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**RESEARCH**

# Fully realizing partial realization

Nicky Kroll

Franklin and Marshall College, Lancaster, PA 17604-3003, US  
nkroll@fandm.edu

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There has been a movement in philosophy, growing over the last twenty years, to treat dispositionalism as irreducible and, in turn, offer dispositional accounts of important metaphysical matters such as the laws of nature, free will, causation, 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, in my view, largely because semanticists have yet to consider what dispositional analyses of (say) tense, aspect, generics, or modals would look like. My aim in this paper is to push the dispositionalism movement forward on the semantics front by considering a dispositional analysis of the progressive aspect.

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## 1 Introduction

There has been a movement in philosophy, growing over the last twenty years, to treat dispositionalism as irreducible and, in turn, offer dispositional accounts of important metaphysical matters such as the laws of nature, free will, causation, and modality.<sup>1</sup> However, unlike the earlier turn towards possible worlds in metaphysics, the turn towards dispositions hasn't had much impact in semantics. But this is, in my view, largely because semanticists have yet to consider what dispositional analyses of (say) tense, aspect, generics, or modals would look like. My aim in this paper is to push the dispositionalism movement forward on the semantics front by considering a dispositional analysis of the progressive aspect.

The dispositional analysis offered can be regarded as a partitive analysis of the progressive. More specifically, it can be regarded as a dispositional version of a partitive analysis of the progressive sketched (but set aside) in Landman's classic paper on the progressive.<sup>2</sup> So, I begin with an overview of Landman's partitive analysis. Next, I briefly overview of some important features of dispositions. The stage will then be set for a dispositional analysis of the progressive. After highlighting some of the virtues of the analysis, I consider and reply to two important objections. I conclude that the dispositional analysis offered should be taken seriously, at least as a rival to orthodox modal analyses of the progressive.<sup>3</sup>

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<sup>1</sup> The literature is huge. For a sampling of relatively recent developments, see Bird (2007) on the laws of nature, Vihvelin (2013) on free will, Mumford & Anjum (2011) on causation, and Vetter (2015) on modality.

<sup>2</sup> Landman (1992).

<sup>3</sup> See Asher (1992); Bonomi (1997); Dowty (1979); Higginbotham (2004); Landman (1992); and Portner (1998) for a sampling of orthodox modal analyses of the progressive.

## 2 Partial realization

Partitive analyses of the progressive aspect treat the progressive as expressing some kind of parthood relation.<sup>4</sup> Details aside, the guiding idea is that a sentence in the progressive aspect describes part of an event of some type. So, a progressive sentence like *Maeva was dancing* says that there was part of an event in which Mirah danced. And for such a progressive, the guiding idea seems to be on the right track and worth developing further. But when we consider a progressive sentence like *Willa was building a house*, the guiding idea seems to take us in the wrong direction. It tells us that *Willa was building a house* is true only if there was part of an event in which Willa built a house. But Willa can be building a house that she won't finish. Indeed, she can be building a house even though she never has and never will build one. So, the truth of *Willa was building a house* does not require there be, at any time, an event in which Willa built a house. Thus, it does not require that there was part of such an event.

Another way of stating the above problem for the guiding idea is that it has troubles with the imperfective paradox.<sup>5</sup> Put one way, the imperfective paradox is the observation that a progressive sentence need not entail its perfective correlate. Put another way, it is the observation while atelic progressives entail their perfective correlates, telic progressives do not. An atelic progressive is just a progressive sentence in which the progressive combines with an atelic base clause; and a telic progressive is one where the progressive combines with a telic base clause.<sup>6</sup> For example, if we ignore tense and other important features, we can treat the above progressives as having (roughly) the following structures.

- (1) a. Maeva is dancing.
- b. Prog[Maeva dance]
- (2) a. Willa is building a house.
- b. Prog[Willa build a house]

The base clause *Maeva dance* is atelic. So, (1a) is an atelic progressive. The base clause *Willa build a house* is telic. So, (2a) is a telic progressive. And the apparent problem with the guiding idea behind partitive analyses is that if it were correct, telic progressives would entail their perfective correlates. This is because the guiding idea amounts to the following analysis of the progressive.

- (3) 'Prog[ $\varphi$ ]' is true iff there is an event  $e$  and an event  $e'$  such that  $e'$  part of  $e$  and  $\varphi$  is true of  $e$ .

It follows from (3) that when the progressive combines with a telic base clause, the truth of the progressive requires that there be an event such that the base clause is true of it. In other words, it requires that there be an event of the type denoted by the base clause. There is, however, no such requirement. If there were, then anyone doing something (e.g., building a house) they haven't done before (e.g., build a house) is guaranteed to end up

<sup>4</sup> ter Meulen (1985); Bach (1986); Link (1987); Krifka (1992). Note that I treat partitive analyses as alternatives to modal analyses. So, while Portner (2011) treats Hallman (2009) as a partitive analysis of the progressive, I consider it a hybrid modal/partitive analysis because the analysis has a modal component.

<sup>5</sup> The imperfective paradox gets its name from Dowty (1979). As many have observed, there's nothing paradoxical about the paradox.

<sup>6</sup> The telic/atelic distinction (from Garey 1957) is described in more detail below. For now, it suffices to note that a test for whether an eventive base clause is telic or atelic is the progressive test. If a progressive entails its perfective correlate, then the base clause it combines with is atelic. If not, it is telic. Regarding base clauses (from Zucchi 1999), these are clauses stripped of tense and aspect.

having done it (e.g., having built a house). But, for better or worse, that's not how things work.

There is a suppressed premise in this criticism of the guiding idea behind partitive analysis. (4) makes it explicit.

- (4) For any thing (object or event)  $x$ , if  $x$  is part of an  $F$ , then there is a  $y$  such that  $y$  is an  $F$  and  $x$  is a part of  $y$ .

Without (4), it wouldn't follow from (3) that the truth of a progressive requires that there be an event of the type denoted by the base clause combining with the progressive. And it is this consequence that makes the imperfective paradox troubling for (3). So, perhaps a defender of (3) could respond to the above criticism by rejecting (4). But surely there is nothing controversial about (4), right?

Bach's partitive puzzle suggests otherwise.<sup>7</sup> Suppose that at around 200 B.C., a Roman aqueduct was being built by some slaves.<sup>8</sup> Further suppose that for whatever reason the aqueduct was never finished. An archeologist, Mirah, discovers the unfinished aqueduct, dubs it *Oldie*, and utters (5).

- (5) Oldie was part of an aqueduct.

There is an intuition that Mirah said something true. If she did and incomplete aqueducts are not aqueducts, the truth of what Mirah said does not require the truth of (6).

- (6) There was some thing that was an aqueduct and Oldie was part of it.

We thus appear to have a counterexample to the claim that  $x$  is part of an  $F$  only if there is an  $F$  such that  $x$  is part of it. That is, we have a counterexample to (4). But surely, if  $x$  is a part of an  $F$ , then there is some *thing* such that  $x$  is a part of it. What could this thing be if not an  $F$ ? And if not an  $F$ , then how is  $x$  part of an  $F$ ? This is Bach's partitive puzzle.

In my view, the most interesting solution to the partitive puzzle is the solution sketched in Landman (1992). Landman's solution is to appeal to a *realization* relation between objects and types of objects. We start with the claim that  $x$  is an  $F$  just in case  $x$  fully realizes the type  $F$ . So,  $x$  is an aqueduct just in case  $x$  fully realizes the type AQUEDUCT. We further claim that objects can partially realize types of objects. The idea here is that while an incomplete aqueduct doesn't *fully* realize the type AQUEDUCT, it does *partially* realize this type. We now analyze (5) roughly along the following lines.

- (7) (5) is true iff (in the past) Oldie partially realizes the type AQUEDUCT.

It is compatible with this analysis that (5) is true even though Oldie was not part of something that fully realized the type AQUEDUCT. Thus, it does not follow from this analysis that the truth of what Mirah said by uttering (5) requires the truth of (6). Lastly, we generalize:

- (8)  $x$  is part of a  $F$  iff  $x$  partially realizes  $F$ .

We now (seem to) have a solution to the partitive puzzle.

Inspired by this (apparent) solution to the partitive puzzle, we might try analyze the progressive aspect in terms of the partial realization relation. The idea being that progressives describe events in progress and events in progress are like incomplete objects in that

<sup>7</sup> Bach (1986).

<sup>8</sup> I've taken some liberties with Bach's original example.

both are partial realizations. Just as incomplete objects are partial realizations of certain object types, events in progress are partial realizations of certain event types.

More precisely, we offer (PR) as a partial realization analysis of the progressive. Where  $\Phi$  is a variable over event types such that  $\llbracket \varphi \rrbracket = \Phi$ ,

(PR)  $\lceil \text{Prog}[\varphi] \rceil$  is true at time  $t$  iff there is some event that partially realizes  $\Phi$  at  $t$ .

So, *Willa is building a house* is true just in case there is an event that partially realizes the event type WILLA BUILD A HOUSE. (PR) thus correctly predicts that the truth of the sentence does not require that there (ever) be a WILLA BUILD A HOUSE event. So, the imperfective paradox is troubling no more.<sup>9</sup>

While Landman doesn't offer a partial realization analysis as general as (PR), it is more or less the analysis he would have offered were he concerned with offering a general statement of his partial realization analysis of the progressive. He's not concerned because partial realization, for him, is just a stepping stone on the path to a proper modal analysis of progressive. And it's not too hard to see why any semanticist with possible worlds in their toolbox would bring them out to work on partial realization, especially one familiar with the literature on the progressive. Indeed, inspired by Dowty (1979), something along the lines of (9) would be the first thing that comes to mind.

(9) An event  $e$  partially realizes event type  $\Phi$  (in  $w$  and at  $t$ ) iff every inertia world for  $e$  (in  $w$  at  $t$ ) is one where  $e$  develops into a  $\Phi$  event (i.e.,  $e$  would be a  $\Phi$  event if it were to continue (past  $t$ ) without interruption).

But I'm interested in (PR) not as a stepping stone to a modal analysis of the progressive but as an *alternative* to modal analyses of the progressive. To this end, we now turn towards dispositions.

### 3 Dispositions

Standard philosophical examples of dispositions include fragility, solubility, and irascibility. To be fragile is (roughly) to be disposed to break. To be soluble is (roughly) to be disposed to dissolve. To be irascible is (roughly) to be disposed to get angry.

Dispositional properties are typically contrasted with categorical properties. Standard examples of categorical properties include shape and structural properties like triangularity and having three parts.

One way of bringing out the intuitive difference between dispositional and categorical properties is that the dispositional ones involve an interesting mix of actuality and potentiality. On the one hand, the difference between a fragile vase and one that is not is as real as any actual difference between vases. When a fragile one breaks, we wish we bought one that wasn't. But a fragile vase need not ever break. It could meet its end by melting rather than breaking and so its fragility need not ever manifest. This suggests, on the other hand, that fragility bestows a certain potentiality or power—one that need not be actualized—on its bearers. A fragile vase need not ever break but it always has the potential to be broken. Categorical properties do not seem to have this mix of actuality and potentiality. This is because they don't seem to have a potentiality aspect or at least not one with the same character. The triangularity of a vase, unlike its fragility, does not involve some unactualized potentiality: it is fully there in the vase.

<sup>9</sup> (PR) doesn't appeal to the standard parthood relation between events. In light of this, some might wonder how it can be thought of as a partitive analysis of the progressive. In response, I take the partial realization relation to be a non-standard parthood relation. Thus, it is some kind of parthood relation. Thus, it can be considered a partitive analysis of the progressive.

Some find the mix of actuality and potentiality in dispositions mysterious. A classic statement this sentiment is found in Goodman (1954: 40)

Besides the observable properties it exhibits and the actual processes it undergoes, a thing is full of threats and promises. The dispositions or capacities of a thing—its flexibility, its inflammability, its solubility—are no less important to us than its overt behaviour, but they strike us by comparison as rather ethereal. And so we are moved to inquire whether we can bring them down to earth; whether, that is, we can explain disposition-terms without any reference to occult powers.

Goodman’s “threats and promises” metaphor nicely captures the potentiality aspect of dispositions. And his suggestion that we try “bring them down to earth” nicely captures the attitude of those who seek a reductive account of dispositions.

One reductive account of dispositions treats them as second-order properties. To have a disposition, on this view, is to have the second-order property of having a non-dispositional (i.e., categorical) property in virtue of which, in combination with other things (like the laws of nature), a certain modal fact obtains. More precisely:

- (10) An object  $x$  is disposed to  $M$  when  $C$  iff  $x$  has some non-dispositional property  $P$  such that in virtue of  $x$  having  $P$  and the laws of nature,  $x$  would  $M$  if  $C$  were to obtain.<sup>10</sup>

A presupposition of (10) is that every disposition is associated with a manifestation (type)  $M$  and a stimulus condition  $C$ . Accommodating this presupposition, let’s treat fragility as the disposition to break when struck: breaking is the associated manifestation and being struck is the associated stimulus condition. Then:

- (11)  $x$  is fragile iff  $x$  is disposed to break when struck.

And then from (10):

- (12)  $x$  is fragile iff  $x$  has some non-dispositional property  $P$  such that in virtue of  $x$  having  $P$  and the laws of nature,  $x$  would break if it were struck.

Now take a vase off the shelf. Suppose it has some non-dispositional microstructural property in virtue of which (with the laws) if it were struck, it would break. (12) tells us its fragile. So, the fragility of the vase is grounded in the vase’s actual microstructural features. This explains the actuality aspect of fragility. We also have an explanation of the potentiality aspect of fragility: in virtue of actually having the given property and the laws, the vase would break if it were struck. More generally, (10) tells us that having a disposition is grounded in having some non-dispositional property that works with the laws of nature to ground some modal fact.

But (10) is subject to counterexample. In particular, it is subject to counterexamples that arise from *masks*. A mask is something that prevents a disposition from manifesting when it otherwise would and it does so without taking the disposition away.<sup>11</sup> A disposition is masked when a mask does its work. Wrap a vase disposed to break when struck in (enough) bubble wrap. You haven’t changed the microstructural features of the vase (or the laws of nature). But you have made it so that it wouldn’t break if it were struck. We

<sup>10</sup> Something like this view can found in Prior et al. (1982) and Lewis (1997). See Manley (2012) for other reductive accounts of dispositions.

<sup>11</sup> Johnston (1992) first introduced masks.

have a counterexample to (10). We have such a counterexample because we have a mask: the bubble wrap is a mask and it masks the vase's disposition to break when dropped.

This is not the place to discuss attempts to get around the problem of masks by those sympathetic to analyses of dispositions along the lines of (10).<sup>12</sup> But it is the place to briefly discuss another line of argument against any type of reductionism along the lines of (10).

If some disposition cannot be grounded in or reduced to some non-dispositional property, then (10) needs to be rejected. Fundamental properties cannot be reduced to something else. So, if some disposition is a fundamental property, then (10) needs to be rejected. Dispositional essentialists (Ellis 2001; Bird 2007) argue that at least some of the fundamental properties of our best science are dispositions. Consider charge. Our best science tells us that it is a fundamental property. And surely charge is a disposition: for a particle to have a charge is (roughly) for it to be disposed to attract or repel other charged particles. Thus, (10) needs to be rejected. Dispositional essentialists would also have something to say about the appeal to the laws of nature in (10). At least some of the laws, according to such theorists, are grounded in those dispositions that are fundamental properties. Negatively charged particles *must* attract positively charged ones in virtue of the nature of charge.

Dispositional essentialists are thus part of the movement mentioned earlier. They take dispositionality as irreducible and in turn offer a dispositional account of (at least some of) the laws of nature.

There are, of course, criticisms of dispositional essentialism. But it is not my aim to enter this debate or, more generally, the debate about whether dispositionality is irreducible. I simply assume that the irreducibility of dispositions is a view worth taking seriously. I've briefly sketched the contours of an argument for irreducibility so that the uninitiated get a sense of an argument for the view. But hereafter we put aside the irreducibility debate and take for granted that the irreducibility of dispositions is a view worth taking seriously.

So, dispositions are now a tool in our semantics toolkit, a tool that should not be mistaken for the handy, but overused, possible worlds crescent wrench.

Let's put them to use on the progressive.

#### 4 A dispositional analysis of the progressive

To transition back to the progressive, let's consider another case of masking. It a good news/bad news type of situation.<sup>13</sup>

The bad news first. Mike 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. Mike is sweating, nauseous, and feels the end approaching quickly.

Now for the good news. I have the antidote. Better news. I administer it and save Mike's life.

The antidote prevented the manifestation of the poison's disposition. Sure enough, the poison was killing Mike. But it didn't kill him—thanks to the antidote. So, the antidote is an example of a mask, and it masked the poison's disposition to kill.

Now there is a difference between this masking case and the earlier one. In the earlier masking case, the bubble wrap prevents even a partial manifestation of the fragility of the vase. In the poison case, though, there is a partial manifestation of the disposition. But the disposition doesn't fully manifest thanks to the antidote.

<sup>12</sup> See Fara (2005), Manley & Wasserman (2008), and Kroll (2017) for overviews.

<sup>13</sup> It's also a variant of a case from Bird (1998).

So, our good news/bad news case brings out an important distinction: the distinction between full and partial manifestations of dispositions.

Our good news/bad news case is also an instance of the imperfective paradox. The past progressive *The poison was killing Mike* is true but its perfective correlate *The poison killed Mike* is false. Furthermore, it seems that the past progressive is true because there was a partial manifestation of a disposition and its perfective correlate is false because the disposition didn't fully manifest.

And so we might start to speculate.

Progressives describe events in progress. And on the metaphysical side of things, the imperfective paradox is nothing more than the observation that an event in progress need not culminate. Given the distinction between partial and full manifestations of dispositions, perhaps those cases where an event in progress fails to culminate are just cases where there is a partial manifestation of some disposition but, because of some kind of interference, the disposition fails to fully manifest. And in cases where a disposition fully manifests there will still be, leading up to the full manifestation, partial manifestations of the disposition along the way. So perhaps events in progress, whether they culminate or not, are just partial manifestations of dispositions. If so, then perhaps we should offer a dispositional analysis of the progressive.

That's a lot of speculation. Let's see where it takes us.

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

- (13)  $e$  is a  $\Phi$  event in progress at  $t$  iff  $e$  is, at  $t$ , disposed to become a  $\Phi$  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.

To assuage category mistake worries, observe that we use disposition denoting expressions to describe events: we call sunsets *beautiful*, eruptions *violent*, cease-fires *fragile*, performances *intoxicating*, etc. When we say such things, it certainly appears that we are (coherently) ascribing dispositions to events.

But those with category mistake worries might complain that such ascriptions shouldn't be taken at face value. What's needed, so the worry goes, is some sort of metaphysical argument for thinking that it is not a category mistake to ascribe dispositions to events.

To provide what's wanted, let's first note that it is not a category mistake to ascribe potentialities to events. Consider a well-worn example from 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.<sup>14</sup> 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 potentiality. To put it another way, if  $e$  is an event of Mary

<sup>14</sup> This example, I believe, begins with Dowty (1979).

crossing the street in progress, then *e* has the potential to become an event in which Mary crosses the street, a potentiality which has been partially actualized.

Now potentiality is weaker than dispositionality. A coin may have the potential to land heads without being disposed to land heads. So, from events having potentialities it doesn't follow that they have dispositions. Still, the category mistake worry doesn't have much force once it is recognized that events have potentialities: if some things are the kind of things that can be ascribed potentialities, then, absent strong reason for thinking otherwise, they are the kind of things that can be ascribed dispositions.<sup>15</sup> Furthermore, reflecting on the above described event in progress of Mary crossing the street, it seems pretty clear to me that it doesn't just have the potential to become a Mary crosses the street event. There is something stronger in play. This something, so it seems to me, is the disposition to become a Mary crosses the street event.<sup>16</sup> I conclude (on the basis of some general metaphysical reasons) that it is not a category mistake to ascribe dispositions to events.

Note the conclusion of the above argument. It is not that events have dispositions. It is that it is not a category mistake to ascribe dispositions to events. Sure enough, the above argument offers some reason for thinking that events have dispositions. But I'll rest the case for events having dispositions on the virtues of an account of events in progress that ascribes dispositions to events.<sup>17</sup>

Towards this end, let's now consider the other feature of (13) 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. As we saw earlier, 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 Manley & Wasserman (2008) and 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

<sup>15</sup> "Yes, I agree that this thing has to the potential to break but still it makes no sense to say it has the disposition to break. That would be like saying the number seven is red." I hope we would all ignore such an interlocutor.

<sup>16</sup> Here's a parallel case involving objects. Consider a fragile glass. It has to the potential to break. But it shares this with many things that aren't fragile. There is something stronger but similar to potentiality in play. This something is the disposition to break. The fragile glass has this disposition while the breakable, but sturdy, concrete block doesn't.

<sup>17</sup> One more thing. Given that events have dispositions, some might wonder whether the dispositions of an event are in some way reducible to the dispositions of the participants of the event. I'm inclined to think that in some cases, yes; but in other cases, no. The disposition of an event in progress of some salt dissolving in water to become an event in which the salt is dissolved seems to clearly depend on the salt's disposition to dissolve in water. But other cases suggest the reverse. Consider Oldie, the incomplete aqueduct, again. It seems to me that what makes this thing an incomplete aqueduct is that at one time it was an aqueduct *in progress*, and it was an aqueduct in progress in virtue of being participant in what was an event in progress of the slaves building an aqueduct. (See Szabó (2008) for a discussion of things in progress.) Given (13), this would mean that the incomplete aqueduct was an aqueduct in progress in virtue of being participant in what was an event disposed to become a THE SLAVES BUILD AN AQUEDUCT event. Furthermore, it seems to me that in virtue of being a participant in such an event, the incomplete aqueduct had the disposition to become an aqueduct. If so, then in some cases the dispositions of objects depend on the dispositions of events they participate in. Of course, there is more to say about this case. But in any case, properly addressing the question of whether the dispositions of events are in some way reducible to the dispositions of objects would require addressing the question of whether objects are metaphysically prior to events or vice versa (or neither). This question is outside the scope of the present paper (but see Parsons (1991) for a very interesting argument that objects depend on the events they participate in).



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 or bubble wrap 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 event to be disposed to become a  $\Phi$  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.<sup>18</sup>

With category mistake worries put aside and the activation condition clarified, we are now in position to state how (13) is an account of events in progress as partial manifestations of dispositions. If an event  $e$  is (at time  $t$ ) disposed to become a  $\Phi$  event and this disposition is activated (at  $t$ ), then there is (at  $t$ ) a partial manifestation of  $e$ 's disposition to become a  $\varphi$  event. So, from (13), it follows that any event in progress involves a partial manifestation of a disposition.

But (13) has a problem. To state the problem, it will be helpful to say a few words about the telic/atelic distinction. 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 base clause (or, more standardly, its uninflected VP) is telic. Otherwise, its base clause 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 base *Willa build a house* is telic. On the other hand, *Mirah walked* doesn't describe a situation as one that involves a culmination/temporal bound.<sup>19</sup> So, the base clause *Mirah walk* is atelic. Another feature of atelic base clauses is that they, unlike telic ones, are homogeneous in the sense that if  $\alpha$  is a sentence with an atelic base clause and  $\alpha$  is true of a sufficiently extended situation  $s$ , then  $s$  can be divided in sub-situations such that  $\alpha$  is true of each these sub-situations. In short, if *Mirah walked* is true of a 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 base clause.<sup>20</sup>

<sup>18</sup> 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'm wrong, we could drop the activation condition on the grounds that whenever an event is disposed to become a  $\Phi$  event, this disposition is activated. Some dispositions, after all, are always on. (Having negative charge is an example of such a disposition.)

<sup>19</sup> Of course, the base clause *Mirah walk* could be true of an event that has a culmination. For example, if an event of Mirah walking to the store is one that has a culmination, then *Mirah walk* would be true of such an event. But *Mirah walk* doesn't describe the event as involving a culmination.

<sup>20</sup> See Rothstein (2004) and Filip (2012) for a much richer overview and discussion of telicity.

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

Now for the problem with (13). I've been careful with the examples used in clarifying (13). 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 MIRAHA WALK event. What's odd that any sufficiently extended event in progress of Mirah walking is already composed of a number of MIRAHA WALK events. So how can it be disposed to become one if it is composed of a bunch of them?

To get around a similar issue, Kroll (2015) appeals to resultant states. We'll do the same here. A resultant state is a state of an event having taken place. So, if Willa built a house, then there is a state of Willa having built a house. Such a state is a resultant state of the respective WILLA BUILD 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 MIRAHA WALK event.<sup>21</sup>

To see how resultant states help, observe that a sufficiently extended MIRAHA WALK event is made up of other MIRAHA WALK 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 MIRAHA WALK event that begins at point A and stops at point B and another one that begins at point A and stops at point C. The one that stops at point C is temporally larger than the one that stops at B. So, the resultant state of the one that stops at point C is a resultant state of a MIRAHA WALK 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" MIRAHA WALK event. More formally:

- (14)  $e$  is a MIRAHA WALK event in progress at  $t$  iff (i)  $e$  is, at  $t$ , disposed to bring about a resultant state of a MIRAHA WALK 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 MIRAHA WALK events. So, we have 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.

- (15)  $e$  is a  $\Phi$  event in progress at  $t$  iff (i)  $e$  is, at  $t$ , disposed to bring about a resultant state of  $\Phi$  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  $\Phi$  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  $\Phi$  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.

Turning to the progressive, here's the analysis suggested by (14).

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

<sup>21</sup> Parsons (1990) was the first to bring resultant states to light.

(PM) predicts that *Willa is building a house* is true iff there is an event with an activated disposition to bring about (at some later time) a state of Willa having built a house. 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.

So our initial speculation has led to (PM). What's needed now is an argument for taking this analysis of the progressive as a serious alternative to modal analyses. To this end, I'll present its core virtues.

First, the analysis respects the stativity of the progressive. While the philosopher's predicate *is disposed to* is a term of art, it retains the stativity of its ordinary language cousin.

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

Third, the analysis accounts for Bonomi's multiple-choice paradox. Here's Bonomi's illustration of the paradox.<sup>22</sup> 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 and he's not driving to Metz either. Bonomi's case shows that the property of being in progress doesn't distribute over disjunction: a  $\varphi$  or  $\psi$  event in progress need not be a  $\varphi$  event in progress or a  $\psi$  event in progress. But dispositionality doesn't distribute over disjunction either. Take a coin that is neither disposed to land heads nor disposed to land tails. Still, it is disposed to land heads or tails. Thus, 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*. More generally, it predicts that the progressive doesn't distribute over disjunction.

Fourth, 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, (PM) can account for the "searching for" 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.<sup>23</sup>

Provided there is no lurking devastating objection to (PM), these four virtues are enough, in my view, for the analysis to be taken seriously as an alternative to modal analyses of the progressive.

Ignoring any lurking objections to irreducible dispositionality, which (PM) presupposes, I can think of two potential lurkers.

But before that, let me make explicit how (PM) allows us to appreciate (PR), Landman's partial realization analysis, in a new and interesting light.

(PR) 'Prog[ $\varphi$ ]' is true at time  $t$  iff there is some event that partially realizes  $\Phi$  at  $t$ .

The main issue with (PR) is that it gives rise to the question: just what is it for an event to partially realize an event type? Of course, as mentioned above, one could try analyze partial realization in terms of possible worlds. (PM), however, is a non-modal analysis of the progressive that provides the right kind of answer: for an event to partially realize

<sup>22</sup> Bonomi 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.

<sup>23</sup> The pumpkin picking example is found in von Stechow (2001), who credits the example to Angelika Kratzer.

an event type  $\Phi$  is (roughly) for the disposition of the event to become a  $\Phi$  event to be partially manifest. In short, partial realization is to be understood as partial manifestation. (PR) thus gives way to (PM), an analysis of the progressive that fully realizes Landman's appeal to partial realization without collapsing into a modal analysis of the progressive.

Now for the lurking objections.

## 5 Objections and replies

The first objection is a version of Landman's criticism of the partial realization analysis he considers, which we take to be (PR). To state the criticism of (PR), we'll consider two swimmers, Mary and Martha.<sup>24</sup>

Mary is average swimmer who somehow gets the crazy idea to swim across the Atlantic. Mary makes it about twenty miles before drowning. Some have the intuition that while she was *trying* to cross the Atlantic, she wasn't actually crossing the Atlantic. If so, then *Mary is crossing the Atlantic* is false throughout her swim.

Martha is like Mary in this respect: she's an average swimmer who somehow gets the crazy idea to swim across the Atlantic. But she differs from Mary in this respect: when she makes it twenty miles and starts drowning, she prays to the one true God. The one true God answers any prayer. So, by divine intervention, Martha is not only saved but swims to other side. Some have the intuition that since she made it to the other side, she was actually crossing the Atlantic throughout her swim.

Taking these judgments on board, it follows that (16) is false at the ten mile mark of Mary's swim but (17) is true at the ten mile mark of Martha's swim.

(16) Mary is crossing the Atlantic.

(17) Martha is crossing the Atlantic.

But if we only consider what has actually occurred up to and including the ten mile mark of each swim, there seems to be no important difference between the two. So, if Martha's swim partially realizes the event type MARTHA CROSS THE ATLANTIC at the ten mile mark, it seems that Mary's swim should partially realize the event type MARY CROSS THE ATLANTIC at the ten mile mark as well. Martha's does but Mary's doesn't. Thus, Landman argues, (PR) should be rejected *unless* we have an account of partial realization that allows us to take into consideration more than just what is actually the case up to and including the ten-mile mark of each swim.<sup>25</sup>

A similar objection could be raised against (PM). There seems to be no important difference between Martha's swim and Mary's swim at their respective ten mile marks. So, if Martha's swim is disposed to become a MARTHA CROSS THE ATLANTIC event at the ten mile mark, it seems that Mary's swim should be disposed to become a MARY CROSS THE ATLANTIC event at the ten mile mark as well. But, given that (17) is true and (16) is false, it follows from (PM) that Martha's swim is so disposed but Mary's isn't. So, something's not right with (PM).

In response, I reject the claim that (17) is true at the ten mile mark. (17) is, no doubt, true after the one true God answers Martha's prayer. But before that she was, like Mary, merely *trying* to cross the Atlantic. In short, when Martha's prayers were answered, her swim acquired the disposition to become a MARTHA CROSS THE ATLANTIC event.

Some might say that someone could say, when asked about what was happening at the ten mile mark of Mary's miraculous swim, "I wouldn't have guessed it at the time, but she was crossing the Atlantic!"

Here is what Landman has to say about this "hindsight" judgment.

<sup>24</sup> I've taken some liberties with Landman's original scenario.

<sup>25</sup> Recall that (PR) is the view that 'Prog[ $\phi$ ]' is true at time  $t$  iff there is some event that partially realizes  $\Phi$  at  $t$ .

[T]his [hindsight] reaction is *possible*. The analysis of the progressive has to explain this possibility. [But] I do not want to claim that it is the only possible reaction.

Suppose you give the following account: “Before the miracle she wasn’t crossing the Atlantic, she was only trying to cross, but the miracle changed everything: after the miracle she was crossing the Atlantic.” I think this reaction is also possible, and even though the two reactions are incompatible, I do not think we can argue that only one of them is correct. (Landman 1992: 30)

I think we can argue that only one of them is correct.

Hindsight judgments, so far as I can tell, rest on the following principle.

(HS) Let  $\Phi$  be restricted to range over accomplishment (i.e., durative and telic) event types. Then: if  $e$  is a  $\Phi$  event,  $e$  is a  $\Phi$  event in progress at every time up to its culmination.

If we can undermine this principle, we will then have an argument against the hindsight judgment in the Mary case.

So, consider a case from Kroll (2015). Willa is in second grade. She thinks her teacher just instructed the class to draw a square. So, she starts drawing a square. When she has completed a right angle, she hears the teacher say “Finish up your triangle.” Willa quickly turns the right angle into a triangle.

Now there is no doubt that Willa drew a triangle. There should also be no doubt that there is a significant part of the event in which she wasn’t drawing a triangle. This part of the event is one in which she is drawing a square. Appealing to dispositions, the event was first disposed to become a WILLA DRAW A SQUARE event and then, once Willa realized her mistake, it acquired the disposition to become a WILLA DRAW A TRIANGLE event.

We thus have a counterexample to (HS) and so an argument against the hindsight judgment in the Mary case.

If, however, we place Mary and Martha in a minefield and let luck be a factor rather than divine intervention, we can raise a similar, but more forceful, objection to (PM).

In this scenario, Mary and Martha both need to cross a minefield.<sup>26</sup> The minefield is densely filled. So, while there is some probability that one would cross it if one tried, the probability is minuscule. Also, the mines are spread out fairly evenly: for each step one could take forward, there is roughly the same, and very high, probability that one would step on a mine. Mary and Martha, however, are each unaware that the field is a minefield. So, each steps out into the minefield, showing absolutely no caution. Mary, surprisingly, makes it a few steps and then, not surprisingly, steps on a mine. Against all odds, though, Martha makes it to the other side. And this time, there is no divine intervention. Instead, Martha simply has luck on her side.

Now let  $t$  mark the time where Mary and Martha have taken a couple steps. There’s seems to be no important difference between the two walks in the minefield up to and including to  $t$ . So, one might claim, Martha’s walk is disposed to become a MARTHA CROSS THE MINEFIELD event at  $t$  just in case Mary’s walk is disposed to become a MARY CROSS THE MINEFIELD event at  $t$  as well. If so, then (PM) predicts that (18) and (19) should have the same truth value at  $t$ .

(18) Mary is crossing the minefield.

(19) Martha is crossing the minefield.

<sup>26</sup> This example is a variant of one in Asher (1992), who credits Sandro Zucchi.

But, one might claim, unlike Martha, Mary is merely trying to cross the minefield at  $t$ . Martha counts as crossing at  $t$  because she made it to the other side. If so, then (PM) should be rejected because it predicts that (18) and (19) have the same truth value at  $t$  when in fact they have different truth values.

Now in this case, I don't think it will do to simply respond that Martha wasn't yet crossing the minefield at  $t$ . For this just raises the question: when did she start crossing it? And this is a hard question to answer since, unlike the divine intervention case where there is a part of the swim that is importantly different from the rest, no (non-final) step in the walk is in itself importantly different from any other step. So, when did she start crossing the minefield?

One thing that could be said is that as Martha's walk progresses it comes to be more and more disposed to become a MARTHA CROSS THE MINEFIELD event. Then at some point, her walk goes from being more disposed than it was to actually having the disposition. Now while this doesn't answer the question by providing some specific time when she starts crossing, it does relieve enough of the pressure on (PM). If one wanted a specific time, I suppose the defender of (PM) could just say the event acquires the disposition right before Martha makes it across. However, if I were pressed for specifics, I would resist the temptation to specify a specific time on the grounds that, in general, it can be difficult to specify exactly when something goes from being more and more disposed to  $M$  over time to acquiring the disposition to  $M$ . When did the golfer, once a novice but now skilled, acquire the disposition to make difficult shots? After the first one? The second one? The third one? The four-hundredth one? Certainly along the way, she became more and more disposed to make difficult shots. But good luck specifying the exact point at which she acquired the disposition. (For an event example: when did the tropical storm acquire the disposition to become a hurricane?) Of course, there are vagueness issues here. And I'd say a similar issue arises in the Martha case if pressed for specifics.

It is, however, worth considering a more radical proposal. Dispositions can be mimicked. A styrofoam vase could be watched over by (a variant of) Lewis' (1997) Hater of Styrofoam. The Hater ensures that if the styrofoam vase were struck, powerful beams would be sent from the skies to break it apart. So, the styrofoam vase would break if struck. As such, it *mimics* a fragile vase. Likewise, the Lover of Glass could watch over a fragile glass to ensure that if it were struck, the force would be cancelled or absorbed in some way so that glass wouldn't break. As such, the fragile glass mimics a sturdy one. Or, for a less fanciful example, the novice golfer could, by luck, start out making difficult putts. As such, he mimics the disposition of the skilled golfer to make difficult putts.

Turning to events in progress, an event in progress of Willa drawing a square can mimic one disposed to become one a WILLA DRAW A RIGHT TRIANGLE event. Just suppose (as above) she starts by drawing a right angle with two equal sides. Or, going back to the multiple choice paradox, the event in progress of Leo driving to Paris or Metz mimics both an event disposed to become a LEO DRIVE TO PARIS event and one disposed to become a LEO DRIVE TO METZ event.

Now for the radical proposal. There is an event in progress of Martha walking in the minefield. This event in progress mimics one disposed to become a MARTHA CROSS THE MINEFIELD event. But there is no event in progress so disposed and so there is no event in progress of her crossing the minefield.

In favor of this proposal, consider Mary's walk. For the time it lasts, even though it is not disposed to become a MARY CROSS THE MINEFIELD event, it mimics one so disposed. But there is no important difference between any (non-final) stretch of Mary's walk and any (non-final) stretch of Martha's walk. So, if Mary's walk mimics a crossing of the minefield

in progress, so does Martha's throughout the time it lasts. Thus there is no event in progress of Martha crossing the minefield.

The most obvious objection to this proposal is that since Martha crossed the minefield, she must have been, at some time, crossing the minefield. I feel the force of the objection, but I'm not sure its decisive against the above reasoning. This is because the objection seems to rest on the dubious claim that *Martha crossed the minefield* entails *Martha was crossing the minefield*.

Suppose there is something similar to a Star Trek teleporter that can instantaneously transport Martha from one side to the other. She's on one side and then, just like that, she's on the other. She crossed the minefield, but it seems to me that at no time was she crossing it. She started on one side and then just arrived at the other side.<sup>27</sup> If so, then *Martha crossed the minefield* doesn't entail *Martha was crossing the minefield*.

The teleporter case, of course, is different from the "as luck would have it" case. But the defender of the mimicking response can say that in each case Martha finds herself on the other side. The relevant difference is that in the luck case there is actually a walk, Martha's walk, that mimics one disposed to become a MARTHA CROSS THE MINEFIELD event.

If this seems too far fetched, the defender of (PM) can fall back on the first response. But I don't think it is *too* far fetched. There is obviously an important distinction between something that happens by luck and something that doesn't. Part of the distinction for those happenings that are accomplishments (i.e., durative and telic) has to do, in at least some of the cases, with whether the process leading to the culmination is fluky. What the mimicking response offers is a way of distinguishing a fluky process from one that is not. The one that is not has the relevant disposition. The fluky process doesn't have the disposition but it mimics processes so disposed. This explanation of an important difference between fluky and non-fluky processes seems to me to be on the right track. Thus, I *tentatively* conclude that the mimicking response should be favored over the first response. But take your pick. In either case, the objection is defused.

Let's now turn to the second lurking objection. It can be extracted from some observations in Hallman (2009) concerning the interaction of progressive marking and proportional quantifiers.

Hallman considers two scenarios involving a machine that checks newly made transistors and sorts them into "accept" and "reject" bins. Letting '0' represent a transistor the machine checks and rejects, and '1' represent a transistor the machine checks and accepts, the two scenarios can be represented as follows, where  $t$  marks some time (in both scenarios) after the machine has checked and sorted the sixth transistor but before it has started to check (and then sort) the seventh transistor.

A: 0 - 1 - 1 - 0 - 1 - 1 -  $t$  - 0 - 1 - 1 - 0 - 1 - 1 - 0 - 1 - 1 - 0 - 1 - 1

B: 0 - 0 - 0 - 0 - 0 - 0 -  $t$  - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1

Now consider (20) and (21) as descriptions of the machine at  $t$  in Scenario A and Scenario B.

(20) The machine is rejecting exactly one-third of the transistors.

(21) The machine is rejecting every transistor.

<sup>27</sup> For those who don't like science fiction, suppose the one true God takes Martha's soul out what was her body on one side of the minefield and instantaneously puts it what is now her body on the other side. Similar issues arise.

Hallman claims that there is a reading of the above sentences such that (20) is true at  $t$  in Scenario A but false at  $t$  in Scenario B, and (21) is false at  $t$  in Scenario A but true at  $t$  in Scenario B.

Hallman further claims the truth or falsity of (20) and (21), on the reading of the sentences he is concerned with, is determined by whether there is a situation that meets a certain homogeneity condition. He doesn't offer a precise formulation of the homogeneity condition he has in mind. (22), however, seems to capture what he is after.

- (22) A situation  $S$  is *weakly homogeneous* with respect to a property  $P$  iff  $S$  has  $P$ ,  $S$  has a proper subsituation, and there is a set  $R$  such that (i) every member of  $R$  is a proper subsituation of  $S$ , (ii) every member of  $R$  has  $P$ , and (iii) the sum of every member of  $R$  is identical to  $S$ .

So, a situation  $S$  is weakly homogeneous with respect to a property  $P$  just in case  $S$  has  $P$  and  $S$  can be divided into proper subsituations (with no remainder) such that each proper subsituation has  $P$ .

When we consider Scenario A up to and including  $t$ , we have a situation,  $A_t$ , that is weakly homogeneous with respect to the property being a situation in which the machine rejected exactly one third of the transistors.

$$A_t \quad \boxed{0-1-1} \quad \boxed{0-1-1}$$

Likewise, when we consider Scenario B up to and including  $t$ , we have a situation,  $B_t$ , that is weakly homogeneous with respect to the property of being a situation in which the machine rejected every transistor.

$$B_t: \quad \boxed{0-0-0} \quad \boxed{0-0-0}$$

$$\boxed{0-0} \quad \boxed{0-0-0-0}$$

$$\boxed{0-0} \quad \boxed{0-0} \quad \boxed{0-0}$$

Suppose now that  $(20^H)$  and  $(21^H)$  are readings of (20) and (21) such that:

$(20^H)$  is true at any  $t'$  iff there is a situation  $S$  such that (i)  $S$  has a temporal part at  $t'$ , (ii)  $S$  does not extend past  $t'$ , and (iii)  $S$  is weakly homogeneous with respect to the property of being a situation in which the machine rejected exactly one third of the transistors; and

$(21^H)$  is true at any  $t'$  iff there is a situation  $S$  such that (i)  $S$  has a temporal part at  $t'$ , (ii)  $S$  does not extend past  $t'$ , and (iii)  $S$  is weakly homogeneous with respect to the property of being a situation in which the machine rejected every transistor.

It follows from this assumption and the above facts about  $A_t$  and  $B_t$  that  $(20^H)$  is true at  $t$  in Scenario A but false at  $t$  in Scenario B, and  $(21^H)$  is false at  $t$  in Scenario A but true at  $t$  in Scenario B.

We thus appear to have a challenge to (PM). If Hallman is correct, there is a reading of (20) on which its truth or falsity is solely determined by whether there is a situation in which the machine *has rejected* exactly one third of the transistors and consists of subsituations in which that machine *has rejected* exactly one third of the transistors (in the respective subsituations). So, on this reading of the sentence, it is irrelevant whether there is an event that is disposed to bring about a resultant state of a later event. On the contrary, what is relevant is what the machine *has done*. Similar remarks apply to (21). So, it appears that we have reason to doubt (PM).



I'm not convinced. I agree with Hallman that there is a reading of (20) and a reading of (21) such that:

- i. (20), but not (21), is a correct description of the machine at  $t$  in Scenario A,
- ii. (21), but not (20), is a correct description of the machine at  $t$  in Scenario B, and
- iii. the truth or falsity of (20) and (21) at  $t$  in both scenarios depends solely on facts about what the machine *has done* in the scenarios prior to  $t$ .

However, I claim that these readings tell us nothing about the meaning of the progressive aspect. Let me explain.

It is uncontroversial that sentences with progressive marking can be used without progressive meaning. You can utter "I am going to the theater" to convey that you plan to go to the movies later tonight and not that you are presently on your way to the theater. This is an instance of the *futurate progressive* in English.

There are also examples where a sentence with progressive marking is used to talk about so-called *temporary habits*. To illustrate, suppose that Mary doesn't usually smoke, drink whiskey, or sleep on the couch but because of an argument with her partner she smokes, drinks whiskey, and sleeps on the couch for a week. It would be misleading to use any of the following habitual sentences to describe Mary during this rather disturbing week.

- (23)
- a. Mary smokes.
  - b. Mary drinks whiskey.
  - c. Mary sleeps on the couch.

But it would be appropriate to use any of these sentences.

- (24)
- a. Mary is smoking until things settle down with her partner.
  - b. Mary is drinking whiskey this week.
  - c. Mary is sleeping on the couch for a while.

In other words, there is a reading or use of these sentences in which they have progressive marking without progressive meaning. On this reading or use, none of the sentences say that there is presently an event of some type in progress. Rather, each sentence ascribes, for lack of a better term, a "temporary habit" to Mary.

For another example of the temporary habit use of sentences with progressive marking, consider the following scenario. The NBA playoffs are underway. LeBron James, who is usually a pretty good free throw shooter, has played two playoff games but in these two games has only made one-third of his free throw attempts. The third game is underway. LeBron is fouled and steps to the line to shoot his first free throw attempt of the game. While LeBron is preparing to shoot the first free throw, the sportscaster for the game utters "Lebron is making only one-third of his free throws." The sportscaster says something true but he is not saying that there is an event in progress of Lebron making one-third of his free throws. He's saying that in the playoff games so far, Lebron has the temporary habit of making one-third of his free throws. Likewise, if Lebron had made every one of his free throws attempts so far, the sportscaster could have said "Lebron is making every one of his free throws" and said something true on the temporary habit reading of the sentence.

These two scenarios involving Lebron are analogous to the two scenarios involving the transistor sorting machine. In Scenario A at  $t$ , the machine has (for lack of a better term) a temporary habit of rejecting one third of the transistors it checks. And in Scenario B at  $t$ , the machine has a temporary habit of rejecting every transistor it checks. Thus, on their temporary habit readings, (20) is true at  $t$  in Scenario A and (21) is false at  $t$  in Scenario

A at  $t$ . Likewise, on their temporary habit readings, (20) is false at  $t$  in Scenario B and (21) is true at  $t$  in Scenario B at  $t$ . Furthermore, the truth or falsity of the temporary habit readings of (20) and (21) in these scenarios at  $t$  depends solely on facts about what the machine has done prior to  $t$  in the scenarios. So, the temporary habit readings of (20) and (21) are readings on which:

- i. (20), but not (21), is a correct description of the machine at  $t$  in Scenario A,
- ii. (21), but not (20), is a correct description of the machine at  $t$  in Scenario B, and
- iii. the truth or falsity of (20) and (21) at  $t$  in both scenarios depends solely on facts about what the machine *has done* in the scenarios prior to  $t$ .

I claim that Hallman's readings of (20) and (21) are temporary habit readings of the sentences. I further claim that there is no reading of (20) and (21) that both satisfies these conditions (i)–(iii) and the progressive marking *-ing* has progressive meaning. In other words, I claim that there is no reading of (20) and (21) in which they are interpreted as progressives and satisfy the above conditions. If I'm correct, Hallman's examples do not pose a challenge to (PM). (PM) is an analysis of the progressive aspect. Examples of sentences with progressive marking without progressive meaning are irrelevant to the analysis.

The argument that (20) and (21) cannot be interpreted as sentences in the progressive aspect and satisfy the above conditions is straightforward. The truth or falsity of a present progressive at a time  $t'$  depends on what is *happening* at  $t'$ . What is *happening* at  $t'$  may partially depend on what has *happened* prior to  $t'$ . But even so, what is happening at  $t'$  is not what has happened prior to  $t'$ . So, the truth or falsity of a present progressive at  $t'$  does not solely depend on what has happened prior to  $t'$ . Consequently, if (20) and (21) are interpreted as present progressives, then the truth or falsity of (20) and (21) at  $t'$  in any scenario  $S$  does not solely depend on what has happened prior to  $t'$  in  $S$ . It follows that (20) and (21) cannot be interpreted as present progressives and satisfy condition (iii).

So much for my response to the apparent challenge that Hallman's examples pose to (PM). The challenge rests on equivocating between a progressive interpretation of (20) and (21) and a temporary habit interpretation of (20) and (21). When (20) and (21) are interpreted as sentences in the progressive aspect, there is no challenge.

An anonymous reviewer presents a further challenge to (PM). Consider Lascarides' (1991) example of a race in which Alex and Billy go back and forth with respect to who is in the lead. So, (25) is true at one moment, (26) is true a few moments later, (25) is true again a few moments after that and so on.

(25) Alex is winning the race.

(26) Billy is winning the race.

If (PM) is correct, it seems to follow that the race, as an event in progress, somehow quickly changes back and forth from being disposed to become one in which Alex wins to being disposed to become one in which Billy wins. But, the objection goes, dispositions don't come and go like this, and moreover, the truth of (25)/(26) doesn't require that the race be disposed to become one in which Alex/Billy wins. So, (PM) should be rejected.

In response, we should first note that *win the race* is an achievement VP (i.e., non-durative and telic). It has long been recognized that achievement VPs are not generally felicitous in the progressive (i.e., progressive marking with progressive meaning). In those cases where they are felicitous, something funny is going on. A standard view about

the funniness of felicitous progressive achievements is that either the VP is coerced into something like an accomplishment VP (e.g., in *Mary is dying*, *die* is coerced into a quasi accomplishment) or the sentence is given a “slow-motion” reading (e.g., in *Mary is noticing the scratches*, we somehow slow down the noticing to allow for a noticing process right before culmination).<sup>28</sup> But as I read (25) and (26), there is neither coercion of *win the race* into a quasi accomplishment VP nor a slow-motion reading of the sentence. Indeed, (25) simply means that there is a race (in progress) and Alex is in the lead and (26) simply means that there is a race (in progress) and Billy is in the lead.<sup>29</sup>

I don’t know how to derive these meanings. But however the story goes, the objection is defused. Letting the above paraphrase of the intended reading of (25) be our guide, (PM) doesn’t predict that its intended reading is true only if the race is disposed to become one in which Alex wins. Similar remarks apply to the intended reading of (26). Thus, I don’t see a problem with (PM) once the intended readings are brought to light.<sup>30</sup>

Thus, in light of the above responses to the above objections, I conclude that (PM) not only fully realizes Landman’s appeal to partial realization but that it also should be taken seriously as an alternative to modal analyses of the progressive.

## 6 Concluding remarks

In closing, let me say a brief word about whether there is any reason to *favor* a dispositional analysis of the progressive like (PM) over modal analyses of the progressive. But before that, I want to stress that for the purpose of pushing the dispositional movement forward on the semantics front (i.e., the purpose of this paper), I’m perfectly satisfied with the modest conclusion that (PM) should be taken seriously as an alternative to modal analyses of the progressive. I also want to stress that a proper argument for (PM) over modal analyses, one that, among other things, surveys existing modal analyses and compares them to (PM), is not within the scope of this paper. Instead, I simply want to highlight a virtue of (PM) that is apparently not found in modal analyses.

When you have dispositions at your disposal, you get some other things for free. One freebie is the phenomenon of masking. As discussed above, some masks prevent the manifestation of a disposition by *interrupting* the manifestation process. Now suppose events in progress are partial manifestations of dispositions of events as I’ve proposed with (15). We would then have straightforward account of what it is for an event in progress to continue without interruption: a  $\Phi$  event in progress continues without interruption just in case nothing takes away or masks its activated disposition to become a  $\Phi$  event. Thus, a dispositional analysis of the progressive like (PM) has the virtue of being able to provide a general account of what it is for an event in progress to continue without interruption.

I am not aware of any modal analysis that can do the same. Dowty’s (1979) inertia world function (when properly defined as delivering the set of inertia worlds for an event in a world at a time) just delivers the set of worlds where an event in progress follows its “natural course,” i.e., the set of worlds where it continues with interruption. How the

<sup>28</sup> See Rothstein (2004) for one way of implementing this view. For a recent alternative account of progressive achievements, and an excellent overview of the controversy surrounding progressive achievements, see Gyarmathy (2015).

<sup>29</sup> Piñón (1997) observes something similar when he claims that *Peter is winning the race* is best understood along the lines of *Peter is leading the race*.

<sup>30</sup> If I had to gesture at an explanation of what’s going on with the intended readings of (25) and (26), I would say that we are considering the counterfactual situation in which the present time marks the end of the race and as such the leader is the winner. Somehow or another, we project this counterfactual situation onto the present situation and, somehow or another, this gives the above meanings of (25) and (26). But this is just a gesture.

function delivers that set of worlds is “reluctantly” taken as a primitive.<sup>31</sup> Portner’s (1998) non-interruption ordering source ranks worlds where the event in progress is interrupted as less relevant than those where it is not. But this ordering source just takes for granted a general account of what it is for an event in progress to continue without interruption. Landman (1992) handles the interruption of an event in progress by telling us that the event stops and to consider the closest world(s) where there is a “more developed version” of the event. But this amounts to nothing more than a request to consider the closest world(s) where the event continues without interruption. Varasdi (2013: 199) appeals to sustaining conditions that are “directly related to the ways the development of the event may be interrupted.” But neither an account of what it is for an event in progress to be sustained nor an account of interruption is offered.

I am not claiming that a modal analysis of the progressive should be rejected unless it can provide an account of what it is for an event in progress to continue without interruption. I am, however, claiming that it would be better if it could. After all, one of the primary intuitions for motivating a modal analyses of the progressive is the intuition that a  $\Phi$  event in progress would develop into a  $\Phi$  event if it were to continue without interruption. So, it would be good for a modal analysis to be able to explain this intuition. But no analysis can unless it can provide an account of what it is for an event to continue without interruption. (PM) provides an account of what is for an event in progress to continue without interruption. It can also offer an explanation of the above intuition. In short, the explanation is that in virtue of having the activated disposition to become a  $\Phi$  event, a  $\Phi$  event in progress would become a  $\Phi$  event if nothing took away or masked this activated disposition.

So, here is an argument to favor a dispositional analysis like (PM) over modal analyses. A dispositional analysis like (PM) can (apparently) do all the work that a modal analysis of the progressive can do. And it can do something that (apparently) modal analyses cannot do: provide a general account of what it is for an event to continue without interruption and thus offer an explanation of one of the primary intuitions that motivates modal analyses of the progressive. Thus, one should (apparently) favor a dispositional analysis like (PM) over modal analyses of the progressive.

But, to repeat, for the purposes of this paper, I satisfied enough with modest conclusion that a dispositional analysis of the progressive like (PM) should be taken seriously as an alternative to modal analyses of the progressive.

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## Competing Interests

The author has no competing interests to declare.

<sup>31</sup> Witness Dowty (1979: 148):

Thus I reluctantly conclude that we must add to the definition of a model a new primitive function which assigns to each index, consisting of a world and an interval of time, a set of worlds which might be called *inertia worlds*....

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