).

Almost a hundred years after Mach's and Russell's verdicts, philosophers, psychologists, social and cognitive anthropologists, and linguists are still wondering about causality in their different ways. The reason why the "law of causality", or at least the notion of causality, is still going strong, is independent of its status in nature or science. Causality is simply an indispensable principle in the organisation of people's everyday lives, both on the individual and the micro-group level, and, a fortiori, also on the level of societies, states, and international relations.

When I clean the blades of my electric lawn-mower with my fingers, I rely on the law of causality, which tells me that once the plug is pulled from the socket, the engine cannot start and make the blades rotate again. When I am late for a meeting, I will try to find a cause[1] for my being late, and include it in the account that will presumably be expected from me; and my account will presumably be much more acceptable if I am able to give a satisfactory explanation for my being late. When people claim money from an insurance company, their claim presupposes the law of causality, which means that there was a cause for the damage and depending on what the cause was, the insurance company will or will not pay. When the UN sets up a tribunal to indict and convict war criminals, the legitimacy of the procedures hinges on the law of causality, on the belief that certain people are responsible for certain crimes, that is, that their actions were causally involved in these crimes in a crucial way.

The law of causality has *not* been allowed to survive because people believed it could "do no harm" (Russell [1912] [4]1921: 180, cf. motto). It has been allowed to survive because without a notion of causality, most of our material-technical, micro- and macro-social, economic, legal, and international life and institutions would not make sense and would break down.[2]

It will be shown presently that these remarks have more meaning in the context of this article than the usual conventional introductory assertions about the outstanding importance of an article's subject matter (Swales 1981). The first reason for this is that the very topic of this article is the *relevance* of causality. Second, the examples adduced above to show the relevance of causality in an intuitive sense also show that, occasional scientific necrologues on the concept notwithstanding, causal-

ity seems to have its locus in the social sciences and humanities. Everyday action, group cohesion on all levels, economic transactions of all kinds, notions of obligation and responsibility, law as the formalisation of the latter notions, and many other topics of social sciences and humanities crucially depend on causality. We may thus take the above examples as a first approximation to a concept of causality that is located in a social rather than in a physical world. In other words, the universe of which causality is the cement, the world in which causality is the most fundamental fact, is primarily a socially constructed universe, a socially constituted world.

This article does not undertake to solve the problem of causality. Its objective is much more modest. Based on observations made in the philosophical, scientific, psychological, social scientific, and linguistic literature, I will defend a set of linguistically inspired theses concerning the relationship between causality and relevance (cf. Meyer 1983: 125-126), putting it into the context of the present discussion and of an emerging research programme.

I will begin with a (very) brief history of the concept of causality (Section 1). I will then show how the history of the concept, the way it has been discussed in the literature, and the problems it has raised, seem to indicate a certain constraint on the notion of cause that is best described by a notion of relevance (Section 2). Next I will ask whether this notion of relevance is explicable in terms of the presently most influential pragmatic theory of relevance (Sperber and Wilson 1995[2]) (Section 3), and discuss problems arising from such an attempt. Finally, I will argue for a basically *discursive* explication of the notion of causality in the framework of a coherence relations approach, establishing causality as one of several primitive universal principles that govern the construction of coherence in discourse (Section 4).

1. A brief history of causality

Talking of causality under a unitary label misleadingly suggests that the label covers a unitary, homogeneous phenomenon. Breul (1997: 81-112) has recently summarised the development of the notion of causality from Aristotle via Hume into the 20th century. Among Aristotle's four different kinds of causality (Metaphysics 5, 2, 1013a24ff.), there is only one (known as *causa efficiens* from the Latin translation) that is clearly identifiable with a modern common-sense notion of causality. In the

scientific and philosophical tradition of post-Renaissance Europe (e.g.
Hume), another notion of causality is brought forward, emphasising the
necessity and lawlikeness of the causal relation. Finally, the notion of
causality in that tradition dissolved into the mathematical notion of
function, as exemplified in Mach (1901) and Russell ([1912] 1921).
This notion is certainly far removed from everyday intuitive concepts of
causality. Strawson (1985) argued against a law-based notion of causal-
ity to cover everyday cases of causation:

> A man, say, falls down a flight of stone steps as he begins the descent. The
> steps are slippery and the man's mind is elsewhere. This is a sufficient ex-
> planation of his fall. But of course not every preoccupied man falls down
> every flight of slippery steps he descends. There is absolutely no question of
> our formulating or envisaging exceptionless laws, ..., to cover all such
> cases. (Strawson 1985: 131)

That is, all rational and enlightened people will assume that the
man's falling down the stairs is fully in accordance with some presumed
laws of nature and, in principle, fully explainable in such terms. And
yet, in ordinary language we do not expect such full "scientific" ac-
counts to be given, and indeed it is highly doubtful whether such full
causal accounts of singular events are useful, desirable or, for that mat-
ter, feasible.

For all practical purposes, we are content with much less than a list-
ing of all the conditions, regularities, probabilities, and laws of nature
that account for the event in question. A satisfactory explanation, in
fact, is not one that lists all this. A satisfactory explanation is concise
and concentrates on one or just a few causes. The problem that scientists
and philosophers have had with the notion of causality emerging from
this observation is that they cannot find a unique logical or mechanical
or otherwise physical characterisation of a state of affairs that happens
to be intuitively singled out as the "cause" of a certain event. Whatever
is named as "the cause" of something, does not seem to differ in any
significant way from other factors present in the situation in question.
There simply seems to be no logical or scientific basis for calling some-
thing a cause.

Logical analyses of the notion of cause have operated with necessary
and sufficient conditions. The two intuitively most plausible and (pre-
sumably for that reason) most influential definitions have been Mackie's
(1965) "INUS condition" and the "counterfactual conditional", origi-
nally suggested by Hume and reintroduced into the modern debate by

David Lewis (1973). As we shall see in explicating what an INUS condition is, the two are actually quite close to each other.

According to Mackie (1965) causes are best defined as "INUS" conditions. An INUS condition is "an *i*nsufficient but *n*ecessary part of a condition which itself is *u*nnecessary but *s*ufficient for the result." (Mackie 1965: 16).

Thus, to take Strawson's example quoted above, both the slippery state of the stairs and the man's absentmindedness are causes of the man's fall because they are

- *insufficient*: Slippery stairs or absentmindedness alone do not cause a man to fall down a staircase, and would not have done so in that particular case.
- *necessary*: Had the man been more careful or had the stairs not been slippery, the man would not have fallen.
- *part*: The two causes mentioned are only part of the set of conditions causally involved in the man's fall. Thus, e.g., the man's trying to descend the stairs in the first place is another condition on the man's fall (that could also be called a cause on that account because it is an insufficient but necessary part of the set of conditions leading to the accident).

The set of such conditions taken as a whole is

- *unnecessary* for the result because the same effect might also have been achieved by other causes, in an altogether different set of conditions: Thus, e.g., the man might have fallen down the stairs because somebody maliciously pushed him, or because he was drunk and the steps were worn.
- *sufficient* (in that particular case) for the result because, after all, the result was brought about.

According to Hume and David Lewis (1973) c is the cause of an event e if and only if the counterfactual statement: "If c had not been true, e would not have happened" is true. In other words, a cause is a 'conditio sine qua non'. The attentive reader will have noticed that in explicating the notion of INUS condition above, we repeatedly had to resort to counterfactual formulations: if the man had been more careful or if the steps had not been slippery, he would not have fallen. Absentmindedness and the slippery state of the steps alone would not have brought about the accident. The same accident could have been brought about by altogether different causes, etc. It is thus clear that the INUS definition of causality is only a more formalised and elaborate variant of the counterfactual formulation of that definition.

The problems with both these definitions are manifold (Sosa 1975: 3-4), but it is not my purpose to discuss them here. There is just one point that I want to make: Mackie refers to a set of conditions that is unnecessary, but sufficient for the effect. The factor singled out as "the" cause is not the whole set of conditions, but only an insufficient but necessary part of this set. The problem that this definition raises is that it is not very useful for an application of the concept of causality in the analysis of everyday communication. The definition covers a number of conditions that we would *not* call causes in a given situation. That is, Mackie describes a necessary but not sufficient condition for calling an event a cause. He describes a *semantic* precondition for a proposition to serve as a causal explanation. Real events always have a large number of necessary and sufficient conditions. Arguing that one circumstance was the cause of a given event means foregrounding one *insufficient* and *necessary* condition and stating it, and allocating all the other conditions that jointly were *unnecessary* but *sufficient* to bring about the effect to the background. Thus, the very problem of Mackie's definition is an indication of the basically *pragmatic* character of any reasonable notion of causality that would be applicable in the analysis of discourse.

It is a situation that logical positivists and context-free semanticists cannot easily cope with, but it is not unfamiliar to pragmatically oriented linguists: reality is always understated and underdetermined by the propositional content of utterances. The meaning of utterances always goes beyond what was said. There is always a set of meanings that were meant but left unsaid. And there is always a background of knowledge that is taken for granted, that is not problematised, that is simply not at issue. If we believe Searle (1983: 141), this background contains infinitely many propositions. And indeed, it is precisely this characteristic of the set of sufficient conditions for a certain event that has led early modern philosophers (such as Hume) to confine the notion of causality to "lawful" instances and has driven 19th and 20th century scientists and philosophers to despair.

2. What makes a cause a cause?

Let me try to illustrate this with Strawson's example (in fact, any example of a causal relation would do). What is the set of conditions that is jointly sufficient (though unnecessary) to bring about "the man's" fall (for simplicity's sake let's call him Jones)? The two conditions men-

tioned by Strawson are in the foreground, of course: the steps were slippery, and Jones was absent-minded. Apart from these, I have already mentioned one further condition: the fact that Jones did try to descend the stairs at the very time when the first two conditions were already given. It seems that these three conditions, each of them independent of the two others, were jointly sufficient for Jones' fall. But, as Strawson (1985: 131) pointed out, "not every preoccupied man falls down every flight of slippery steps he descends." So there must have been further conditions that were necessary to make the set of conditions sufficient for Jones' fall to occur: maybe if Jones had been wearing different shoes (say, with non-slip rubber soles), he would not have fallen. Or, if there had been a railing for him to hold on to, he would not have fallen. Or, if his ankles had not been so stiff that day, he would not have fallen. Or, perhaps, if he hadn't been drinking, in addition to his absentmindedness. Or ...

On the other hand, we might also begin to question the most obvious and plausible causes that were given: granted that the steps *were* slippery, were they slippery enough for a man to slip? Granted that Jones *was* absent-minded that day, was he absent-minded enough not to notice the slippery state of the steps? That is, even the most readily accepted explanations for an event are not undebatable. There is always a possibility that the most plausible explanation is erroneous. Suppose that Jones is absent-minded most of the time and the steps are always slippery and he walks down these steps several times a day without slipping. It is obvious that in this case we would still accept the explanations given by Strawson to a certain extent, although we would have evidence for the fact that the explanation is not sufficient. Even though we would be willing to grant that there must have been other "causes" for Jones' fall, the explanations "slippery steps" and "Jones' absent-mindedness" are just too good to be discarded.

What this discussion is supposed to show is: as scientists and philosophers found out long ago, there is no such thing as "the" cause or "set of causes" of an event. Causality emerges as a discursive phenomenon. Note that all the "causes" mentioned above could be adduced in some kind of dispute over the "causes" of Jones' fall. But it depends precisely on the kind of dispute as to which of the causes will be adduced by whom.

Suppose Jones' wife had always been of the opinion that that staircase is dangerous and had always been warning Jones to use it (supposing there was an alternative available). In this case, the cause of Jones'

fall that would be accepted by his wife would be the fact that Jones descended the stairs in the first place. ("Did you have to use that dangerous flight of stairs? I told you one day you'd break your neck on it".) Or that Jones descended the stairs while they were slippery ("Why couldn't you wait until the steps had dried?") (Supposing, e.g., that they were slippery because Jones' wife had just scrubbed them).[3] For his wife, in that case, the slippery state of the stairs would be taken for granted, just like her husband's absentmindedness, which she has learnt to put up with in long years of marriage.

Now take the case of an insurance company. Depending, of course, on what kind of risk had been the object of the insurance, all kinds of questions might be raised. Who was responsible for the slippery state of the steps? Why did the flight of stairs have no railing? Was Mr. Jones' absent-mindedness due to alcohol or drugs? What was the purpose of his descent down the stairs? Was it on his way to work, for example? Was Mr. Jones' stiffness in the ankles due to an accident or some illness? Note that the insurance company's questions open up a much wider background by considering what might provisionally be called second- or third-order causes. The reason for this is that an insurance company will tend to follow up causal chains until somebody is found who can be *blamed* for an accident. Thus, for an insurance company or a lawyer, the cause of Mr. Jones' fall might be the fact that the owner of the house failed to replace a broken railing or to provide some kind of slip protection measures for the dangerous stone steps, or the fact that Mr. Jones' doctor prescribed some drug for him that affected his capacity to keep his balance to a sufficient extent to cause, in connection with the slippery state of the steps and Jones' absentmindedness, his fall down the stairs.

That is, when considering the set of conditions jointly sufficient to bring about an event, it is not sufficient to look at "first-order" causes only. In any case, it is a question of focus and perspective what is regarded as "first-order cause". Take Mr. Jones' absentmindedness as an example. Strawson said it "caused" Mr. Jones' fall. But looking more closely at the actual event, we may be certain that innumerable other "causes" intervened between Mr. Jones' absentmindedness and his fall. Absentmindedness cannot immediately "cause" a fall. Before the fall there must have been a slip. And it is difficult to ascertain at which point in the causal chain leading to Mr. Jones' fall absentmindedness is supposed to come in. Did absentmindedness cause him to slip, and the slip cause him to fall? Or did he slip first, and did absentmindedness prevent

him from keeping his balance after the slip? Or did he slip and lose his balance inevitably, and did absentmindedness prevent him from holding on to something, which might have prevented his fall? Or was absent-mindedness a limiting factor of all of Mr. Jones' movements that day, and did it have disastrous effects all through the causal chain leading to the accident?

Even if this was a real case, I doubt that all this detail could be ascertained. It should be clear, however, that a distinction between first-order and second- or third-order causes is impossible and has no systematic status. What we regard as a cause is seldom the "immediate" cause (in the sense that no intervening event between cause and effect can be found) because our observations are seldom so fine-grained that "immediate" causes would be noticed. Let us suppose that theoretically we come to the conclusion that some basic muscular movement of Mr. Jones immediately prior to his fall must have been the "immediate" cause. Presumably neither Mr. Jones nor a by-standing observer would have been able to observe and identify this "immediate" cause. Presumably this "immediate" cause was the inevitable result of some prior events, conditions, and maybe of Mr. Jones' decisions, and these will most likely be singled out as "the cause". We tend to look at events and causal chains not from a mechanistic perspective, but from a perspective that allows us to see and represent points of potential intervention (cf. Von Wright 1973). We look for conditions that could have been different. And usually conditions can be different if people behave differently or change conditions deliberately. Mr. Jones might not have used that dangerous staircase at all that day. Mr. Jones could have been more careful. The steps might not have been slippery (somebody could have done something about that). So the insurance company, by opening up an infinite space of conditions jointly sufficient for the accident, at the same time limits the search to those states of affairs that are accessible to human perception and intervention.

Let us now look at Mr. Jones himself. How would he explain his fall (supposing he survived it)? Again it would depend on a number of contingent factors what would be a satisfactory explanation of the accident for Mr. Jones himself. So Mr. Jones might (most likely) blame the slippery stairs, but it should be clear that he can only do so under certain conditions. Suppose that Mr. Jones has been using these stairs for years, they have always been slippery, he has never had an accident and has never complained about the state of the steps. In that case it would be somewhat difficult for Mr. Jones to blame the slippery steps. If he chose

to do so, it would mean a "change of policy", so to speak. After years of putting up with the slippery stairs, he would suddenly blame them for an accident. Under a benevolent interpretation, this would mean his fall has taught him a lesson, and he probably will have to do something about the slipperiness of the stairs in the near future. Mr. Jones could also blame his own absentmindedness, if he is willing to make such a face-damaging admission. What is more likely (assuming Mr. Jones to be vain like most people) is that he will blame some other condition that does not figure in Strawson's account at all. He could resort to some other explanation that would be more face-saving. "I was a bit stiff in the ankles that morning" would do perfectly.

What this lengthy exposition of potential explanations for a fictitious accident is meant to show is that explanations are not objective, based on facts existing independently. In fact they are guided and informed by people's interests. What explanations we are willing to give and willing to accept as a "cause" is not so much a matter of fact, but in the best case open to negotiation. Establishing a cause of an event is not so much a fact-finding procedure, but rather a process of social interaction in which diverging interests have to accommodated, from which different consequences (even obligations) may arise (cf. Hilton and Erb 1996: 303). It will thus be appropriate to look at the notion of causal explanation in order to clarify the notion of cause. This will be done in the next section.

It should, however, be emphasised that the above account does not imply that "the truth" is at the mercy of subjective interests. All the explanations mentioned above that could be adduced for Mr. Jones' fall might be, strictly speaking, true. Truth is a semantic concept, and semantically, all the conditions mentioned above as possible causes of Mr. Jones' accident are INUS conditions: they are insufficient but necessary parts of the whole set of conditions leading to the accident. They differ not in terms of truthfulness but in terms of *relevance* in certain discursive contexts and for certain people.

3. The relevance of causality

What does it mean for an explanation to be relevant in a given context? The notion of relevance plays a crucial role in several theories of pragmatics (Grice 1975; Horn 1984; Sperber and Wilson 1986, 1995). But before I relate the previous discussion to these theories, I would like to

explicate in my own terms what I mean by "relevance" here. What makes an explanation relevant? A good explanation raises an issue that was either

- outside the "normal course of events", unpredictable, and out of control. This explains the occasional meteorite examples in the literature (Stegmüller [1969] 1983: 911). Or it was
- within control of people, that is, something that could have been otherwise, a condition that was amenable to change, but still to a certain extent unexpected and outside the normal course of events.

So when the slippery steps are adduced as an explanation of Jones' fall, it is implicated that perhaps they should not have been slippery, that something should be done to prevent people from slipping there. If someone takes the slippery stairs for granted as a fact of life, then Jones' absentmindedness or his using the steps in the first place will be foregrounded.

Conditions that are absolutely unquestionable will never be mentioned as causes. Thus, the fact that Mr. Jones' body has weight, or, in particular, that its specific weight is higher than the specific weight of the atmosphere above the stairs and accordingly obeys the law of gravity, would certainly not be accepted as an explanation for Jones' fall except in circumstances (e.g., science fiction) where weight and gravity are not to be taken for granted. Neither would the fact that Mr. Jones was born be accepted as an explanation for his fall, although his birth is an INUS condition on his fall, and if he hadn't been born, he couldn't have fallen.

The closest equivalent to this informal notion of relevance for causal explanations that I could find does not come from Gricean and neo-Gricean pragmatics, but from speech-act theory. This should not be too surprising if we accept that explanation or explaining is a speech act in its own right. Like all illocutionary acts, it could have among its felicity conditions a formulation reminiscent of Searle's classical formulation (Searle 1969: 59)[4]

(1)   *A felicitous explanation will adduce as a cause for a given event E a condition C that is an INUS condition of E in Mackie's (1965) sense, where C is a proposition that would not have been true in the normal course of events, or the truth of C is not obvious to the hearer H.*

This formulation, as in all cases where Searle uses formulations of this kind, has its problems, however. In particular, it is difficult to determine what a "normal course of events" would be in each case, and what precisely is "obvious" to the hearer.

Our discussion above has shown something else. There is, strictly speaking, no such thing as a "normal course of events"; and it is not obvious what could be called "obvious to speaker or hearer"; but there is, for each context of situation, a *background* (Searle 1983: 141). Propositions which belong to the background are regarded as unquestionable, presupposed, imputed and taken for granted. The background is never thematised except when communication breaks down or illocutionary acts fail. What is part of the background in this sense cannot felicitously be invoked as an explanation (like in most everyday contexts the fact that bodies have weight). We may thus stipulate:

(2)   *A felicitous explanation X will adduce as a cause for a given event E a condition C that is an INUS condition in Mackie's (1965) sense and that is not part of the background (in the sense of Searle 1983) for the description of E or for X.*

This formulation, I think, is quite analogous to what should replace the corresponding felicity conditions in Searlean descriptions of illocutionary acts. A background fact cannot be felicitously made the content of an assertion; it would be a typical case of a trivial assertion. Since explanations are assertions, the above formulation provides only a special case of such a felicity condition. Nor can background facts be made the content of a directive: when you order a table in a restaurant, you don't say you want chairs around it as well (unless it is a type of restaurant where people usually sit or lie on cushions on the floor). And making part of the background the content of a promise ("A happily married man who promises his wife he will not desert her in the next week") "is likely to provide more anxiety than comfort", as Searle (1969: 59) remarked.

Now this classical Searlean felicity condition, invoking obviousness and the normal course of events, on most types of illocutionary acts, has usually been equated with Grice's maxim of Relation ("Be relevant", 1975: 46-47), Horn's R-principle (1984) and Sperber and Wilson's principle of Relevance[5] (1986, 1995). It is doubtful to me whether this is really the case. True, the Searlean felicity condition is approximately consistent with colloquial meanings of the term *relevance*. But Grice's

maxim is a maxim of Relation, not of relevance (although its summary uses the term). Grice's maxim of Relation has to do with the requirement that utterances should be related to the previous discourse and the context of situation. In this way, it guarantees coherence of discourse. But this is not what Searle had in mind when he referred to "the normal course of events".

Horn's R-principle (1984), however, comes closer to the Searlean notion because it incorporates half of the Gricean Quantity maxim as well. In Gricean terms, utterly trivial statements or explanations violate the Quantity maxim in that they give too little information. In Horn's conception, this submaxim is combined with Grice's Relation maxim to yield a complex R-principle, constituting a lower bound on how much information should be given in an utterance.

Sperber and Wilson's (1986) conception of Relevance, although it seems no more than a radicalisation of Horn's R versus Q duality, constitutes yet another concept of 'relevance' because it includes Q- and R-based considerations from the Hornian model in one formula. Relevance is no longer one of several principles, but the only principle guiding ostensive-inferential communication (Sperber and Wilson 1986: 155-158). The R versus Q duality is converted into a quotient of "cognitive effects" divided by processing effort. This means (counter to everyday intuitions about relevance) that high processing costs of a message (measurable in length, complexity, difficulty, amount of noise, etc.) reduce the Relevance of that message.

Applying this conception to explanations, it is true that lengthy, complicated, difficult explanations given in noisy surroundings or through a fragile channel are certainly less acceptable to hearers. But they may still be good, felicitous, relevant explanations in terms of the above thesis (2).

This is not meant as an objection to Sperber and Wilson's theory—it just points out a difference in conception. But there is another problem that arises in connection with Sperber and Wilson's Relevance theory when equating relevance as discussed here with their Relevance: The Relevance of an event, Sperber and Wilson say (1986: 156-157), correlates positively with the effect of that event on a given context of situation. What, now, is an effect? Doesn't this notion presuppose a notion of causality? The event whose Relevance is to be measured is seen as a cause having some effect on a situation. An event's Relevance is gauged in terms of the relative effect of that event, seen as a cause. And it is a cause that could be adduced in a felicitous causal explanation as defined

in (2) above. It is a prerequisite for successful communication that an utterance is not just an INUS condition for its contextual effect. It is the very issue discussed by Sperber and Wilson that utterances should be *relevant* causes of their contextual effects. If other INUS conditions of that same effect (such as the Hearer's knowledge of the language used, absence of noise drowning out the utterance, etc.) were more relevant in a given situation, then the utterance itself would lose its relevance. The problem is: combining Relevance theory and the relevance-based notion of causality put forward here leads us into a vicious circle: we explicate causality in terms of relevance only to find that relevance is explicated in terms of causality!

I can presently see two ways out of this dilemma, without being sure which of the two is to be preferred, and without being sure whether they are actually mutually exclusive:

The first solution is less clear to me in all its detailed theoretical implications, but there is some evidence in the literature in favour of it. This solution would be to declare causality a semantic and cognitive *primitive* (cf. Ziv 1993: 21). This idea is actually an old one in linguistics, first put forward formally, as far as I know, by postulating an "atomic" semantic predicate CAUSE in generative semantics (McCawley 1968). The "linker" *because* is also contained in Wierzbicka's (1991: 8, 1996: 70) lists of semantic primitives, though not in the original one (1972: 16).

Lakoff's (1982: 163) idealised cognitive model (ICM) of causation adds an interesting aspect to the discussion. Lakoff rejects the notion of primitive in the traditional sense (1987: 279-280),[6] replacing it by his own notions of basic-level concept and image schema as the nearest equivalents. Causation is obviously a basic-level concept in Lakoff's terms. The interesting point is that basic level concepts have some characteristics of traditional primitives in that they are "not put together by fully productive principles of semantic composition" (ibd.). But they do or may have internal structure. In this they differ from traditional primitives. This internal structure is spelled out by Lakoff in idealised cognitive models. The elements of Lakoff's model of causation do not mention lawfulness or necessary and sufficient conditions at all. Similar to Von Wright (1973), Lakoff regards agency and the transfer of energy as essential features of prototypical causation. It should be noted that it is a model of causation, not of causality, causation being understood as the nominalisation of an agentive verb. It is plausible that prototypical causation is agentive; and it is quite conceivable that the abstract principle

of causality as used in discursive reasoning should be derived from agentive causation. In this case, the cognitive experience of causality as an abstract principle would be regarded as a notion that is gained by abstraction from prototypical agentive causation.

There is also some justification to be found for the primitive analysis, or rather non-analysis, of causality in the philosophical literature: Anscombe ([1971] 1975) seems to advocate a view, summarised by Sosa (1975: 4), that "causation is what it is and nothing else—and that there is no analysis of causation that essentially involves conditionality or lawfulness". And Sosa continues: "So far as I know no one has published a successful analysis of causation by reference to conditionality or lawfulness" (1975: 5). Note that Sosa, too, speaks of "causation" rather than of "causality".

If it is true that causality is a primitive concept or very close to a primitive concept of causation, we encounter a familiar phenomenon that is often observable when we try to analyse a primitive concept. Take the example of *see*. In accordance with Wierzbicka (1996: 78-79) I would argue that it is a primitive concept. An obvious classical definition of *see* along the lines of *genus proximum* and *differentia specifica* would of course be possible in terms of "visual perception" (Searle 1983: 61; Alm-Arvius 1993: 17). I argued in Meyer (1997: 121-122) that *visual*, and presumably *perception*, too, cannot be defined without reference to the primitive concept *see*. It might just be that "analysing" causality in terms of necessary and sufficient conditions and in terms of relevance or lawfulness is a similar fallacy to "analysing" *see* in terms of "visual perception".

It is quite conceivable that necessary and sufficient conditions are conceptually secondary to causality; material implication as defined by means of truth tables in logic is an abstract notion far removed from the conceptual lives of ordinary people. It is at least as far removed from everyday concepts of *if—then* as an INUS condition is from everyday causality. And, as we have seen above, relevance is possibly a notion that cannot do without causality because it has to do with causal impact.

As this solution is compatible with Sperber and Wilson's account of relevance and communication, and as Sperber and Wilson's account is grounded in cognitive categories, it would mean that presumably causality is the cement of a cognitively appropriated world, on which both perception and communication are based.

The other solution would be to develop a "causality-free" conception of relevance. Maybe the formulation in (2) above is a step in that direc-

tion. It would be a step "back" towards Grice, Horn, and Searle, away from Sperber and Wilson. It would mean that relevance, and, in consequence, causality, are categories of communication and interaction, not of cognition (Edwards and Potter 1993: 24).

For the time being, I am inclined to pursue the second line of reasoning, interpreting causality as a discursive-interactional rather than a cognitive phenomenon. There are two reasons for this: first, this line is more in accordance with my own previous research on discourse (Meyer 1975, 1983, 1996) and the role of causality in it. Second, it seems to be the turn that psychological attribution research is taking at the moment (Edwards and Potter 1993), so that further linguistic research in that direction opens up promising channels for an interdisciplinary exchange of ideas.

As a textlinguist who has been working in a coherence relations framework (though under a different name),[7] I have always been convinced that causality has a major rôle to play in the explication of text constitution and text coherence. But until recently I had tended to believe that causality was a principle "out there", in the world, being referred to and being made use of in discourse.

To see research in science, logic, psychology and social sciences converge on the idea that causality is primarily located in discourse does not come as a complete surprise, though, given the discursive-constructionist turn in social sciences in general (Woolgar 1988; Latour 1987; Bazerman 1988) which has left none of the sacred traditional notions of epistemology untouched. Expressions such as *fact, truth, nature* or *world* cannot be used naïvely anymore after taking notice of that discussion (in which they invariably turn up in "scare quotes", and are ridiculed more often than seriously discussed).

Nevertheless, this "discursive turn" of the causality discussion sets new tasks for discourse analysts as well. We cannot shift responsibility for the notion of causality to scientists, psychologists, or philosophers any more, but find ourselves as *the* branch of knowledge most immediately competent for a characterisation of that notion. While I remain sceptical concerning social constructionism in general (Meyer 1997: 67-74), I have allowed myself to be convinced by the overwhelming evidence in the case of causality. It remains an open question, though, which is the more appropriate approach, a cognitive or a discursive one. My decision for a discursive approach is preliminary and inspired by research-practical considerations.

4. Causality in discourse

So far I have considered the notion of causality as a concept external to linguistics and found it subjected to relevance constraints. This led me to adopt the perspective of causality as a discourse phenomenon in a much more radical way than I had hitherto done.

Let me now start from the other end and see what can be said from inside linguistics about interrelations between causality and relevance, in particular from a textlinguistic perspective. Seen from this perspective, causality is not only subjected to relevance constraints, but also creates relevance.

This can best be seen from the numerous examples, discussed controversially in the literature, which show that asyndetic clause connections are often interpreted as causal connections, be they juxtaposing as in (3) and (4), coordinating as in (5), or subordinating as the participle construction in (6) (the examples are taken from a popularised social science text):[8]

(3)   *People badly want a demonstration, a dramatisation of justice. They need to have defined and reinforced for them what is right and what is wrong.*

(4)   *Penal methods by themselves will not put an end to crime. Even at their fiercest, as in nineteenth-century England, (...) they did not succeed.*

(5)   *The participants remain anonymous and there is no one upon whom the authorities can pin the offence.*

(6)   *The <accusatorial> system is more adaptable than the inquisitorial one, allowing for practical changes in treatment methods to be introduced easily during the sentence.*

It seems that causality is such a basic principle that very often there is no need to draw special attention to it, and the causal relation between the two clauses is a matter of implicature. Even the direction of causality is left to the reader to infer in such cases. While in (3) to (6), the second clause gives an explanation of some kind relating to the first clause, the causal relationship is reversed in (7). The second clause states a consequence of the fact reported in the first clause:

(7)   *In all the countries concerned the population is growing quickly.*
       All will be faced sooner or later with the spectre of overpopula-
       tion.

The precise character of the explanations in (3) to (6) has also been the
subject of much debate, but is of little concern for the present contribu-
tion (see Dancygier and Sweetser; Pander Maat and Sanders [this vol-
ume]).

Kortmann (1991: 118-121) has suggested a scale of informativeness
for adverbial relations. Causally based adverbial relations (concession,
condition, instrument, and cause) are to be found above a dividing line
in the middle of Kortmann's scale which separates more informative
from less informative adverbial relations, contrast being the only non-
causal relation figuring in the top group. Kortmann uses this scale in
explaining the semantic interpretation of free adjuncts and absolutes,
i.e., participle constructions in English. It could also be used for a rank-
ing of coherence relations. It is obvious, e.g., that a causal relation is
more informative than a temporal one because a causal relation implies
a temporal relation and only adds further information to this.

A standard analysis of examples (3) to (7) within the coherence rela-
tions approach would be to find specific coherence relations such as
"explanation" or "justification" to describe the relation between the two
clauses. Against such analyses much scepticism has been voiced, e.g.
recently by Dahl (1995: 259):

> Causality in discourse is a rather fluid phenomenon whose relations with
> what we would want to call rhetorical structure are of an indirect character.
> The view I have argued against—that causality in discourse may be reduced
> to a small set of rhetorical relations[9]—has to my knowledge never been
> stated explicitly, but many treatments of discourse structure certainly give
> the impression that such a reduction is possible.

I am not quite sure what is meant by "reduction" in the above quotation.
I agree with Dahl that the functions of causality in discourse are mani-
fold (see examples (3) to (7) above). But this is no reason why they
should not be capable of being reduced to one principle. There is one
thing that can be gained by an introduction of a principle of causality
into a coherence relations approach: the complexity brought about by
the "fluid" character of a fairly large number of different causally-based
coherence relations which are not easily delimited from each other may
be "reduced" by "reducing" them to a principle of causality. As was also

observed by Ziv (1993: 181), causality could be regarded as one of a small number of basic universal reasoning principles that readers and hearers use in interpreting clause sequences in texts.

I think that such principles of text organisation should have the following properties:

a. They stem from basic needs arising in human communication.
b. They therefore constitute reasons why we should need more than one clause to say what we want to say, that is, motives to utter a text rather than a single clause.
c. They represent ways in which clauses, sentences, or larger text chunks can be relevant to each other.
d. They are not derivable from a further common principle.

Causality fulfils all the above criteria to a high degree:

a. It is a basic need in human discourse to explain, to justify, to reason about causes, conditions and consequences. The close affinity between the primitive concept of causation and human action is no coincidence. People want to know about causes, reasons and consequences because they need to act.
b. The most natural discourse strategy of explanation or stating consequences is to add another clause.
c. The common use of asyndetic clause connections to explicate causal relations in discourse shows that causality creates relevance on its own.

To apply criterion d. we need to know what the other principles are. In my own work (Meyer 1983, 1996) I have identified five principles so far that fulfil the above conditions: Topic, Time, Clarification, Causality, and Persuasion.[10] Among these, Causality seems to be the most "relevant" one, both in terms of text frequency, and in number and diversity of coherence relations derivable from them. But the other principles can also be shown to be important organising principles in texts that are not derivable from the principle of Causality.

When we speak or write about a certain topic, then usually there is more to be said about this topic than can be accommodated in one clause. Often several topics have to be related to each other. This is how the different forms of topic development arise which in turn give rise to a number of different coherence relations such as "constant topic", "topic progression", "split topic", etc. (cf. Daneš 1970).

When we narrate a story, there is more than one event to narrate, and these events are primarily and minimally related temporally. This is how time comes in as an organising principle of texts.

Furthermore, when we describe something, there is often the need to clarify what we are referring to, that is, to spell out in more detail what we wish to say about our topic, to compare, to give examples, to paraphrase. All this cannot be done in one clause and thus, specific coherence relations such as elaboration and contrast arise.

And it is clear that very often persuasion, that is, the need to convince the hearers rather than just make them comprehend, can be the motivation for adding another clause, too, giving rise to coherence relations such as "qualification" or "evidence".

If what we said above is true, our five principles also represent five ways in which clauses or sentences can be relevant to each other in the Gricean sense: they represent five different ways to fulfil the maxim of Relation in coherent discourse. But the five principles are not on an equal footing here.[11] Kortmann's scale can be applied to them, yielding different degrees of relevance, depending on the way in which a clause relates to the rest of the discourse.

The lowest degree of relevance that two sentences can have to each other is brought about by their being related through their topic or topics. Very often this does not suffice for text coherence to be brought about. When a topic is split up into subtopics, or when the text proceeds from one topic to the next, this is only admissible insofar as the subtopics or the newly introduced topics are relevant in terms of some global purpose of the text, or, to put it in Grice's terms: contributions to a coherent discourse must be "appropriate to the immediate needs at each stage of the transaction" (Grice 1975: 47).

It is obvious that clarification and persuasion devices are highly relevant, even in Sperber and Wilson's sense, to the purposes of the communication of which they are part. Clarification strategies aim at lowering the processing costs of hearers or readers: they make the text more easily comprehensible. But also in Grice's sense, it may be said that clarification may be the way in which one clause is relevant to another in discourse, serving the "immediate needs", at this "stage of the transaction".

Persuasion devices are meant to heighten the probability of a contextual effect of the message on the reader / hearer. They sometimes explicitly invoke relevance as an argument to impress the reader or hearer. In Gricean terms, persuasion devices are applied at a certain stage of a communicative transaction where scepticism is apparent on the part of the hearer, or anticipated by a writer on the part of the reader.

When we narrate events that are in some temporal relation to each other, these events must be also relevant to each other. This is why narrated event sequences are so often causally connected as well. Two events that are temporally related to each other do not necessarily make a good story. But a causal chain of events is much more likely to be accepted as suiting the "immediate needs" at this stage of the narration: its narration may explain why something happened or point out consequences of a certain event. More often than not, the question "What happened next?" aims at learning about the consequences of a certain event rather than about some causally unrelated event that happened to happen next. And informing about the causes of a certain event fulfils a basic need in human communication (see above). Thus, causality seems to be the most relevant of the five principles mentioned. Explicating a causal relationship in discourse is rarely questioned or regarded as pointless. This is no real surprise given that, as we saw in the last section, causality is constrained by relevance considerations. Causality is thus much more intimately connected with relevance than mere temporal sequence (cf. Kortmann's scale, 1991: 121).

5. Summary

In this paper I have discussed interrelations between causality and relevance. I have tried to show from three different perspectives that there are good reasons to regard causality as a primarily discursive phenomenon.

1. The relevance of a causal statement is not ascertainable objectively, but only in a discourse in which human interests and social obligations play a role.
2. The relevance of a causal statement is best described in a speech-act framework. Its conditions of relevance are more similar to felicity conditions of speech acts than to a cognitive relevance principle.
3. The relevance of causality in discourse cannot easily be overstated. Nevertheless, causality is only one among several principles of text organisation, though obviously the most relevant one.

If this is reasonable (and this article, I hope, contains arguments to show that it is), then social-psychological causal attribution research (Edwards and Potter 1993) becomes more important for a characterisation of the concept of causality than logical analyses. This is all the more compelling for linguists, like myself, working in a functionally

oriented typological framework. Thirty years of experience with this framework have shown that what is likely to emerge as an interesting typological parameter for such a framework, or as a non-trivial semantic-pragmatic universal, is more likely to be found in everyday linguistic usage, everyday reasoning, everyday argument, than in logically purified abstractions of these.

Social scientists working on causal attribution have long begun to look to linguistics for answers to some of their questions (Edwards and Potter 1993; Hilton, Jaspars and Clarke 1990; Hilton and Erb 1996). It is time that linguists began to understand these questions and provide more satisfactory answers.

Notes

*   This paper is dedicated to Ekkehard König on the occasion of his 60th birthday.
      I wish to thank the editors, Elizabeth Couper-Kuhlen and Bernd Kortmann, and, in particular, Verena Haser and Manfred Krug (University of Freiburg, Germany) for extensive (and partly devastating) comments on an earlier draft of this paper. Although I failed to be convinced by some of their arguments, they certainly were an invaluable help in reformulating and supplementing my thoughts and in many cases provided me with further insights into the problems concerned.

1.   Some people might say that this would be a reason rather than a cause. I do not wish to enter into the causes-reasons debate here, but if there is a distinction to be made, it would have to be between causes for events and reasons for human actions (Beckermann 1977). Being late is not an action, so whatever causes my being late would be a cause rather than a reason.

2.   It is perhaps interesting to note, in this connection, that the German word for 'reality', *Wirklichkeit*, is etymologically related to the verb *wirken* 'take effect' which in turn is etymologically related to English *work*). Literally, *Wirklichkeit* could be translated as 'a coherent whole of things that take effect'.

3.   I apologise for the somewhat stereotypic character of this whole example. I could try to give a causal explanation for this, but I seriously doubt the potential relevance of such an explanation.

4.   The formulation for promises (Searle 1969: 59), e.g., is: "It is not obvious to both S and H that S will do A in the normal course of events".

5.   To distinguish Sperber and Wilson's concept of Relevance from others, in particular the colloquial notion of relevance, I will capitalise the word whenever referring to Sperber and Wilson's principle.

6.   I wish to thank Verena Haser and Manfred Krug (University of Freiburg) for pointing this out to me.

7. Other approaches with a similar set of basic assumptions, are Grimes (1975);
    Mann and Thompson (1988); Hobbs (1983); Graustein and Thiele (1979)
    and many others.
8. Klare, Hugh J., Stress violence and crime, in: Mayne, Richard (ed.): *Europe
    tomorrow*, London 1972, 48-63.
9. Dahl uses Mann and Thompson's (1988) terminology, where "rhetorical
    relation" corresponds to what is now called "coherence relation" in most of
    the literature.
10. I use capital letters to indicate that I am talking about principles within a
    framework that are not necessarily identical with their colloquial counterparts.
11. Grice himself (1975: 46) speaks about "different kinds and focuses of rele-
    vance" whose exact nature is not made very clear. The maxim of relevance is
    the least explicit one in Grice's account. Maybe the five principles discussed
    here could contribute to a clarification.

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On the processing of causal relations

Leo G. M. Noordman and Femke de Blijzer

This study deals with how different kinds of causal sentences are under-
stood. The central hypothesis is that sentences that more directly reflect a
causal relation in the world and in the cognitive representation of this
situation are easier to understand than other causal sentences. This hy-
pothesis is tested in reading-time experiments: longer reading times reflect a
greater complexity in the processing of the underlying information. Three
factors are discussed that determine how directly a causal sentence matches the
cognitive representation of causality: content vs. epistemic relations, linear
order of cause and effect in the sentence, and conceptual order of cause and
effect. It is demonstrated that each of these factors makes an independent
contribution to the complexity of understanding causal sentences. In addition,
it is demonstrated that these factors have an effect independently of a fourth
factor, namely the causal constraint between cause and effect.

1. Causality in cognition

Causality is an important ordering principle of human perception and hu-
man experience, and thus a central category in human cognition. It is fun-
damental both to the representation of human knowledge and to other cog-
nitive processes like predicting, explaining, and comprehending.

Our claim is that sentences that more directly reflect causality are easier
to understand than other sentences. We should therefore be explicit about
what we mean by understanding, and about how we conceive the cognitive
representation of causality. From a psycholinguistic point of view, we con-
sider the process of understanding as one in which the reader constructs a
representation of the information in the discourse. An important aspect of
that representation is that it is coherent, since the consecutive sentences in
a discourse are related to each other. Accordingly, the representation
contains relations between the sentences, or rather between the
information units that are expressed by the sentences. But that representa-
tion is also a representation of something else, i.e., of the world. Therefore,
the representation has relations with the world. The representation may be
related to the world in terms of a number of concepts, such as truth—on
which semantic theories have in general concentrated—possibility, and

plausibility. The distinction between relations in the representation and relations of the representation to (a model of) the world is related to the distinction made by Guenthner (1989) between D-relations (for discourse) and T-relations (for truth). A similar distinction is made in theories about psychological representations (Johnson-Laird 1983). In this conception, understanding implies that the reader not only constructs a coherent representation but also that the reader implicitly evaluates whether the information in the discourse corresponds to the world, for example, whether it is true or false, plausible or possible. Accordingly, understanding causal sentences requires matching the information in the clauses with a cognitive representation of the world, in this case with a cognitive representation of the causality in the world.

This leads to the question of how causality is cognitively represented. We will not develop an elaborate theory of the representation of causality. We only assume that causal relations are represented as ordered cause-effect pairs where the cause temporally precedes the effect. The representation of causal relations originates in our experience in the world. We observe co-occurrences of events in the world. On the basis of these co-occurrences we deduce causal relationships. We have a strong tendency to interpret sequences of events in terms of causal relations, even when there is no real causality involved (Michotte 1954). A child learns that when she drops a glass, the effect is that it breaks into pieces. A child also learns to use causal schemes in reasoning processes: if the glass is broken, it probably has fallen. The experience of causal relations between events in the world is fundamental to the conceptual representation of causality. Given the fact that causal relations derive from our experience of the world, where causes temporally precede effects, we assume that causal relations in our representation of the world reflect this experience and that they are represented as cause-effect pairs with the cause preceding the effect.

2.   Relevant factors in the processing of causal sentences

2.1.   Content vs. epistemic relations

Causal sentences can be characterized with respect to a number of factors, which presumably affect their processing. One factor is the distinction between content relations and epistemic relations (Sweetser 1990), sometimes also identified as semantic vs. pragmatic relations (Sanders, Spooren, and Noordman 1992). A sentence that expresses a causal content

relation describes a real-world causality between two events or states in the world. An example is (1):

(1)   *Because John worked hard, he passed the exam.*

An epistemic causal relation expresses a conclusion by the writer/speaker that is based on a causal relation in the world. An example is (2):

(2)   *Because John passed the exam, he must have worked hard.*

This sentence expresses that the speaker's knowledge of John's passing causes the conclusion that he worked hard. A relation is a content relation if the two clauses are related because of their propositional content. A relation is an epistemic relation if the clauses are related by the speaker's reasoning.

What can we expect with respect to the difference in processing between content and epistemic causals? Earlier, it was said that understanding requires matching the information in the sentence with a model of the world. Since a content causal sentence directly reflects a state of affairs in the world, it may be easier to process than an epistemic causal sentence, which does not directly express real-world causality. One can argue that an epistemic causal expresses a real-world causality in a derived way. In fact, an epistemic relation reflects a line of reasoning that is allowed by the co-occurrence of events or situations in the world. The justification of that reasoning is the contingency of events in the world. So, in this sense, an epistemic relation is based on an underlying content relation. In understanding an epistemic relation, the reader has to check the possibility of the underlying content relation in the world. Understanding an epistemic relation implies understanding the underlying content relation. We will illustrate this with two examples.

In sentence (2), the epistemic conclusion is justified by the underlying content relation. The reason that one may infer from "John passed the exam" to "he worked hard" is that if you work hard, you pass the exam.

In (3), there is the same underlying content relation: if you work hard, you pass the exam.

(3)   *John worked hard, so he must have passed the exam.*

The content relation is used in an act of concluding, which is expressed by the connective *so*.

According to this analysis, content relations reflect experience in the real world and epistemic relations are derived from these content relations. Epistemic relations express real-world causality in a less direct way. One might predict that processing an epistemic relation requires more time than processing a content relation.

There is some support in the literature for this prediction. Noordman (1979) asked readers to read conditional sentences that expressed content and epistemic causal relations. An example of the first type is: "If John is ill, he is not going to work". An example of the second type is: "If John is not going to work, he is ill". The readers had to press a response button as soon as they understood the sentence. The time was measured from the moment the sentence was presented until the participant pressed a button. Sentences expressing a content causal relation were processed 286 msec faster than sentences expressing an epistemic causal relation. So, sentences that express the causal relation more directly are processed faster than sentences that express the causal relation in a less direct way. Similar results have been obtained by Traxler et al. (1997) for the understanding of causal sentences and diagnostic sentences. In their experiment, these two types of sentences corresponded to content and epistemic causals. The interpretation by Traxler et al. is that diagnostic statements need a more complex mental representation than causal statements; diagnostic statements require the representation of an embedding phrase like: "someone believes that...".

These data show that content and epistemic causal sentences are processed in a different way. A possible interpretation is that understanding causal relations that describe events in the real world is easier than understanding causal relations that express a reasoning process. But we may not yet derive this conclusion. When we scrutinize the sentences that are used in the experiment by Noordman, it is clear that the difference between content and epistemic relations is not the only difference between the sentences. There are other factors that might play a role in the processing of these causal sentences. One factor is what we call the conceptual order of the clauses. Another factor is the linear order of the clauses. We will first discuss these factors: conceptual order in Section 2.2. and linear order in Section 2.3. Finally, we will discuss a factor that will be called causal constraint (Section 2.4.). In Section 3, we will present a reading-time experiment in which these factors are investigated.

2.2. Conceptual order

Consider sentences (1) and (4):

(1)   *Because John worked hard, he passed the exam.*

(4)   *John passed the exam, because he worked hard.*

Both sentences express a cause-effect relation. Conceptually, the direction in which the causality is expressed is from cause to effect. In the conceptualisation underlying sentences (1) and (4), the effect is derived from the cause. We will refer to this order as the conceptual cause-effect order. There is a correspondence between the antecedent (John worked hard) and the consequent (he passed the exam) in these sentences on the one hand, and the cause and effect in the real world on the other hand. What conceptually is the cause (working hard) is expressed as the antecedent in the sentence; what conceptually is the effect (passing the exam) is expressed as the consequent in the sentence. In these causal sentences, we define the antecedent as the starting point in the causal deduction that is expressed by the sentence and the consequent as the end point. In a content sentence, the antecedent is the cause and the consequent is the effect, as in (1). In an epistemic sentence, the antecedent is the argument and the consequent is the claim, as in (2). Sentences that have the conceptual cause-effect order exhibit what we call conceptual correspondence: they indicate that on the basis of the cause the effect is derived. This order corresponds to the order of the events in the world.

Sentence (2) expresses a effect-cause relation.

(2)   *Because John passed the exam, he must have worked hard.*

Conceptually, the cause is derived from the effect. The effect is considered as a sign for the cause. (Therefore it was identified as an epistemic relation in the first place). Sentence (2) has the conceptual effect-cause order. There is an incongruence between what is cause and effect in the real world and what is expressed in the sentence as antecedent and consequent.

It should be noted that the distinction between conceptual cause-effect order and conceptual effect-cause order is not the same as the distinction between content and epistemic relations. In fact, sentence (3) expresses an epistemic relation, but the effect is derived from the cause.

(3)   *John worked hard, so he must have passed the exam.*

Therefore, sentence (3) has the conceptual cause-effect order. On the other hand, the two distinctions are not completely independent of each other, as is shown in Table 1. Content relations only occur in the conceptual cause-effect order, because content relations directly reflect real-world causality. Epistemic relations can have either conceptual cause-effect order or effect-cause order.

Table 1.   Examples of content and epistemic relations, in different conceptual and linear orders.

| | *conceptual order* | | | |
| | *cause-effect* | | *effect-cause* | |
linear order	*cause-effect*	*effect-cause*	*cause-effect*	*effect-cause*
content relation	Because John worked hard, he passed the exam.	John passed the exam, because he worked hard.	-	-
epistemic relation	John worked hard, so he must have passed the exam.	John must have passed the exam, since he worked hard.	John must have worked hard, since he passed the exam.	John passed the exam, so he must have worked hard.

Since sentences with the conceptual cause-effect order reflect causality in the real world more directly than sentences with the conceptual effect-cause order, and since we assume that the more directly a sentence matches a situation in the world, the easier it is to process, we predict that sentences with cause-effect order (such as (1)) are easier to process than sentences with effect-cause order (such as (2)). We prefer deriving effects from causes to deriving causes from effects.

The basis for this assumption is our sensorimotor experience in the world. We learn the notion of causality and we learn causal relations by acting in the world, by observing that causes precede effects. If the cause-effect order is conceptually more fundamental than the effect-cause order, it seems likely that we prefer to reason from cause to effect instead of from effect to cause.

Support for the assumption that conceptual cause-effect order is more fundamental than effect-cause order is obtained by Tversky and Kahneman (1982). They found that reasoning from cause to effect is easier than from effect to cause, even in situations in which the likelihood of the cause given the effect is the same as the likelihood of the effect given the cause.

Tversky and Kahneman conclude from their studies that people "infer effects from causes with greater confidence than causes from effects" (page 118). People make use of cause-effect schemas, and causal inferences that follow the normal cause-effect sequence are easier to make than diagnostic inferences that reverse this sequence.

2.3.   Linear order

The conceptual order of the clauses should be distinguished from the linear order. Both sentences (1) and (4), repeated below, express the conceptual order of cause-effect.

(1)   *Because John worked hard, he passed the exam*

(4)   *John passed the exam, because he worked hard.*

The sentences differ in the linear order of the clauses. In (1), the first clause expresses the cause and the second clause the effect. In (4), the first clause is the effect and the second clause is the cause. Sentence (1) thus has an order which is iconic with the world; sentence (4) is non-iconic.

What can we predict with respect to the processing of causal sentences? An obvious prediction is that an iconic order facilitates processing. The reason is similar to the one given in the section on conceptual order. If the order of the clauses corresponds to the order of causality in the world (or more specifically, to a model of causality), the matching process between language and knowledge is easier (and thus the understanding of the sentence).

However, on the basis of the literature one might make a different prediction. Magliano et al. (1993) argue that inferences are made only about causes and not about effects. They argue that readers make inferences about causes because these explain the current situation (and the sentence that expresses this situation). The inference forms a backward link. Forward inferences tend not to be made, because, at any point in a text, there are numerous inferences one can make about the possible effects of the situation expressed in the current sentence. Lexical decision data did indeed support the conclusion that inferences about causal antecedents are made but inferences about effects are not. However, in this experiment the causal constraints were rather weak (.30 and .26). We predict that in a situation in which the cause strongly determines the effect and the effect

determines the cause, iconicity will facilitate processing of a causal sentence. This prediction rests on the assumption that the cause-effect order reflects the structure of our causal knowledge. These predictions were tested by Noordman, Vonk and Meyer Viol (Noordman and Vonk 1998; Meyer Viol 1984). In the experimental texts, a causal relation was expressed in two different orders. The following fragment is an example:

> "In order to earn some money, John was cutting out weeds in his mother's garden. It was a tough job, because the stinging-nettles were a metre high. After two hours, he took a short break. The job was half finished. The sun stood high in the sky and it was sweltering hot. He wiped away the sweat from his forehead with his hand. He had touched the stinging-nettles with his hand. His hand itched terribly."

In this fragment the cause sentence ("He had touched the stinging-nettles") preceded the effect sentence ("His hand itched terribly"). In the other version of the same fragment, the cause sentence and the effect sentence were reversed ("His hand itched terribly. He had touched the stinging-nettles"). It should be noted that the causal relations in both conditions have conceptual cause-effect order. If we make the causality of the relation explicit, we obtain the sequences: "because he had touched the stinging-nettles, his hand itched terribly", and "his hand itched terribly, because he had touched the stinging-nettles".

The materials in this experiment were constructed in such a way that, first, the effects could very well be predicted on the basis of the causes and, second, that the causes could very well be predicted on the basis of the effects. This was achieved by two separate pilot studies to test and improve the materials. The experiment showed that a "cause sentence speeds up the processing of a subsequent consequence sentence, but a consequence sentence does not speed up the processing of a subsequent cause sentence... What this experiment demonstrates is a kind of iconicity between cognitive structure and language" (Noordman and Vonk 1998: 205). If the linear order of the clauses is iconic with our model of causality in the world, processing the sentence is speeded up. This has been demonstrated in texts in which the effect is highly predictable given the cause, and the cause is highly predictable given the effect. In the experiment of Section 3, reported more completely in de Blijzer (1999), predictability will no longer be held constant, but will be an independent variable.

Summarizing, we have made three distinctions: content vs. epistemic relations, conceptual order, and linear order. In principle, these three distinctions yield a 2x2x2 matrix of eight different kinds of causal sentences