

Kim on Events

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Abstract

According to Kim, events are constituted by objects exemplifying property(ies) at a time. In this paper I wish to defend Kim's theory of events from one source of criticism, extending it by taking into account a number of ideas developed by Davidson. In particular, I shall try to avoid events proliferation – one of the most serious problems in Kim's theory – by using a suggestion Kim himself advances, that is, by taking adverbs and the like to be events' rather than properties' modifiers.

Keywords: events, properties, adverbs, modifiers.

Introduction

Events play a major role in such topics as causation, philosophy of action and philosophy of mind. So it is important to have a theory of events. Three are the theories that have grew consensus, that is, those by Kim (1966; 1976), Quine (1960) and Davidson (1969), and Lombard (1986).

Nowadays, many favor Kim's theory, some serious criticism notwithstanding, even if Quine's and Davidson's theories of events are still thought to have some positive aspects. In this paper I wish to defend Kim's theory from what is considered its main defect, that is event proliferation. I will do that by taking into account a number of ideas developed by Davidson and by using a suggestion Kim himself advances and Davidson suggested, thus showing that these two authors should not be considered as dramatically opposed to each other.

Why endorse Kim's theory in the first place? It came about in competition both with Quine's theory, according to which events are picked out in virtue of their space-time collocation, and with Lombard's theory (Lombard 1986), which I will not consider here. ¹ Basically, according to Quine, an event e_1 is one and the same as event e_2 if and only if they have the same space-time collocation. As Quine expressed it: "Physical objects [...] are not to be distinguished from events [...] Each comprises simply the content, however heterogeneous, of some portion of space-time, however disconnected and gerrymandered" (Quine 1960: 171). One negative outcome of this view is that in most of the cases in which in the same spatio-temporal region there are two or more events, these are collapsed into one, as Davidson (1969) promptly observed. Consider a sphere which is spinning and warming up at the same time. Quine's theory says that there is just one event while it may seem intuitive that there are two events, the spinning of the sphere *and* its warming up. One reaction, advanced by Davidson himself, was to individuate events by their causal relations, so that e_x and e_y are one and the same event if and only if they have the same causes and effects. But such a view seems *prima facie* circular, because in order to say what a cause is, one recurs to the notion of event. One might salvage the view by considering the causal analysis of events in a larger system, but Davidson did not explore this path much further, lately abandoning his position in favor of Quine's one (Davidson 1985a). Given the background of this debate, Kim's proposal was the following: an event is the exemplification of one property by an object at a time, whether instantaneous or long-lasting. According to this view, the exemplification of a property is the pivotal point on which ontological commitments, explanations, and descriptions hinge. It could be considered a theoretical tool that presents both a conceptual and a causal role. A parallel might be the much used concept of *center of gravity*, as discussed since Frege (1884) and up to Dennett (1987). A center of gravity is a theoretical point, mathematically posited to elaborate explanations and descriptions, and in this sense it is conceptual. At the same time, the center of gravity of a physical body is that on which many of the causal relations belonging to classical mechanics are determined. So it plays a causal role as well. Similarly, the exemplification of a property by an object is crucial to make sense of what has happened to the object, because it offers both *prima facie* descriptions and explanations of the events in which the object is involved, and it makes sense of the causal role the object has in those events.

¹ Davidson (1970: 182 n. 3) also considers Kim's account a rival account, as Kim himself notes (Kim 1976: 39 n. 12).

To give further details, Kim (1976) treats events as ordered triples comprising an object O instantiating a property P at some time t . Therefore an event e can be represented like this: $\langle O, P, t \rangle$. This treatment makes it possible to have clear identity conditions for events. Accordingly, events e_x and e_y are one and the same if and only if, taking $e_x = \langle O, P, t \rangle$ and $e_y = \langle O', P', t' \rangle$, then $O = O'$, $P = P'$ and $t = t'$. Even assuming that it is relatively easy to say what object identity and temporal simultaneity are, how about property identity? Here we get to the main problem with Kim's theory. Following Shoemaker (1980), we may suppose that Kim is assuming that properties are identical if and only if they have the same causal profiles, that is, if they confer the same causal power to the objects that token them. But now, how fine-drawn should our examination of properties be? Consider the following two sentences:

- 1) The bolt's giving way caused the collapse of the bridge.
- 2) The bolt's suddenly giving way caused the collapse of the bridge.

Supposing that 1 and 2 are referring to the same bridge at the same time, are 1 and 2 referring to one and the same property? If the different descriptions are neutral with respect to which property is in question, then the property is the same, and the two sentences above are, metaphysically speaking, on a par, picking one and the same events. However, it might be that as *causal explanations* 1 is false while 2 is true, in that the bridge collapsed because of the sudden giving way of the bolt rather than because of its giving way *simpliciter*. Pointing this out, then, would be required for the correct explanation. However, Kim thinks that a difference in causation, as emerging from the adequacy of latter explanation, entails that there is a difference in which property is exemplified, being this difference to be traced to the causal profiles of properties themselves. Since in Kim's view, properties are the constitutive elements of events, variations in property individuation will affect event individuation, assuming that object and time are identical. Since the object and the time of the event referred to in 1 are supposedly the same as those in 2, the hypothesis is that we are facing two different properties, "giving way" is different from "giving way suddenly", and this in turn entails that 1 and 2 refer to two different events.

Thus Kim is facing a sort of dilemma: either the tokening of two different properties determines the tokening of many co-located and synchronic events or there is some relation between “giving way” and “suddenly giving way” that secures the identity of the hypothetical different events. So the crucial points are whether properties – and consequently events – are so finely individuated, and whether there is some sort of priority amongst them.²

Kim has offered two replies to this problem. His first reply is to take “suddenly giving way” to *include* “giving way”. About the nature of such an inclusion, though, Kim is elusive: “I will not try to give a characterization of 'inclusion' for events here; a completely general characterization gets, as far as I know, to be very complicated without being philosophically interesting [...] But I assume that it's intuitively plausible to say that there is some relation here that can be called 'inclusion'” (Kim 1976: 45). However, in semantical terms, such an inclusion would be admissible only by virtue of something like *meaning postulates*. These are posited semantic bi-conditionals that establish the equivalence of two expressions, and are, in this context, the only technical tool that can guarantee that the meaning of the verb is preserved unmodified even when juxtaposed to an adverb or to any other grammatical structure (cfr. Carnap 1952). However, even granting the viability of meaning postulates, we would remain with two problems. The main one is how to justify which, among the many expressions that can be associated with one instantiated event, is the one that includes the others without begging the question as regards the entailment relation. For example, why is it the case that a boy's jumping on the bed entails a mass' bouncing on the bed? The other problem is how to order entailment relations, given a determination relation. It is far from clear which is the immediate determinable for a given determinate *property*. For instance, it seems that dark red scarlet entails red scarlet and then red, but why not saying that dark red scarlet entails dark scarlet? How do we establish whether the order of entailments between descriptions parallels that between properties?

²As Bennett (1988) pointed out, the main problem with Kim's theory lies in its semantics rather than in its metaphysics. For a first approach to the profusion of views on events see Casati and Varzi (2002).

We seem not to be on firm ground. On the contrary, it could be argued that modifiers are not the determinants of some determinable property of the event. A determinable / determinate relation is one of specification. For instance, scarlet is determinate with respect to red, which is a determinable, and is not the determinate of any color but red, so the determination relation is, so to speak, privileged. Vice versa, giving way suddenly, or walking leisurely, do not enter into a determinable / determinate relation with the verbs they modify. Many different kinds of events can occur suddenly and many types of events can occur leisurely; there is no privileged relationship or exclusivity in being sudden or at leisure with respect to giving way or strolling. So the relation between the modifier and the verb is perfectly conceivable as not a determination relation *strictu senso*. These difficulties are the symptoms of a more general problem, which Quine and Davidson have already pointed out: the entailment involved in *doing x y-ly* and *doing x* should be guaranteed by the logical form alone. But this result was not achievable, because of hypothetical causal differences. As Quine later pointed out: "It would be an abdication of logical analysis to accept every such adverbial modification of every verb as a distinct and irreducible predicate" (Quine 1985: 162).

An alternative way to tackle this problem is to distinguish between the generic event and the various descriptions of it. The generic event is the maximal event, which has as sub-maximal parts its more or less specific descriptions.³ A pertinent analogy is with a material object: this table is the maximal object, which has as sub-maximal parts the table minus this atom or without its left-front leg, or the table with two atoms that have switched position, and so forth. Jonathan Bennett (1988) has reacted to this view by pointing out that sub-maximal events are events, not just parts of the maximal event. According to Bennett, property instances are tropes which are maximally determinate: “any S-P-T event name refers to an event that is the instance that S has at T of a property P*, which usually includes other properties as well (*contra* Kim), but does not ordinarily include every property that S has at T (*contra* the Quinean)”⁴ (Bennett 1988: 128). Bennett explicitly states that a property instance is a trope, thus aligning himself with Kim, but also says that a property instance is part of a larger property P* of which P is a proper part. This mereological perspective is taken quite seriously by Bennett, while Kim (1976: 46) dismisses it. According to Kim, just as it is harmless to say that there are indefinitely many tables in this room, given that the only table we actually see comprises as many subtractive tables as we want (the table minus a subatomic particle in its upper left corner; the table minus a subatomic particle in its lower left corner; the table minus ...), so it is harmless to count events as Bennett suggests.

³It should be pointed out that in order to not confuse a maximally generic event, like the giving way of a bolt, and the exemplification of a property, the giving way, at least the object should be mentioned. That would not be sufficient to isolate an event, because time is not mentioned, but a kind of event.

⁴Here S is the object, T is time and P stands for property.

Another possible way out of the too fine-drawn individuation problem, thus coming to Kim's second reply, is to consider the adverbs as modifiers of the event rather than as generators of a new property. Davidson was the first in clearly proposing to quantify over events and to construe them as follows: “adverbial modification is thus seen to be logically on a par with adjectival modification: what adverbial clauses modify is not verbs, but the events that certain verbs introduce” (Davidson 1969: 167). Following this path, Kim imagines what we may call the “event-modifier solution”. Here is Kim's view on the problem: “The modifiers 'leisurely' and 'with a knife' are taken, not as modifying 'strolling' and 'stabbing', but rather as indicating properties of the individual events which arise from the exemplifications of the generic events designated by 'strolling' and 'stabbing'” (Kim 1976: 44). Kim, though, dismisses this possibility for two reasons: first, it would require having an account of the generic event, that is, an account of what the core generic event that is modified in some way or another *is*. Secondly, it would “neutralize” the motivation for having a theory of events, in that it would block the use of events in causal explanations, because using a generic description of the event would bring one to lose track of the proper causal relations. It is, however, possible to challenge both reasons: the first problem, as Kim recognizes – and as is evident – also affects Kim's own solution to his theory of events. Regarding the second problem, Kim admits that it can be overcome by retracting his own previous view on causation, which, at the time, he was not willing to do. But we can dismiss this problem, because we are not committing ourselves to Kim's theory of causation, which, in any case, he himself has revised considerably. So I'll try to explore the event-modifier solution in more detail.

The event-modifier solution

Let us once again consider sentences 1 and 2:

- 1) The bolt's giving way caused the collapse of the bridge.
- 2) The bolt's suddenly giving way caused the collapse of the bridge.

Kim's idea is that properties are completely individuated by their causal powers, and in such detail that every variation in the description of the individual event determines a difference in the individuation of the property because the variations in a way or another point out causal differences. That is to say, *giving way* and *suddenly giving way* are two different properties because of their different causal powers. But what is the scope of the adverb *suddenly*? It cannot be the *giving way per se*, because the *suddenly* describes the temporal way in which the property's *giving way* occurs, thus highlighting a further essential feature of the event, i.e. time. Now, both time and object are distinguished from properties and, more importantly, is the internal relation between the object exemplifying a property at a time that the modifiers is really signaling. Consequently, this *suddenly* is exemplified by the whole event as such. The event – the bolt's giving way – is a suddenly occurring event, as are many other events. Therefore, the scope of the adverb is the entire event. Instead of taking *suddenly* as an adverb modifying the verb, with the consequence of having a different verb which determines properties and then event proliferation, the adverb should be taken as an adjective attributing a property to the exemplifying of the main property of the event, as Davidson suggested. Given this reading, and taking B, G, GS and S as standing for **Bolt**, **Giving way**, **Giving way Suddenly** and **Suddenly** respectively, the difference between the *cause* of the bridge collapse as expressed by 1 and 2 respectively, instead of being:

1) $\langle B, G, t \rangle$ and 2) $\langle B, GS, t \rangle$

is:

1) $\langle B, G, t \rangle$ and 2') $S \langle B, G, t \rangle$

The formalization makes it clear that *suddenly* modifies the entire event, instead of determining a new property. So we may take the event of the bolt's giving way as a suddenly occurring event, as we ordinarily talk of sudden, joyful or leisurely events meaning suddenly occurring events, joyfully occurring events, leisurely occurring events and the like. In this sense, the representation given in 2') would be an atomic formula like Fa where a is the structured name of the event whose property F is *suddenly*, which signals the suddenly occurring of the event. In this way we adopt Davidson's view of the proper analysis of events and superimpose it on Kim's metaphysics.

Let's consider some important advantages of this formulation. First of all, the proposal leaves the core event untouched, despite allowing for its qualification. Leaving the original event untouched allows for the entailment relation that we must preserve so as not to abandon logical analysis, as Quine (1985) maintains. Indeed, we can agree that 2' entails 1, that is:

$$3) S \langle B, G, t \rangle \rightarrow \langle B, G, t \rangle$$

because that would be no more than a predication concerning a structured name, which can be taken as a constant. That is to say, if event e is S , then we have to presume that e occurs. But the new formulation also shows that S modifies the occurring of the event, which can be conceived unmodified as well. So we distinguish between properties *in* the event (like G) and properties *of* the event (like S).

A different way of looking at this problem could be the following: let's assume, as Davidson (1969) argued and Quine (1985) agreed, that events should be considered as variables to be quantified over, and the constitutive parts of events are like individuals or properties. Then the bolt's suddenly *giving way* at t is simply

$$4) Se$$

Where ($e = \langle B, G, t \rangle$). It is clear that the event-modifier solution allows for further expansions and qualifications of the basic event, as in the **Incredible and Sudden Giving way of the Bolt** at t , to be read as:

$$5) Ie \wedge Se$$

In these cases the entailment relations are much more evident. In particular, it is clear that we are no longer obliged to recur to meaning postulates, the burden that afflicts Kim's proposal. Indeed, it is simply in virtue of logic that one of the conjuncts can be dropped without any harm to the individuation of the event. And we can drop not only *S* or *I* thus pointing out what the event *per se* is, but also the complex $\langle B, G, t \rangle$ while retaining that $\exists x Sx$ as when we consider that some suddenly occurring event has taken place.⁵ However, the main problem with the event-modifier solution is whether it can be generalized to include any kind of modifier. For instance, how about *leisurely* or *with a knife*, to consider the two modifiers mentioned by Kim, as a *homage* to Davidson, in the earlier quotation? And what about “allegedly”, “putatively” and similar cases, all brought up by Davidson (1985b)?⁶

Generalizing the solution

According to Kim, “modifiers” can be used to refer to any of three different kinds of entities: manners, means and methods. Let's assume this proposal and see if the event-modifier solution is applicable to the various cases that can be engendered by using the different kinds of modifiers. Paradigmatic examples of modifiers are (to follow Kim himself, at least in part):

- 6) John strolls leisurely at midnight (*manner*).
- 7) Brutus stabbed Caesar with a knife in 44 B.C. (*means*).
- 8) Sam is counting his toy cars two by two (*method*).

It seems that while the event-modifier solution was reasonable in the *sudden* case, which is a manner, it looks less promising in the means and method cases. However, even the manner case is potentially unclear if we consider the way John strolls, because saying that the event in 6) is to be read as:

- 6') Leisurely (John, strolls, at midnight)

⁵So-called Segmented Discourse Representation Theory (S-DRT), or DRT, in general seems the technical approach best suited to this proposal. In particular, managing adverbials with conjunctions has been considered typically Davidsonian. Here is Fred Landman on this subject: “If adverbial meanings are added conjunctively, the theory will be straightforwardly Davidsonian. If adverbial meanings are incorporated into the event constructs, the resulting events are more fine-grained than Davidsonian events ...” (Landman 2000: 30). See also Asher and Lascarides (2003), Kamp and Reyle (1993) and Kamp and Partee (1995). It is also interesting to consider modalization in general, as has been done in Venier (1991), whom I thank for her generosity in providing me with her book.

⁶For a very clear treatment of these and other cases see Lepore and Ludwig (2007: 181 *et passim*).

seems counterintuitive. The counter-intuition in question is the following: rather than the whole event, it seems that it is the stroll that is taken leisurely; so the adverb modifies the verb. It seems that we are sent back to Kim's problem. But is the event-modifier solution metaphysically unsound? I shall argue that it is not. First, it seems fairly common to talk about leisurely occurring events. Secondly, is there a specific way in which a stroll is taken leisurely as opposed to, say, slowly? Strolling leisurely does not imply using a specific strolling technique; it is, instead, John who relishes taking the stroll he takes at the time and in the place that he takes it. That is to say, the specific event that happens, say, at midnight in Bologna, i.e. John's strolling, is leisurely. Not to mention that doing something leisurely is doing it without haste, which has, of course, a temporal component. So if there is not a specific way in which a stroll can be taken leisurely, then leisurely is an adjective of an event, which, in the case in hand, is a stroll.

How about means? Consider Brutus stabbing Caesar. Here we can clearly imagine two different, but basically equivalent, ways. The event-modifier proposal would be:

7') By-knifely (Brutus/Caesar, stabbed, in 44 B.C.)⁷

Here the, say, *adverb* "by-knifely" indicates all and only those events that occur by means of a knife. Isolating all the events that involve the use of a knife seems a natural sort of categorization. Imagine that you are trying to discover a serial killer who uses a knife as the means of perpetrating his crimes. You may want to check over all the unsolved knifing crimes of the recent past, so such a categorization is perfectly useful and safe. The idea here is that there are quite a number of different events that have in common the property of occurring by means of a knife and that, apart from this one shared property, may have nothing else in common. So doing something with a knife is a type of event. On the other hand, doing something with a knife specifies no particular way of stabbing: you can stab in exactly the same way, as regards the physical results inflicted on the stabbed body, with a knife, a dagger, or some other weapon.

The other possible solution, which stems directly from Davidson's view, is to take 7 as an event involving a stabbing and the use of a knife, thus:

7") Ke (where $e = \langle B/C, S, t \rangle$)

⁷Surely, Brutus/Caesar is not an object, not at least a simple one as a bolt or John. Here the object would be the space region in which Brutus and Caesar are.

So we have an event which is a **Stabbing by Brutus of Caesar** at *t* and it is with a **Knife**. However, as we saw, this is a version of the event-modifiers solution.

Now we can confront the case of methods: Sam is counting his toy cars two by two. Counting by pairs, as Sam does, is a technique that can be used on many occasions – when dealing with shoes, for instance – and does not involve a change in counting as a general technique, but rather of the numeric base chosen for performing the count. Counting by pairs, instead of by ones or threes, does not determine a different and special property in the event of counting. That event is essentially a count and the result should be the same regardless of the way in which it is attained. Counting two by two is a way in which the whole event is performed, affecting it completely, for instance in the time it takes for the event to finish occurring. To see this, imagine that Sam counts irregularly, sometimes by twos, sometimes by threes. We can even imagine that in doing so he uses single words like “pair” and “triplet”. What is happening is that Sam is changing his method, but the event *per se* is still a counting. That is to say, there is a continuity in what Sam is doing, i.e. counting. If a different method were to give rise to a different event, then there would not be any continuity in Sam's actions. In such a case, how could we possibly say that the object of Sam's counting is the same throughout the event? But actually, Sam keeps counting his toy cars. So the event is essentially the same, a counting, sometimes by twos, sometimes by threes. A counting by twos entails being a counting, and a counting by twos and by threes is still a counting. Therefore **Sam Counting at t**, either by twos or by threes, is:

8) By-twos or by-threes (Sam, counting, at t)⁸

To give another example: imagine Sally jumping rope and counting her jumps: sometimes she jumps on one leg, sometimes on both. It seems preposterous to say that if she keeps a single, unified count of how many jumps she is doing she is counting irregularly just because sometimes she is single-leg jumping and sometimes she is not. The swinging of the rope is regular, as are her jumps: if there is no specific and further reason, why disallow a continuous count?

Given this view of modifiers, a more general problem should now be tackled: how ought we to interpret modifiers? What I propose is to take modifiers as *relational* rather than constitutive properties of events, as seems quite clear in the case of stabbing Caesar with a knife.

⁸Clearly, the “or” is used here in its exclusive sense.

Consider strolling leisurely. One can walk in many ways, but the way the whole event takes place is leisurely. In what sense? The idea is that the stroll was taken leisurely, compared to other strolls, whether taken by John or by anyone else. The modifier is a way to compare the strolls we are referring to with other potential ways in which a stroll can occur or with other strolls that actually occurred in the past or are occurring now. A bolt may give way in many different manners: this time it gave way suddenly, as opposed to gradually, a manner in which other bolts could have or have given way in the past. So a modifier determines a contrast class to other similar events, possible or actual, present or past. Thus interpreted, the modifiers allow for a perfectly extensional interpretation of events, in line with Davidson's view of them: there is just one event, John's stroll (or the bolt's giving way). The stroll's being leisurely (or the bolt's giving way suddenly) is such only in so far as it determines a contrast class (cf. Menzies 1988; 1989), like the one we singled out while wondering whether the serial killer was responsible for other knifing murders.⁹

Let's now assess another frequently mentioned example: John's crossing the English Channel by swimming. It was a very fast swim, but a slow crossing. So, was the event fast or slow? Obviously, we don't want to be unclear about John's swimming pace. What a modification invokes is a contrast class: as a swim it was fast, compared to other Channel swimmings, and as a crossing it was slow, in contrast to crossings on boats or the like. Consequently, when we apply a modifier to an event, what we are doing is creating a contrast class for *any of numerous possible purposes*, which could be, e.g., rhetorical – note how fast John swam across the Channel – or explanatory, as in the case of the bolt's giving way and the collapse of the bridge. This attitude by no means eliminates the ontological commitment to any other property of the event – John's swim took a certain amount of time – but it also has the role of singling out and underlining the event property in question.

One may wonder whether in that space-time region there were two events, a crossing and a swimming. It may seem that the original problem remains. However, we can note that the event was a crossing by means of swimming (and not, say, by boat). In this sense the event that has John as its main actor is different from the sphere in Davidson's famous example. The sphere is rotating and at the same time warming up. We can, though, imagine rotating spheres that do not warm up (perhaps under controlled experimental conditions) and warming spheres that do not rotate. However, when the Channel is crossed, it has to be crossed in one way or another. So the two properties exemplified by the event in which the main actor was John are not completely independent of each other. My intuition, as I suggested, is that John crossed the Channel by swimming across it.

⁹Jonathan Lowe pressed me on this point, for which I am grateful to him.

When we consider adverbs such as “allegedly” or “putatively”, we should stress that they are not verb modifiers. They are, instead, sentential modifiers. For instance, from “probably it is going to be a rainy summer” we cannot infer that “it is going to be a rainy summer” because the latter is not entailed by the former: “probably” informs us that the whole sentence should be interpreted probabilistically. This is not always the case, as “surprisingly” shows. On this point, Lepore and Ludwig argue that: “A useful, if perhaps defeasible test, is whether from 'F-ly x A-ed' one can infer 'x A-ed and x did it F-ly'. This inference is felicitous in the case of 'intentionally' ... 'knowingly' ... 'with a knife' ... but not in the case of 'allegedly' ... 'surprisingly'... 'possibly' and 'necessarily’” (Lepore and Ludwig 2007, 183). In the last four cases, we have, rather than ad-verbial modifiers, ad-sentential modifiers.¹⁰

We may now turn to the second problem that Kim himself indicated as inherent in this solution: causal explanation. Does the event-modifier solution circumvent the *entailment problem* also in this case?

The causal problem

As we have pointed out, the modifier solution can deal with the logical relations within one event, in that it allows the inference from *the bolt's suddenly giving way* to *the bolt's giving way*. From an explanatory point of view, though, we may want to prevent this inference if the event being sudden has a causal relevance for the collapse of the bridge. That is, we want to preserve the hypothetical causal explanation according to which the bridge collapsed because the bolt gave way *suddenly*, not because it gave way *simpliciter*. I think this requirement can be met by the event-modifier solution. Causation is customarily conceived as a relation among events. The validity of this relation depends on the properties exemplified by the events. So let's consider the causal operator \Rightarrow and it causally connecting the event of the bolt's giving way at t with the event of the **Bridge's Collapse** at t' :

9) $\langle B, G, t \rangle \Rightarrow \langle Br, C, t' \rangle$

One of the possible ways of analyzing the causal connection is by considering the relevant associated counterfactuals. Consider a causal explanatory construal of sentences 1) and 2) above. They would be:

1') The bridge collapsed *because* the bolt gave way.

2') The bridge collapsed *because* the bolt gave way suddenly.

¹⁰ Achille Varzi, whom I warmly thank, pressed me on this and related points.

And here are the respective counterfactuals:

C1') Had the bolt not given way, the bridge wouldn't have collapsed.

C2') Had the bolt not given way suddenly, the bridge wouldn't have collapsed.

The difference between the two counterfactuals is manifest: only C2 makes it clear that the bridge collapsed because the bolt gave way suddenly, not because it gave way *simpliciter*.

Consequently, if C2 is true, C1 is false. Such a difference can be preserved in the causal relations that we establish among events, thus preventing the logical relations between the descriptions of one and the same event from obscuring the causal explanation.

To achieve this result the causal operator (\Rightarrow) should not allow property elimination, and this for two reasons: in the first instance, since each property is singled out in causal terms, none can be eliminated in virtue of grammar or logic; secondly, causal relations are relations that hold between events, and if events as such have this or that property, then they are relevant to the holding of the relation because of their causal powers. Therefore, taking $e_1 = \langle B, G, t \rangle$ and $e_2 = \langle Br, C, t' \rangle$, a crucial constraint on the causal operator is the following:

$$10) \sim ((S e_1 \Rightarrow e_2) \rightarrow (e_1 \Rightarrow e_2))$$

That is to say (once again), it is not the case that if the bridge collapsed because the bolt gave way suddenly, then it collapsed because the bolt gave way *simpliciter*. Consequently, the event-modifier solution would be compatible with entailment from the modified event to the unmodified or simple event, without altering the proper causal relevance, which would be appropriate to causal explanations.

Our goal is to have the causal operator exclude conjunct elimination, but how can we put this point in the proper perspective? We have said that modifiers are relational properties of events, determined by the contrast that the property, as exemplified in some space-time location, shows to other exemplifications, possible or actual, present or past. The point is the same here. The contrast class is a way to indicate the (main) causal contribution of a given property. That is to say, we can affirm that the event, which was a bolt's giving way, caused the bridge to collapse because the event occurred suddenly. Its occurring suddenly is an event property that specifies that events which are of the simple giving-way kind are not sufficient to cause the collapse of the bridge.¹¹ The event's being sudden, therefore, determines the proper contrast class once the property of giving way has been exemplified.

Imagine a person wearing a blue jacket with brown trousers. That's a horrible match. Neither the jacket nor the trousers are horrible in themselves, but their being worn together determines that the person is not well dressed. Not being well dressed is the person's property, not that of his individual pieces of clothing, even if the ill-dressed look is, in this case, determined by the blue jacket and the brown trousers. So, the judgment of being badly dressed applies to the person. The event's being sudden affects the whole event, and since it is events as wholes that are involved in causal relations and explanations, they are what we must consider in formulating our epistemic and explanatory appraisals.

To sum up, in this paper I have expanded Kim's suggestion according to which event proliferation can be dealt with by taking the adverbial modifiers as affecting the whole event rather than just its essential property. This solution fares well with all kinds of modifiers, and allows for a proper analysis of the causal relations in which events may become involved. At the same time, it is an extensional solution, which makes Kim's theory more similar to Davidson's theory of events than it was before.

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¹¹ Or, at least, it wouldn't be sufficient in the case in hand.

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