

# Event Plenitude

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One of the salient developments in recent metaphysics is the increasing popularity of *material plenitude*: roughly, the thesis that wherever there is one material object there is in fact a great multitude of co-located but numerically distinct objects that differ principally in which of their properties they have essentially and which accidentally. Here I argue that we have at least as much reason to look favorably on *event plenitude*: wherever one event occurs there occur a great multitude of co-located but numerically distinct events that differ principally in which of their properties they have essentially and which accidentally. I argue, first, that the standard reasons to adopt material plenitude extend fairly straightforwardly to events, and secondly, that only event plenitude can protect the plausible idea that causality is an extensional relation.

## **1. Events: Where Davidson and Kim Left Us**

The metaphysics of events has not been as prominent in the 21st century as it had been in the second half of the 20th. From the late 1960s through the 1980s, it was one of the central areas of research in metaphysics, with tentacles in philosophy of action and philosophy of mind. In this section, I offer a refresher on the metaphysics of events and what the debate around the 1970s taught us.

There are two basic questions a metaphysics of events faces: (1) Are there events?, and (2) If there are events, what are they? In a seminal article, Davidson (1967) offered an influential argument for a "Yes" answer to the first question. Working with a Quinean quantificational approach to existence questions, Davidson tried to show that our theory of the world involves indispensable quantification over events, by arguing that statements such as "Claudia kissed Claudio" involve such quantification. On the face of it, "Claudia kissed Claudio" may seem to quantify only over concrete particulars: it may seem to have the logical form  $Rab$ , where  $R$  is the two-place relation of kissing and  $a$  and  $b$  are Claudia and Claudio. On this analysis, existential generalization from "Claudia kissed Claudio" yields

(EG<sub>1</sub>) There is an  $x$  and there is a  $y$ , such that  $x$  kissed  $y$ ,

which involves no quantification over events. But Davidson argued that a better understanding of "Claudia kissed Claudio" actually quantifies over an event: the logical form is  $Fe \ \& \ Ge$ , where  $e$  is a dated event (a kissing, as it happens),  $F$  is the property of being-done-by-Claudia, and  $G$  is the property of being-done-to-Claudio. Here existential generalization yields

(EG<sub>2</sub>) There is an  $x$ , such that  $x$  was done by Claudia &  $x$  was done to Claudio,

which does quantify over an event.

What makes this second analysis *better*, according to Davidson, is that it captures correctly the inferential role of "Claudia kissed Claudio." Consider, for instance, that "Claudia kissed Claudio" logically follows from "Claudia kissed Claudio on the lips." If the logical form of "Claudia kissed Claudio" is  $Fe \ \& \ Ge$ , as Davidson suggests, then presumably the logical form

of "Claudia kissed Claudio on the lips" is  $Fe \ \& \ Ge \ \& \ He$ , where H is being-done-on-the-lips. It is straightforward why "Claudia kissed Claudio" follows from "Claudia kissed Claudio on the lips":  $Fe \ \& \ Ge$  follows from  $Fe \ \& \ Ge \ \& \ He$  by conjunction elimination. But if instead the logical form of "Claudia kissed Claudio" is  $Rab$ , then presumably the logical form of "Claudia kissed Claudio on the lips" is  $R^*abc$ , where  $R^*$  is the three-place relation of kissing-on. The problem is that  $Rab$  does not logically follow from  $R^*abc$ , so it remains inexplicable why "Claudia kissed Claudio" should follow from "Claudia kissed Claudio on the lips."

Davidson's argument convinced many metaphysicians of the reality of events (though not all - see, e.g., Horgan 1978). The next question concerned the *nature* of events. Here theories have clustered in two main groups, one associated with Davidson and the other with Jaegwon Kim. The Davidsonian view construes events as *sui generis* entities lacking any constituent structure. For Kim (1976), on the contrary, events are triplets of a substance, a property, and a time (e.g., Claudia, the property of kissing Claudio, and midnight on New Year's Eve). Accordingly, for Kim, events individuate through these *constituents* of theirs: "[ $x, P, t$ ] = [ $y, Q, t'$ ] just in case  $x = y, P = Q,$  and  $t = t'$ " (1976: 35). For Davidson, the individuation of events is a more complicated affair: he cannot individuate them by appeal to their constituents, since for him they have none. For much of his career, Davidson held that events individuate by their causes and effects: different causes or effects, different events; same causes and effects, same event (Davidson 1969). Insofar as the causes and effects of an event are themselves events, though, this ultimately individuates token events by their position within the overall,

cosmic causal web of events, and to that extent non-reductively. (We may say that this is a "horizontal" individuation of events in terms of entities that are at the same "level of fundamentality"; this contrasts with Kim's "vertical" individuation in terms of more fundamental entities that "make up" events.)

From our current vantage point, it is perhaps natural to recast the core disagreement between Davidson and Kim in terms of *grounding*: for Kim, the existence of events is grounded in the existence of substances, properties, and times, whereas for Davidson, events are among the "ungrounded grounds" of reality. This means that for Davidson events are sui generis particulars irreducible to any entities of other ontological categories – part of the "fundamental furniture" of the world. Not so for Kim, who construes them as ontologically "derivative" upon objects, properties, and times.

Davidson's and Kim's were not the *only* accounts of events discussed in the relevant literature. Still, they did serve for decades as the two exemplars in relation to which others fashioned their alternatives. In 21st-century metaphysics, though, events have become much more peripheral, with material objects often taking their place at center stage.

## **2. Plenitude: From Material Objects to Events**

### **2.1. Material Plenitude and the Standard Case for It**

Particularly central in the metaphysics of material objects have been debates on material constitution (monism vs. pluralism about coincident objects), mereological composition (nihilism vs. universalism vs. restrictivism), persistence (endurantism

vs. perdurantism), and, more recently, whole-part ontological priority (priority monism vs. priority pluralism). The idea of material plenitude arose from the debate on material constitution. The debate originally concerned whether a material object and the matter that constitutes it should be thought of as one object or two (Wiggins 1968). The pre-philosophical answer seems to be "One": when we look at a statue, we intuitively consider that there is just one object occupying the exact region where the statue is. The main motivation for answering "Two" is that if we flatten the statue, so it no longer looks like Lady Liberty, the statue no longer exists, but the lump of copper it is made of still does. This consideration, combined with certain relatively innocuous assumptions (e.g., that identity is necessary, such that if  $x = y$  then  $\Box x = y$ ), leads to the notion that the statue and the relevant lump of copper are two numerically distinct objects.<sup>1</sup>

With the rejection of monism about the statue and the copper comes a rejection of certain principles of object individuation. For instance, material objects cannot be individuated by the spacetime worms they occupy, as Quine (1960) for instance held, if two distinct objects can occupy the same spacetime worm. (This is not the case with the Statue of Liberty, since the lump of copper predates it, but can be stipulated into thought-experimental cases.)

How, then, might material objects individuate? One approach, prominent in contemporary metaphysics, is that objects individuate by the subsets of their properties they have *essentially*: a material object  $x$  is the material object it is because  $F_1, \dots, F_n$  are the properties it has essentially. Thus, while both the statue and the copper have the property of being Lady-Liberty-shaped, the statue has that property

essentially whereas the copper has it accidentally; wherefore they are two. This line on object individuation has led some metaphysicians to a further conclusion: once we allow for numeric difference between objects that comes entirely from whether they have their properties essentially or accidentally, there will be no non-arbitrary, non-anthropocentric way to distinguish between permissible and impermissible distributions of essentiality and accidentality across any collection of co-instantiated properties - at least so long as the properties in question are modally independent, where  $F_1$  and  $F_2$  are 'modally independent' iff the instantiation of  $F_1$  does not necessitate the instantiation of  $F_2$  and vice versa (thus, the property of being red is *not* modally independent of the property of being scarlet, because having the latter necessitates having the former). If this is right, then in any region occupied by some material object there is a great multitude of coincident but numerically distinct material objects that differ, in the first instance, only in which of their properties they have essentially and which accidentally. This is what we call "material plenitude."

We have to insist on the "in the first instance" here, because there are certain properties - notably modal and sortal properties - the very *having* of which depends on what other properties the object has essentially or accidentally; the relevant objects may therefore differ in the *mere having* of these other properties in addition to differing in the distribution of essentiality and accidentality over their other properties. For instance, the lump of copper has the modal property of *being possibly-flat*, whereas the statue coincident with it lacks that property altogether. The difference here is not in whether a property is had essentially or accidentally, but in whether it is had at all or not. Still, this difference

in the sheer having of modal properties *flows from* the more fundamental difference in the essential vs. accidental having of shape properties: the fact that the statue is essentially, whereas the copper is only accidentally, Lady-Liberty-shaped is the reason *why* the copper is possibly-flat and the statue isn't. Similarly, what makes the Statue of Liberty a statue is arguably that it is essentially built with a certain aesthetic purpose in mind, or is essentially displayed with certain intentions in mind, or is essentially. . . - insert your favorite account of what a material object *must* be like to count as a statue.

Let us distinguish, then, between two kinds of properties an object has: properties the having of which depends on whether the object has some other properties essentially or accidentally, and properties the having of which is independent of whether other properties are had essentially or accidentally. I will lazily call the former "second-instance properties" and the latter "first-instance properties." The principle of material plenitude may, then, be stated as follows:

(MP) For any spatial region  $R$ , if there is in  $R$  a material object with  $n$  modally independent first-instance properties, then there are in  $R$   $2^n - 1$  distinct material objects.

A metaphysics of material objects that embraces MP, or some variant otherwise formulated but intended to capture essentially the same idea, was defended already by Kit Fine (1982) and Stephen Yablo (1987), but more recently also by Karen Bennett (2004), John Hawthorne (2006a, 2006b), Mark Johnston (2006), Sarah-Jane Leslie (2011), Ross Inman (2014), Shamik Dasgupta (2018), Maegan Fairchild (2019), and me (Kriegel 2021).

The standard *reason* to adopt MP, as just described informally, is profitably factorized into two argumentative "steps." The first step is the rejection of monism about the statue and the copper, on the grounds that they differ in identity and persistence conditions, which difference is best explained by their differing in having some of their properties essentially vs. accidentally. The second step is the contention that there is no non-arbitrary, non-anthropocentric way to draw a line, within the set of possible distributions of essentiality and accidentality across a collection of co-instantiated (modally independent, first-instance) properties, between those distributions that correspond to a material object and those that do not. The first step generates a pressure toward pluralism at the expense of monism, the second a pressure toward all-out plenitude at the expense of more modest forms of pluralism (dualism, trialism, etc.).

It is not my purpose here to *evaluate* this argument for material plenitude. What I want to argue for in this section is the *dialectical parity* of the cases of material objects and events. More specifically, I want to argue that a structurally parallel argument is available for *event plenitude*. We may formulate the thesis of event plenitude as follows:

(EP) For any location  $L$  and time  $t$ , if there occurs in  $L$  at  $t$  an event with  $n$  modally independent first-instance properties, then there occur in  $L$  at  $t$   $2^n - 1$  distinct events.

The kissing that was (i) done *by* Claudia, (ii) done *to* Claudio, and (iii) done *on* the lips, did not have only these three properties, but many others, some too erotic to enumerate here. Of these innumerably many properties, a substantial subset were



modally independent of one another and were not had by that kissing only because some other properties were had essentially or accidentally. What EP claims is that where Claudia kissed Claudio there were as many events as there are possible distributions of essentiality and accidentality across this substantial subset of the properties there instantiated. What I will argue next is that whatever strength you accord the two-step argument for MP sketched above you should also accord the parallel two-step argument I will present next.

## **2.2. A Parallel Case for Event Plenitude**

The first thing I want to point out is that Kim's theory of events yields a plenitude-like ontological explosion of events more or less immediately. Kim is well aware of this. When Sebastian takes a leisurely stroll at night, the property of strolling and the property of strolling leisurely are two different properties. So if, as Kim argues, events  $e$  and  $e^*$  are different when their property constituents differ, then there are two separate events here: Sebastian's stroll and Sebastian's leisurely stroll. But then:

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 on that memorable night! And of course indefinitely many stabbings administered by Brutus on Caesar! (Kim 1976: 46).

It would appear that for every property  $F$  of Sebastian's stroll, there is a corresponding  $F$ -stroll that Sebastian undertook. That's a whole lot of events ("indefinitely many," as Kim puts it). To obtain full-on plenitude, all we'd need to do is allow that conjunctive properties could also be constituents of event-constituting triplets. For then we'd have on our hands  $2^n - 1$

events wherever one event occurred with  $n$  non-conjunctive modally independent first-instance properties.

It would seem, then, that with Kim's theory of events we are already in the neighborhood of EP. The problem is that, unless supported by independent considerations, this type of result could easily be taken by Davidsonians as a strike against Kim's theory. Intuitively, after all, Sebastian strolled only once that night, and Caesar was stabbed only once by Brutus. So the fact that Kim's metaphysics of events entails a plenitude-like ontological explosion would appear to be a liability for the theory - "a bug, not a feature" - unless it can be independently motivated. What is needed, in other words, is some *intuitive* pressure against there being only one event at a place and a time, the kind of dialectical pressure that a Davidsonian about events could in principle appreciate.

In the case of material objects, this type of pressure comes from intuitive scenarios that bring out differences in the identity and persistence conditions of coincident objects, such as the statue and the copper. It is not difficult to think up parallel scenarios for events. A CEO moves her hand thus and so and thereby signs a contract. She could have signed the contract without moving her hand just so, and she could have moved her hand just so without signing any contract. Thus the hand-moving and the contract-signing have different identity and persistence conditions. A man wants to fly to Germany to meet an old friend and books a flight to Frankfurt. The immediate intuition, of course, is that the flight to Germany and the flight to Frankfurt are the same event. But it is *also* intuitive that if the flight gets diverted to Munich due to weather conditions and his friend meets him there, the man never flew to Frankfurt but he did fly to Germany; which suggests, again, that the flight to

Frankfurt and the flight to Germany have different identity and persistence conditions. These cases are structurally parallel to the statue/copper cases in the domain of material objects, so to the extent that the latter generate pre-theoretic pressure toward pluralism about coincident objects, the former generate pre-theoretic pressure toward pluralism about coincident events.<sup>2</sup>

Once we have put our foot in the monist's door in this way, anti-arbitrariness and anti-anthropomorphism considerations will again recommend all-out plenitude - at least if they do in the case of material objects. After all, events too have their properties, and some of these they have essentially and others accidentally. This raises questions about the essences and modal properties of events that one might argue cannot be settled without arbitrariness - except, that is, by accepting a plenitude of events. Consider this question from Jonathan Bennett:

A search for missing climbers was conducted by seven men and one woman, using ropes and flashlights and whistles, on the west side of the mountain, from dusk on Friday through to dawn on Sunday. Could that search have involved fewer people, occurred later, spread onto the north slope...? (Bennett 1988: 56)

This type of question is embarrassing, and as Bennett subsequently shows, hard to answer in a satisfactory way with a principled formula for event essences. But we save ourselves the embarrassment if we posit a distinct event for each possible combination of essentializing each of this search's properties. There is one event that could have involved fewer people but not occurred later, another that could have occurred later and spread onto the north slope but could not have involved fewer people, etc.

I am happy to report that some remarks (though not others) made by David Lewis point in the same direction:

John says "Hello." He says it rather too loudly. Arguably there is one event that occurs which is essentially a saying "hello" and only accidentally loud; it would have occurred even if John had spoken softly. Arguably there is a second event that implies, but is not implied by, the first. This event is essentially a saying "Hello" loudly, and it would not have occurred if John had said "Hello" but said it softly. Both events actually occur. . . (Lewis 1983a: 255)

But of course John also said "Hello" in the hallway, said "Hello" to Sasha, said "Hello" passive-aggressively, and so on. John's "Hello" has many properties, and it is unclear why we should say that some of these could only be had accidentally, or for that matter only essentially. Better to say that all could be had one way or the other, as long as at least one property is had essentially (this last requirement is how we end up with the "minus 1" in  $2^n-1$ ). And that is just event plenitude.

We may represent the "parallel argument" for event plenitude as follows. Let  $e$  be an arbitrary event with  $n$  modally independent "first-instance" properties occurring in  $L$  at  $t$ .

Then:

- 1) It would be non-arbitrary and non-anthropocentric to claim that there occurs exactly one event in  $L$  at  $t$ , but this has counterintuitive consequences (namely, in cases of multiple changes in a single object during the same period of time);
- 2) There is no *other* way to draw a non-arbitrary and non-anthropocentric distinction, within the  $2^n-1$  possible distributions of essentiality and accidentality across  $e$ 's modally independent "first-instance" properties, between those distributions that correspond to an occurring event and those that do not; so,

3) It is most plausible that there occur in L at  $t 2^{n-1}$  distinct events.

Call this the *two-step argument* for event plenitude. Premise 1 captures the first, monism-excluding stage of the argument, Premise 2 the second, restrained-pluralism-excluding stage. My claim is that this argument is just as good as the parallel argument for material plenitude.

### **2.3. Objections and Replies**

The first objection we must consider is that the two-step argument presupposes that events individuate by their essential properties, but first, we have not shown this, and second, there are other views of event individuation available. In fact, Davidson individuates events by their causes and effects and Kim by their constituents.

I have two things to say about this. First, the causal individuation and individuation-by-constituents are not *alternatives* to individuation by essential properties - they are accounts at different theoretical levels. Davidson can be understood to hold that an event's essential properties are its causal properties: having-x-for-cause, having-y-for-effect, and so on. Kim can be understood to hold that an event's essential properties are *constituency properties*: having-x-for-constituent etc. Secondly, our concern here is only to establish dialectical parity with the case of material objects. The parallel two-step argument for material plenitude presupposes individuation of objects by essential properties as well, and I note that its proponents have not labored to *argue* for this supposition - even though other approaches exist to object individuation as well. Some of the object-individuation principles capably defended in the history of metaphysics include individuation by bare

substratum, individuation by haecceity, individuation by hylomorphic structure, and individuation by spacetime worm; there are others. Thus the cases of events and material objects are no different on this score.

A completely different kind of objection is that some properties that events have they cannot have *but essentially*. For instance, although Sebastian's leisurely stroll in the park is only accidentally leisurely, insofar as it could have been more hurried, and perhaps is even accidentally *in the park*, insofar it might have occurred rather at the beach, Sebastian's stroll couldn't possibly have been *someone else's* - it is essentially Sebastian's. And it certainly couldn't have been the running of a marathon - it is essentially a stroll. If so, it is not true that essentiality and accidentality can distribute freely over the properties co-instantiated wherever some event occurs - some of these event-properties are "locked into" essential status.

There are two general ways to respond to this objection. A concessive response retreats from a sort of unrestricted plenitude, in which absolutely every ("first-instance") property can be had either essentially or accidentally, to a *restricted plenitude* that exempts some event-properties from this "free distribution principle." Even if all the events occurring in the relevant time and location are essentially strolls and essentially Sebastian's, Sebastian's stroll has so many other properties that we still have an explosion of coincident but numerically distinct events where it occurs. After all, if there are just 30 co-instantiated properties that could be had either essentially or accidentally in the relevant location and time, there would already be more than a billion possible

distributions of essentiality and accidentality there and then, since  $2^{30}-1 = 1,073,741,823!$

A less concessive response attempts to protect unrestricted plenitude. Is it true that Sebastian's stroll could not be taken by someone else? Davidson thinks it could:

Suppose that. . . each night someone, chosen by drawing a card, takes a stroll at 2a.m. Then we might say that had the cards fallen out differently, another person might have taken that stroll. (Davidson 1971: 197)

But while Davidson concludes that there is only one event where Sebastian's stroll occurred, and it is merely accidentally Sebastian's, we propose instead that there are very many strolls there, and that while some are merely accidentally Sebastian's others are essentially his - cards or no cards.

Such accidental involvement of the agent in an event is even easier to envisage when the agent is insentient. Suppose I have two roombas, an old one for the first floor and a newer one for the second floor. Every night at midnight the old roomba cleans the living and dining rooms downstairs, and every day at noon the new roomba cleans the bedrooms upstairs. One day the old roomba breaks down, so at night I plug the new roomba downstairs, because the dining room is in dire need of cleaning. That night, the cleaning of the dining room is done by the new roomba. But had the old roomba not broken, the cleaning of the dining room would have been done by the old roomba. Thus it by no means sounds crazy to say that the new roomba's dining-room cleaning is only accidentally the new roomba's and could have been the old roomba's. But on our view there are really two events there: one that is essentially the new roomba's and one that is only accidentally the new roomba's. (Or more accurately:

there are very many events there, some of which involve the new roomba essentially and some accidentally.)

I conclude that the unrestricted plenitudinist can legitimately allow that where Sebastian's stroll occurs, there is a stroll which is only accidentally Sebastian's. But is there any event there which is only accidentally a stroll? Could Paula's jump have been a moonwalk instead? This is harder to swallow, but I think the unrestricted plenitudinist doesn't *have* to swallow it. For being a stroll is a *sortal* property - an event-sortal property - and as we saw sortal properties are plausibly not "first-instance" properties; on the contrary, they are properties things have in virtue of having some other properties essentially or accidentally. This is certainly how they are treated in the debate over material constitution, and the proponent of event-plenitude would be fully within their right to treat them the same in the case of events.

Consider again how Karen Bennett formulates the plenitude principle for material objects:

[E]very region of space-time that contains an object at all contains a distinct object for every possible way of distributing 'essential' and 'accidental' over the *non-sortalish* properties actually instantiated there. (Bennett 2004: 354; my emphasis)

What are "sortalish properties"? Extensionally speaking, they are (i) modal properties, (ii) "kind or sortal properties," and (iii) properties an object has in virtue of having properties of categories (i) and (ii) (Bennett 2004: 341). But the *reason* Bennett singles just these properties out for exemption from free distribution of essentiality and accidentality, I claim, is that they are properties something has precisely in virtue of having other properties essentially or accidentally. They are



what we called "second-instance" properties. We noted in §2.1 that what makes something a statue is plausibly that it is essentially built with a certain aesthetic purpose in mind, or is essentially displayed with certain intentions in mind, or something like that - something that involves its being essentially a certain way. Likewise, one might think, the reason Sebastian's stroll is a stroll is that it is essentially an autonomous and relatively slow relocation by the use of one's legs, or whatever a type of motion has to be to qualify as a stroll. Such sortal properties are not *sui generis* but on the contrary grounded in the essential having of other properties. Accordingly, when we fix the plenitude of objects, or events, at a location, we don't apply the free distribution of essentiality and accidentality to such properties. We apply it only to properties something has independently of whether it has any other properties essentially or accidentally, and then let the chips fall as they may with the respect to the properties each coincident object has in virtue of having those first properties essentially or accidentally. Upshot: the fact that Sebastian's stroll cannot but essentially be a stroll does not create a limitation on event plenitude disanalogous with the case of material plenitude.

Another objection worth considering is that, much less than inspiring event plenitude, the adoption of material-object plenitude actually *undercuts* any need for event plenitude. Suppose Coriscus was not musical and now he is musical. Without material plenitude, we may want to posit an event of becoming musical undergone by Coriscus. But if we have material plenitude, then all we have here is the following situation: until a certain time, coinciding with Coriscus there is another object, unmusical-Coriscus, who is just like Coriscus except

that it is *essentially* rather than accidentally unmusical; and after that time there is another special object, musical-Coriscus, who coincides with Coriscus and differs from him just in being essentially rather than accidentally musical. All the phenomena are accounted for fully without mentioning any event.

In response, however, I think it is a mistake to think that in this treatment of Coriscus' becoming musical we have gotten rid of events. For we still have the event of musical-Coriscus-coming-into-being and the event of unmusical-Coriscus-going-out-of-existence. That is, what we have gotten rid of is events which are *qualitative changes* in a material object. We have gotten rid of them by replacing qualitative changes with events of *generation* and *destruction*. What outside the material-plenitude framework seemed like qualitative changes are inside it reconceived as generations and destructions. But something is still *happening*, and those are the events of the world. Within this framework, then, we might ask whether in addition to the generation of Frankfurtward-flying-Coriscus we should posit the generation of Germanyward-flying-Coriscus, pleasantly-flying-Coriscus, and so on as coincident though numerically distinct generation-events. The discussion above suggests a positive answer. Thus it seems that anyone who accepts the two-step argument for material plenitude is effectively compelled to end up with event plenitude as well.<sup>3</sup>

Nonetheless, it may be dialectically interesting to consider whether there is any motivation for event plenitude that doesn't involve material-object plenitude. This is the task of the next section.

### **3. The Argument from Extensional Causation**

The purpose of this section is to present a second and more independent argument for event plenitude - an argument that might speak to someone with no particular sympathies for *material* plenitude. The argument is basically that event plenitude is necessary to secure the extensionality of the causal relation.

Speaking in the formal mode of speech, to say that causation is an extensional relation is to say that when two expressions co-refer that pick out events, they are substitutable *salva veritate* in causal contexts (notably contexts of the form ". . . causes . . ."). Suppose that, after being hit by a major asteroid, Venus swerves ever so slightly off its course, which causes a change in some nearby comet's orbit. If the sentence "The morning star's swerve caused the change in the comet's orbit" is true, then given that "the morning star's swerve" and "the evening star's swerve" co-refer, we expect "The evening star's swerve caused the change in the comet's orbit" to be true as well. For - and now I speak in the material mode of speech - we do not expect causal relations between events, celestial or otherwise, to depend on the way these events are picked out, described, or "conceptualized." Intuitively, causation is a worldly relation insensitive to its conceptualization in the minds of causation-trackers like us.

Underlying this intuition is the thought that causal interactions are aspects of mind-independent reality, where there are objective facts of the matter as to whether  $e_1$  did or did not cause  $e_2$ . If someone took causation to be a projection from the mind onto an otherwise causation-free reality, as some oversimplifying interpretations of Kant might, then for them it might make sense to reject the notion that causation is extensional: the projection mechanism could be sensitive to the

"mode of presentation" under which implicated events are represented. But this kind of causal projectivism is, of course, a very uncommon view among contemporary metaphysicians. The closest view of any prominence is Peter Menzies and Huw Price's (1993) "secondary quality" account of causation. According to this,  $x$  causes  $y$  just if a free agent would (in normal circumstances) find that bringing about  $x$  is an effective means of bringing about  $y$ . If it turned out that the kind of agent Menzies and Price have in mind could find that bringing about  $x$  is an effective means of bringing about  $y$  when  $x$  is represented under mode of presentation  $M_1$  but not when it is represented under  $M_2$ , then causation would come out intensional rather than extensional. Needless to say, however, Menzies and Price's view is a fringe position in the contemporary metaphysics of causation. It is important to understand that this is the kind of view on causality one would have to adopt if one were to reject the extensionality of causation.

This is a problem, though, because it might seem that causal statements do change truth value depending on how the apparent causal relata are picked out. Compare these two statements:

- [1] Turing's death was caused by his eating of an apple in Wilmslow.
- [2] Turing's death was caused by his eating of a poisoned apple in Wilmslow.

Intuitively, [1] is false but [2] is true. If one took "Turing's eating of an apple" and "Turing's eating of a poisoned apple" to pick out the same event, as Davidson did and as is after all commonsensical, then this would appear to cast causality as an intensional rather than extensional relation. Davidson himself

was remarkably insouciant about this, somewhat bizarrely analyzing "e<sub>1</sub> caused e<sub>2</sub>" as meaning that there are descriptions D<sub>1</sub> and D<sub>2</sub> of e<sub>1</sub> and e<sub>2</sub> such that inserting D<sub>1</sub> and D<sub>2</sub> into ". . . caused. . ." results in a sentence that follows from a causal law (Davidson 1963: 16 fn8). But as we saw, the notion that causation is description-dependent in this way is extremely radical.

Kim was well aware of this point and indeed considered it a major asset of his analysis. Since the triplets [Turing, eats an apple, t] and [Turing, eats a poisoned apple, t] are different, they constitute different events for Kim. It is no surprise, then, that one of them can enter causal relations the other does not. And so Kim safeguards the extensionality of causation precisely in virtue of his theory's proliferation of spatiotemporally coincident events. (Recall that Kim's theory of events yields event plenitude more or less automatically.) Kim writes:

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," 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. (Kim 1976: 42)

Kim is right that this is an important advantage of his account over Davidson's. But it is *not* an advantage of his account over an otherwise Davidsonian account of events as sui generis particulars that simply adopted event plenitude. According to the event plenitudinist, there occurs in L at t one event which

is essentially an eating of an apple and accidentally an eating of a poisoned apple, and another which is essentially an eating of a poisoned apple. It is then open to the event plenitudinist to say that this second event caused Turing's death, while the first one did not. Accordingly, [1] and [2] above do *not* involve substitution of co-referential terms, since the relevant expressions refer to different events. The difference in truth value between [1] and [2] is therefore no indictment of the extensionality of causation, according to the event plenitudinist - in fact it is entirely irrelevant to it.

The point is that a Kimean metaphysics of events as involving a constituent structure featuring property constituents is not necessary to secure the extensionality of causation. A Davidsonian metaphysics of events as unstructured *sui generis* particulars can deliver the same result, so long as it embraces event plenitude (in a way Davidson himself did not). As noted, the only reason Kim is specially well positioned to secure the extensionality of causation is precisely that, as we saw in §2.2, his account generates event plenitude almost "automatically." It is event plenitude, whether flowing from a Kimean event ontology or *tacked onto* a Davidsonian event ontology, that secures the extensionality of causation. This, I propose, is a major independent reason to adopt event plenitude - independent, that is, of how we might feel about *material* plenitude. The argument may be put, quite simply, as follows:

- 1) Causation is an extensional relation;
- 2) Only if event plenitude is true can causation come out extensional; therefore,
- 3) Event plenitude is true.

Call this the *argument from extensional causation*.

It might be objected that events don't cause what they do in virtue of their *essential* properties, but simply in virtue of their properties. Whether an event has some property essentially or accidentally is relevant to its identity and persistence, but not to its causal powers. Its causal powers - what it can do - depend simply on what the event is like, that is, on what properties it has. The ways in which these properties are had is not itself a causally relevant factor.

This objection seems to me based on a misunderstanding of a subtle point regarding the connection between events and causation. Events do *not* cause what they do in virtue of the properties they have, but in virtue being the events they are. It is in the first instance *objects* that cause what they do in virtue of the properties they have. We must distinguish, in the grand drama of our cosmic theater, between the action and the actors. Events are all the action in this drama, but the actors are objects: it is Turing who acts; the eating of a poisonous apple is his action. Now, what kinds of things Turing *does*, and even what things he *can* do (has the *causal power* to do), certainly depends on the properties he *has* - and not only those he has essentially. But the events in which the doing is happening don't have the same logic: events don't *do things* in virtue of their properties, because they don't *do things* at all; they are the doings done by other things, namely objects. As Jonathan Bennett (1988: 22) puts it: "In our world the pushing and shoving and forcing are done by things - elementary particles and aggregates of them - and not by any relata of the causal relation." The relata of the causal relation are these doings by material objects - events. Accordingly, events enter causal relations, in the first instance, not in virtue of their properties, but in virtue of being the events they are. Now, if

you think that an event is the event it is in virtue of the properties it has essentially, then you can go on to say that, in some sense, the event causes what it does in virtue of having the essential properties it has. But first, this would only be because having the essential properties it has is what makes it the event it is, and second, it does leave out accidental properties as irrelevant to what the event causes.<sup>4</sup>

### **Concluding Remarks**

I have argued that we should accept a plenitude of events: particularly if we embrace a plenitude of material objects, but also for independent reasons, namely, that causation seems to be an objective, mind-independent, and therefore extensional relation, and it's hard to see how this could be so unless a plenitude of events holds.

An *opponent* of material plenitude might instead pounce on this additional layer of ontological explosion to claim that this love affair with plenitude has gone long enough and will soon reduce the plenitude-lover to absurdity. Just when we have started moving away from latitudinarian to sparse conceptions of properties, in large part thanks to Lewis' (1983b) influential argument for naturalness, plenitude-lovers venture to bring ontological explosion of material objects, and now events, to our ontology. It used to be thought that "properties are cheap" while objects and events are where parsimony is most called for; and here we are reversing the natural order of things! If anything, the effort should be to seek maximal parsimony across all ontological categories.



In response, we should note, first of all, that Lewis in fact embraced a plenitude-like approach to properties as well, insisting that for every collection of material objects, however gerrymandered, there is a property that all and only they share (Lewis 1983b: 346). What is sparse for Lewis is not properties, but *natural* properties, where property-naturalness is a primitive feature of properties which correspond to perfectly resembling material objects. Nothing prevents us, now, from introducing object-naturalness and event-naturalness to make distinctions within the great collections of coinciding objects and events. Indeed, something like this has already been tried for objects: see Hawthorne 2006b on “quality” vs. “junk” objects and Kriegel 2022 on “elitist” vs. “egalitarian” material plenitude. We could do the same for events. We can do so *easily* within a Kimean framework, namely, by designating as natural events those events where (i) the property-constituent is a natural property and (ii) the object-constituent is a natural (or “quality”) object. Here event-naturalness is analyzed in terms of property-naturalness and object-naturalness – as we would expect in an account of events that assays them in terms of objects and properties. Now, in a plenitudinist variant on the Davidsonian metaphysics of events, the naturalness of events would presumably have to be primitive in the way property-naturalness is taken by Lewis to be. This is to be expected within a framework that treats events as ontologically primitive/fundamental.

This is not the place to fill out the details, but the notion that plenitudinists are creating an unseemly asymmetry between the trends in the metaphysics of properties on the one hand and the metaphysics of objects and events on the other seems misguided. On the contrary, a unified treatment of all

three categories of entity may be envisaged in which a plenitude is embraced for all three - along with a device for distinguishing "quality" from "junk" specimens in each category.

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<sup>1</sup> A natural response is that what we have here are just two different descriptions of one and the same object, but as Kit Fine (2003) has shown, this comes with very many costs.

<sup>2</sup> Davidson himself discussed certain cases of intuitively different but perfectly co-located events, but the cases he discussed were structurally somewhat different. He writes: "For example, if a metal ball becomes warmer during a certain minute, and during the same minute rotates through 35 degrees, must we say these are the same event? It would seem not." (Davidson 1969: 178) The metal ball clearly undergoes *two* changes: a change in temperature and a change in position. To the extent that changes are events, we have here, intuitively, two distinct though perfectly co-located events. As noted, to me this type of case seems structurally disanalogous to the cases in which the difference is in the first instance really just in identity and persistence conditions. Still, they too generate some pressure toward pluralism.

<sup>3</sup> In addition, it should be noted that even if material plenitude obviated the need for event plenitude, it would still be interesting to some metaphysicians that there's an argument for event plenitude that philosophers

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working in the metaphysics of material objects have found compelling. I have in mind those metaphysicians who hold that events are the only fundamental beings, and that concrete particulars, if they exist, are somehow "built up" out of events. Within this outlook, sometimes called "event ontology" or "process ontology," the two-step argument for event plenitude is not made superfluous by the availability of a structurally parallel two-step argument for material-object plenitude.

<sup>4</sup> Relatedly, I would also insist that talk of events having causal powers (as opposed to just causal *effects*) is actually quite awkward. Events don't sit around hoarding powers of action. That is something objects do. And when these objects *exercise* their causal powers, that's when an event occurs - indeed, that is just what the occurrence of an event *is*.