

Some New Observations on ‘because (of)’*

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Abstract. *Because (of)* is ambiguous between a reason and a plain cause interpretation. Presenting a semantic analysis framed in Discourse Representation Theory, I argue that the two variants can be represented by an underspecified semantic representation involving a causal relation. After showing how the two interpretations are dependent on the ontological nature of the arguments of this causal relation, I point to a difference between sentential-complement *because* and nominal-complement *because of* with regard to their interaction with modals. Whereas both *because* and *because of* may outscope e.g. deontic necessity modals, only *because* may outscope epistemic modal operators.

1 Introduction: plain causes and reasons

Causal *because (of)* adjuncts are ambiguous between a reason and a plain cause interpretation as exemplified by the sentences in (1)-(2):¹

- (1) Reason:
 - a. The dog was put down **because of** its aggressiveness.
 - b. I picked out the painting **because** it matches my wall.
- (2) Plain cause:
 - a. Last winter, a homeless person died **because of** low temperatures.
 - b. The stunt plane crashed **because** it ran out of petrol.

In (1a), the complement of *because of*, *its aggressiveness*, is interpreted as (part of) the reason or motive of some agent for putting down the dog. Similarly in (1b), the picking out a specific painting is motivated by the fact that it matches the wall of the speaker. Assuming that *because (of)* introduces a causal relation, I will assume that what is caused in the case of the reason interpretation is an attitudinal state.

With regard to the plain cause interpretation in (2a), on the other hand, the complement of *because of*, *low temperatures*, is interpreted as the direct or

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¹ In the below discussion of the general semantic properties of *because (of)*, I will mostly use examples involving nominal-complement *because of*. The overall analysis carries over to sentential-complement *because*, though. See Section 3 for a difference in interpretation between the two variants, though.

indirect cause of the death of the homeless person.² Similar remarks apply for (2b). The plain cause interpretation emerges when the caused events is not under the control of an agent.

Despite its frequent occurrence in the literature on causation in general, there exist surprisingly few formal analyses of sentential-complement *because* (Hara 2008, Johnston 1994, Kratzer 1998), and – to my knowledge – no such analyses of nominal-complement *because of*. Thus, one of the primary goals of this paper is to contribute towards a better understanding of the semantics of *because (of)* and a precisification of some of the factors which determine its interpretation. Accordingly, the paper consists of two main parts: I first provide a discourse representation theoretic analysis of *because (of)* which is more elaborate than previous ones, showing what a (uniform) account of the interpretational variation of *because (of)* must encompass. I then discuss some subtle differences between *because* and *because of* having to do with their interaction with deontic and epistemic modal operators.

The remainder of this paper is organized as follows: In Section 2, I present the semantics for *because (of)* including some thoughts on the lexical organization for the interpretational variants. In Section 3, I discuss some differences between the sentential and the nominal complement variants with regard to scopal interaction with modals. Section 4 concludes the paper and offers a brief outlook.

2 A DRT Semantics for ‘because of’

The semantic analysis of *because (of)* is framed within the framework of Discourse Representation Theory (DRT, cf. Kamp & Reyle 1993, van Genabith et al. to appear for an overview; cf. Kamp & Roßdeutscher 1994, Solstad 2007 for a treatment of some aspects of event-based causality within DRT). Before turning to the semantic analysis, I would like to make some brief remarks on the relation between *because* and *because of*. Basically, I regard the two to make a very similar semantic contribution, representing them both by means of the same, underspecified semantics. The variation which may be observed (cf. Section 3) is due to the fact that *because* takes sentential, whereas *because of* takes nominal complements. I will however remain neutral with regard to the issue whether the preposition *because of* and the conjunction *because* may also be regarded to be one lexeme, only subject to morphosyntactic variation with respect to the realisation of their complement. When discussing the distributional differences with regard to modal operators mentioned above (cf. Section 3), this issue will be of some importance.³

² Thus, the modifier “plain” does not refer to a certain complexity of causal processes, but merely serves to separate this interpretation of *because (of)* more clearly from the reason interpretation, which is also taken to be a cause of sorts, as will become clear below.

³ It may be noted that – contrary to a suggestion one often encounters – morphophonological considerations, according to which a difference in the availability of phonological reduction could constitute a reflection of a difference in semantic status, do

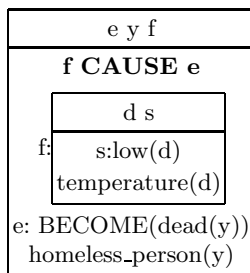


Fig. 1. DRS showing plain cause interpretation of *because (of)*

The main idea of my analysis of *because (of)* is that it introduces a causal relation and that the interpretational variance which can be observed with regard to plain cause or reason interpretations is determined by the ontological nature of the arguments which enter into this causal relation. As we will see below, a reason interpretation can – not very surprisingly – only occur if intentionality is present. However, we will also see that this feature alone is not sufficient to predict the interpretation of *because (of)*.

Although approaching the semantics of *because (of)* from a different perspective than Kratzer (1998), who focuses on the interaction of (sentential-complement) *because* with indefinites, I share with Kratzer the idea that the ambiguity of *because (of)* can be dealt with by means of a common underspecified semantic representation. However, it is an important objective of this paper to enrich the insights offered by Kratzer (1998) and e.g. Johnston (1994), showing more explicitly how the different interpretations of *because (of)* emerge.

I assume that *because (of)* always involves a causal relation between a causing fact (as introduced by its syntactic complement) and some caused entity, which may be a state, an event, an attitudinal or a modal state (corresponding to the syntactic phrase to which the PP is adjoined). I will first turn to the plain cause reading in (2a), repeated below for convenience:

(2a) Last winter, a homeless person died **because of** low temperatures.

As modifiers of predicates which designate states or unintentionally performed events, such as the anti-causative *die*, *because (of)* phrases can trivially only be interpreted as plain causes. In the case of (2a), a (simple) event (not involving intentionality) enters the causal relation as the caused entity. The semantics of (2a) is provided in the Discourse Representation Structure (DRS) in Figure 1 (ignoring tense and other issues not relevant to my present purpose). The causal relation introduced by *because* is printed in boldface as the topmost condition of the DRS. The causing fact of this relation occurs below this con-

not provide evidence for any necessity of treating *because* and *because of* separately: Data from conversations and informal writing show that both variants are subject to such reduction. Thus, one may find both *because* or *cos* on one hand, and *because of* or *cos of* on the other.

dition. In the case of (2a), the fact **f** of the temperatures being low causes the event of dying, which is the only eventuality that can be modified by the *because of* phrase.

Before discussing the reason interpretation, let me make some brief remarks on the nature of the causing entity in the causal relation introduced by *because (of)*. As stated above, this causing entity always needs to be of fact type. Informally, facts are taken to be true propositional entities involving existential quantification. Although this is certainly not wholly uncontroversial (Fine 1982, Kratzer 2002), it is a useful approximation that helps explain a number of distributional facts with respect to the possible arguments of nominal-complement *because of*. Since only very few nouns can be claimed to have referential arguments of fact type (possible exceptions include *fact*, *circumstance* among others, cf. Asher 1993), we expect the occurrence of most nouns as complements of *because of* to be accompanied by a process of reinterpreting (Egg 2005) the referential arguments as a fact. Thus, the complement of *because of* will be subject to reinterpretation if the complement involves no predication of an appropriate type, cf. e.g. (3):

- (3) People are telling us they are using the bus **because of** the gas prices.

In (3), the *because of* phrase cannot be adequately interpreted as simply saying that the fact that gas is priced causes people to take the bus. Rather, it is a particular quality of that price, very likely that it is high (or far above its normal level), which is the cause of people taking the bus. Comparing (3) with (4), it could be argued that event nouns do not necessarily call for any reinterpretation, intuitively. Still, I contend that also in this case, the eventive referential argument which is contributed by the noun, needs to be reinterpreted as a fact (involving existential quantification) when *accident* occurs as an argument of *because of*:

- (4) The road is closed **because of** the accident.

Turning now to the reason interpretation of *because (of)*, consider again the example in (1a), repeated below for convenience:

- (1a) The dog was put down because of its aggressiveness.

In general, *because (of)* phrases are interpreted as reasons or motives in combination with intentional predicates such as *put down*. In this case, as can be seen from the DRS for (1a) in Figure 2, the discourse referent which enters the causal relation as the caused entity, is an attitudinal state s_{att} of some agent x (the argument of *DO*), which consists of an intention *INT* to put down the dog (van Genabith et al. to appear).⁴ Importantly, this analysis amounts to viewing *reasons as caused attitudinal states*. What is more, assuming the causative relation to be transitive, the fact **f** may also indirectly be seen as a cause of death.

⁴ The repetition of conditions which can be observed in Figure 2 is indeed intended. However, for reasons of space, it is a matter which I cannot discuss here. See van Genabith et al. (to appear) for details.

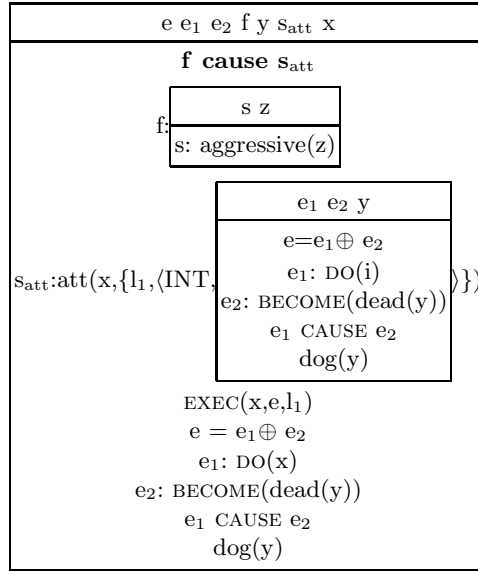


Fig. 2. DRS for reason intepretation of *because (of)*

The ambiguity of *because (of)* between the plain cause and reason interpretations is not directly derivable from the representations in Figures 1 and 2. In both figures, the (underspecified) relation CAUSE occurs. Ultimately, the above analysis needs to be complemented by an appropriate theory of causality which makes clear how a causal relation may be subject to interpretational variation depending on the ontological nature of its argument. Short of being able to present such a theory, I will, for the sake of simplicity, assume that this theory allows us to state meaning postulates specifying how the occurrence of certain arguments in the causal relation leads to a difference in realisation of the causal relation. Thus, (5) should be taken to state that whenever an attitudinal stated is caused by a fact – the latter not being subject to any variation in the case of *because (of)* – the fact is a reason of the holder of the attitudinal state for being in whatever state this is:

$$(5) \quad f \text{ CAUSE } s_{\text{att}} \implies f \text{ REASON } s_{\text{att}}$$

Having presented the basic characteristics of the plain cause and reason interpretations of *because (of)*, I want to point at some data which show that the interpretational variation is not only dependent on the presence or absence of an agent capable of intentional action. Interestingly, the presence of intentionality is not enough to predict a reason interpretation of the *because (of)* phrase. Thus, in contexts involving modals expressing deontic necessity (6a), possibility (6b) or ability (not exemplified here), no reason interpretations are available. The *because of* phrases in (6) can only be interpreted as plain causes:

- (6) a. The dog had to be put down **because of** its aggressiveness.
 b. **Because of** the high crystallisation energies it is possible to measure the crystal growth in transdermal patches even at 25°C.

Sentence (6a) can only be interpreted as saying that the aggressiveness of the dog caused the necessity to put it down. The *because of* phrase cannot target the attitudinal state associated with *put down*. There is no reading available for (6a) according to which it is necessary for the agent to put the dog down for the reason of the dog being aggressive (as opposed to it being three-legged, for instance). Since (6a) is identical to (1a) apart from the presence of the deontic necessity modal *had to*, it seems reasonable to make the modal responsible for the unavailability of the reason interpretation. As indicated by the DRS for (6a) in Figure 3, this is accounted for by assuming that in this case, the causal relation persists between the fact *f* and the modal state $s_{[D]}$ consisting of a deontic modal operator $[D]_{MB}$ (MB is short for *modal base*) which takes scope over the DRS for (1a) in Figure 2. The modal blocks access to the attitudinal state in its scope. Consequently, the map in (5) is not applicable in the case of Figure 3. The absence of a reason interpretation is seen to have its rationale in the observation that if something is necessarily the case, reasoning or motives are of no importance. Put differently, if an obligation pertains, it does so regardless of someone’s attitudinal state.

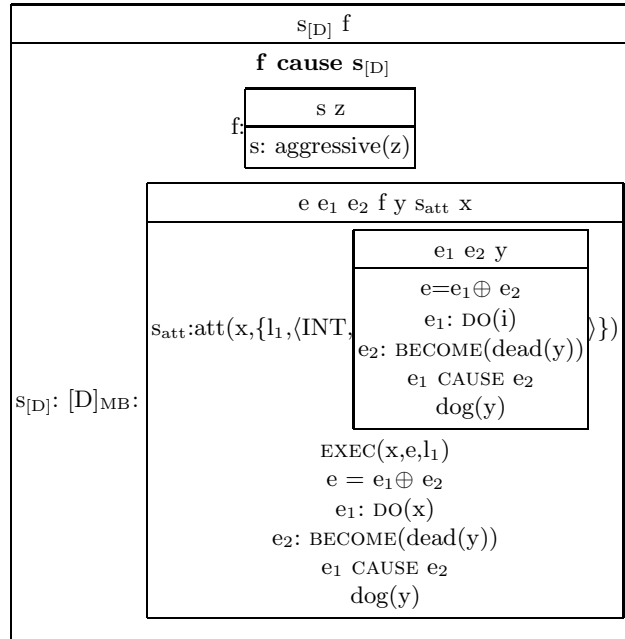


Fig. 3. DRS representation of ‘because of’ outscoping a deontic necessity modal

So far, I have said next to nothing about the syntax of *because (of)*. Unfortunately, I cannot go into details here, but it may be noted that the behaviour of *because (of)* in combination with deontic modals, not allowing a reason interpretation, seems to indicate that the assumptions in Johnston (1994) are not adequate for my purposes. Johnston assumes that *because* adjuncts (he does not discuss *because of*) have two possible adjunction sites, one at IP level and one at VP level. If this were the case, one should expect the excluded reason interpretation to be available e.g. in the case of (6a) after all, assuming that the VP level constitutes a position below any modal operators. Unless one wants to make use of any semantic filtering mechanism, I think it is fair to conclude that the semantic observations above suggest that it is more plausible that *because (of)* has a fixed adjunct position which is above not only VP, but also above any projections where (deontic) modals are introduced. The data which Johnston seeks to explain (having to do with the interaction between negation and *because* adjuncts) must thus be explained differently. In the next section, I will make some remarks on possible syntactic adjunction sites for *because* and *because of* adjuncts.

3 ‘Because of’ vs. ‘because’ in Epistemic Modal Contexts

I claimed that the above observations are valid for both sentential-complement *because* and nominal-complement *because of*. However, there is one interesting aspect for which the two variants differ with respect to their possible interpretations. Consider the examples in (7), in which *must* should be interpreted epistemically:

- (7) a. Bill must have gone back home **because** the jacket is missing.
- b. Bill must have gone back home **because of** the missing jacket.

Whereas (7a) is ambiguous, (7b) is not. In (7a), the *because* phrase specifies either (i) Bill’s reason or motive for going back home, parallel to (1a) as analysed in the DRS in Figure 2, or (ii) the speaker’s reason (evidence) for inferring that Bill must have gone back home, i.e. the speaker sees that the jacket is missing and concludes from this that Bill must have gone back home. In (7b), however, only the former interpretation (i) is available for the *because of* phrase. Thus, although one might expect that if the complement of *because (of)* is a proposition-like fact, its semantics should principally be identical to that of *because*, the examples in (7) show that this cannot be the whole story.

Although the ambiguity of *because* in (7a) is well-known (cf. e.g. Sweetser 1990), the difference in interpretational possibilities displayed between (7a) and (7b) is not very well understood, which is partly due to the fact that nominal-complement *because of* has not been the object of attention of any formal analyses. In fact, the only discussion of the contrast in (7) that I am aware of, is found in Degand (2000), which I will return to below. Admittedly, I do not have a final answer to why this difference shows up, either, but in what follows, I want to

point out how my analysis could be extended towards explaining the difference displayed in (7).

One possibility towards dealing with the data in (7) would be to assume that *scopal differences with regard to different modal operators* are involved in the varying behaviour in (7). Thus, one could assume that *because* and *because of* do display a difference in syntactic behaviour, despite their semantic parallels, where only *because* adjuncts may outscope epistemic modals. Thus, Degand (2000: p. 692) assumes that *because of* adjuncts appear at an “intra-clausal” level where no epistemic modal operators are available. On the other hand, *because* clauses are adjoined at an “inter-clausal” level, where epistemic operators may be embedded under the causal relation introduced by *because*. Related to this take on the problem, it is also imaginable to say that what matters for the difference is the possibility of *modifying speech act operators*, as discussed by Scheffler (2005), thus making a parallel to Austin’s (1961) famous biscuit conditionals (cf. e.g. Siegel 2006 and Predelli 2009 for discussion). In this case, *because* would unite the split behaviour of German *denn* and *weil*, the latter of which does not allow an evidential reading in (7a). The matter is not quite clear to me though, since the evidential interpretation in (7a) seems intuitively different from the “biscuit causal” in (8):

- (8) What are you doing tonight, because there’s a good movie on. (Sweetser 1990: p. 77)

A last possibility towards explaining the difference in (7) that I would like to mention is exploiting the categorical difference between the complements of *because* and *because of*: On this view, only the (syntactically) clausal complements of *because* and no DPs such as the complements of *because of* may be interpreted evidentially as it would be needed for the reading which (7b) lacks. This could be connected to the process of reinterpretation which is involved in the case of nominal-complement *because of*. According to this view, the proposition-like reinterpretation of the complement of *because of* would only seemingly be parallel to the propositional status of the sentential complements of *because*. However, this solution cannot be any less murky than the assumptions concerning the nature of facts are. Thus, the difference in adjunction sites seems to be the most plausible and promising option for solving the problems posed by the data in (7).

4 Conclusion and outlook

Summarizing, I argued that the factive causal relation introduced by *because (of)* phrases, **f cause e** or **f cause s** in the DRSs in Figures 1, 2 and 3, is assumed to be neutral with regard to its interpretation as a plain cause or reason. If what is caused is a non-intentional state or event, a plain cause interpretation results, whereas whenever an attitudinal state is caused, the *because (of)* complement is interpreted as a reason. In case what is caused is a deontic modal state, only plain cause interpretations are possible, regardless whether the modal embeds an

attitudinal state or not. I also discussed some data involving epistemic modals for which *because* and *because of* differed: only *because* adjuncts seem able to outscope epistemic modal operators.

Future work needs to involve an attempt at clarifying the notion of facts and an explication of the theory of causation, at least to the extent that it is needed for the purpose of the present analysis. In addition, *because* should be compared with other causal expressions in English such as *since*, which only seems to have the reason interpretation. Finally, comparing *because (of)* to similar expressions in other languages would be helpful. Whereas the German preposition *wegen* ‘because of’ seems to behave completely parallel to nominal-complement *because of*, sentential-complement *because* unites the function of *denn* and *weil* in German.

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