23

Events as Property Exemplifications

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I

The term 'event' ordinarily implies change, and most changes are changes in a substance. Whether coming into being and passing away can be construed as changes in substances is a question we shall not consider here. A change in a substance occurs when that substance acquires a property it did not previously have, or loses a property it previously had. Whether fissions and fusions of substances can be considered as cases of losing or acquiring properties is, again, a question we shall not discuss in this paper. By 'substance' I mean things like tables, chairs, atoms, living creatures, bits of stuff like water and bronze, and the like; there is no need here to associate this notion with a particular philosophical doctrine about substance.

Besides events, we also speak of "states." If "events" signal changes, "states" seem to be static things, "unchanges," to use a term of C. J. Ducasse's;[1] some examples of states would be my body's weighing 140 pounds, the earth's being nearly spherical in shape, and the presence of oxygen in this room. There are, however, good reasons for not taking this dichotomy of changes and unchanges, or of events and states, too seriously at the initial stage of developing a theory of events. For one thing, there are cases that are hard to classify; e.g. the whirring of my typewriter, having a throbbing pain in the right elbow. Then there are "conditions," which, it seems, can be either events or states depending on essentially pragmatic contextual factors. And what of "processes?" A deeper analysis may reveal subtle and important differences among these entities, but I think that can wait until we have a good enough grasp of them as a distinct ontological category. Of course, this may turn out to be a wrong move; there may not be a single, unitary ontological category of interest comprising all, or even most, of them. But if we are wrong here, it would be philosophically profitable to find out that we are.

Moreover, it is a philosophical commonplace to use the term 'event' in a broad sense, not only to refer to changes but also to refer to states, conditions, and the like. When universal determinism is formulated as "Every event has a cause" or

"the aim of science" is said to be the explanation and prediction of events in nature, it surely is not intended that states, narrowly so-called, escape the net of causal relations or that it is not the business of science to explain why certain states obtain, e.g. why the sky looks blue or why the earth is pear-shaped. To give one more reason for playing down the differences between events and states: some properties already imply changes in the substance that has them; for example, fading in color, falling, and freezing. This means that a change need not necessarily be characterized as a losing or acquiring of some property; it may simply be the *having* of some property at a time.

Just as changes are changes of properties in substances – again leaving aside such difficult cases as coming into being, passing away, fusion and fission – states and conditions are states and conditions *of* or *in* substances or systems of substances. Add this to our earlier reasons for underplaying the differences between changes and unchanges, and we naturally arrive at a conception of events and states as *exemplifications by substances of properties at a time*. This account can be called 'the property-exemplification account' of events; it has also been called a theory of events as "structured complexes", since it attributes to an event a complex structure: an event (or state) is a structure consisting of a substance (an *n*-tuple of substances), a property (an *n*-adic relational attribute), and a time. This in essence is the view of events I have advocated in several earlier papers.[2]

This view of events has been criticized from many quarters, notably by Donald Davidson. The present paper aims at providing further clarifications of the theory, in part in light of some of these criticisms, and also raises some further issues concerning events and actions. In order to do this we need to state a few more details of the property-exemplification account. According to this account, each individual event has three unique constituents: a substance (the "constitutive object" of the event), a property it exemplifies (the "constitutive property" or "generic event"), and a time. An event is a complex of these three, and I have used the notation $[x, P, t]$, or variants thereof, as a canonical notation for events in general. There are two basic principles in the theory, one stating the conditions under which an event exists (occurs, if you like) and the other stating the conditions under which events are identical.

Existence condition: Event $[x, P, t]$ exists just in case substance x has property P at time t,

Identity condition: $[x, P, t] = [y, Q, t']$ just in case $x = y$, $P = Q$, and $t = t'$.

(For simplicity's sake we won't bother with dyadic and higher-place events, although these will show up later as examples. For details see my 'Causation, Nomic Subsumption, and the Concept of Event', *The Journal of Philosophy*, 70 (1973), pp. 217–36.) We shall sometimes use the expression 'event structure'[3] when we want to refer specifically to entities satisfying these conditions, i.e. events under the property-exemplification account.

As far as monadic events are concerned, i.e. events involving nonrelational, one-place attributes as constitutive properties, the theory can easily be developed

along a different line: dispense with the existence condition and define the *predicate* 'is an event' over ordered triples of substances, properties, and times. An ordered triple $\langle x, P, t \rangle$ would be an event just in case the substance x has the property P at time t. The existence of the triple would be guaranteed by the principles of set theory, provided x, P, and t exist, whether or not x has P at t. And the identity condition for events would merely be a special case of the identity condition governing n-tuples. For dyadic and higher-place events, this approach of defining an event predicate within set theory introduces some complexities in regard to the identity condition, complexities which are by no means insuperable. In any case this approach has the advantage of using the familiar set-theoretic apparatus and of doing away with a special operator '[, ,]', which some people seem to find mysterious (but given the identity condition, '[, ,]', may be taken as a special case of the familiar definite description operator, and in this regard it is not different from the set-abstraction operator '$\{v| \ldots v \ldots\}$'). It would also allow us to speak of "possible events", i.e. the ordered triples $\langle x, P, t \rangle$, whether or not x has P at t, which might be useful for certain philosophical purposes.[4]

What is essential is that we are assuming as primitives the three functors on events: 'is the constitutive property of,' 'is the constitutive object of,' and 'is the time of the occurrence of.' The theory states that just in case a substance x has property P at t, there is an event whose constitutive object is x, whose constitutive property is P, and whose time of occurrence is t (the existence condition), and that events are identical just in case they have the same constitutive property, object, and time (the identity condition). This is the core of the account of events under discussion. The introduction of the notation '[, ,]' is merely abbreviatory; the use of the set-theoretic machinery *may* have certain metaphysical consequences, depending on one's metaphysical views of sets, as regards, for example, the essential properties of events. But I regard these as peripheral issues pertaining largely to the mode of presentation of the theory; the basic elements of the account are not essentially altered thereby.

The account so far presented is not an "eliminative" or "reductive" theory of events; that is, it does not attempt to show that events are in some eliminative sense "reducible" to substances, properties, and times. (It may be remarked, though, that a better case for the elimination or reduction of events might be made if we take the ordered triple approach sketched above.) I do not know exactly when a metaphysical theory is "reductive"; the account, however, attempts to tell us something about the metaphysical nature of events by relating them to such other ontological categories as substances, properties, and times. And I have tried to show, in several earlier papers, how this view of events can provide a useful framework within which to develop and discuss theories of causation and explanation, and the mind-body problem; I believe it also provides a framework in which an account of the relation between micro-events and macro-events can be developed.[5]

I have said little about what properties are allowable as constitutive properties of events; namely, what "generic events" are. It clearly will not do to count as an event

the exemplification of any arbitrary property by an object. This becomes obvious if one thinks, as many do, that there is a property expressed by any open sentence, or if one thinks of properties in the way modal logicians do nowadays, namely as functions from possible worlds to sets of individuals. There is also the problem, a difficult and important one, of properties ordinarily considered generic events, e.g. becoming a widow, which give rise to "Cambridge events".[6] It will only beg the issue to try to explain 'generic event' in terms of such notions as 'change' and 'alteration.' And it may be tempting, but no less question-begging, to try to define it in terms of overtly causal concepts, for "real changes" or "real events" seem to be just those that make a causal difference, and generic events seem to be just those properties whose possession by an object bestows upon it a causal power or potency, or whose possession by an object indicates its being subjected to such powers.

This causal approach, I think, may turn out to be the correct one – but in a roundabout way: the basic generic events may be best picked out relative to a scientific theory, whether the theory is a common-sense theory of the behaviour of middle-sized objects or a highly sophisticated physical theory. They are among the important properties, relative to the theory, in terms of which lawful regularities can be discovered, described, and explained. The basic parameters in terms of which the laws of the theory are formulated would, on this view, give us our basic generic events, and the usual logical, mathematical, and perhaps other types of operations on them would yield complex, defined generic events. We commonly recognize such properties as motion, colors, temperatures, weights, pushing, and breaking, as generic events and states, but we must view this against the background of our common-sense explanatory and predictive scheme of the world around us. I think it highly likely that we cannot pick out generic events completely *a priori*. If generic events are understood along these lines, not all of the Boolean combinations of generic events can be relied on to yield generic events; for example, if two generic events are from different theories or rival theories about the same subject matter. It isn't even clear that if F is a generic event, non-F is also a generic event in every case.

There is also the following problem: generic events are often picked out by verbs and predicates. Now there is a group of words that modify them – adverbs and, generally, predicate modifiers. The question arises: If 'F' is a predicate or verb designating a generic event and α is a predicate modifier, under what conditions does '$\alpha(F)$' designate a generic event? The answer will of course depend on the particular properties of 'α' and of 'F'. If walking is a generic event, walking slowly seems to be one also. What about walking while chewing gum, walking toward the Eiffel Tower, and walking exactly two thousand years after the death of Socrates? Are they *kinds of events*? Or should we treat the modifiers as indicating properties *of* the individual events arising from the generic event of walking – e.g. treat '(being done) while chewing gum' as designating a property of the event of my walking at a particular time t? We shall briefly recur to this problem below.

II

A metaphysical theory of events of the sort just sketched must be distinguished from a theory of the "logical form" of event and action sentences – a theory that attempts to exhibit the relevant logical and semantical structures of sentences about events – of the sort initiated essentially by Donald Davidson in an influential series of papers.[7] To call attention to this distinction is not to say there are no important connections between the two. Davidson has made ontological claims based on his work on the logical form of event and action sentences; most notably, he has claimed that his investigations have shown that events and actions must be admitted into our ontology as values of bound variables, and that they are "particulars" that can be described and referred to in various nonequivalent ways. However, Davidson has also emphasized a distinction between a logical and semantical theory of event discourse and a metaphysical theory of events:[8]

> On the score of ontology, too, the study of logical form can carry us only a certain distance... Given this much, a study of event sentences will show a great deal about what we assume to be true concerning events. But deep metaphysical problems will remain as to the nature of these entities, their mode of individuation, their relation to other categories.

Davidson did go beyond a theory of event sentences: in his paper 'The Individuation of Events'[9] he has given us a principle of individuation for events. It is this: events are the same just in case they have the same causes and the same effects. This criterion has been criticized as covertly circular, since causes and effects themselves are events.[10] If the criticisms are correct, it may be unsound as a "criterion" of individuation; nonetheless, it may be true that events having the same causes and same effects are in fact one and the same, although one wonders how the criterion would fare in an indeterministic, causally irregular world (this world could be such a world). Further, it may in fact turn out that my criterion of event identity is coextensive with Davidson's: that is, for events x and y, $x = y$ under the identity condition of the property-exemplification account of events if and only if $x = y$ under Davidson's criterion.[11]

Let us now look into the question whether the property-exemplification account of events is incompatible with Davidson's theory of event sentences and his metaphysical claims based on that theory. The two are often considered as competing theories,[12] and it is a matter of some interest to see what differences, if any, exist between them.[13]

Central to Davidson's theory of event sentences is the point that a sentence like

(1)   Flora dried herself with a towel on the beach at noon,

which is just the sort of sentence often said to "describe" or "represent" an event, contains a covert existential quantification over concrete events, and its logical form should be brought out thus:

(2)   There is an event e such that e is a drying of Flora by Flora, e was done with a towel, e occurred on the beach, and e occurred at noon.

Now there seems to be no reason why the variable 'e' cannot take as its values the event structures of the property-exemplification account: in fact, no reason why the particular event structure [(Flora, Flora), (1) dries (2), noon] isn't just the value of 'e' that makes (2) true. As (2) affirms, this event – an action, as it happens – has the property of being done with a towel, the property of occurring on the beach, and so on. Notice, by the way, that the first clause in the matrix of (2) says 'e *is a drying* of...'; this 'is a (verb)-ing' construction and other verb nominalizations are good clues for identifying the generic events involved in Davidsonian paraphrases of event sentences. To cite two of his own examples:[14]

(3a)   The boiler exploded in the cellar.
(3b)   There exists an x such that x was an explosion and x was in the cellar and x was of the boiler
(4a)   Jack fell down...
(4b)   There is an event e such that e is a falling down of Jack...

On my account exploding, falling, and the like are generic events in the intended sense; the boiler and Jack, in the above examples, are the constitutive substances of the two events respectively.

Obviously, my events can be quantified over; and there is no problem about quantifying *into* the event structures unless of course there happen to be other barriers to quantification such as psychological modalities. My events are "particulars" and "dated." That they are dated is obvious. I am not clear what "particulars" are; but events in my sense have locations in space, namely the locations of their constitutive substances (if mental substances have no spatial location, then mental events would have no spatial location either, which presumably is what some dualists want to claim). And my events are not "eternal" objects; they do not exist in all possible worlds; they exist only if the existence condition is met, which is a contingent matter of fact. If this doesn't show that something is "concrete" or "particular," what does?[15]

Davidson has considered it an important mistake to regard a sentence like

(5)   Doris capsized the canoe yesterday

as picking out a unique event, for she may have capsized the canoe more than once yesterday. Generally speaking, it is a mistake, according to him, to think of such sentences as playing the role of singular terms for events. Now my account does not compel us to render (5) into

(6)   The event [Doris, capsized the canoe, yesterday] occurs.

(Here we disregard the fact that a dyadic event may be involved; we also disregard the tense.) For we may put (5) thus:

(7) $(\exists t)$([Doris, capsizes the canoe, t] exists and t belongs to yesterday).

But we are not quite through with Davidson on this point. According to the existence condition, as I intended it, if an object x exemplifies P at t in the sense of *throughout t*, then the existence of a *unique* $[x, P, t]$ is guaranteed by the identity condition. Davidson writes:[16]

> Some actions are difficult or unusual to perform more than once in a short stretch of time, and this may provide a specious reason in some cases for holding that action sentences refer uniquely to actions. Thus with 'Jones got married last Saturday', 'Doris wrote a check at noon', 'Mary kissed an admirer at the stroke of midnight'. It is merely illegal to get married twice on the same day, merely unusual to write checks simultaneously, and merely good fortune to get to kiss two admirers at once.

Let us assume that kissing some admirer or other is a generic event. My two conditions, then, imply that there is the unique event of Mary's kissing an admirer at the specified time. From the existence of this event, however, nothing follows as to how many persons she kissed at the time, although ordinarily, it would be safe enough to assume she kissed one person. Suppose she in fact kissed two admirers, Steve and Larry. If we take the dyadic kissing, x's kissing admirer y, as the generic event involved, the two conditions entail the existence of two unique dyadic kissings, Mary's kissing Steve and her kissing Larry. Thus, there are three kissings here, which some might find a bit disconcerting; but once it is realized that they are one monadic kissing and two dyadic kissings, the situation need no longer strike us as implausible or incoherent. In fact, it seems to me that that is what we should say to describe Mary's kissings.[17]

Another point of some importance, though obvious, is this: there is nothing in my account that implies that from any sentence about an event we can read off what the event's constitutive components are. From the sentence 'A momentous event occurred yesterday' we can only approximately locate the time of the event; we can tell nothing about its constitutive property or substance. From the sentence 'The momentous event that occurred yesterday caused the event now under discussion by the regents of the university' we can say nothing about the constituents of these events, except, again, the time of the first event. This is as it should be. The situation is quite similar with sentences about physical objects. In a sense knowing what the constitutive object, property, and time of an event are *is* to *know what that event is*. Although we are here treading on uncertain grounds, my canonical description of an event, I believe, gives an "intrinsic description" of an event (assuming that the three components are given "intrinsic descriptions"), in the sense in which such descriptions as 'the momentous event yesterday' and 'the event now under discussion' are "extrinsic." I am not here prepared to explain, much less define, what is to be meant by 'intrinsic' and 'extrinsic'; perhaps they are explainable in terms of a combination of modal and epistemic concepts.

There are other points of apparent disagreement between Davidson's views and mine, some of which will be taken up in succeeding sections. But overall it seems

to me that there are no irreconcilable *doctrinal* differences between Davidson's theory of event discourse as a semantical theory and the property-exemplification account of events as a metaphysical theory. True enough, Davidson and I disagree about particular cases of individuation of events; for example, whether Brutus's stabbing Caesar is the same event as Brutus's killing Caesar. But most of these differences about particular cases seem traceable to possible differences in our views about causation, explanation, and intensionality. Where Davidson says, with regard to a sentence like

(8)   The collapse was caused, not by the bolt's giving way, but the bolt's giving way so suddenly,

that here 'was caused' should be understood in the sense of 'is causally explained,' and that explanations "typically relate statements, not events,"[18] I would take (8) more literally and be inclined to take it as evidence for saying that in virtue of their different causal properties, the bolt's giving way and the bolt's giving way suddenly are different events, though one is "included" in the other. But here we are coming dangerously close to some difficult problems about the relationship between causation and explanation, and the intensionality of causal and explanatory relations, problems well beyond the scope of the present paper.

III

One of the most frequently voiced objections to the theory of events as property exemplifications is the point that this theory multiplies events beyond necessity. Not only is Brutus's stabbing Caesar distinct from his killing Caesar and also from his assassinating Caesar; but in fact no stabbings are killings, and no killings are assassinations.[19] What seems worse, Brutus's stabbing Caesar is also a different event from Brutus's stabbing Caesar with a knife, since stabbing and stabbing with a knife presumably are different properties; and neither of these events is the same as Brutus's stabbing Caesar in the heart; and so on. These considerations seem to have led some philosophers to think that the property-exemplification account does not permit redescriptions of events,[20] since any addition or deletion from a given description would alter the constitutive property of the event in question.

Let us first examine the problem of redescribing an event. It is true that if an event description is altered so that a different generic event is picked out, then the resulting description, on my view, would pick out a different event. That much is clear enough. And the same applies to the names and descriptions of the constitutive objects and times of events. On the other hand, it is not part of the account in question that the use of different predicates – nonsynonymous, logically inequivalent predicates – invariably leads to a multiplicity of properties. 'Is blue' and 'has the color of the sky' pick out the same property, namely the color blue.[21] Moreover, as noted earlier, events themselves *have* (exemplify) properties; Brutus's stabbing Caesar has the property of occurring in Rome, it was intentional, it

led to the death of Caesar and caused Calpurnia to grieve, and so on. Needless to say, the properties an event exemplifies must be sharply distinguished from its constitutive property (which is exemplified, not by the event, but by the constitutive substance of the event). It is also a property of Brutus's stabbing Caesar that its constitutive property is stabbing. Thus, events can be redescribed by the use of different predicates expressing the properties *of* (exemplified by) them; what cannot be done is to redescribe them by tampering with their constitutive properties. The point I am making should be obvious if we consider such "extrinsic" descriptions of events as 'the event we are talking about' and 'the most unforgettable event in David's life.' What the theory implies is that if 'the most unforgettable event in David's life' refers, then the event thus referred to must have a structure of the sort the theory attributes to events; for example, the event could have been David's falling off a horse at age five.

But the foregoing isn't likely to satisfy the critics as allowing us a full range of describing and redescribing events. 'Brutus stabbing Caesar' and 'Brutus killing Caesar,' they insist, *are* redescriptions of the same event; and what may seem even more obvious, 'Brutus's stabbing Caesar' and 'Brutus's stabbing Caesar with a knife' are two descriptions of the same event, one being somewhat more detailed and more informative than the other. Similarly, for such examples as 'Sebastian's stroll,' 'Sebastian's leisurely stroll,' and 'Sebastian's limping stroll.' Here we return to the initial objections mentioned at the outset of this section.

I do not want to discuss here the question of whether Brutus's stabbing Caesar is the same event as Brutus's killing Caesar; for I have little to add to the existing arguments in favor of their distinctness.[22] Also, intuitively, it is more plausible to deny identity in cases like it than in cases like Sebastian's stroll and Sebastian's leisurely stroll (where, we suppose, Sebastian did stroll leisurely).

So what of Sebastian's stroll and Sebastian's leisurely stroll? First of all, there is the question whether being leisurely is to be taken as a property exemplified by the event of Sebastian's stroll, or as modifying the generic event of strolling, thereby issuing in another generic event, namely strolling leisurely. If the former line is taken, there is no special problem – no more problem here than there is in the case of 'this red rose on the table' and 'this withered red rose on the table' where there is one unique red rose on the designated table which is withered. So on this approach Sebastian's stroll, after all, turns out to be the very same event as Sebastian's leisurely stroll, i.e. Sebastian's stroll, which, as it happens, was leisurely.

Thus, the general strategy is this: we deny that strolling leisurely or stabbing with a knife are generic events, although strolling and stabbing are. 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.' We could say, somewhat more generally, that predicate modifiers indicating means-manners-methods, may be construed in this way.[23] Taking this way out, however, is not entirely appealing, for at least two reasons: first, it would place a very severe and urgent burden on us to produce an account of generic events and of the

modifiers of expressions designating them, although this is a problem that one has ultimately to face in any case. Second, this approach neutralizes one of the initial motivations for developing the structured complex view of events. Whatever else events might be, they were intended to be entities that enter into causal relations with one another, and that can be objects of explanations. But it is clear that we may want to explain not only why Sebastian strolled, i.e. Sebastian's stroll, but also why he strolled leisurely, i.e. his leisurely stroll. Under the approach being considered, the second explanation would be of why Sebastian's stroll was leisurely; we would be explaining why a certain event had a certain property, not why a certain event occurred. But perhaps it was a mistake to bring very broad and general considerations about explanations into a theory of events, to begin with. The desire to have events as the relata of causal relations could, I believe, be accommodated within this approach, although some of the specific things I have said in earlier articles about causation would have to be retracted (especially, the claim that for Humean causation there must be a lawlike connection between the generic events of any two causally connected individual events).

The other strategy for dealing with Sebastian's stroll and his leisurely stroll, which one might call "the official line" of the property-exemplification account, is to affirm that these are different, if not entirely distinct, events. Not entirely distinct since the latter *includes* the former.[24] 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; also, various different kinds of "inclusion" have to be distinguished (obviously, the sense in which an assassination *includes* a killing or strolling leisurely *includes* strolling is very different from the sense in which, say, my walking to the door *includes* my moving my left foot to take the first step, or the burning of the barn *includes* the burning of the roof of the barn). But I assume that it's intuitively plausible to say there is some relation here that can be called "inclusion." Difference need not be total distinctness or absence of any significant relation whatever. Once this is granted, there being two events (actions) here, and not one, impresses us as not such an extravagant claim after all. Take this table: the top of the table is not the same thing as the table. So there are two things, but of course one table – in fact, there are lots of things here if you include the legs, the molecules, the atoms, etc., making up the table.

Unfortunately, we are not through with the proliferating events. The new difficulty I have in mind is this: granted there are two events here, of which one is included in the other. Now, Sebastian's strolling is a strolling – a stroll event, if you like – and Sebastian's strolling leisurely is also a stroll event. You say they are two events, not one; so it follows that there are two stroll events, both strolled by Sebastian on that memorable night through the streets of Bologna. In fact, given such generic events as strolling with a cane in hand, strolling with a limp, and so on, there were indefinitely many strolls strolled by Sebastian that night! And of course indefinitely many stabbings administered by Brutus on Caesar!

The analogy with tables and other sundry physical objects may still help us here. We normally count this as *one* table; and there are just so many (a fixed

number of) tables in this room. However, if you believe in the calculus of individuals,[25] you will see that included in this table is another table – in fact, there are indefinitely many tables each of which is a proper part of this table. For consider the table with one micrometer of its top removed; that is a table different from this table; and so on.

It would be absurd to say that for this reason we must say there are in fact indefinitely many tables in this room. What I am suggesting is merely that the sense in which, under the structured complex view of events, there are indefinitely many strolls strolled by Sebastian may be just as harmless as the sense in which there are indefinitely many tables in this room. The proliferation of events with which my account of events is often charged is not in itself serious; for "the number of *events*" is very much like "the number of *things*" or "the number of *facts*"; 'event' isn't an ordinary run-of-the-mill count noun. What is bothersome is the seeming fact that the number of stabbings or strollings seems to go beyond any bound. 'Stabbing' and 'stroll' seem to be as good count nouns as 'table' and 'apple.' In any case I hope that I have succeeded in mitigating this difficulty. If I have not, the earlier strategy of handling the proliferation problem would merit more serious consideration.

IV

The question has been raised whether my account of events has implausible consequences concerning the essential properties of events.[26] Take Sebastian's leisurely stroll at midnight. According to the structured complex account, it may be thought, there are three essential properties of that event: one, that the stroll was strolled by Sebastian; two, that it was a leisurely stroll; and three, that it occurred at midnight. More generally, it is alleged that the account is committed to the thesis that the three constituents of an event constitute the essential properties of the event. It is then argued that, at least, the time of the occurrence of an event is not an essential property of it. Sebastian's stroll could have taken place five minutes before or after midnight. And perhaps its being a leisurely stroll isn't an essential property of the stroll either; if Sebastian had been pressed for time, the stroll would have been a brisk one. Similarly, the stroll could have been taken by someone else. Suppose that the midnight stroll was done as some sort of ritual by a member of a secret society chosen by lottery, and that it so happened that Sebastian was so chosen. If Mario, Sebastian's friend, had been chosen, then Mario would have strolled that stroll.[27]

It isn't clear to me what, if anything, an analysis or metaphysical theory of something implies about the essential properties of that thing. There is a metaphysical theory of physical objects, which is of respectable vintage and tradition, that asserts that a physical object is a "congeries of properties" or something like that. So this table is a "congeries" of such properties as brown color, the mass it has, and so on. But presumably it is not a consequence of the theory that the table has essentially the properties it actually has, that the brown color of the table is an

essential property of it. Why should it be thought, then, that the structured complex view of events is saddled with the essentialist consequences mentioned above?

But perhaps it is my identity condition for event structures that is the chief focus of the objections. Here, too, analogy with other cases makes it difficult to see how any essentialist consequences necessarily follow from identity criteria. It is at least a respectable identity criterion for physical objects that they are the same just in case they are completely coincident in space and time. From this it does not follow that a physical object is essentially where and when it in fact is. To give another, possibly controversial, example, the extensionality criterion of set identity does not entail that a given set has its members essentially. It seems at least arguable that the set of the planets could have comprised eight planets rather than nine; even if this is wrong, it's not easy to see how the extensionality criterion (or any part of the usual mathematical theories of sets) shows it; we would need an independent metaphysical argument.

On the other hand, I don't want to claim that the essentialist consequences attributed to my account are in themselves false. At least, I find it plausible to think of the constitutive substance of an event as essential to the identity of that event. The fact that someone other than Sebastian could have taken a stroll in his place does not make it the case that the very stroll that Sebastian took could have been taken by someone else. If Mario had been chosen to stroll that night, then there would have been another stroll, namely Mario's. It has been remarked by some philosophers that, although you could have a pain that is qualitatively identical with the pain I am now having, you could not, logically or metaphysically, have the very same, numerically identical pain that I have.[28] The event of my strolling could not, logically or metaphysically, occur to anyone else any more than the event of my being in pain could. Only Socrates could have died *his* death. It seems not implausible to think that events and states are essentially individuated with respect to their constitutive substances.

The essentiality of the constitutive property to the identity of an event is less certain. For one thing, the question seems to depend on some of the issues earlier raised concerning generic events. If strolling leisurely is a generic event, there seems to be a case for saying that the generic event is not essential to the identity of an event which involves it. But it is highly dubious that Sebastian's leisurely stroll could have been a run or a crawl, and it certainly could not have been a coughing or dozing, although Sebastian could have stayed home that night with a cold, coughing and dozing. The case seems still weaker for the essentiality of the time of occurrence: it seems correct to say that the stroll could have occurred a little earlier or later than it actually did. The stroll, we suppose, could have taken place five minutes later than it actually did, but could it – the very same stroll – have occurred five months later? Five years? In any case, caution is required: we should not infer, from the mere fact that Sebastian could have strolled at a different time, the conclusion that this very stroll Sebastian took could have occurred at that different time.

Some of these issues may have important bearings on other philosophical problems, such as the identity theory of mind; also, what we want to say about

the bearing of generic events on the essential properties of events may in turn constrain what we want to pick as generic events. And what I said earlier about "knowing what a given event is" and an "intrinsic description of an event" is likely to have a bearing on these issues. There is at present only a mass of intuitions, some conflicting with others, which need to be sorted out by a theory. We don't have such a theory, and in any case, events don't seem to be much worse off than anything else with respect to these problems about essences.

There is an essentialist consequence I am willing to accept: events are, essentially, structured complexes of the sort the theory says they are. Thus, events could not be substances, properties, and so on. But this should not be confused with the assertion that *each* event structure has *its* constituents essentially. This assertion is at least partially true, as I argued; but the general problem is still open.

V

Actions are usually taken as a subclass of events. How to characterize this subclass is a problem considered very important, but we shall not be concerned with it here. Killings are actions – at least, those that involve agents (I assume falling rocks and lightnings can also kill) – and thus events as well. But what is a killing? As has frequently been observed of late, 'kill' is a near synonym of 'cause to die.' Since killing presumably isn't a basic action, not for humans at any rate, it must involve two events, one an action performed by the killer and the other the death caused by the action. Thus, Brutus's killing Caesar seems to be nothing other than some action of Brutus causing the death of Caesar. The action event of Brutus's killing Caesar thus threatens to turn into a *relation*, a *causal* relation, between two events. And Brutus's stabbing Caesar, the cause event in this causal relation, itself may turn into a causal relation between two events, in the same way. Thus, killings so analyzed don't seem to fit the model of events under the property-exemplification account; they do not seem to have the complex event structure it attributes to events; instead, they seem to be relations between events.

This feature isn't limited to action events. As noted some time ago by C. J. Ducasse, many transitive verbs are implicitly causal; e.g. 'pull,' 'push,' 'break,' 'shatter.' When the wind blows the door open, this involves a causal relation: the pressure of the wind on the door causes the opening of the door. So the event of the wind's blowing open the door appears to turn into a causal relation between two events, the wind's pressure on the door and the door's opening. The question arises: are we to accept these causal relations themselves, i.e. one event's causing another, as events?[29] Or should we fit them into some other ontological category, say, facts?

One argument for treating, say, killings as events may be this: they are just the sort of thing that can have causes and effects, and just the sort of thing that can be given causal explanations. Brutus's killing Caesar may have been caused by Brutus's political ambitions and personal jealousies; it in turn caused Calpurnia's grief and caused Caesar to be absent from the Roman Senate the next day. It is of

the essence of events that they can enter into causal relations. So why not treat killings and other actions as events?

This argument isn't decisive, however. As earlier noted, there are two events involved in Brutus's killing Caesar: Brutus's action, which was his stabbing Caesar, and Caesar's death. When we cite Brutus's motives and beliefs as causes of the killing, we do not seem to be saying that they are the causes of the stabbing's causing the death; rather, we seem to be saying that they are causes – or among the causes – of Brutus's undertaking the action, namely the stabbing of Caesar, which he believed would result in Caesar's death. I would venture the hypothesis that what we normally take to be a cause of the killing will ultimately turn out to be a cause – or among the causal conditions – of the basic action which was undertaken by Brutus in the endeavor that Caesar be dead and which in fact did cause the death.

What of the effects of the killing? Calpurnia's grief may very well have been caused by her *belief* that Caesar was dead, or that Caesar was so brutally murdered, or that it was Brutus who killed him. As for Caesar's absence from the Senate the following day, we can attribute it to his death as one of *its* effects. I think that what we normally take as an effect of a killing is often attributable to the death of the person killed or someone's cognitive attitude, such as belief, toward some aspects of the killing.

I believe similar things can be said of events that do not involve agents. The rock shatters the window. This we normally call an event. But it involves a causal relation: the rock's impact on the window caused it to shatter. What is the cause of the rock's shattering the window? Well, Johnny threw the rock. But we can take Johnny's throwing the rock as the cause of the rock's impact on the window, namely the first of the two events in the causal relation. The rock's shattering the window caused a cut on my hand. Again, the cut can be construed as an effect of the shattering of the window, namely the second of the two events in the causal relation, and not as the effect of the rock's shattering the window. One might object: but what of the fragility of the window glass? Why isn't that a cause of the rock's impact's causing the shattering? We do say: if the glass in the window had not been so fragile, the rock's impact would not have caused the window to shatter. Furthermore, the fragility of the window glass is not a cause of the rock's impact on the window. My reply is this: we still need not say that the fragility is a cause of one event's causing another; it is a cause, along with the rock's impact and perhaps other things, making up the complete cause of the window's shattering.

So the thesis I am suggesting is this: the causes and effects of actions and events exhibiting the causal features under discussion are attributable to the events in the causal relation that constitute such an action or event. (I leave aside here effects like Calpurnia's grief that may be caused by beliefs about such actions and events.) The thesis has two interpretations, one stronger than the other: (1) all causes of, say, a killing are among the causes of the action that caused the death, and all effects of the killing are among the effects of the death; and (2) all causes of the killing are among the causes of the action that caused the death or of the death, and all effects of the killing, too, are among the effects of the action or of the death. The stronger thesis, (1), appears to be false; suppose that as a result of the vigorous

wielding of the knife, Brutus dislocated his right shoulder. It would be correct to say that Brutus's dislocating his right shoulder was caused by his killing Caesar, but clearly it is not caused by Caesar's death. The weaker interpretation, (2), of course accommodates this sort of example. In any case, if the thesis is correct in either interpretation, we can block the argument that killings must be treated as events since they enter into causal relations.

If we decide not to regard killings and such as events, then it would be open to us to regard them as *facts* (which should not preclude us from taking events *simpliciter* as a special subclass of facts): Brutus's killing Caesar is the fact that some action of Brutus caused Caesar to die, and the rock's shattering the window is the fact that the rock's impact caused the window to shatter. Such events and actions turn out to be causal facts. Treating them in this way may affect the ontology of action theory, theory of explanation, and the analysis of causation. And it may lead us to the talk of 'basic events,' namely those events not involving causal and other relations among events.

But the above is not the only course open to us. If we are prepared to accept causal properties as generic events, that is, if we are prepared to allow causal relations between events to appear in generic events, then we could accommodate killings and their ilk within our scheme. For we can render

(9)   Brutus's doing some action which caused Caesar's death

into

(10)   [(Brutus, Caesar), for some generic action event P and times t^* and
         t' [((①, ②), $P^{①②}$, $t*$] caused [②, dies, t'], t].[30]

Which way is better? I think that the second way leads to a messy situation with regard to the problem of characterizing generic events, and creates complications in the theory of causation, explanation, and so forth. The first way is largely unexplored at this stage, but I would look upon it more favorably; I think it presents us with interesting possibilities to explore.[31]

Notes

I have benefited from discussions with, or unpublished materials furnished by, the following persons: David Benfield, Richard Cartwright, Roderick Chisholm, Donald Davidson, Fred Feldman, Michael A. Slote, Ernest Sosa, and Ed Wierenga.

1   In Ducasse, C. J., *Causation and the Type of Necessity*, University of Washington Press, Seattle, 1924.
2   'On the Psycho-Physical Identity Theory,' *American Philosophical Quarterly* 3 (1966), 231–2; 'Events and Their Descriptions: Some Considerations,' N. Rescher *et al.* (eds), *Essays in Honor of Carl G. Hempel*, Reidel, Dordrecht-Holland, 1969; 'Causation, Nomic Subsumption, and the Concept of Event,' *Journal of Philosophy* 70 (1973),

217–36. A similar account of action was given by Alvin Goldman in *A Theory of Human Action*, Prentice-Hall, Englewood Cliffs, NJ, 1970; an account of events very much like mine is found in R. M. Martin's 'On Events and Event-Descriptions,' J. Margolis (ed.), *Fact and Existence*. See also N. L. Wilson, 'Facts, Events and Their Identity Conditions,' *Philosophical Studies* 25 (1974), 303–21.
3   This expression was suggested by Richard Cartwright.
4   For a treatment of "possible facts" somewhat along these lines see Bas van Fraassen, 'Facts and Tautological Entailments,' *Journal of Philosophy* 66 (1969), 477–87.
5   Interesting results have been obtained along these lines by Terence Horgan in his doctoral dissertation, *Microreduction and the Mind-Body Problem*, at the University of Michigan, 1974.
6   See my 'Noncausal Connections,' *Noûs* 8 (1974), 41–52. The term 'Cambridge change' comes from Peter Geach, *God and the Soul*, Routledge & Kegan Paul, London, 1969, p. 71.
7   To cite a few: 'The Logical Form of Action Sentences', N. Rescher (ed.), *The Logic of Decision and Action*, University of Pittsburgh Press, Pittsburgh, 1967; 'Causal Relations,' *Journal of Philosophy* 64 (1967), 691–703; 'Truth and Meaning,' *Synthese* 17 (1967), 304–23.
8   'Action and Reaction,' *Inquiry* 13 (1970), 140–8.
9   In N. Rescher *et al.* (eds), *Essays in Honor of Carl G. Hempel* [chapter 22, this volume].
10   E.g. by N. L. Wilson in 'Facts, Events and Their Identity Conditions'; and by George Sher in 'On Event-Identity,' *Australasian Journal of Philosophy* 52 (1974), 39–47.
11   In 'On Kim's Account of Events and Event-Identity,' *Journal of Philosophy* 71 (1974), 327–36, Alexander Rosenberg claims that, with a slight revision in my account of events, Davidson's criterion and my criterion are equivalent under the Humean constant-conjunction view of causation.
12   Davidson himself refers to my account as a "rival" account, in his 'Events as Particulars,' *Noûs* 4 (1970), 25–32, p. 26, footnote 4.
13   I shall not discuss here Roderick M. Chisholm's very different theory of events as "states of affairs" in his sense of abstract intensional entities, developed in his *Person and Object*, Open Court Publishing Co., 1976. See also his 'Events and Propositions,' *Noûs* 4 (1970), 15–24.
14   The first pair comes from his 'Eternal vs. Ephemeral Events,' *Noûs* 5 (1971), 335–49, p. 337; the second from 'Causal Relations,' 696.
15   Chisholm refers to both Davidson's account and mine as variants of "the concrete event theory" in *Person and Object*.
16   'The Individuation of Events,' 220 [chapter 22, this volume].
17   Especially if we keep in mind the fact that there being three different kissings does not entail that there can be no intimate and significant relations between them.
18   'Causal Relations', 703. (8) is a slightly altered version of Davidson's own example.
19   Davidson in his 'Comments' on Martin's 'On Events and Event-Descriptions,' Margolis (ed.), *Fact and Existence*, 81. Also Rosenberg in 'On Kim's Account of Events and Event-Identity.'
20   E.g. Carl G. Hedman claims this in his 'On When There Must Be a Time-Difference Between Cause and Effect,' *Philosophy of Science* 39 (1972), 507–11.
21   On property identity, see Peter Achinstein, 'The Identity of Properties,' *American Philosophical Quarterly* 11, 1974, 257–75.
22   I have in mind: Lawrence H. Davis, 'Individuation of Actions,' *Journal of Philosophy* 67 (1970), 520–30; Judith Jarvis Thomson, 'The Time of a Killing,' *Journal of*

Philosophy 68 (1971), 115–32; Alvin I. Goldman, 'The Individuation of Action,' *Journal of Philosophy* 68 (1971), 761–74.

23 Such a view is suggested by Judith Jarvis Thomson in her 'Individuating Actions,' *Journal of Philosophy* 68 (1971), 774–81.

24 Goldman would say that the former 'level-generates' the latter; see *A Theory of Human Action*, chapter 2.

25 In the sense of Nelson Goodman, *The Structure of Appearance*, Harvard University Press, Cambridge, 1951.

26 Ed Wierenga has raised this question in his doctoral dissertation, *Three Theories of Events*, University of Massachusetts at Amherst, 1974.

27 This is substantially what Davidson says in 'Eternal vs. Ephemeral Events' to answer a question raised by Chisholm.

28 Jerome Shaffer in 'Persons and Their Bodies,' *Philosophical Review* 75 (1966), 59–77.

29 From similar considerations N. L. Wilson concludes "... 'alerting', 'killing' and all the other causative verbs do not refer to events" in 'Facts, Events and Their Identity Conditions,' 318.

30 The question of the relationship between t^*, t', and t is discussed by Judith Jarvis Thomson in 'The Time of a Killing.'

31 The problem of generic events that contain causal relations is related to Bernard Berofsky's problem of characterizing "R-sentences" in his *Determinism*, Princeton University Press, Princeton, 1971, chapter V, esp. 157 ff.

Part VI

Tropes