

Processes

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A natural picture to have of events and processes is of entities which *extend* through time and which have temporal parts, just as physical objects extend through space and have spatial parts. While accepting this picture of events, in this paper I want to present an alternative conception of processes as entities which, like physical objects, do not extend in time and do not have temporal parts, but rather *persist* in time. Processes and events belong to metaphysically distinct categories. Moreover the category of events is not the more basic of the two.

The starting point for my discussion is a purely linguistic distinction. When something is/was/will be/etc happening, let me call what is/was/will be happening a *process*. When something happened/will happen/etc, let me call what happened/will happen an event. (Generally I will not bother to spell out all the alternative tenses.) So, the sentence: 'A comet is hurtling into the sun,' is about a process in the sense that it is equivalent to the sentence: 'A process of a comet hurtling into the sun is *happening*.' On the other hand, the sentence: 'A comet hurtled into the sun,' is about an event in the sense that it is equivalent to the sentence: 'An event of a comet hurtling into the sun *happened*.'

The difference in the two ways that the verb 'to happen' is used in these sentences is a difference in what linguists call 'aspect'.¹ The first one has imperative aspect and the second has perfective aspect. To begin with, I just want to make it a stipulation concerning my use of the words 'process' and 'event' that processes are associated with the imperfective aspect and events are associated with the perfective aspect. Then I want to argue that this difference in aspect between verbs associated with processes and verbs associated with events corresponds to a distinction in metaphysical categories.

This difference in aspect is not precisely the distinction between events and processes described by Mourelatos and discussed by Gill.² Mourelatos uses the word 'process' to coincide roughly with

¹ The notion of aspect is treated in detail by B. Comrie, *Aspect* (Cambridge University Press, 1976) and A. Galton, *The Logic of Aspect* (Oxford: Clarendon Press, 1984).

² A. P. D. Mourelatos, 'Events, Processes and States', *Linguistics and Philosophy* 2 (1978), 415–434; K. Gill, 'On the Metaphysical Distinction Between Processes and Events', *Canadian Journal of Philosophy* 23 (1993), 365–384.

the way Kenny and Vendler use the word 'activity', although he is sensitive to distinctions based on aspect.³ For Kenny and Vendler, Aristotle's test to distinguish *energeia* from *kinesis* is crucial (*Metaphysics IX*, 6). This test is to ask whether it follows from the fact that something is happening that it has happened. If it does follow, then what is happening is an activity (Kenny and Vendler) or a process (Mourelatos). If it does not follow, then what is happening is an event. For example, it does follow from the fact that a comet is hurtling through space that it has hurtled through space; so a comet hurtling through space is an activity/process according to this test. On the other hand, it does not follow from the fact that a comet is hurtling into the sun that it has hurtled into the sun; so a comet hurtling into the sun is an event according to this test.⁴

According to my way of making the distinction, what is happening in both cases is a process. Once the process of the comet hurtling into the sun has reached its end, the comet has hurtled into the sun and we can say that an event has happened. This event of the comet hurtling into the sun is the completion of the process of the comet hurtling into the sun. The process of the comet hurtling through space has no defined end, and so we cannot construct an event which is the completion of that process in the same way, although we can construct other events from this process. So the Kenny/Vendler distinction distinguishes those processes which have completions which are events from those processes which do not.

In order to show that processes and events are different kinds of things, I must first show that it is right to talk about processes and events as *things* at all. When I say that an apple is decaying, there is a thing which I am describing namely the apple. But am I also describing a process, namely the decaying of the apple? There are two equivalent ways of answering the question: 'What is happening?' I can say: 'An apple is decaying,' or I can say: 'The decaying of an apple is happening.' If the second way does not add anything to the first, then it looks as though talking about processes as things is quite spurious.

³ A. Kenny, *Action, Emotion and Will* (London: Routledge and Kegan Paul, 1963), ch. 7; Z. Vendler, *Linguistics in Philosophy* (Ithaca: Cornell University Press, 1967), ch. 4.

⁴ Mourelatos has since accepted that the use of the word 'process' was 'a very bad choice'. See A. P. D. Mourelatos, 'Aristotle's *kinesis/energeia* distinction', *Canadian Journal of Philosophy* 23 (1993), 386. He also endorses Graham's contention that Aristotle's test was not designed for this sort of distinction at all. See D. W. Graham, 'States and Performances: Aristotle's Test', *Philosophical Quarterly* 3 (1980), 117–130.

However, a strong *prima facie* case can be made for treating processes as particular things. Consider the process of a bush fire spreading through the countryside. Suppose I see a bush fire spreading through one bit of countryside and then some time later see a bush fire spreading through another bit. There is one sense in which it is fairly obvious that what is happening in each case is the same thing—namely a bush fire spreading through the countryside. But there is a further question which we may be interested in, and which is naturally expressed by asking whether it is the very same process of fire spreading which is observed on both occasions.

So, there is room for a type/token distinction in describing processes. There might be different token processes of bush fire spreading which all belong to the same type of process. Associated with this distinction is the existence of identity conditions for token processes across time. It seems that these conditions might depend on spatio-temporal continuity. This strongly suggests that it is right to nominalize our talk of processes, and move from saying that a fire is spreading to saying that a particular process of fire spreading is happening.

Davidson argues for a similar claim about events.⁵ He argues that in order to make sense of our talk about causation and action there must be room for a type/token distinction with events. We have to be able to describe the same event in different ways.

The next question to answer is whether processes and events are distinct entities. For example, we describe the decaying of an apple as a process—i.e. as something that is/was/will be happening. But sometimes we might always describe the decaying of an apple as an event—i.e. as something that has happened/will have happened/etc. We might say that the process of the apple decaying has been going on for over two weeks now. But we might also say that the event of the apple decaying was what spurred me into a study of biochemical reactions. Is the process of the apple decaying—what was happening—the same thing as the event of the apple decaying—what happened? I think that the answer must be no.

We want to say at one stage of the apple's decay that the very same process was going on as was going on at an earlier stage. But suppose that something interfered with the process so that the later stage never happened—perhaps the half-rotten apple was put into deep-freeze. This would not affect the identity of the process at the earlier stage before the interference. What was happening before the interference is not affected by whether or not the interference occurred. But the event, i.e. what happened, is affected by

⁵ D. Davidson, *Essays on Actions and Events* (Oxford: Clarendon Press, 1980), 105–187.

whether or not the apple is put into deep-freeze. So the process and the event cannot be literally identical.

This conclusion that a process like that of an apple decaying is not identical with the associated event of an apple decaying may seem obviously wrong. After all, when the process has stopped happening, nothing more is needed before it is right to say that the event has happened. There is nothing more to the event than the completed happening of the process. But this does not contradict my conclusion. What I am arguing is that a process should not be identified with its completed happening. Really, they belong to quite different logical categories. They should no more be equated than should, say, a human being and the life of that human being.

This is clearly so for processes like that of the apple decaying whose descriptions mention their completion ('events' in Kenny's and Vendler's sense); for example the process of walking to the shop or the process of a comet hurtling into the sun. The argument from the possibility of interrupting such processes can show that the process of walking to the shop is distinct from the event of walking to the shop, and that the process of a comet hurtling into the sun is distinct from the event of the comet hurtling into the sun.

Such processes can always be interrupted. What it is for a process to be interrupted is for it to be happening and then for something to stop it happening before it has reached completion, or before it would otherwise have ended. This interruption does not mean that it was not happening before the interruption. I am walking to the shop and on the way get arrested by the police. What was happening before I got arrested was that I was walking to the shop. It is the same thing that would have been happening later if I had reached the shop. But what *happened* before I got arrested (i.e. the event) was not the same as what would have happened if I had not been arrested. There is some event in common between the two cases, namely the event of my walking as far as the police car. But what is not common between the two cases is the event of my walking to the shop.

The argument is less clear when considering processes whose descriptions do *not* mention their completion ('activities' in Kenny's and Vendler's sense); for example the process of walking down the road. In such cases the the corresponding event might be thought to be the very same thing whether there is an interruption or not. It might be argued that what *happened* before I got arrested—the event of my walking down the road—was exactly the same thing as what would have happened if I had not been arrested. Whether this is considered to be right will depend on one's account of events. But it certainly puts some doubt on the claim

that the argument from the possibility of interrupting processes shows that *no* processes are identical with events.

The argument from the possibility of interrupting processes may be used to show that a process cannot be literally identical with the series of its stages, assuming there is more than one stage (the stages might be thought of as states of affairs, events, or even sub-processes). It does not make much more sense to say that the series of stages constituting my progress to the shop is interrupted. The series of stages up to the point of arrest was not interrupted; it was completed. The series of stages including the stage of my reaching the shop never occurred, and so it cannot have been interrupted either. But the process of my going to the shop can be interrupted; so the process is not the series of its stages.

A less ambitious attempt to give a metaphysical account of processes in terms of events would be to identify a process with a *structure* of stages, whose identity does not depend on the identity of the constituent stages. The structure would be composed of these constituent stages, but its unity would depend on some structuring principle. So the same structure might be composed of different stages (events, etc). This is like identifying a body with a structure of cells. The cells compose the body, but you could have the same body even if the cells changed.

The argument from the possibility of interrupting processes does not work against this less ambitious project (just as it does not obviously work against Kenny/Vendler 'activities'). We might be able to make sense of the idea of a *structure* of stages being interrupted. The structure of stages composed of the events leading up to my reaching the police car might have been the very same structure of stages as that composed of the events leading up to my reaching the shop if I had not been arrested at the police car.

However, I think that there is a more fundamental kind of argument that works against identifying processes with structures of stages and which works equally well against identifying *any* processes with their corresponding events—even those Kenny/Vendler 'activities' whose descriptions do not mention their completion. The argument has the following stages. Events and structures of stages have temporal parts—they are *extended* in time. But being extended in time precludes something from *persisting* in time. Processes persist in time. Therefore processes are not identical with events or structures of stages.

McCann has a useful discussion of the distinction between temporally extended and temporally persisting events.⁶ Some of the

⁶ H. J. McCann, 'Nominals, Facts and Two Conceptions of Events', *Philosophical Studies* 35 (1979), 129–149.

claims he makes I am also arguing for here. But I think McCann is wrong to argue that one linguistic mark of the distinction between such entities is contained in the grammatical form of the gerundive nominals which designate them. This linguistic mark is related to Vendler's distinction between perfect and imperfect nominals.⁷ 'John's singing of the Marseillaise' is a perfect nominal, while 'John's singing the Marseillaise' is an imperfect nominal. Whereas Vendler argues that all imperfect nominals designate facts, McCann argues that these imperfect gerundive nominals designate temporally extended events. According to McCann, perfect gerundive nominals designate temporally persisting events.

I do not think that this particular linguistic way to mark the distinction is very helpful. To begin with, it can only be applied to transitive verbs, whereas I want to be able to talk of the persisting process of an apple decaying, for example. Secondly, I think that this linguistic distinction does not reliably mark the metaphysical distinction between temporally persisting and temporally extended events the right way round. For example, it is more natural to talk of the temporal parts of John's singing of the Marseillaise than it is to talk of the temporal parts of John's singing the Marseillaise.

It is undeniable that a structure of stages has temporal parts. The structure is composed of its stages and its stages happen at different times. It follows that a structure of stages is extended through time—part of such a structure is encountered at one time and different parts of it are encountered if one travels through time. This is directly analogous with spatial extension.

Such a direct proof is not available to show that events are extended in time, but I think that the claim is quite plausible. Of course, not all events take time. An instantaneous change of state counts as an event—something can be said to have *happened*—but it is not extended in time. However, such instantaneous events do not *persist* in time. They can never be said to be happening—and so are not processes. So we can rule out instantaneous events from being identified with processes.

Consider an event that is not instantaneous—suppose it is something that happened in the past. The event had a beginning and an end, and the beginning and the end are parts of the event. One part of what happened is the beginning of what happened, and another part is the end. So the event has temporal parts. (Notice that this argument does not work at all when applied to processes. It does not sound at all right to say that part of what was happening was the beginning of what was happening and another part was the end.) So an event which is not instantaneous extends in time

⁷ Vendler, *op. cit.* ch. 5.

from its beginning to its end. Indeed, it seems natural to identify such events themselves with structures of stages.

For the purposes of my argument, the point of insisting that non-instantaneous events and structures of stages have temporal parts is to show that at any one moment of time, only part of the event or the structure is present. It is wrong to say of such an event or structure of stages that the whole of it is present at any one time. This would be analogous to saying of a spatially extended object that the whole of it is present at any one point in space. Since the event has temporal parts, for the whole of it to be present would be for all of its parts to be present. But at any one time some of its parts will be past or future, but not present.

I think that this means that it is wrong to say of such events and structures of stages that they *persist* in time. We say of an object that it persists if we can say of the object in its entirety that it exists continuously across different times. We cannot say this of events and structures of stages since they do not exist in their entirety at any time during their course. We can say that they *unfold*, but not that they persist, since different parts come into existence as time goes by.

This feature of events and structures of stages is brought out by Gareth Evans in his exchange with Peter Strawson concerning the identification of sound sequences. He describes these things as ‘processes’, which is unfortunate from my point of view, since I am going to deny that processes as I understand them have this feature.

‘If the concept of reidentification is to be used in connection with processes, it must be understood that it is being used in a different sense from that which it has in connection with things. We reidentify a process when we hold that an occurrence encountered at one time is part of the same process encountered at another, but it is a distinctive (and some have thought incoherent) feature of our conceptual scheme of material bodies that we suppose an object to be both present as a whole on one occasion, and literally identical with an object present as a whole on another.’⁸

I do not think that any of this holds for processes as I am understanding them—i.e. as things which may be said to be happening or to have been happening. There is something absurd about saying that at any one time while something is happening only part of what is happening is present. What is happening at any moment during a process is the whole process, not just part of it. The claim that what is present at any moment is not the whole process but only a process part is every bit as bad as the parallel claim that an object as a whole is not present at any one moment, but all that is

⁸ G. Evans, *Collected Papers* (Oxford: Clarendon Press, 1985), 257–258.

present is a time-slice of an object. For it is also a distinctive feature of our conceptual scheme of processes that we suppose a process to be both present as a whole on one occasion and literally identical with a process present as a whole on another. The phrase, 'What is happening now', is naturally taken to denote a whole process; and we *do* want to claim that what is happening now is literally identical with what is happening at some other time—the very same process.

This is not to deny that processes go through distinct stages. What I want to deny is that processes are composed of these distinct stages. It is very easy to get confused about this. Although in one sense what is happening is the same at every stage of a process, other things are happening which may vary. The stages of a process may be thought of as states, as instantaneous changes of state, as events or as sub-processes themselves. The latter possibility is what leads to the confusion, for then there are alternative ways of answering the question: 'What is happening?' We might say that the main process is happening, in which case what is happening is the same throughout the course of the process. Or we might say that the sub-process is happening, in which case what is happening differs as the process progresses. The point to hold on to is that, although different things may be happening through the course of the process there is something happening at every moment of the process which is the same, namely the process itself. This is what is required for the claim under consideration, which is that at every moment during which a process is happening, the process as a whole is present.

It is this which allows one to talk of processes *persisting* in time. What is happening is continuously present in its entirety across different times. What is happening when the apple is decaying or the man is walking down the street persists for as long as the apple is decaying or the man is walking down the street. What happened when the apple decayed or the man walked down the street did not persist, though it did extend in time. Since events extend but do not persist in time and processes persist but do not extend in time, processes are never events. Equally processes are not to be identified with structures of stages.

If processes are not metaphysically dependent on events, are they metaphysically dependent on anything else, or are they perhaps metaphysically basic? I am quite attracted to the Aristotelian idea of identifying a process in terms of an underlying capacity for change. The persistence of a process could then be understood in terms of the persistence of this underlying capacity. But I will not try to defend this idea here.

Two further metaphysical projects emerge naturally from these discussions. One would be to explain the metaphysical distinction between processes and objects. On my view, they are similar in that they are both persisting sorts of things; so the onus is on me to explain their difference. The other task would be to consider whether an account of events could be given in terms of processes. That some events can be identified with the completed happenings of processes suggests that such an account may be available.

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