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<td>Okuda, Masanobu</td>
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Causal Relations and Subjectivity

Masanobu OKUDA

1. Introduction

It has often been noted that causal connectives come in (at least) two kinds. On the one hand we have connectives such as as a result, which seem to specialize in relations between states of affairs:

(1) The sun came up. As a result, the temperature went up.

On the other hand, connectives like so may occur in so-called non-assertive speech acts (2) and speaker conclusions (3), while as a result is inappropriate in such environments.

(2) You have been very impolite. So/*As a result leave the room immediately!
(3) The snow is melting, so/*as a result the temperature is above zero.

The difference between the two sets of connectives has mainly been accounted for in terms of dichotomies (cf. external/internal (Halliday and Hasan 1976; Martin 1992), semantic/pragmatic (van Dijk 1977; Moeschler 1989)). A very influential account is also Sweetser (1990), who has proposed to distinguish not two, but three domains of use for connectives: the content domain, relevant for (1), the speech act domain, exemplified in (2), and the epistemic domain, illustrated in (3).

In this paper my objective is to propose an alternative account of the distribution of connectives. Going beyond dichotomous and trichotomous classifications, I want to propose a scale of subjectivity, on which the inherent expressive power of connectives can be represented. Two observations form the basis of this proposal.
First, the connective *so*, which allows epistemic and speech act uses, may also express so-called 'volitional' causal relations, while *as a result* may not:

(4) I felt tired, *so*/*as a result* I left.

However, volitional causality falls in the content domain, since it is clearly concerned with states of affairs in the real world, external to the discourse. But, note that *so* can *not* express non-volitional real world relations (4').

(4') There was a strong wind, #*so* three tiles fell off the roof.

In (4'), the connective does *not* express a non-volitional content relation but rather it suggests that the consequence is entirely predictable from the cause. This is what makes (4') decidedly odd. In other words, epistemic and speech act connectives encroach upon the content domain, but only on the volitional part of it.

The second observation concerns the behavior of the connective that seems specifically to express volitional causality, like *that's why*. While this connective is not acceptable in epistemic and speech-act contexts (5 - 6), it *is* as soon as speech-act or modal operators are inserted (5' - 6'). At the same time, the non-volitional connective is excluded in all cases:

(5) The snow is melting. *That's why*/*As a result*, the temperature is above zero.

(5') The snow is melting. *That's why*/*As a result*, I think the temperature is above zero.

(6) You have been very impolite. *That's why*/*As a result*, leave the room immediately!

(6') You have been very impolite. *That's why*/*As a result*, I demand that you leave the room immediately!

Hence, the volitional connective *that's why* seems to take an intermediate position between the content and epistemic relations. On the one hand, it may express a certain type of relation in the content
domain, on the other hand it lends itself for use in epistemic and speech-act contents as long as the speech acts and conclusions are an explicit part of the proposition.

This situation is an indication for the need of a scalar perspective on a spectrum reaching from non-volitional causality in the content domain to epistemic and speech-act causality. Our hypothesis is that the different relational interpretations can be ordered along a scale from minimal to maximal subjectivity. Subjectivity refers roughly to the degree to which the present speaker plays an active role in the construal of the causal relation. Subjectivity increases, first, with the extent to which the relation concerns the evolving structure of the present discourse, that is the extent to which the relation is located in the here-and-now of the speech situation. Second, it increases with the number and strength of the assumptions the speaker is committed to in using a particular relation.

The paper consists of two parts. First I will sketch five prototypical relational configurations exemplifying different degrees of subjectivity. Then I will report on corpus studies of English connectives empirically supporting a number of assumptions concerning the scale of subjectivity.

2. From non-volitional to speech-act relations

2.1 Non-volitional causal relations

(7) There was an avalanche in the French Alps last week. 12 persons died.

(8) Monday, his train to Amsterdam arrived at a different platform. He got on the train to The Hague.

Non-volitional causality appears as an entirely objective phenomenon, that is, as a phenomenon in which no observer has any part. Of course, the speaker is presumed to be aware of the situations he is talking about. But this awareness plays no role in either these situations by themselves or in their causal relationship. Assuming a (defeasible) implication, as underlying the non-volitional causal rela-
tion is too strong: in interpreting (7) we do not assume that an avalanche *normally* causes the death of 12 people. In order to understand this relation the only assumption needed is that causes like the one presented *may* have effects like the one presented, that is, natural disasters may kill or hurt people.

In example (8), a potentially conscious participant is involved in the segments but not in the relation, since the cause–effect relation falls outside the domain of his intentions. The situation referred to in the first segment need not to be known by the protagonist; indeed, this ignorance may be the prime cause for the event to take place.

### 2.2 Volitional causal relations

(9) The guests were boring. She left the party early.

(10) It was 12 p.m. She went home.

In contrast to non-volitional causality, volitional causality involves decision-making by the protagonist; decision-making involves reasoning. Reasoning involves awareness of premises: what is causally effective is not the state of affairs \( p \) but its representation by the protagonist. This is the first difference between volitional and non-volitional relations. The fact that \( p \) falls within the mental domain of the protagonist can (9), but need not be made explicit in the proposition of the first segment (10). If not, it is included in the assumptions inherent in the volitional interpretation. This assumption can only be conveyed by a speaker who temporally adopts the viewpoint of the actor. In other words, volitional relations presuppose a certain degree of subjectivity in the construal of the causal relation.

However, it would be too simple to say that knowing \( p \) is what led to the action in the second segment. Intentional participants are endowed with a minimum of consistency. Hence, it is natural to infer a general pattern of cause and effect underlying the specific sequence that is reported. That is, the protagonist of (10) is presented as a person who will normally leave a party at 12 p.m. or leave earlier when it is boring. Moreover, in volitional relations the protagonist is
always aware of this regularity.

Finally, the protagonist is not only responsible for the action, but also accepts the principle underlying it, namely that the awareness of $p$ should lead to this action. The essential feature of volitional causation is that the acceptance itself by the protagonist of the normative principle is part of the reason for acting like she does: she does not go home merely because it is 12 p.m., but because it is 12 p.m. and she accepts this to be a good reason for leaving a party. The principle need not always be accepted by the speaker. One may describe actions following a 'logic' one does not approve of; the speaker himself may regard it bizarre to leave a party at 12 o'clock.

In sum, volitional relations can only be understood by constructing a number of assumptions concerning the knowledge and attitudes of the protagonist; assumptions that are usually left unstated.

2.3 Causally-based epistemic relations

(11) We have many German texts in the course this year. Many students will probably have trouble getting through it.

In causally-based epistemic relations a segment, describing a real-world cause, constitutes a reason for drawing a certain conclusion regarding its (real-world) consequence. Like reasons for actions, premises in argumentations are known or accepted by the speaker. It is the propositional attitude that is causally effective, not its content. Unlike volitional relations, however, in epistemic relations the consequence is not some state of affairs $q$ in the world, but the mental state of the protagonist.

Like the protagonists in volitional relations, epistemic protagonists are also seen as consistent. As a result, epistemic relations are understood against the background of assumptions relating premises and conclusions. In contrast with volitional relations, these assumptions apply to persons in general, not solely to the speaker. Any reasonable person observing that texts are written in a language not well-known to the reader will conclude that readers will have
trouble understanding it. This assumption in turn is based on the assumption that the first situation will normally lead to the next. As in volitional relations, the general assumption is not only part of the knowledge of the protagonist, but it is also normatively endorsed by him.

In sum, epistemic causality need no longer be tied to the protagonist specified in the propositions themselves; typically it relates to a 'contextually salient' protagonist: the speaker and the group of language users he belongs to: all language users.

2.4 Non-causal epistemic relations

(12) The snow is melting. The temperature must be above zero.
(13) It's 10 o'clock. Everyone has probably left for work.
(14) His twin brother is very tall. He probably will be tall too.

In causally-based epistemic relations, the real-world cause is taken as the argument supporting a conclusion concerning the real-world effect. That is, the causal relations in the real world and the epistemic domain have the same direction. In non-causal reasoning, either the real-world causality has a different direction from the epistemic one, or real-world causality is not relevant at all.

The first case concerns abductive reasoning: the real-world effect is taken as an argument supporting a conclusion concerning the real-world cause. In (12), the observation of melting snow is used to infer its cause, namely a temperature above zero. These kinds of examples have become prototypical of epistemic coherence relations (Sweetser 1990). This is unfortunate for two reasons. First, the majority of epistemic relations encountered in discourse is causality-based; second, besides abduction there are other kinds of reasoning not modeled on real-world causality. What is underlying the argumentations in (13) and (14) is no causal relation between the situations referred to in the relational segments of any kind, but other kinds of assumptions: most people leave for work well before 10 a.m. (the fact that it is 10 a.m. does not cause them to have left); and twin brothers are usually
the same height (one of them being tall does not cause the other to be tall).

In my view, non-causal inferences exhibit a higher degree of subjectivity than causally-based epistemic relations. The difference here lies not in the number of intervening assumptions, but in their nature. Causally-based inferences simply transpose a real-world link into the inferential domain. By contrast, the assumption behind abductive and other types of non-causal inferences is not modeled on real-world links anymore; it is entirely situated in the mental domain of the speaker.

2.5 **Speech-act relations**

(15) I want to pay you for your work. How long have you been cleaning?

(16) To win the election an absolute majority (more than half of the votes) is required.

So far we have discussed relations which concern the way a speaker conceptualizes a reality that is external to the speech situation. This includes causal and non-causal reasoning, since reasoning patterns exist independently from their expression in discourse (thinking is not saying).

By contrast, speech-act relations concern the structure of the present discourse — and nothing else. They appear in discourse in response to the interactional needs of a specific/potential interlocutor, not to present or draw conclusions regarding the real world. Above, two types of speech-act relations are illustrated: speech-act causals in which one of the segments prepares the ground for an upcoming speech act (15), and paraphrases (16). In these kinds of relations, the speaker is not involved as a thinking being, but solely in his role as speaker.

Like epistemic relations, speech-act relations are based on assumptions that need to be shared between speaker and hearer: since in example (15), the speaker wants the hearer to consider his question to
be an appropriate speech act, he appeals to an assumption that is acceptable to the hearer: when you want to pay somebody for (simple) work, you need to know the time spent on it. In example (16), in which a certain discourse segment X is re-expressed in segment Y, the assumption is that in this context segment X is interpretable as Y, and that Y will present less comprehension problems for the hearer than X does.

3. The scale of subjectivity

Subjectivity is a characteristic of relational interpretations. Hence it can be used for analyzing both: the interpretational options in a stretch of discourse; the expressive potential of connectives; and the interaction between these two.

Up till now, we have been concentrating on the first topic; the rest of the paper will be devoted to the other two issues. A first insight in the interaction between connectives and their discourse environments can be gained by considering inappropriate combinations of connective and discourse contexts; i.e. ‘starred’ fragments. In my proposal, these are due to discrepancies in subjectivity-profiles. That is, the connective encodes a higher or lower degree of subjectivity than is allowed for by the discourse context. The first case was illustrated by fragment (4'), in which the connective so introduces rather strong assumptions that are implausible in view of the discourse segments. The second case was illustrated by the fragments (5) and (6) in which the relations suggested by the segments carry a degree of subjectivity which cannot be expressed by the connective that's why. When some of the assumptions inherent in these relations are made explicit in the second segment, however, subjectivity of the discourse segments decreases, i.e. fewer assumptions need to be invoked in their interpretation (5'–6').

More generally, I want to make the following claims concerning the relation between connectives and subjectivity:

1. The expressive potential of causal connectives can be re-
presented as an area on the scale of subjectivity. Our expectation is that every connective occupies a contiguous area on the scale. That is, we do not expect to find a single connective that may express, e.g., the interpretations corresponding with C and E on the scale but not corresponding with D.

2. The (causal) connectives in a given language should differ significantly from each other on the scale.

3. A connective encodes a certain level of subjectivity, which it contributes to the interpretation of its discourse environment.

In my view, analyses of the subjectivity potential inherent in connectives cannot do without systematic corpus analyses. Hence, I have tested these hypotheses by corpus analyses of forward causal connectives in (written) English.

4. Empirical support for the scale of subjectivity

I selected the three most frequent connectives: so, that’s why, and as a result. For each of these connectives, I assembled 50 occurrences from a corpus of articles published in The Times for January–March 1995.

First, I identified the coherence relation of each fragment by means of a paraphrase test.1) The results are given in Table 1.

<table>
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<th>so</th>
<th>that’s why</th>
<th>as a result</th>
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<td>non-vol. causal</td>
<td>–</td>
<td>2 &lt;4%&gt;</td>
<td>43 &lt;86%&gt;</td>
</tr>
<tr>
<td>vol. causal</td>
<td>16 &lt;32%&gt;</td>
<td>42 &lt;84%&gt;</td>
<td>7 &lt;14%&gt;</td>
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<tr>
<td>causal epistemic</td>
<td>18 &lt;36%&gt;</td>
<td>6 &lt;12%&gt;</td>
<td>–</td>
</tr>
<tr>
<td>non-causal epistemic</td>
<td>9 &lt;18%&gt;</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>speech act</td>
<td>7 &lt;14%&gt;</td>
<td>–</td>
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<td>50</td>
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Table 1. Coherence relations and forward causal connectives in The Times

So is clearly highest on the scale of subjectivity in terms of relations, as
a result clearly lowest, and that's why occupies an intermediate position. All connectives significantly differ from one another.

As we can see in Table 1, these connectives have one interpretation as their most frequent use, but they are not restricted to this environment. So ranges from volitional relations to speech–act relations with causally-based epistemics as its most frequent use; that’s why ranges from non-volitional relations to causally-based epistemics with volitional relations as its most frequent use; and as a result ranges from non-volitional relations to volitional relations with non-volitional causality as its more frequent use.

In Table 1 it is found that, although so and that’s why may both express volitional and epistemic relations, so is more frequent in epistemic relations than it is in volitional relations, while that’s why shows a clear preference for volitional relations. This raises the question of what distinguishes so from that’s why, if it is not their relational potential. Our assumption is that these two connectives show more subtle differences regarding subjectivity. To check this I analyzed the related segments in terms of the distance between the speaker and the participant responsible for the second segment.

Our prediction presents itself in a rather straightforward way. When so really encodes a higher level of subjectivity than that’s why does, the responsible participant should more often be identical to, or close to the speaker for so. The results are presented in Tables 2 and 3, in which the possible participants are ordered from minimal to maximal distance to the speaker.2)3)

In volitional relations (see Table 2), that’s why shows a clear preference for third person responsibility, while this tendency is less marked for so. In other words, so combines better with contexts in which the speaker is responsible for the second segment, that is, with more subjective contexts. In addition, so and that’s why show a clear difference with respect to pronominal or nominal references to third-person actors: that’s why prefers nominal actors, while so prefers pronominal actors. This indicates that actors tend to have a higher level of accessibility (Ariel 1988) for so than they do for that’s why.
Table 2. *So* versus *that’s why*: identity and realization of the responsible participant in volitional relations

Table 3. *So* versus *that’s why*: identity and realization of the responsible participant in epistemic relations

In epistemic relations (see Table 3), all participants are implicit speakers for *so*, while second segments for *that’s why* also contain explicit speakers. This matches the fact that *so* encodes a higher level of subjectivity than *that’s why* does.

5. Final remark

As we can see in the tables above, all connectives occur in different relational contexts, though they have one relational interpretation as their most frequent use. I have tried to explain this finding
by assuming that the meaning of a connective goes beyond relational categories, i.e. it cannot be expressed in terms of these categories. What a connective encodes, is a certain degree of subjectivity which it contributes to its discourse environment. This degree of subjectivity fits naturally with a certain relational category, that is, allows for an unmarked expression of this category. The relative independence, however, between connective meanings and relational categories yields expressive possibilities for speakers who want to introduce or remove assumptions in the interpretation of a certain relation.

Notes

1) The non-volitional paraphrase is “this has/had the following consequence”; the volitional paraphrase is “this is/was the reason to perform the following act” and the epistemic paraphrase is “this leads to the following conclusion”. For speech-act relations, three kinds of paraphrases are used: “this can be paraphrased/summarized as follows” and “this is the reason to carry out the following speech-act”. Finally, non-causal epistemic relations are distinguished from causally-based epistemic relations by checking whether substituting a ‘real-world’ causal paraphrase (non-volitional or volitional) results in a coherent sequence (though the meaning differs from the original fragment). If yes, the relation is causally-based, if not, it is non-causal.

2) For the purpose of this analysis, a relationally stratified corpus was used in order to guarantee a sufficient number of observations both for volitional and epistemic relations.

3) I distinguish between four types of responsible participants, ranging from minimal (i) to maximal (iv) distance between the responsible participant and the speaker.
   (i) Implicit speaker included in the semantic representation of the utterance.
   (ii) Explicit speaker, referred to by I (occasionally we); this includes cited speakers.
   (iii) Explicit pronominal or nominal third-person participants.
   (iv) Contextually recoverable third-person participants invoked
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by a passive construction.

The distance between the speaker and the responsible participant is smallest for implicit speaker. Following Langacker (1985, 1990), we view explicit speaker references as expressing a certain distance between the present speaker and the first-person participant referred to in the utterance. Clearly, third-person participants are further removed from the speaker than first-person ones. Finally, recent work on the passive shows that this construction indicates non-identification with the actor, when compared with the corresponding active construction (Cornelis 1997). Therefore, implied agents in passive constructions are placed at the bottom of our list: there is maximal distance between the responsible participant and the speaker.

References


