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THE LINGUISTICS OF CAUSAL ACCOUNTS

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The present paper is concerned with causal accounts for particular events (namely traffic accident accounts), which were given in ordinary, non-institutionalized conversations. The examples of discourse under investigation are thus socially as well as logically distinct from scientific explanations of causal events. The social distinction has to do with conventions determining, among other things, the vocabulary and the social style or register in which scientific explanations are encoded. The logical distinction has to do with the status of general as opposed to particular statements. Scientific explanations are required when a given theory becomes problematic. Being concerned with theories in the first place, scientific explanations treat particular events as mere instances of some type which serve to confirm or disconfirm the theory in question. Ordinary accounts of the kind investigated here, on the other hand, are required when a particular event is problematic and thus needs to be accounted for. Accounts of this kind are also given on the basis of general statements or 'theories', but these are mundane theories not being questioned in the given context. Hence, ordinary accounts of the kind investigated here can best be compared to explanations given in court trial situations. And as a matter of fact, accident descriptions are quite frequent in forensic speech.

Traditionally, linguists dealing with causal speech have been primarily devoted to the semantics of causative verbs like hit and kill or push and pull. The analyses given in this tradition have roughly the following form:

- (1) $x \text{ Fs } y \leftarrow$ By doing P x CAUSES y to Q
 where
 P stands for an action done by x
 Q stands for a process undergone by y
 \leftarrow symbolizes a transformation that 'conflates'
 P and Q into F

This analysis reconstructs two aspects of the prototypical causal event, which I will call 'integration' and 'interference'. By 'integration' I mean that two basically different events are not treated as separate but are integrated into one higher-level event category. Integration seems to be psychologically fundamental for the recognition of causal links. Michotte (1963) found that people recognize a launching effect only if temporal and spatial contiguity enable them to perceive the movements of the two objects involved as one and the same event.

By 'interference' I mean that the source and the goal of any causal action undergo a transition from their normal state of rest to a temporally limited movement. Hart&Honore' (1959) have generalized

the principle of interference to apply to non-prototypical causal events as well. In their view, people consider a given state of affairs - be it an action, a state or a process - as causal if and only if this state of affairs is a deviation from the usual course of events: "When we look for the cause (of a given effect) we are looking for something, usually earlier in time, which is abnormal or an interference in the sense that it is not present when things are as usual." (op.cit.p.43). The first clause in statement (2) does not refer to any such interference, and (2) can therefore not be interpreted as expressing a causal chain, even though one might consider the counterfactual expressed in (2') as being true. Similarly, one would probably not understand (3) as a causal statement, either; it is to be expected that people cross the street and, furthermore, their doing so does not **affect** the conditions of the street some hours later. (4) and (5), on the other hand, will be interpreted as causal statements; spilling oil on the street does **af-**fect its normal conditions even some hours later and somebody's crossing the street all of a sudden does interfere with the expected course of events.

- (2) The car turned right and bumped into a tree.
- (2') If the car had not turned right, it would not have bumped into the tree.
- (3) The car turned right and bumped into a tree. Some hours before that somebody had crossed the street.
- (4) The car turned right and bumped into a tree. Some hours before that somebody had spilled oil on the street.
- (5) The car turned right and bumped into a tree. Some seconds before that somebody had suddenly crossed the street.

In what follows, I will be concerned neither with prototypical causal events nor with the semantics of causative verbs. However, integration and interference will be central aspects of the analysis to be given.

In non-prototypical cases, integration can be psychologically problematic when cause and effect are temporally discontinuous as in (4), because in this case the causal links between source and goal cannot be integrated into one p e r c e p t i o n and we must assume that their integration, if it takes place at all, is the result of a specific c o n c e p t u a l procedure. Being a linguist and not a psychologist, I cannot investigate the nature of the procedures involved, but will have to confine myself to some of the linguistic devices that speakers use in order to represent a given sequence of events as an integrated causal chain. In particular, I will be concerned with connector words serving to integrate a sequence of utterances into a coherent piece of discourse. And since I follow Hart and Honoré in considering interference as the crucial aspect of causality, this analysis will focus on con-

junctions and particles that point to an opposition between the actual and the expected course of events. In other words, I will take the presence or absence of adversative conjunctions or particles like Germ. aber/'but, however' as a crucial property of causal accounts.

The speech samples under investigation are oral descriptions of **film-** **ed** traffic accidents. Speakers were shown two very short films of about 60 seconds each, showing a small accident involving a car driver and a motorcyclist. Both films were originally made for educational purposes serving to instruct motorcyclists to avoid the blind spot. Each film is accompanied by a verbal commentary telling the viewer how and why the accident in question happened. Thus, this commentary is itself an accident description. Speakers were requested to describe the film to a listener, who was also a naïve subject. The instruction was roughly as follows: "Retell the content of the film in the way you would retell the content of an ordinary movie, but be precise enough, so that your listener will be able to decide whether he has seen the same film." The descriptions were given under the following three experimental conditions, whereby each individual subject was submitted to two of them:

- A The memory/sound condition: Narration from memory, film being presented as a sound movie.
- B The memory/silent condition: Narration from memory, film being presented as a silent movie.
- C The simultaneous condition: Film presented as a silent movie. Subjects give a commentary on the film while it is running.

In addition, each subject was requested to give an account of a self-experienced accident. In the present paper, I will restrict myself to the descriptions given for one of the two films by a total of 20 speakers of German. But before I actually come to the data, I would like to say a few words about the analysis of traffic situations in general.

I assume that traffic events can be analyzed as sequences of what I will call 'constellations', where each constellation is defined by a certain space region and a set of participants occupying certain positions within the given region. This position determines the role of a participant at a time. Given a certain constellation it may be the role of one of the participants to have the right of way. I think of constellations as a special case of scenes. Scenes and constellations have in common that their participants act within a certain spatial setting. However, in a scene, this setting constitutes only the background of their actions, but does not define their roles. For a given constellation, the set of possible actions or movements which the participants can perform is subject to two kinds of restrictions, restrictions imposed by the traffic rules and restrictions imposed by maxims of behavior referring to the advisable or appropriate actions in the given constellation. (6) would be an instance of a German traffic rule; (7)

would be an instance of a traffic maxim.

- (6) No other regulations present the through traffic has the right of way.
- (7) Avoid the blind spot, even if the traffic rules give you the right of way.

I assume that traffic events and sequences of traffic events can be analyzed in a script-like framework. There are, however, two major differences between, say, a restaurant script and a traffic script. One difference is that, in a traffic script, the different roles are much more flexible and subject to change with each new constellation. The second difference is that a traffic script does not impose a fixed order of events. The behavioral maxims in a restaurant script are temporal maxims of the form represented in (8), the behavioral maxims in a traffic script are conditional maxims of the form represented in (9).

(8) After p do q!

(9) Do q in case p!

Let me finally come to the data. (10) is a description of the film in question. The quoted pieces of text give the commentary belonging to the film itself. The unquoted pieces of text above them describe in my words what the different sections of the film **shows**.

- (10) A motorcyclist is driving along a street.

"Ja, also das war folgendermassen. Es war eine ganz alltaegliche Situation."/Well, it happened like this, it was really an ordinary situation.

The motorcyclist is approaching an intersection, where the traffic light has turned red. The motorcyclist stops to the right of a waiting car.

" Ich fuhr auf eine ampelgeregelte Kreuzung zu, an der seit kurzem ein Auto wartete."/I was approaching an intersection with a traffic light, where a car was waiting since a short while.

The car driver looks into the rear view mirror. The motorcyclist is not to be seen in the mirror.

"Ich hielt aber so an, dass der Fahrer mich im Rueckspiegel nicht sehen konnte."/However, I had stopped in such a way that the car driver couldn't see me in the rear view mirror.

The traffic light turns green.

"Bei Gruen gab ich dann Gas."/When the light turned green I started off.

The car is making a turn to the right.

"Ja, und dann wollte der PKW Fahrer rechts abbiegen."/Well, and then the car driver wanted to turn right.

The motorcyclist bumps into the car

Emergencylights of an ambulance
 "Ja, und dann hatte es mich ganz schoen erwischt."
 Well, and then I got pretty much hit.

The motorcyclist is carried into the ambulance.

The following pieces of discourse are descriptions of this film given by different subjects, each being submitted to one of the three experimental conditions. For the segmentation into clauses and sentences in the transcripts, I followed Chafe (1980) that is, I took shorter hesitations and rising intonation as indicating clause boundaries, longer hesitations and falling intonation as indicating sentence boundaries.

(11) Memory/Sound Condition

- 1 Gut, also es geht um n Verkehrsunfall,
 - 2 Und em wird (.) eh von mm und zwar um n Verkehrsunfall eines Mofafahrers,
 - 3 Und der wird aus der Sicht des Mofafahrers geschildert,
 - 4 Gleichzeitig laufen also die (.) laeuft ab wie der Unfall geschah.
 - 5 Und zwar fuhr n Mofafahrer auf ne ampelgeregeltte Kreuzung zu,
 - 6 Em an der Rot war,
 - 7 Und schon ein PkW hielt.
 - 8 Und der Mofafahrer hielt jetzt neben ihm,
 - 9 Aber so, dass der Autofahrer ihn im Rueckspiegel nicht sehen konnte,
 - 10 Bei Gruen hat der Mofafahrer Gas gegeben und wollte geradeausfahren,
 - 11 Wohingegen der Autofahrer rechts abbiegen wollte,
 - 12 Sodass der Mofafahrer zu Fall kam.
 - 13 Dann wurde noch also das Martinshorn des Krankenwagens gezeigt,
 - 14 Und der Martins eh der Krankenwagen,
 - 15 Das wars dann.
-
- 1 Well, it is about a traffic accident,
 - 2 And um is (.) of um that is about a traffic accident of a motorcyclist,
 - 3 And it is shown from the viewpoint of the motorcyclist,
 - 4 Simultaneously it is shown how the accident happened.
 - 5 A motorcyclist was approaching an intersection with traffic lights,
 - 6 Which were red,
 - 7 And where a car was already waiting,
 - 8 And now the motorcyclist stopped beside it,
 - 9 But in such a way that the car driver couldn't see him in the rear view mirror,
 - 10 When it turned green the motorcyclist started and wanted to go straight,
 - 11 Whereas the car driver wanted to turn right,

- 12 So that the motorcyclist fell.
 13 Then there was also the emergency light of an
 ambulance shown,
 14 And the ambulance,
 15 That was it.

(12) Simultaneous Condition

- 1 Man sieht n Mofafahrer,
 2 Rote Jacke n junger,
 3 15,16 Jahre,
 4 Haelt neben einem VW Passat,
 5 Der an der Ampel steht,
 6 N gruener,
 7 Fahrer guckt in den Spiegel Rueckspiegel,
 8 Auch n dunkler Krauskopf,
 9 Fahrer biegt nach rechts ab,
 10 Ja und der Mofafahrer stuerzt.
 11 Man sieht n Blaulicht in Grossaufnahme,
 12 Kamera sieht hin und her,
 13 Ambulanzwagen,
 14 Der Junge wird reingeschoben von zwei uniformierten
 Sanitaetern.

- 1 You see a motorcyclist,
 2 Red jacket a young guy,
 3 15,16 years,
 4 Stops beside a VW Passat,
 5 Which is standing at the traffic light,
 6 a green one,
 7 Driver looks into the mirror rear view mirror,
 8 Has also dark curly hair,
 9 Driver turns right,
 10 Well and the motorcyclist falls.
 11 You see an emergency light in close up,
 12 Camera goes back and forth,
 13 Ambulance,
 14 The boy is carried in by two uniformed ambulance
 men.

(13) Memory/Silent Condition

- 1 War folgende Situation,
 2 Ein Mopedfahrer,
 3 Und ein Autofahrer fahren beide zusammen auf eine
 Ampel zu,
 4 Dann wollen eh will der Autofahrer nach rechts ab-
 biegen,
 5 Und der Mopedfahrer will geradeaus,
 6 Und der Autofahrer kontrolliert nur durch den Rueck-
 spiegel ob sich neben ihm ein Fahrradfahrer oder ein
 Mopedfahrer befindet,

7 Und der Mopedfahrer befindet sich aber im toten Winkel,
 8 Das heisst der Autofahrer kann ihn nicht sehen nicht
 wahrnehmen,
 9 Biegt nach rechts ab,
 10 Als es Gruen wird,
 11 Und es kommt zum Zusammenstoss,
 12 Weil der Mopedfahrer ja geradeaus weiterfahren wollte,
 13 Der Mopedfahrer stuerzt,
 14 Was in Zeitlupe gezeigt wird.
 15 Und die naechste Aufnahme ist dann ein Krankenwagen vom
 Malteser Hilfsdienst,
 16 Was ich an den Zeichen erkennen konnte,
 17 Und dann wird also der Mopedfahrer verletzt wie er ist
 abtransportiert.

1 Was the following situation,
 2 A motorcyclist,
 3 And a car driver are both approaching a traffic light,
 4 And the car driver wants to turn right,
 5 And the motorcyclist wants to go straight,
 6 And the car driver checks only through the rear view
 mirror whether there is a bicyclist or a motorcyclist
 beside him,
 7 And the motorcyclist is however in the blind spot,
 8 That is the car driver cannot see him not perceive him,
 9 Turns right,
 10 When it turns green,
 11 And there follows a collision,
 12 Which is shown in slow motion,
 13 And the next picture is an ambulance of the Malteser
 Hilfsdienst,
 14 Which I could read from the signs,
 15 And then the motorcyclist injured as he is is brought
 away.

These examples are representative for the data and I will therefore inspect them in some more detail.

The first sentence of text (11) (clauses 1-4) gives a general description of the film. The second sentence (clauses 5-7) describes the constellation in question. The third sentence (clauses 8-12) is the crucial one. Clause 8 describes the motorcyclist's stopping beside the car and hereby introduces the event that finally leads to the accident. Clause 9 introduces the interfering condition and marks it as an interfering one by means of the adversative conjunction aber/'but'. Clauses 10 and 11 recount the film commentary, they contrast the interference introduced in clause 9 with the expected course of events. However, in the projected course of events, the two participants' different intentions are interpreted as being incompatible, and this is indicated by the adversative conjunction wohingegen/'whereas'. Clause 12, finally, describes the accident itself and characterizes it as an effect of

of the aforementioned interferences; its status as an effect is indicated by the consecutive conjunction sodass/'so that'. At the first glance, the result of this analysis seems to be kind of trivial, for not only does the order of sentences reflect the order of filmed events exactly, but also the speaker recounts almost literally the wording of the film commentary, at least in its crucial points, namely the use of adversative conjunctions and the use of modal verbs.

Let us now compare text (12), the one given in the simultaneous condition. In this case, too, the order of events is directly reflected by the order of clauses. Of course, the clauses are shorter than in text (11), but this is not really surprising. There are, however, two interesting differences between text (11) and text (12). The first interesting difference is that the speaker of (12), although being under time pressure, gives a more elaborate description of the main characters (clauses 2,3,6 and 8). The other interesting difference is that the speaker of text (12) neither refers to any interfering condition nor to the anticipated course of events. What is taken as an anticipation in text (11) (clauses 10,11) is represented as a mere matter of fact in text (12) (clause 8). These differences might, of course, be trivially explained by the fact that the speaker of (12) has not heard the commentary of the film and is therefore not in a position to restore its wording. A comparison with text (13), the one given in the memory/silent condition, however, shows that this explanation does not hold. The main observation about text (13) is that it does introduce the anticipated course of events in clauses 4 and 5 and in doing so makes use of the same modal verb wollen/'want' as does text (11). Moreover, in clauses 6 and 7, text (13) does introduce two different but inter-related interfering conditions. The restrictive adverb nur/'only' in 6 suggests that the car driver should not only have looked into the rear view mirror, but should have done more. The adversative particle aber/'however' in clause 7 of text(13) again points to the fact that getting into the blind spot is a deviation from a behavioral maxim relevant in the given constellation.

My data base is not yet large enough to do any statistical tests. But the results seem to be pretty systematic. None of the seven speakers in the memory/silent condition omitted the interfering condition and only one of the speakers in this condition did not make use of an adversative particle in reference to the interference. Moreover, none of the speakers in this condition failed to mention the anticipated course of events and all of them made use of the modal verb wollen in reference to this anticipation. In the simultaneous condition, on the other hand, three speakers (out of seven) did mention the interfering condition, but only one of them made use of an adversative particle in doing so. This particular speaker was also the only one who mentioned the anticipated course of events and used a modal verb in doing so.

Obviously enough, the differences between the memory/silent condition and the simultaneous condition cannot be explained by the sound vs silent movie opposition. It might simply be the time pressure that accounts for the omission of adversative particles and modal verbs in the simultaneous condition. And, so far, I have no convincing empirical evidence to exclude this explanation. But I will offer an alternative hypothesis in terms of the concept of integration.

Any chain of more than two subsequent events contains at least one pair of temporally discontinuous events whose elements cannot be integrated into one perception. In this case an on-line integration might be conceptually difficult if not impossible. If on-line integration is impossible, the simultaneous condition should lead to the same results as the ones obtained so far, even if speakers would have more time between the different sections of the film. If such an integration is merely difficult, the results should be different, provided that speakers had more time. But note that, in view of the integration hypothesis, lower time pressure would not just lead to an increased number of words (including adversative particles and modal verbs), but would facilitate the process of integration, and this then would be reflected by the occurrence of modal verbs and adversative particles. I have some ideas about how this hypothesis can be tested, but I will not go into this here.

Since I take the occurrence of adversative particles as a criterion for classifying a discourse as a causal account, I would like to add some remarks about the semantics of aber/'but, however'. R. Lakoff (1971) pointed out that one has to distinguish two buts, one that expresses a semantic contrast and one that denies a contextually given expectation. And linguists dealing with Germ. aber (for example Lang (1977)) have come to similar conclusions. If the occurrences of aber in the traffic accident descriptions meet one of these analyses, then it is clearly the denial-of-expectation one. However, clause (8) in text (11) does not so much deny an expectation invited by the forgoing clauses, it rather points to the fact that the state of affairs expressed in (8) constitutes the violation of a behavioral maxim that is relevant in the constellation designed by clauses (5-7). The second clause in (14) does not point to the denial of an expectation, either, but to the fact that the state of affairs expressed by this clause has a low preference value on a scale which rates healthy behavior.

(14) Walking is healthy, but I will buy a car.

However, I do not want to introduce a further aber or but. Instead, I will propose a generalization of Lakoff's analysis along the following lines:

(15) For any state of affairs p expressed by an utterance of a sentence S in a given context c there is a set Q of mutually alternative transitions from p , such that each $q \in Q$ is an action, state or event that follows p .

Each q Q can be evaluated relative to different scales (preference scale, probability scale etc.), where the scale dimension that is actually chosen for a given q is determined by c' , and where c' is given by p and q .

By uttering a sequence S_1, S_2 , where aber occurs in S_2 , the speaker expresses his view that the state of affairs q referred to in S_2 is an actual transition from p that has an abnormally low values on at least one of the scales for which q can be evaluated.

The idea of this characterization is that any state of affairs can be evaluated with respect to scales defined along various dimensions. If the scale in question is a preference scale, then the actual evaluation is determined by the behavioral maxims that belong to the given context. Any action that does not meet these maxims will have a low value on the given scale. By the use of aber in a preference context, the speaker expresses his view that the state of affairs in question has a low value on the preference scale. The first clause in (16) (from Lakoff 1971) provides the context for the selection of a probability scale, and the but in the second clause expresses the speaker's view that the adversatively restricted state of affairs has an abnormally low probability value.

- (16) Fords can go fast, but Harry will never get a ticket for speeding.

Summary

I have argued that integration and interference are essential for the recognition of causality. I have shown evidence that, in traffic accident accounts, speakers point to the interfering condition by using adversative particles. I have given an informal semantic characterization of Germ. aber. The essential point about this characterization is that aber is interpreted relative to a contextually determined evaluation scale. Finally, I have offered the hypothesis that, in the simultaneous condition, where speakers do not mention the interfering condition and where they don't use adversative particles, they fail to do so because they cannot integrate the ongoing events.

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