

Partial Manifestations

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There has been a movement, growing over the last twenty years, to treat dispositionality as irreducible and, in turn, offer dispositional accounts of important metaphysical matters such as causation, the laws of nature, and modality. However, unlike the earlier turn towards possible worlds in metaphysics, the turn towards dispositions hasn't had much impact in semantics. But this is largely because semanticists have yet to consider what dispositional analyses of (say) tense, aspect, conditionals, generics, or modals would look like. My aim in this paper is to push the movement forward on both the metaphysics and semantics front by taking the first steps towards a dispositional account of events in progress (the metaphysics front) and the progressive aspect (the semantics front).

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1 Introduction

Bad news. You just ingested some poison. Worse news. The poison is lethal: it is disposed to kill those who ingest it. And the poison's disposition is manifesting. You are sweating, nauseous, and feel the end approaching quickly.

Good news. I have the antidote. Better news. I administer it and save your life.

The antidote prevented the manifestation of the poison's disposition. Sure enough, the poison was killing you. But it didn't kill you—thanks to the antidote.

In the literature on dispositions, something that prevents a disposition from either partially or fully manifesting (without taking away the disposition) is called a *mask*, and a disposition is said to be masked when a mask does its job. So, the antidote is an example of a mask, and it masks the poison's disposition to kill.¹

This case is also an example of something those working on the semantics of the progressive aspect are familiar with: *the imperfective paradox*. The imperfective paradox is simply the observation that an event in progress need not culminate, and so the inference from a past progressive to its perfective correlate is not, in general, a valid inference.² The past progressive *The poison was killing you* is true but its perfective correlate *The poison killed you* is false.

And so we might wonder:

- When events in progress fail to culminate, is it always in virtue of something interfering the manifestation of a disposition?

Further reflection might give rise to the more general question:

- Are events in progress simply partial manifestations of dispositions?

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¹The poison example is due to Bird 1998. Masks owe their name to Johnston 1992.

²Dowty 1977 was the first to stress the importance of the imperfective paradox in the semantics of the progressive. He also coined the phrase.

Let's suppose the answer is "Yes" to our more general question. Should semanticists working on the progressive care? Probably not that much if orthodoxy is correct. According to orthodoxy, both dispositions and progressives are to be analyzed in terms of possible worlds and so a tight connection between the progressive and dispositions might be somewhat interesting but overall not much of a surprise.³

Many theorists, however, have started to take seriously the view that dispositionality is irreducible.⁴ If this view is correct, then semanticists working on the progressive should care about whether events in progress are just partial manifestations of dispositions. For if events in progress are just partial manifestations of dispositions and dispositionality is irreducible, one would hope for, and expect, a dispositional analysis of the progressive.

Now I'm going to just assume that the view that dispositionality is irreducible should be taken seriously. My primary goal, then, is to get you to hope for, and expect, a dispositional analysis of the progressive by arguing that an account of events in progress as partial manifestations of dispositions is plausible and worth taking seriously. My secondary goal is take some steps toward satisfying your newfound desire for a dispositional analysis of the progressive. In short, my aim is to make some progress towards a dispositional account of events in progress and the progressive aspect.

2 Events in progress

Let's start with an initial attempt at an account of events in progress as partial manifestations of dispositions.

- (1) Necessarily, e is a Φ event in progress at t iff e is, at t , disposed to become a Φ event and this disposition is activated at t .

There are two features of this account of events in progress that immediately stand out. First, it ascribes dispositions to events. Second, it appeals to the notion of a disposition being activated.

First things first. Dispositions are usually taken to be properties of objects. Certainly, the standard philosophical examples of dispositions (fragility, solubility, irascibility, etc.) are properties of objects. So, it might seem a bit odd to think of events as having dispositions. Some might even claim that it is a category mistake to ascribe dispositions to events.

However, if we think of dispositionality as a special sort of potentiality, then there shouldn't be a problem with ascribing dispositions to events.⁵ Consider a well-worn example for the literature on the progressive. Suppose Mary went for a walk and in doing so partially crossed the street only to be run over by a bus.⁶ Now Mary's walk has variety of properties. And one property it has, during a certain stretch of time anyways, is the property of being a crossing the street event in progress. And this property is one that involves potentiality. Indeed it seems to involve partially actualized potentially. To put it another way, if e is an event of Mary crossing the street in progress, then e has the potential to become an event in which Mary crosses the

³See Asher 1992, Bonomi 1997, Dowty 1979, Higginbotham 2009, Landman 1992, and Portner 1998 for a sampling of the orthodoxy concerning the progressive. See Choi 2008, Goodman 1954, Lewis 1997, Manley and Wasserman 2008, and Steinberg 2009 for a sampling of the orthodoxy concerning dispositions.

⁴See Bird 2007, Ellis and Lierse 1994, Molnar 2003, Mumford 1998, and Vetter 2015 for a sampling.

⁵Thinking of dispositionality as a special sort of potentially doesn't imply a reduction of dispositionality any more than thinking of knowledge as a special sort mental state implies a reduction of knowledge (which it doesn't). Also, see Vetter 2015 for a reduction of modality to potentiality.

⁶This example, I believe, begins with Dowty 1979.

street, a potentiality which has been partially actualized. This should be relatively uncontroversial. But if it is, then it shouldn't be controversial to think of events as having dispositions: Mary's walk, for a certain stretch of time, has the property of being disposed to become one in which she crosses the street.

But one might object that I'm moving too quickly. Potentiality, after all, doesn't imply dispositionality. A coin may have the potential to land heads without being disposed to land heads. So, I shouldn't be moving so quickly from an event having a certain potentiality to an event having a certain disposition.

Well, take the coin. It is disposed to land heads or tails even though it is not disposed to land heads or disposed to land tails. But for any coin, if it has the potential to land heads or tails, then it must be that either the coin has the potential to lands or the coin has the potential to land tails. In general, if x is disposed to F or G , then it doesn't follow that x is disposed to F or disposed to G ; but if x has the potential to F or G , then it does follow that x has the potential to F or the potential to G . This is one of the ways in which dispositionality is a special kind of potentiality.

But Bonomi's *multiple choice paradox* shows that events bear this mark of dispositionality. Here's Bonomi's illustration of the paradox.⁷ Suppose Leo has decided to drive to Paris or Metz and is using the first part of his drive, the part before the road forks, to make his final decision. Then, during the first part of his drive, Leo is driving to Paris or Metz even though he's not driving to Paris or driving to Metz. Thus, we also find an important mark of dispositionality in the case of events in progress. I conclude, then, that it isn't some kind of category mistake to ascribe dispositions to events. In Bonomi's example, we have an event that is disposed (at a certain time t) to become a Leo drives to Paris or Metz event even though this event isn't disposed (at t) to become a Leo drives to Paris event or disposed (at t) to become a Leo drives to Metz event.

Let's now turn the other feature of (1) that immediately stands out: the notion of a disposition being *activated*. Some salt is stored in a jar. It's taken out, placed in water, and dissolves. When the salt was in the jar, its disposition to dissolve was dormant. When it was placed in water, its disposition to dissolve was activated. And this is all that is meant by "activated": a disposition is activated just in case it isn't dormant.

A further clarification might be necessary to avoid a possible misunderstanding. It is often assumed that any given disposition is associated with a manifestation type and a stimulus condition. So, for example, solubility is associated with the dissolving, its manifestation type, and being submerged in water, its stimulus condition. Following Vetter 2015, I'm skeptical of the claim that a disposition must have a stimulus condition. But let's put that aside. The important point is that one shouldn't assume that a disposition is activated whenever its stimulus condition obtains. Some salt can be submerged in water without its disposition to dissolve being activated. Just suppose it is encased in plastic. The stimulus condition for the salt's disposition to dissolve obtains. But the plastic prevents the disposition from being activated. Generalizing, a mask can prevent a disposition from manifesting even though it is activated (e.g., the poison case). And it can prevent a disposition from manifesting by preventing it from being activated in the first place (e.g., the salt case). Let's now see why we need the activation condition in (1).

We need the condition that the disposition be activated because it seems possible for an

⁷Bonomi 1997 offers more than one illustration of the paradox. The example that follows involves an agent. But Bonomi offers another example without agents to show that the paradox doesn't crucially involve agency.

event to be disposed to become a Φ event even though this disposition is dormant. I'm not sure if I have a completely convincing example of such a scenario. But here's a try.

Suppose you need your computer to run a large number of tasking processes. However, you know that the computer is disposed to overheat when it runs such processes. So you take extreme measures: you rent a commercial air-conditioner and set it at its lowest setting. You are now freezing but at least the computer can do its work. Suppose it does. It seems to me that this *event* of the computer running such and such processes is an event disposed to become one in which the computer overheats. However, the air-conditioner *masks* this disposition: it prevents the disposition from being activated in the first place and so prevents even a partial manifestation of the disposition.

As I said, I'm not sure if this is a completely convincing example. Thinking about it, however, convinces me that it should be possible to come up with a completely convincing example. But if I wrong, we could drop the activation condition on the grounds that whenever an event is disposed to become a Φ event, this disposition is activated.

In any case, it is time to address *the problem* with (1). To state the problem, we need to briefly describe a distinction made in the study of lexical aspect. This is the distinction between telic and atelic verb phrases (VPs). The distinction is sometimes characterized in terms of culmination or temporal boundedness. Simplifying somewhat, the idea is this. Take a simple sentence in the simple past. If the sentence describes a situation as one that involves a culmination/temporal bound, then its (uninflected) VP is telic. Otherwise, its VP is atelic. For example, *Willa built a house* describes a situation as one that involves a culmination/temporal bound: namely, the point at which Willa finishes building the house. So, the VP *build a house* is telic. On the other hand, *Mirah walked* doesn't describe a situation as one that involves a culmination/temporal bound.⁸ So, the VP *walk* is atelic. Another feature of atelic VPs is that they, unlike telic VPs, are homogeneous in the sense that if α is a sentence with an atelic VP and α is true of a sufficiently extended situation s , then s can be divided in sub-situations (with no remainder) such that α is true of each of these sub-situations. In short, if *Mirah walked* is true of an sufficiently extended event, then that event can be divided into smaller events such that *Mirah walked* is true of each of the smaller events. This is not the case with *Willa built a house* or any other sentence with a telic VP.⁹

To extend the telic/atelic distinction event types, we can say that Φ is a telic event type just in case what it is to be a Φ event involves having a culmination/temporal bound; otherwise Φ is an atelic event type.

Now for the problem with (1). I've been careful with the examples I used in clarifying (1). Each example has been a telic event in progress. But consider an atelic event in progress like one of Mirah walking. There is something odd saying that such an event is disposed to become a Mirah walks event. What's odd is that any sufficiently extended event in progress of Mirah walking is already a Mirah walks event. So how can it be disposed to become one if it is already one?

In previous work, I appealed to resultant states to get around a similar issue.¹⁰ I'll do the same here. A resultant state is a state of an event having taken place. So, if Willa built a house,

⁸Of course, the VP *walk* could be true of an event that has a culmination. For example, if an event of Willa walking to the store is one that has a culmination, and *walk* would be true of such an event. But *walk* doesn't *describe* the event as involving a culmination.

⁹See Rothstein 2004 for a much richer overview and discussion of telicity.

¹⁰See Kroll 2015.

then there is a state of Willa having built a house. Such a state is a resultant state of the respective Willa builds a house event. Likewise if Mirah walked, then there is a state of Mirah having walked. Such a state is a resultant state of the respective Mirah walks event.¹¹

To see how resultant states help, observe that a sufficiently extended Mirah walks event is made up of other Mirah walks events, each of which has a corresponding resultant state. For example, suppose Mirah walked from point A to point D. Then there is, among others, a Mirah walks event that begins at point A and stops at point B and another one that stops at point C. The one that stops at point C is temporally larger than the one that stop at B. So, the resultant state of the one the stops at point C is a resultant state of a Mirah walks event that is larger than the one that ends at point B.

Here's the idea then: at any time during Mirah's walk, the event is disposed to bring about a resultant state of a "larger" Mirah walks event. More formally:

- e is a Mirah walks event in progress at t iff (i) e is, at t , disposed to bring about a resultant state of a Mirah walks event at some $t' > t$, and (ii) this disposition is activated at t .

It follows from this proposal that an event in progress of Mirah walking brings about resultant states of ever (temporally) larger Mirah walks events. So, we have a nice way capturing the "progress" of such an event in progress.

Generalizing from this treatment of Mirah's walk, we get a dispositional account of events in progress that covers both atelic and telic events in progress.

- (2) Necessarily, e is a Φ event in progress at t iff (i) e is, at t , disposed to bring about a resultant state of Φ event at some $t' > t$, and (ii) this disposition is activated at t .

To see how this proposal handles telic events in progress, note that when Φ is replaced by a telic event type, the manifestation of such a disposition would be the culmination of the event in progress and so the manifestation would not only amount to the event becoming a Φ event but also serve a temporal bound for the event in progress.

We have, then, a dispositional account of events in progress that covers both telic and atelic events in progress. While I haven't offered a thoroughgoing argument for this account of events in progress, I hope to have made a fairly convincing case that the account is plausible and worth taking seriously. So, given our earlier assumption that irreducible dispositionality is a position worth taking seriously, you should suddenly find yourself with a desire for a dispositional analysis of the progressive aspect.

3 The progressive

Here's the analysis one gets from the above account of events in progress. Let φ be a variable over base clauses (i.e., simple sentences stripped of tense and aspect) that denote event types. And let $\llbracket \varphi \rrbracket = \Phi$. Then:

- (3) Necessarily, $\text{Prog}[\varphi]$ is true at t iff there is an event e such that e is, at t , disposed to bring about a resultant state of a Φ event at some $t' > t$, and (ii) this disposition is activated at t .

¹¹Resultant states might seem like "ghostly" entities. Maybe they are. But that's not a serious objection to their existence. In any case, Parsons 1990 was the first to bring resultant states to light. Since then they have been put to a variety of uses in semantics and metaphysics. See Parsons 1990, Szabo 2006, and Zimmerman 2011.

(3) predicts that *Mary is crossing the street* is true iff there is an event with an activated disposition to bring about (at some later time) a state of Mary having crossed the street. And it predicts that *Maeva is dancing* is true iff there is an event with an activated disposition to bring about (at some later time) a state of Maeva having danced.

Let me stress again that we are working under the assumption that dispositionality is irreducible and so not to be given a modal analysis. We are also working under the assumption that events in progress are to be understood as partial manifestations of dispositions. Given these two assumptions, I'm not going to argue for (3) by comparing it to the orthodox modal analyses of the progressive. This is because, given the two assumptions, modal analyses of the progressive are already off the table.

I will, however, argue for (3) by highlighting some virtues of the analysis of the progressive.

First, the analysis offers an explanation of the imperfective paradox. Simplifying matters, an event can have an activated disposition to become a Φ event without ever becoming a Φ event. So, the inference from a progressive to its perfective correlate will not, in general, be valid.

Second, the analysis offers an explanation of the multiple-choice paradox. As was already mentioned, an event can be disposed to become a Leo drive to Paris or Metz event without being disposed to become a Leo drive to Paris event or a Leo drive to Metz event. So, the analysis predicts that *Leo was driving to Paris or Metz* does not entail either *Leo was driving to Paris* or *Leo was driving to Metz*.

Third, the analysis offers an explanation of the apparent opacity of the progressive. Just as Sven, when pumpkin picking, can be disposed to pick a large pumpkin even though there is no particular large pumpkin such that Sven is disposed to pick it, an event can be disposed to become one in which Sven picks a pumpkin even though there is no particular pumpkin such that the event is disposed to become one in which Sven picks that pumpkin. So, (3) can account for the (default) reading of *Sven is picking a pumpkin* under which the sentence does not entail that there is a pumpkin such that Sven is picking it.¹²

Lastly, the analysis provides substance to the main rival to possible world analyses of the progressive: partitive analyses. The most interesting partitive analysis is the partial realization analysis considered, but not endorsed, in Landman 1992. The basic idea of the analysis is that $Prog[\varphi]$ is true iff there is an event that partially realizes the event type Φ . The main problem with this analysis is that it gives rise to the question: just what is it for an event to partially realize an event type? Sure enough, one could analyze partial realization in terms of possible worlds: roughly, e partially realizes Φ iff e would fully realize Φ if it were to continue without interruption. But then the partial realization analysis collapses into a modal analysis of the progressive. (3), however, is a non-modal analysis of the progressive that provides the right kind of answer: for an event to partially realize an event type Φ is for the disposition of the event to become a Φ event to be partially manifested. In other words, partial realization is to be understood as partial manifestation.

In closing, let me briefly say why I take this last virtue to be the most interesting virtue of the analysis.

¹²The pumpkin picking example is found in Stechow 1999, who credits the example to Angelika Kratzer.

4 Concluding remarks

The movement to treat dispositionality as irreducible and, in turn, offer dispositional accounts of important metaphysical matters (such as causation, the laws of nature, and modality) hasn't had much impact in semantics. But this, it seems to me, is largely because semanticists have yet to seriously consider what dispositional analyses of tense, aspect, conditionals, generics, modals, and so on would look like. Now (3) might only be the first step towards a proper dispositional analysis of the progressive. Nonetheless, it allows us to appreciate partitive analyses of the progressive in a new and interesting light. Indeed, it strikes me that (3) serves the most substantive and illuminating partitive analysis of the progressive to date. Thus, the analysis serves not only as a first step towards a dispositional analysis of the progressive but also as a motivation to develop dispositional analyses in other areas of semantics.

In any case, with (2) and (3), I hope to have made some progress towards a dispositional account of event in progress and the progressive; and, in doing so, pushed the dispositionalism movement forward on both the metaphysics front and the semantics front.

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