

# On the Limits of Linguistic Meaning

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## 1 Introduction

There can be no question that when I ask myself, searchingly, “What could I have done differently?” I am wondering about those actions that were possible for me and not about any actual course of action. ‘Could’ gives voice to a modal concept here, one that concerns counterfactual possibility. But there are other, more reluctant expressions in natural language and it can be difficult to tell whether they express modality. So, for instance, if I swam earlier in the day and I am now reflecting on the progress of that activity—I think, I *was swimming* earlier—have I, in thinking about the progress of that activity, introduced a layer of modality into my thought? What if I swam across the lake? Does the thought that I *was crossing the lake* anticipate the possibility of an eventual arrival?

In one form or another, these questions have been and continue to be debated. While many theorists assume that the progressive<sup>1</sup> has a modal meaning,<sup>2</sup> other theorists (the sometimes self-styled “radicals”) assume that it has a rather more modest non-modal meaning.<sup>3</sup> This debate has persisted, in my view, because each of the parties to it are, in a sense, half-right. The modal theorists are right to insist that a claim like ‘I was crossing the lake’ has a modal interpretation, but

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<sup>1</sup> The progressive is marked, in English, with the auxiliary ‘be’ and with the verbal suffix ‘-ing.’

<sup>2</sup> See, for example, Dowty (1979), Landman (1992), Portner (1998), Higginbotham (2004), and Hallman (2009b).

<sup>3</sup> See, for example, Bennett and Partee (1978), ter Meulen (1985), Parsons (1990), and Szabó (2004) and (2008).

the non-modal theorists are equally right to deny that a claim like ‘I was swimming’ bears such an interpretation.

In what follows, I develop a semantic proposal that captures the insights of each of these approaches and properly restricts their scope. In particular, I defend the view that a fault line lies between progressive sentences like ‘I was crossing the lake’ that embed outcome-associated predicates of events (that are, intuitively, associated with distinguished endpoints, goals, or outcomes) and progressive sentences like ‘I was swimming’ that do not. In light of the fact that the modal interpretations that invariably arise in connection with the former sort of progressive claim do not arise in connection with the latter, I propose an analysis of the progressive on which the progressive does not itself have a modal meaning.

A new and interesting problem emerges, though, once these lines have been drawn. After all, if the progressive is not itself responsible for the modal interpretations that we see in connection with some progressive claims, we confront the difficult task of explaining how it is that they come to be associated with those interpretations. This presents us with a difficulty of a different sort than that of analyzing the natural language expressions implicated in their emergence. As we will see, the execution of this task raises the question of whether those expressions are modal expressions at all and, correspondingly, of whether our modal interpretations are to be explained in terms of modal meanings. I will argue that they are not. There is no candidate meaning or interaction of candidate meanings—modal or otherwise—that explain why these modal interpretations attach to our distinguished class of progressives.

What these interpretations reflect, on my view, is not the modal structure of *language*, but the modal structure of *cognition*. So, when we explain why certain progressive sentences give rise to modal interpretations we are, on my view, not merely offering an explanation of the meanings that they encode, we are also offering an explanation of how it is that these meanings engage modal

cognition, and what the semantic or interpretive output of that cognitive system is once it is so engaged. However, it should not be thought that these interpretations are, for that reason, exotic. Nor is the style of analysis that I propose limited to the explanation of the progressive claims that will be my focus in this paper. These progressives represent just one instance of a more general linguistic and cognitive pattern that they help to make manifest and that this style of analysis is designed to explain—a pattern that emerges whenever outcome-associated expressions enter into a linguistic environment from which their outcomes are, as I will say, “displaced.” Since different sorts of expressions may come to be associated with outcomes, in different sorts of ways, and since these expressions may also enter into displacement environments by different means, the style of analysis that I propose in this paper is one that promises to illuminate the workings of a large and, in many respects, quite diverse class of expressions all of which contribute to the systematic emergence of the same sort of modal interpretation in the same sort of environment.

Although it incorporates linguistic analysis, the style of explanation that I defend presents a certain challenge to standard ways of thinking about semantic explanation in both the philosophy of language and linguistics. After all, it is standard to assume that the task of providing an analysis of the meaning of an expression and the task of providing an analysis of systematic aspects of its interpretation (particularly those that are context-independent) are one and the same. On my approach, by contrast, these tasks can and do sometimes come apart. Some of the progressive sentences that I discuss in this paper provide an illustration of just this possibility; they systematically give rise to modal interpretations, though they do not have modal meanings to which we might make appeal in offering an explanation of those interpretations.

But while this genuinely does present a challenge to the standard model of semantic explanation, I think it should be seen as a welcome challenge. The approach that I pursue allows us to offer better analyses of the *linguistic meanings* of natural language expressions, largely due to the way

that modal cognition is invoked as part of an explanation of our central interpretive pattern. In particular, it allows us to offer a more systematic and deep explanation for the modal interpretations to which those expressions give rise. For one, instead of adopting construction-specific analyses for the expressions that exhibit this pattern, it allows us to recognize that a common linguistic property or trigger is present in each. Moreover, instead of assuming that there are modal meanings in each of these cases—an approach that leaves unanswered the question of why the modal system of language is realized in just that way and that, therefore, mistakes a systematic pattern for an accidental one—we can explain the presence of modal interpretations in terms of the structure of modal cognition, which has the appealing consequence that that further question does not arise. Finally, although my argument implies that semantic explanation can go well beyond linguistically encoded forms, the expressions that are of interest in this paper offer a unique vantage point from which to consider our assumptions about the nature of linguistic modality, including our assumptions about the semantic contribution of modal expressions and the nature of their access to modal cognition, and beyond this, a vantage point—though, surely, still a distant one—from which to consider why the realization of modality in natural language takes the form that it does.

With the aims of the paper in view, its plan is as follows. In section 2, I argue against two paradigm-setting analyses of the progressive (the first non-modal and the second modal) and defend my own non-modal analysis of the progressive. In section 3, I advance a hypothesis ('The Displacement Hypothesis') concerning the environments that trigger the modal interpretations of certain progressive claims. Finally, in section 4, I defend the view that the modal structure of these interpretations is not linguistically encoded, but rather reveals aspects of the structure of modal cognition. I reflect on the consequences of this account for our understanding of semantic explanation, the motivation that it provides for a new and expanded role for the philosophy of mind in the study of language, and I note some of the more urgent questions that this line of research opens up

for further inquiry.

## 2 An Analysis of the Progressive

### 2.1 Instants and Intervals

As the term ‘progressive’ suggests, we use progressive claims to talk about events that are in progress. Our task in what follows is to advance from this near truism, stated in everyday language, to an illuminating and precise semantic analysis.

With this goal in mind, let us start with a broad description of the progressive as a predicate that characterizes instants in a changing world. To see why this description is apt, consider that the progressive is a stative predicate, which is the sort of predicate that characterizes what a part of the world is like at an instant.<sup>4</sup> Evidence for the claim that the progressive is stative may be drawn from its behavior across diagnostics for stativity. So, for example, the progressive predicate ‘be running’ in (2) patterns with the stative predicate ‘be here’ in (1) insofar as Max’s running, like his being here, is interpreted as surrounding my arrival (or as being simultaneous with it, though this is less salient):

(1) Max was here when I arrived.

(2) Max was running when I arrived.

The interpretation of these predicates contrasts with the interpretation of an eventive predicate in this environment. This is the sort of predicate that characterizes what a part of the world is like over a non-instantaneous interval of time.<sup>5</sup> So, for example, the eventive predicate ‘run’ in (3) contrasts with our previous examples insofar as Max’s run is interpreted as *following* my arrival:

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<sup>4</sup> See Hallman (2009a) for an argument that it is durationlessness that characterizes stativity.

<sup>5</sup> See Hallman (2009a) for this characterization of the contrast between stative and eventive predicates.

(3) Max ran when I arrived.

The same general pattern emerges if we consider the interpretation of these predicates across both past and present tense environments. What we find is that progressive predicates, like stative predicates, receive a uniform interpretation across these environments though eventive predicates do not:

(4a) Max was here.

(4b) Max is here.

(5a) Max was running.

(5b) Max is running.

(6a) Max ran.

(6b) Max runs. (habitual interpretation)

In particular, the predicate ‘run’ receives a habitual interpretation in (6b) and cannot be interpreted as describing a running episode,<sup>6</sup> which is the salient interpretation of its counterpart in (6a). Since the progressive patterns with statives across diagnostics for stativity,<sup>7</sup> I will continue to assume that it is a stative predicate. Given my view of stativity, this amounts to the claim that the progressive characterizes what the world is like at an instant in time. Though, in the interest of facilitating discussion across frameworks, I will treat this as interchangeable with the claim that the progressive characterizes a state of the world (i.e., the sort of thing that holds at a moment).<sup>8</sup>

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<sup>6</sup> This claim commits one to treating as special a certain style of discourse—sometimes called the ‘sportscaster present’ (e.g., ‘He shoots; he scores!’)—in which the occurrence of a particular event may be narrated in what appears to be a present tense environment.

<sup>7</sup> See Vlach (1981) for an early defense of this claim.

<sup>8</sup> The latter characterization allows us to pursue a treatment for statives that parallels current treatments of eventive predicates as predicates of events (those inspired by Davidson (1967)).

This brings us to the connection between the progressive and characterizations of what the world is like over time. It appears that while the progressive is itself a stative predicate, it combines exclusively with eventive predicates. For this reason, we get anomalous results when we attempt to combine the progressive with a stative predicate such as ‘be blue,’ as the following sentence shows:

(7) ?The sky is being blue.

The possibility of a ‘repair’ interpretation on which (7) means something like ‘The sky is acting blue’ (behaving blueely?) only serves to underscore this generalization, as it appears to require the predicate ‘be blue’ to be interpreted as an eventive predicate along the lines of ‘act blue.’ An attempt to combine our earlier stative predicate ‘be here’ with the progressive also appears to invite this repair strategy:

(8) ?Max is being here.

In the context of (8), ‘be here’ is not interpreted as indicating Max’s indexically specified location. Rather, it receives an almost Heideggerian interpretation, indicating Max’s active engagement with the world or something along these lines. Consistent with our assumptions, we also find that the progressive does not combine with progressive predicates, as the following example shows:

(9) ??Max is being running.<sup>9</sup>

Note, moreover, that the trouble here is not due to the presence of the verb ‘be’ in these predicates. As Peter Hallman points out, (10) is acceptable though the verb ‘be’ figures in the predicate ‘be fed rice,’ which combines with the progressive:

(10) The baby was being fed rice.

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<sup>9</sup> Not only is (9) decidedly odd, it appears not even to be amenable to a repair interpretation of the sort sketched for (7) and (8). This is something that calls for explanation, but I leave it as an open question.

It appears, then, that the progressive combines with eventive<sup>10</sup> predicates, which represent what the world is like over intervals of time or, if you like, which represent (temporally extended) events.

### 2.1.1 A Hypothesis

At this point, it is natural to wonder about the relationship between the progressive and the predicate with which it combines. How is instant related to interval? A hypothesis suggests itself. It is, broadly, that the progressive encodes a certain part-whole relation: it is true of (or at) a part of the sort of thing that the predicate with which it combines is true of (or at). In terms of a relation between events and their states (or momentary parts), for example, the hypothesis is that the progressive represents a state of an event as holding at a given time.<sup>11</sup> This hypothesis predicts that ‘Max was running,’ at the very least, describes a state (or momentary part) of a run by Max as holding at a past time.

As far as it goes, the hypothesis offers a nice explanation of the descriptive overlap between pairs of claims like ‘Max was running’ and ‘Max ran.’ But how far does it go? Notice that the hypothesis leaves open a number of questions that we eventually want to address. Among them are the following: Does the progressive represent anything more than the existence of a momentary part of a temporally extended event? Does the progressive require, for instance, that the event

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<sup>10</sup> One complication arises in connection with achievement predicates, which are predicates that are thought to characterize instantaneous events (e.g., ‘leave’ as in ‘John left’). Given that these are eventive predicates, they cannot, on present assumptions, characterize instants or states *tout court*. I recommend that we think of achievement predicates (or better, predicates that are interpreted as achievements) as characterizing the instantaneous outcomes of events that are, in fact, extended. When the progressive combines with such a predicate (to anticipate some of what is to come) it may select any part of the event it represents but for its outcome. So, on this interpretation of the event predicate ‘leave,’ ‘John is leaving’ does not allow an interpretation on which John is now gone, though it (at least) indicates that a part of the event that precedes that outcome obtains. See Rothstein (2004) for a similar view concerning achievements in the progressive environment (though my claim is a claim about achievements both within and without the progressive environment).

<sup>11</sup> Various assumptions might be made about what it is for there to be a state of an event. For example, in reflecting on the aspects of progressive meaning discussed in 2.1, Parsons (1990) says that we might adopt a view on which “for every event that is in progress, there is a uniquely associated state, the “In-Progress” state of the event, which holds as long as the event is in progress” (170). Hallman (2009a) takes a different approach and gives this idea algebraic expression, facilitating its integration into lattice theoretic approaches to event structure inspired by (for example) Bach (1986) and Krifka (1992). Since these are matters to be decided by one’s broader theoretical commitments, I will simply assume that states are momentary parts of events and allow this to be understood in any number of different ways.

predicate with which it combines characterize an *actual* temporally extended event? Or does it require it to characterize a possible event (whether actual or not)? And if the progressive *does* introduce a modal constraint, what sort of modality does it express? Since this hypothesis has, in one form or another, been tremendously fruitful in connection with analyses of the progressive and since I think there is good reason to adopt it, I will do just that.<sup>12</sup> The task ahead, as I see it, is to address the difficult questions left open by it.

### 2.1.2 A Restriction

For now, there is one more preliminary matter to settle (though as we will see, it will prove to be of great significance for understanding the progressive as well as for understanding a number of other seemingly unrelated expressions). The matter concerns whether there are restrictions on the parts of a given type of event that are candidates for selection by the progressive. So, for example, can ‘Max was running’ describe any part of a run by Max?

Interestingly, it appears that there is a constraint on the parts of a temporally extended event that may serve as candidates for selection. Notice, for example, that if Mary is already across the street, one cannot use (11) to describe Mary’s crossing of the street as being in progress (currently):

(11) Mary is crossing the street.

This is so despite the fact that Mary’s being across the street is an outcome or endpoint that *is* associated with the underlying event predicate in (11). Notice that when ‘cross the street’ occurs in (12), which tells us that an event characterized by that predicate held in the past,<sup>13</sup> it is a condition on its truth that that outcome occurred:

(12) Mary crossed the street (#but she didn’t get across).

<sup>12</sup> For an alternative approach, see Szabó (2004).

<sup>13</sup> I intend the interpretation of this sentence on which it describes a particular past event (variously described as its ‘episodic,’ ‘simple past,’ and ‘perfective’ interpretation).

Since that very<sup>14</sup> event predicate combines with the progressive in (11) and since the progressive represents a state of the event it describes as holding (by our hypothesis), it appears that the outcome or final part of the event—Mary’s being across the street—is not a candidate for selection.

As a first pass, we might capture this fact by assuming that the progressive introduces a restriction against the selection of the final parts of events. If we assume that Mary’s being across the street is a final part of a crossing of the street by her, then this assumption allows us to explain why (11) cannot be used to describe Mary’s street-crossing as being in progress in a scenario in which she is already across the street. We will have occasion to revisit this tentative assumption once we encounter more complex data, but for now it provides us with an explanation for the very interesting restriction evidenced by (11).

We have, then, three core assumptions. The first is that the progressive is a stative predicate that combines with eventive predicates. The second is that the progressive is true of or at the sort of thing its underlying predicate is true of or at, which gives us a certain direction of analysis to work with. The third, as we have just seen, is that the progressive cannot select the event-final part of the event represented by its underlying predicate (i.e., that part cannot be said to be progressing). With these core assumptions in place, I want to turn now to an early analysis of the progressive that encodes these assumptions and attempts to settle some of the hard questions raised by them.

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<sup>14</sup> It might be denied that a predicate like ‘cross the street’ is associated with an outcome and, in particular, that it represents a complete street-crossing (i) in the progressive context of (11) and (ii) in the non-progressive context of (12). The problem with simply denying (i) is that there are interpretive effects that depend on the representation of its associated outcome *at the point at which this predicate combines with the progressive* (as I discuss shortly). One might also deny both (i) and (ii). Hallman (2009b) (who is inspired by the approaches in Kratzer (2004) and Mittwoch (1988)) assumes that a predicate like ‘cross the street’ has a partitive meaning, arguing that the completion interpretation in (12) is due to an unpronounced (‘telicizing’) operator and that it is the progressive that reinstates a connection between a part of a street-crossing by Mary and her arrival across the street (which constitutes a putative explanation for the interpretive effects just alluded to). Setting other problems aside, my main objection to this sort of combination view is that it builds a condition into the meaning of the progressive that cannot generalize across progressive claims (as I also discuss shortly).

## 2.2 An Early Analysis of the Progressive

Michael Bennett and Barbara Partee (1978) propose the following analysis of the progressive, which is illustrated here for the sentence ‘Mary is crossing the street’:

‘Mary is crossing the street’ is true at  $I$  if and only if  $I$  is a moment of time, there exists an interval of time  $I'$  such that  $I$  is in  $I'$ ,  $I$  is not an endpoint for  $I'$ , and ‘Mary cross the street’ is true at  $I'$ .

Notice that the Bennett-Partee analysis encodes a version of each of our core assumptions. It is assumed, on the analysis, that the progressive is stative insofar as it is true at a moment. It is assumed that the (in this case) clause with which the progressive combines is eventive insofar as it is true at a non-instantaneous interval. Moreover, it is assumed that progressive claims are true of (or at) parts of whatever sort of thing their underlying clauses are true of (or at). After all, according to the analysis, progressive claims are true at instants that are parts of intervals at which their underlying clauses (e.g., ‘Mary crosses the street’) are true. And, finally, it is assumed that there is a restriction on the progressive’s being true of or at a final part, which is expressed, on the present analysis, in terms of a restriction on the progressive’s holding at an interval-final moment.

The analysis also provides us with an answer to the question of whether the progressive commits us to something more than a part—to something more than a characterization of what the world is like at a moment in time. What it tells us, in particular, is that the moment characterized by the progressive is only a mere part of a stretch of time in the actual world that extends into the future and that is characterized by the clause with which it combines.

### 2.3 Dowty's Inertial-Worlds Analysis (First Attempt)

Although the Bennett-Partee analysis is fully extensional, it inspired a wave of modal analyses of the progressive, which were argued to be necessary to avoid certain problematic entailments generated by it. (Ironically, these entailments resemble the sort of entailments that the Bennett-Partee account was itself designed to avoid.)

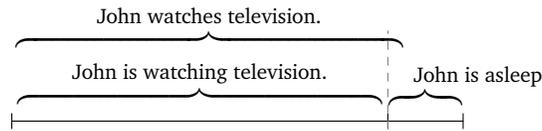
One of the most interesting and simple arguments of this kind was offered by David Dowty (1979). Dowty retains the temporal relation encoded by the Bennett-Partee analysis. That is, he assumes that when the progressive combines with a predicate (or clause), that predicate characterizes an interval of time that includes and extends forward from the progressive's time of evaluation. But, he claims, such a predicate does not invariably characterize intervals of time *in the actual world*, *pace* the Bennett-Partee analysis. For this reason, a predicate combining with the progressive must be assumed to characterize an interval in a possible world or in possible worlds (which may not be identical with or include the actual world).

I want to focus, for a moment, on Dowty's reasons for rejecting the assumption that predicates combining with the progressive invariably characterize intervals in the actual world. What we are told is that that assumption generates an incorrect entailment. It leads to the prediction, for example, that (13) entails that John watches television while asleep though, clearly, (13) is understood to mean that John was watching television *up to* the moment at which he fell asleep:

(13) John was watching television when he fell asleep.

To see why that entailment might be taken to follow from the Bennett-Partee analysis, suppose that there are two consecutive moments,  $t_1$  and  $t_2$  (where  $t_1$  precedes  $t_2$ ), and suppose that 'John is watching television' is true at  $t_1$  and that John is asleep at  $t_2$ . On these assumptions, the analysis requires that 'John watch television' be true at an interval that includes  $t_1$  and also includes (at

least)  $t_2$  (since otherwise ‘John is watching television’ would be true at an interval-final moment).



But by our assumptions, this means that there is a time at which John is asleep, which is included in an interval at which he watches television.

Notice, however, that an alternative assumption about time might be made, which, to some extent, insulates the Bennett-Partee analysis from this particular argument. If time is assumed to be dense, then there are times that occur between  $t_1$  and  $t_2$  and these times may be included within an interval at which ‘John watches television’ is true with one of these designated as an interval-final moment. There need not be any overlap, then, between the time when John watches television and the time when he is asleep, contrary to Dowty’s claim.

It is difficult to adjudicate whether this response is really adequate, however. If the progressive imposes the requirement that a given type of event continue past the point at which it is said to be in progress, appeal to the fleet moments between  $t_1$  and  $t_2$  might not be thought to be adequate for representing the continuation of the event (that is, they may not represent this continuation robustly enough). Moreover, it might be wondered whether the response respects the intuition that (13) is interpreted as meaning that John was watching television *up to* the point at which he falls asleep. One might have the intuition that this requires there to be no (relevant) intervening event between the particular moment at which John is said to be watching television and some designated “next” moment at which he is asleep. These concerns might be taken to provide some motivation for an account like Dowty’s—one on which John promptly stopped watching television in the actual world (though not in certain possible worlds) and subsequently fell asleep. But the motivation for this account is pretty thin, indeed. If there were no more evidence than this, I think it would be very

difficult to settle these issues in favor of one or another of these approaches to progressive meaning (which is not yet to consider whether we should resist the temporal assumption that underlies both approaches).

## 2.4 Dowty's Inertial-Worlds Analysis (Second Attempt)

What we should do, in light of these inconclusive results, is investigate whether there might be clearer cases on which to base our claims about progressive meaning. And I think there are clearer cases.

I recommend that we think of progressive claims as being divided into one of two distinct classes depending on whether the predicate combining with the progressive is associated with an outcome/endpoint (call these 'outcome-associated progressives') or not (call these 'non-outcome-associated progressives').<sup>15</sup> The last section represented an attempt to motivate a modal analysis of the progressive on the basis of an example taken from the second of these classes (and, in fact, Dowty's argument represents the only argument of this sort—which is, in part, what makes it so interesting and instructive to consider). In this section, I want to consider an attempt to motivate this analysis on the basis of an example from the first of these classes.

Various diagnostics tell outcome-associated and non-outcome-associated predicates apart. So, for example, it is known that 'in'-adverbials (e.g. 'in five minutes') are interpreted as measuring the temporal span of an event, from onset to outcome.<sup>16</sup> For this reason, when they combine with 'in'-adverbials, predicates that are associated with outcomes (e.g., 'cross the street' in (15)) pattern differently than predicates that are not (e.g., 'watch television' in (14)). We see, for example, that

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<sup>15</sup> There is a large literature on the topic of outcome-association under the heading 'telicity' and on the outcome-associated predicates that will be my focus under 'accomplishments.' For a canonical early source on these topics, see Vendler (1957). For an interesting and more recent discussion of these topics, see 'On Events in Linguistic Semantics' and 'Accomplishments' in Higginbotham (2009), although I wish to distance myself from the view that outcomes represent the proper ends of events—a view found in that work and that is encouraged, I think, by the description of these outcomes as 'teloi.'

<sup>16</sup> For a defense of the view that this is an implicature, see Rothstein (2004).

(14) strikes us as being peculiar, though (15) does not:

(14) ?John watched television in five minutes.

(15) Mary crossed the street in ten seconds.

The reason for this is that ‘in ten seconds’ can be taken to measure the temporal distance between the onset and outcome of the event described by the predicate ‘cross the street,’ whereas ‘in five minutes’ cannot straightforwardly be taken to measure the temporal distance between the onset and outcome of an event described by the predicate ‘watch television’ (since, ordinarily, that predicate is not associated with an outcome). Notice, though, that (14) is interpretable if it is taken to have a non-standard meaning—if it is taken to mean, for example, that five minutes elapsed before John began to watch television (in which case, presumably, ‘watch television’ itself describes the outcome of an event that is not otherwise overtly characterized). Other ways of associating that predicate with an outcome are available, but questions concerning the mechanics of these interpretations should not detain us. The point of the contrast between (14) and (15) is not that predicates are rigidly either associated with an outcome or not, it is rather that we can distinguish between those cases in which they are and those cases in which they are not.

Outcome-associated progressives give us reason to reject the Bennett-Partee analysis. In particular, they provide us with evidence to reject the assumption that the predicate that combines with the progressive characterizes an interval (or event) *in the actual world*. To see this, consider that the following outcome-associated progressive may be true despite the fact that Mary was prevented from making it across the street:

(16) Mary was crossing the street when she was hit by a car.

Since we are assuming that a predicate like ‘cross the street’ is associated with an outcome in the

progressive environment—Mary’s being across the street—and since (16) may be true despite the fact that this outcome is not eventually actualized, that assumption cannot be maintained.

It seems that there are two minimal departures from the original Bennett-Partee proposal that might be considered, each of which rejects the assumption that the predicate that combines with the progressive characterizes an interval *in the actual world*. The first option replaces that assumption with the assumption that the progressive represents a (non-final) part of the interval characterized via the predicate with which it combines. According to this option, ‘Mary was crossing the street’ simply tells us that, sometime in the past, a (non-final) part of a street-crossing by Mary held. The second option assumes that the predicate that combines with the progressive characterizes an interval (or event), not necessarily in the actual world as on the rejected analysis, but in certain relevant possible worlds, where this interval includes the progressive’s time of evaluation and extends forward from it. According to this option, ‘Mary was crossing the street’ tells us both that a part of a street-crossing by Mary held in the actual world and that this part develops into a complete street-crossing by Mary in certain relevant possible worlds.

As it turns out, there is considerable *prima facie* evidence in favor of the second option insofar as outcome-associated progressives do receive modal interpretations. Consider, for example, that there are truth value shifts across cases in which (i) an event is partly realized and can be totally realized and those in which (ii) that event is realized to the same extent (we may suppose) but cannot be totally realized. Take (17), for instance:

(17) Mary is crossing the Atlantic.

If we imagine that Mary sets out to captain her ship across the Atlantic and is part-way across when she receives a signal to return to port, then it is uncontroversial to claim that (17) is true as a description of what was happening before she received the signal. But if we imagine that Mary, who is in the grips of a hallucination, sets out to swim across the Atlantic and is part-way

across when she drowns, it is uncontroversial to claim that (17) is *false* as a description of what was happening before she drowned.<sup>17</sup> This contrast is easily explained by appeal to the contrast in the modal status of the outcome in question across these cases. An analysis on which (17) says only that a part of a cross-Atlantic passage by Mary obtained, misses the contrast between these cases completely.

Dowty's analysis provides a reasonable<sup>18</sup> starting point for analyzing these progressive sentences as it imposes conditions on the possible, though not necessarily actual, continuations of an event. It is illustrated here for the sentence 'Mary is crossing the street':

'Mary is crossing the street' is true at an interval  $I$  and world  $w$  if and only if there is some interval  $I'$  such that  $I \subseteq I'$  and 'Mary cross the street' is true at  $I'$  in every inertial world relative to  $I$  and  $w$ .

The inertial worlds that figure in this analysis are worlds, to use just one evocative characterization, in which some course of events unfolds without disturbance or interruption relative to a given time and world. Their presence in the analysis is critical for explaining the shift in truth value judgments that we see in connection with (17). According to the analysis, (17) is true on the assumption that Mary eventually arrives across the Atlantic in every world in which her past activity continues undisturbed and it is false on the assumption that there is some such world in which she does not

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<sup>17</sup> We see variation in the sorts of facts that are taken to be relevant to this question, across speakers, just as we see in connection with other modal interpretations. It appears to be possible to focus exclusively on Mary's own subjective point of view, for example. This may be one explanation, among others, for why some interpreters claim that (17) is true in the second case. But it is just as easy to see that there is a (broader) fact base that does not support the truth of that claim. Consider yourself whether the headline reporting the fatality would read 'Woman Drowns While Crossing Atlantic' or 'Woman Drowns While Trying to Cross Atlantic.'

<sup>18</sup> Among the technical difficulties of the analysis is the fact that (i) given the relative scope of the quantifier over inertial worlds and the quantifier over intervals that extend into those worlds, a given type of event is required to take up the exact same interval of time across inertial worlds in which it is realized—a constraint that appears to be too strong; (ii) that the relativization to worlds and intervals does not allow for the simultaneous progressing of events that have incompatible outcomes, though there is evidence that supports this possibility (as discussed by many theorists including Portner (1998) and Szabó (2008)); (iii) that without supplementation, the description that applies to an event that is completed across possible worlds does not apply to that part of it that is realized in the actual world (as discussed by Hacquard (2009)); and (iv) that it does not attribute a stative semantics to the progressive.

eventually arrive across. And this aligns nicely with our intuitions about (17) across these cases and the corresponding assumptions that might be made about Mary's prospects in each.

## 2.5 Generalizing to the Worst Case

We have seen that outcome-associated progressives provide some motivation for a modal analysis of the progressive. However, if the progressive is to have a uniform meaning, this sort of analysis has to generalize to non-outcome-associated progressives. And it is far from clear that it does.

There are three properties to consider in evaluating whether the inertial-worlds analysis generalizes to these progressives (although these properties are common across modal analyses). According to this analysis (i) predicates that combine with the progressive need not characterize actual intervals (or events) that extend into the future, (ii) though they are required to characterize intervals in certain possible worlds, and (iii) those intervals are required to include and extend beyond the progressive's time of evaluation. These are the conditions that, together, give us the basic modal-temporal profile of outcome-associated progressive claims.

The first of these assumptions generalizes, without a hitch, to the case of non-outcome-associated progressives. As we saw in section 2.3, in the case of non-outcome-associated progressives, there is no evidence for—and perhaps some evidence against—the assumption that their underlying predicates characterize actual intervals (or events) that extend beyond the progressive's time of evaluation. There is, though, clear evidence against this assumption in the case of outcome-associated progressives. We saw, for example, that 'Mary was crossing the street' may be true even if Mary was prevented from making it across. In the interest of pursuing a uniform analysis of the progressive, we should assume that the progressive does not require that the intervals or events characterized by its underlying predicates be actual.

What about the other two assumptions? Do they also generalize to the case of non-outcome-

associated progressives? Consider again the example from our first attempt to motivate a modal analysis of the progressive:

(18) John was watching television when he fell asleep.

The inertial-worlds analysis tells us that (18) may be true in a context in which John promptly stops watching television after he was said to be watching it. But the analysis now requires that there be an interval over which John watches television (that includes the relevant moment in the actual world at which he was said to be watching television) and that extends into every future of every world in which John's activity continues without disturbance or interruption. These are surprisingly strong conditions to propose for such a claim. Indeed, we are confronting a version of the rather startling theoretical commitment that I presented at the outset—that the thought 'I was swimming' introduces a layer of modality into the contemplation of my swim. As I will now argue, this is not a commitment that we should accept.

### 2.5.1 Barriers to Continuation

We should reject the generalization of the modal-temporal conditions in (ii) and (iii) to non-outcome-associated progressive claims on the grounds that they, unlike their outcome-associated counterparts, do not show sensitivity to barriers to continuation. Recall that the inertial-worlds analysis invites us to consider how an event would continue under somewhat idealized circumstances (i.e., those in which an event continues without barriers or interruptions). This sort of idealization is very intuitive though it is also, without question, somewhat elusive. It can be difficult to know with certainty whether some feature of a particular case counts as an interruption or presents a barrier or not.<sup>19</sup> My argument does not, however, require that we make any involved de-

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<sup>19</sup> We might, however, let judgments about progressive claims reveal the features of cases that do or do not count as interruptions. These are not necessarily details that need to be decided in advance in order to determine whether the best theory incorporates this mechanism of idealization.

cisions of this sort. The crucial observation is simply that non-outcome-associated progressives are utterly insensitive to *anything* that might be a barrier to continuation and that they differ from their outcome-associated counterparts in this respect. What this contrast shows is that these conditions cannot be attributed to the progressive itself, which applies as much to the one type of predicate as to the other.

Let us compare cases. Suppose that there is some last moment at which 'John is watching television' is true in the actual world and that this moment is followed by John's falling asleep. The question before us is whether 'John was watching television when he fell asleep' could be true in a context in which there are indefinitely many circumstances in the actual world each of which is sufficient to ensure that John stops watching television just when he actually does. This list might include the following conditions, among others:

- An electrical storm caused a power outage.
- John's television was programmed to turn off.
- John intended to stop watching television just then.
- John's television consumption was being strictly supervised.

And yet, none of this influences our judgment about whether it could be that John was watching television when he fell asleep. This judgment appears to be insulated from these and other potential barriers to continuation.

Compare this to the case considered earlier in which Mary sets out to captain her ship across the Atlantic but is called back to port some time after. This is a 'good' case. The outcome-associated sentence 'Mary was crossing the Atlantic' is true as a description of what was happening between Mary's departure and the eventual rerouting of the ship. But consider whether you would judge this sentence to be true if the signal to return were simply one among an indefinitely long list of

conditions each of which is sufficient to ensure that Mary returns to port when she does. We might consider the following conditions, among others:

- The crew have mutinied.
- The ship is slowly sinking.
- The coastguard has intercepted it.
- It has only enough gas to return to port.

These calamities can influence one's judgment concerning whether Mary was actually crossing the Atlantic in the midst of them. They can cast doubt on whether that event was progressing and, as in the case in which Mary attempted to swim across the Atlantic, it might be thought that Mary was, at best, trying to cross the Atlantic.

It appears, in light of this contrast, that non-outcome-associated progressives do not represent the events that they describe as having possible continuations. In a way, this is not surprising. There is no independent evidence in favor of the assumption that *these* progressives represent the continuations of events at all. We see no evidence, for example, of a restriction against the progressive's selection of the event-final parts represented by their underlying predicates, though this restriction is implicated, somehow or other, in the continuation requirements that we see in the case of their outcome-associated progressive counterparts.

We do, however, have evidence for the claim that outcome-associated progressives represent the events that they describe as having possible continuations. There are two routes to seeing this. To begin with, we noted (in section 2.1.2) that 'Mary is crossing the street' cannot represent the terminal portion of a street-crossing by Mary as ongoing. We have since learned that 'cross the street' is an outcome-associated predicate and that outcome-associated predicates have distinguished final

parts. In light of this, a more accurate articulation of the relevant restriction is that the progressive cannot select the outcome-portion of an event represented by an outcome-associated predicate with which it combines. *If* we make the further assumption,<sup>20</sup> in keeping with the accounts we have seen, that these predicates invariably characterize an entire event in the context of progressive claims, a part of which is represented as holding at a time, then these progressive claims also invariably represent the continuation of these events. (Of course, these continuations need not be actual in every case.)

That further assumption is not essential, however, and we need not be waylaid by arguments at all. We could, more simply, begin from the observation that outcome-associated progressives give rise to interpretations that concern the possible continuations of events, parts of which are represented as holding at a time, and then attempt to relate that fact to the restriction against the progressive's selection of outcomes. This would constitute, in fact, the most elegant account of the difference between outcome-associated and non-outcome-associated progressives: instead of having to recognize three independent sources of difference between outcome-associated and non-outcome-associated progressives—the modal interpretation of the one but not the other; the temporal relation encoded by the one but not the other; and the outcome-restriction of the one but not the other—we explain the modal and temporal character of outcome-associated progressives in terms of the restriction on the selection of their outcomes. This is a departure from tradition, but as I argue in the next section, it allows us to avoid the problems that have beset traditional approaches.

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<sup>20</sup> I hinted at the rejection of this assumption at the end of 2.3.

## 2.6 A New Proposal

By now, we have seen ample evidence that outcome-associated and non-outcome-associated progressive sentences have strikingly different properties. Both outcome-associated and non-outcome-associated progressives represent a part of the events described by their underlying predicates as holding at a time, but only outcome-associated progressives show any restriction on the parts that may be so represented. Moreover, only outcome-associated progressives give rise to modal interpretations that concern the possible continuation of an event past the time at which it is said to be in progress and up to its culmination.

These striking differences between outcome-associated and non-outcome-associated progressives make the task of providing a unified semantic analysis for the progressive seem quite daunting. Moreover, neither of the analyses considered so far provide viable models for a unified analysis as each generalizes properties that are strictly connected with outcome-associated progressives to their non-outcome-associated counterparts. Both, for example, assume that continuation requirements attach to non-outcome-associated progressives as well as to outcome-associated progressives (though they disagree about the modal status of these requirements).

It is possible, however, to isolate a property that is shared by outcome-associated and non-outcome-associated progressives. As I noted from the start, progressive sentences describe (at the very least) a part of the events characterized by their underlying predicates as holding at a time. But what if that is all they describe? We have been assuming that there is more to progressive meaning than that, but this has left us unable to account for the differences between these progressives. So, let us assume that this does present us with the condition that is contributed by the progressive and seek to locate the differences between these claims elsewhere. The following provides a formulation of this condition that is in keeping with our going assumptions:

$\text{PROG}(\phi)$  is true if and only if a state of the event represented by  $\phi$  holds.

Recall that, on the view assumed here, states constitute momentary parts of (temporally extended) events. This makes it intelligible to assume that the progressive represents a state *of* an event as holding at an instant. As already mentioned, however, the analysis may be adjusted if the connection between states and events is to be understood in some other way.

One notable feature of this semantic condition is that it does not explicitly encode a restriction on the progressive's selection of outcomes. There are a couple of quite plausible options for explaining the emergence of this restriction. One option is to assume that the progressive is not itself an expression that can be associated with an outcome (it is an 'atelic' expression, to use some traditional terminology). True, we have seen that the progressive sometimes *combines* with outcome-associated predicates of events but this in no way commits one to the assumption that it, too, can come to be associated with an outcome. Given that the progressive simply selects the parts of an event represented by its underlying predicate as holding, so that an outcome for one would be an outcome for the other, it would follow that the progressive cannot select the outcome portion of any such event. The second option is to assume that this restriction falls out of the fact that the progressive is a stative expression. It is, after all, standard to assume that stative expressions are not associated with outcomes (often this is built into the definition of stativity). If this assumption is sound, then it follows from the fact that the progressive is a stative expression and that an outcome for its underlying predicate would constitute an outcome for it as well, that it never represents the outcome portion of such an event as holding at a time. I will remain neutral as between these options, though I do have reservations about the claim that stative predicates are never associated with outcomes.<sup>21</sup>

Another notable feature of this condition is that it does not encode a commitment to the

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<sup>21</sup> See section 3 for some prima facie evidence against this assumption.

existence of a complete event—actual or otherwise—that is characterized by  $\phi$ . According to the analysis, the progressive only represents a *part* of an event of a type specified by its underlying predicate as holding, though the logic of the claim is brought out better, perhaps, by saying that it represents an event part rather than a part of an event—to borrow a formulation familiar from Bach (1986). This no more indicates the existence of a full-scale event of that type than the embedding of ‘win the lottery’ under ‘I hoped to’ indicates that I won the lottery. Moreover, this is the sort of commitment that we want to avoid. The assumption that the progressive carries such a commitment has made trouble for analyses of the progressive from the start. It saddled early theorists, such as Montague (1970) and Scott (1970), with unwanted entailments (roughly of the form ‘if  $\phi$  is happening, then  $\phi$  has happened’). Bennett and Partee avoided these particular entailments by introducing the idea of a sentence’s being true at an interval into their tense logic (so that a sentence could be said to be true at an interval without being required to be true at each of the moments comprising the interval). But it nonetheless saddled them, in turn, with a commitment to the actualization of states of affairs in cases where, as Dowty noted, we want no such commitment. And, in my view, it has saddled modal theorists ever since with a commitment to possible events in cases where no such commitment is appropriate. It would be better to reject this assumption.

The most interesting feature of this condition is surely, though, that it does not encode a modal constraint. This presents us with a rather pressing question: where do the modal constraints that arise in connection with outcome-associated progressives come from? In the following section, I develop a hypothesis concerning the linguistic environment that is responsible for triggering the modal interpretations of outcome-associated progressives and other outcome-associated expressions. Arriving at a formal characterization of this linguistic environment will be instrumental in allowing us to solve the puzzle that has emerged concerning the ultimate source of these modal

interpretations.

### 3 On Displacement

Two observations are critical for coming to an understanding of the modal interpretations of outcome-associated progressives. The first observation is that when outcome-associated predicates combine with the progressive a modal interpretation emerges that is absent when those outcome-associated predicates occur in certain non-progressive or ‘perfective’ environments. Take, for example, the following two sentences:

(19) Mary was crossing the Atlantic.

(20) Mary crossed the Atlantic.

Although the same outcome-associated predicate of events appears in these sentences, (19) gives rise to a modal interpretation according to which it was possible for a cross-Atlantic passage to be completed across a range of circumstances (though one may not have actually occurred), whereas (20) simply locates an actual and complete cross-Atlantic passage in the past.<sup>22</sup> The second is that while a restriction on the selection of outcomes is in effect in the case of (19), precluding the possibility that Mary was already across at the relevant time (the time at which the event was in progress), this restriction is absent in the case of (20), which positively requires that Mary arrived across within the relevant period of time.

These observations suggest that the modal interpretations that attach to outcome-associated progressives are linked to the restriction on their outcomes in the progressive environment. It is helpful in thinking about these aspects of interpretation as being related to regard them as two species of displacement. ‘Displacement’ is sometimes used a label for the fact that natural

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<sup>22</sup> That feature of (20), its transparency with respect to that event, makes it ideal for the purpose of comparison with the progressive.

languages can encode information about what is not immediately “present,” a property of language that manifests along a variety of dimensions. For example, theorists sometimes describe modals as expressions that effect *modal* displacement insofar as they create environments within which a linguistic characterization may be a characterization of what is non-actual. Displacement can also be realized along spatial and temporal dimensions with expressions that represent what is non-local and non-present, respectively. In each of these cases, a dimension of meaning emerges that expresses distance from the actual here and now. I want to suggest that we also think of the restriction against outcomes in the progressive environment a species of displacement. The progressive displaces outcomes in something like the way that you can displace water from a full tub. Outcomes are *expelled* from the progressive environment. Outcomes are, therefore, never among the parts of events that are “in progress” when the events with which they are associated are said to be in progress. We can speak, more generally, of the linguistic environments that have the latter property as displacement environments, with the progressive providing us with just one example of this kind, and of the particular sort of displacement that it effects as outcome displacement.

I propose that outcome displacement triggers modal displacement and that this explains our two core observations. When the progressive represents a part of an outcome-associated event as holding (as in (19)), that outcome is displaced and a modal condition comes to mediate the connection between that part of the event and its displaced outcome. When its outcome is not displaced (as in (20)), no such modal connection comes to mediate between that part of the event and its outcome. Given the role that I take displacement to play in characterizing those environments in which outcome-associated progressives give rise to modal interpretations, I call this hypothesis the ‘Displacement Hypothesis’:

DISPLACEMENT HYPOTHESIS:

There is modal displacement just where there is outcome displacement.

Although the outcomes that we are focusing on are associated with predicates of events, the Displacement Hypothesis can be taken to apply to other sorts of outcome-associated predicates (e.g., stative predicates that are associated with outcomes, if there are plausible examples of this sort, as I think there are). Moreover, it is a hypothesis that concerns the interpretations of outcomes that are displaced however they enter into association with expressions and however they come to be displaced. So, in principle, the hypothesis is potentially applicable to a very broad class of expressions beyond outcome-associated predicates like ‘cross the Atlantic’ and to a very broad class of linguistic environments beyond those represented by (19) and (20).

One interesting consequence of the Displacement Hypothesis is that it predicts that outcome-associated progressives are invariably associated with modal interpretations. After all, the progressive environment is a displacement environment and the Displacement Hypothesis says that the displacement of outcomes results in their modal displacement. Moreover, since an outcome-associated claim like ‘Mary crossed the Atlantic’ provides no guarantee that the modal condition associated with ‘Mary was crossing the Atlantic’ is satisfied, the hypothesis further predicts that there is not an entailment from the former sort of claim to the latter.

This prediction gives us a way of distinguishing between the Displacement Hypothesis and an alternative hypothesis that links the modal interpretations of outcome-associated progressives to the non-actualization of the events represented by their underlying predicates (so that those modal interpretations arise in just those cases in which outcomes remain unactualized). This alternative hypothesis predicts that in those cases in which such an event is actualized, the outcome-associated progressive that characterizes that event as in progress does not come to be associated with a modal interpretation (or has a trivial modal interpretation). For that reason, it is in a position to predict that there is an entailment from a claim like ‘Mary crossed the Atlantic’ to a claim like ‘Mary was

crossing the Atlantic.’

I think that outcome-associated progressive claims are not, in fact, entailed by these non-progressive counterparts and that the failure of this entailment provides a very surprising and important source of evidence for the Displacement Hypothesis. There is a harder<sup>23</sup> and an easier<sup>24</sup> way to show that this is so, which I can only sketch here, though I think this is enough to convey their plausibility and promise.

The harder way to show that this sort of entailment fails involves the construction of cases in which an outcome-associated claim like ‘Mary crossed the Atlantic’ is true of an event that happened, though its occurrence was not (or would not be judged to be) modally robust. This makes room for the possibility that it happened, though it was not happening. One difficult aspect of this canonical example is that its event predicate characterizes an incrementally unfolding event and that heavily constrains how it is that the course of such an event may unfold (therefore constraining, though not eliminating, the opportunities for constructing natural cases in which the event *fortuitously* unfolds). Not all outcome-associated predicates are like this, however. It is much easier, for example, to detect the failure of this entailment with respect to the following pair of sentences (originally from Hallman (2009b)):

(21) Mary ate (exactly) a third of the chocolates.

(22) Mary was eating (exactly) a third of the chocolates.

It is not difficult to imagine a scenario in which Mary ate a third of the chocolates over some period of time though it is not the case that she would have eaten a third of the chocolates, other things equal, throughout that time (perhaps because Mary ate the chocolates very sporadically). Given that there appear to be clear counterexamples to this entailment pattern, the task that remains is to

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<sup>23</sup> I take this route in my ‘How to Cross the Atlantic Without Crossing It’ (2014a).

<sup>24</sup> I take this route in my ‘Modality Without Modals’ (2014c).

explain why the actualization of an event (e.g., a cross-Atlantic passage) can sometimes bear on our judgments about whether such an event was in progress if, as I have claimed, outcome-associated progressives are not directly sensitive to that sort of information.<sup>25</sup>

The easier way to see that this sort of entailment fails involves the construction of cases in which an outcome-associated claim like ‘Mary won’ fails to entail its progressive counterpart ‘Mary was winning.’ This is actually a matter on which there is widespread agreement, although theorists deny that the failure of this entailment says something about the modal status of progressive claims rather than about differences in the structure of the events that each of these sorts of claim describes. In particular, it is commonly assumed that a claim like ‘Mary won’ does not represent a temporally extended event and that this ultimately explains the failure of this entailment (although, an immediate problem is to explain how the progressive claim ‘Mary is winning’ is possible on this assumption about the predicate ‘win’).

This assumption is common but not correct. The predicate ‘win’ represents a temporally extended event just as does ‘cross the Atlantic,’ with the difference being that the former characterizes only the outcome of the event that it represents whereas the latter characterizes the pre-outcome and outcome portions of the event it represents (leaving us with no mystery concerning how ‘Mary is winning’ is possible). So, the failure of a claim like ‘Mary won’ to entail ‘Mary was winning’ does reveal something about the modal status of that outcome-associated progressive claim. In fact, it reveals the same thing that the failure of a claim like ‘Mary crossed the Atlantic’ to entail ‘Mary was crossing the Atlantic’ reveals. Both, equally, show that outcome-associated progressives are invariably associated with a modal condition and that their non-progressive counterparts do not provide a guarantee that that modal condition is satisfied.<sup>26</sup> This is exactly what the Displacement

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<sup>25</sup> I take this challenge up in my ‘How to Cross the Atlantic Without Crossing It’ (2014a).

<sup>26</sup> Note that both sorts of outcome-associated progressives stand in contrast to their non-outcome associated counterparts (e.g., ‘Mary was swimming’), which *do* conform to this entailment pattern—a fact that is easily explained by my account.

Hypothesis predicts and what the alternative hypothesis does not predict.

Consideration of just some expressions to which the Displacement Hypothesis plausibly extends also suggests that this it is the displacement of outcomes and not the non-actualization of outcomes that triggers the modal interpretations of outcome-associated progressives. Take, for example, the following futurate progressive claim:

(23) Mary is crossing the Atlantic tomorrow.

Unlike its (non-futurate) counterpart ‘Mary is crossing the Atlantic,’ (23) does not tell us that a cross-Atlantic passage is already underway but that a cross-Atlantic passage would eventually be realized, other things being equal (typically suggesting the presence of a plan that underwrites this modal commitment). Suppose that we take this “future” cross-Atlantic passage to have the very same status as an arrival across the Atlantic does in the case of the non-futurate claim ‘Mary is crossing the Atlantic,’ with their difference consisting in the fact that the former is represented as a part of an event that is presently underway though its pre-outcome portion is not itself characterized.<sup>27</sup> This is continuous with the approach taken to explain the differences in interpretation between claims like ‘Mary is swimming’ and ‘Mary is crossing the Atlantic’ and I think it is equally fruitful in this case. After all, that assumption puts us in a position to explain the modal interpretation that is associated with the futurate claim in (23) and in exactly the way in which we explain the modal interpretation of its non-futurate counterpart. We can simply observe that the outcome associated with (23) is displaced (i.e., a cross-Atlantic passage by Mary cannot already be underway) and appeal to the fact that outcome displacement triggers modal displacement. We can also explain why it is that *all*<sup>28</sup> futurate claims give rise to modal interpretations by assuming that their

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<sup>27</sup> On this view, predicates like ‘win’ and predicates like ‘cross the Atlantic,’ when they appear in the context of progressive claims and receive futurate interpretations, have the same sort of event structure.

<sup>28</sup> In other words, there is no contrast of the sort that we see between ‘Mary is swimming’ and ‘Mary is crossing the Atlantic’ in the case of progressives that receive futurate interpretations.

underlying predicates generally have this event structure, providing us with an appropriate dimension of contrast for explaining the differences between progressive claims that give rise to modal interpretations and those that do not and for explaining the differences between those progressives that give rise to futurate interpretations and those that do not.

It is not simply the case, though, that all futurate progressives *sometimes* give rise to modal interpretations. They invariably do (a matter about which there is no debate). So, the following claim is interpreted as a futurate claim and carries the requirement that an eventual cross-Atlantic passage be possible across a range of circumstances, even if Mary did eventually cross the Atlantic.

(24) Mary was crossing the Atlantic (so I gave her a package to deliver for me).

This has important consequences for evaluating whether it is the displacement or the non-actualization of outcomes that is relevant to explaining the presence of these modal interpretations. If the outcomes associated with futurate progressives are invariably displaced, the Displacement Hypothesis allows us to explain why those claims are invariably associated with modal interpretations. Its alternative does not.

There is also *prima facie* evidence for the very same pattern outside of the progressive environment. Take, for example, the following claim:

(25) Mary is in Paris for a week.

Somewhat surprisingly, this sort of claim also appears to exhibit both outcome displacement (i.e., Mary's Paris days are not already at an end) and modal displacement of the sort that we see in connection with our other cases (i.e., other things being equal, Mary spends a week in Paris across a range of possible circumstances). This interpretation also emerges if it is assumed that Mary did not stay the whole week, as can be seen from the following:

(26) Mary was in Paris for a week, but her trip was cut short due to an emergency.

However, consistent with the pattern we have seen, the modal interpretation of this claim persists even if Mary does spend a week in Paris so that the following claim still requires for its truth that it was possible for Mary to complete her week-long stay in Paris:

(27) Mary was in Paris for a week, so we decided to visit on our way to Rome.

Again, if ‘Mary was in Paris for a week’ gives rise to modal a modal interpretation in those environments in which its outcome is displaced,<sup>29</sup> even if that outcome is eventually actualized, this supports the view that it is outcome displacement that triggers modal displacement not the non-actualization of outcomes.

The Displacement Hypothesis appears, across a range of cases, to successfully isolate those environments within which outcome-associated expressions give rise to modal interpretations and those within which they do not. We saw evidence for this in the case of outcome-associated progressives like ‘Mary is crossing the Atlantic,’ in the case of futurate progressives like ‘Mary is crossing the Atlantic tomorrow,’ and in the case of stative claims like ‘Mary is in Paris for a week.’ We also saw evidence against an alternative hypothesis on which these modal interpretations are sensitive to the actualization or non-actualization of outcomes. That hypothesis appears not to successfully isolate those environments.

But while the Displacement Hypothesis does quite a lot, it does not do everything. It is important to see that the hypothesis leaves room for competing proposals concerning the precise mechanisms by which modal displacement occurs. For all it says, it might be that outcome-associated predicates themselves have a modal meaning, which is triggered in precisely the right way by the

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<sup>29</sup> In fact, exploring how it is that displacement is effected across these environments might help us to explain (i) why past tense claims like (26) and (27) appear to call for supplementary phrases that cue the modal interpretation of ‘Mary was in Paris’ by indicating that the trip is incomplete at the relevant past time, (ii) why, by contrast, ‘Mary was in Paris for a week’ does not give rise to this interpretation, and (iii) why it gives rise to this interpretation in the present tense environment of (25) without any supplementation. We might well assume, in light of these facts, that the present tense creates a displacement environment but that the past tense does not, though displacement *can* be introduced by expressions like the progressive and, in some cases, through supplementary phrases like those in (26) and (27).

displacement of outcomes. Or, for that matter, the modal displacement of outcomes might not be the result of any modal meaning at all—not at the level of the progressive and not at the level of the outcome-associated predicates with which they combine.

In what follows, I will canvas the leading options available to us for explaining the success of the Displacement Hypothesis. The challenge will be to capture its content in terms of candidate natural language expressions, to explain, that is, in terms of those meanings alone why it is that our modal interpretations arise in precisely those environments in which they do. I will argue that this challenge cannot be met; the content of the Displacement Hypothesis cannot be recast exclusively in terms of linguistic meanings and in a manner that is genuinely explanatory.

## 4 Modality, Cognition, Semantic Explanation

### 4.1 Modality

I argued, in section 2, that there are modal interpretations that attach to outcome-associated progressive claims though not to non-outcome-associated progressive claims. This formed the basis for my argument that the progressive itself does not have a modal semantics. But this leaves us in a somewhat perplexing position. If these modal interpretations do not emerge as the result of the progressive's having a modal meaning, how do they arise at all? The Displacement Hypothesis, defended in section 3, isolates the conditions under which these modal interpretations arise; it tells us that they arise just where there is outcome displacement. But it still might seem curious that we get these interpretations under these conditions. The problem, it might be thought, is that we have modal *interpretations* but no modal *meanings* (at least not yet).

Where, then, to look for modal meanings that might serve as anchors for these modal interpretations? One option is to backtrack. Maybe a modal semantics for the progressive was ruled out too

quickly. Perhaps a hybrid analysis of the progressive, one that combines the insights of a non-modal approach (suitable for non-outcome-associated progressives) and the insights of a modal approach (suitable for outcome-associated progressives) can provide us with the explanation that we are looking for. The following hybrid analysis<sup>30</sup> of the progressive, for example, not only correctly predicts that outcome-associated progressives and only outcome-associated progressives have modal interpretations it is able to explain, in a certain sense, why they do (since only outcome-associated progressives are required to satisfy substantive modal truth conditions):

OPTION 1:

‘PROG  $\phi$ ’ is true relative to a moment,  $I$ , and world,  $w$ , if and only if one or the other of the following conditions holds:

(i)  $\phi$  characterizes a temporally extended and non-outcome-associated event and a state of  $\phi$  obtains at  $I$  in  $w$ .

(ii)  $\phi$  characterizes a temporally extended and outcome-associated event and a state of  $\phi$  obtains at  $I$  in  $w$  and there is some interval,  $I'$ , such that  $I \subseteq I'$  and for all  $w'$  that represent the worlds that are inertial relative to  $I$  and  $w$ ,  $\phi$  is true at  $I'$  and  $w'$ .

Matters of detail aside, OPTION 1 might appear to give us what we want and in a neat package besides.

The problem, however, is that the analysis is, in a different but crucially important sense, unexplanatory. It is nothing more than a disguised ambiguity approach in that it attributes radically dissimilar truth conditions to our two sorts of progressives. Moreover, if we include progressives with futurate interpretations among the progressive claims to be accounted for, as I think we should, we get what is essentially a three-way ambiguity, which obscures the fact that there is a condition

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<sup>30</sup> For the purposes of presenting this option, we can set aside questions of concerning how it is that the progressive creates a displacement environment.

that these claims do genuinely share—precisely the condition that I take to be introduced by the progressive. Since one of our aims in theorizing about linguistic meanings is to account for their acquisition and since positing ambiguity (however cleverly disguised) without strong motivation to do so makes it difficult to achieve explanatory adequacy of this sort, a hybrid approach should be rejected.

This leaves only one possibility for locating candidate modal meanings: outcome-associated predicates. This is an attractive possibility in many ways. If it could be made to work, it would allow us to assign a genuinely uniform semantics to the progressive and it would also allow us to recognize the differences between outcome-associated and non-outcome-associated progressives in an explanatory manner, as these differences would stem from the distinct semantic profiles of their underlying predicates.

While I think the motivation for this approach is unimpeachable—we *should* assign a genuinely uniform semantics to the progressive and we *should* appeal to differences between outcome-associated and non-outcome-associated predicates in explaining the differences between the progressive claims that embed them—I do not think that we can, ultimately, root our modal interpretations in the meanings of these predicates. Since the temptation to anchor these interpretations in linguistically encoded meaning is very strong, it will be worth exhausting the most natural strategies available for achieving this aim.

The simplest starting hypothesis is that an outcome-associated predicate,  $\phi$ , introduces the modal condition that attaches to outcome-associated progressives, as represented in the following schematic condition:

OPTION 2:

For any part of an event characterized by  $\phi$  that holds there is a modal connection (of the relevant sort) between it and the outcome associated with  $\phi$ .

OPTION 2 generates the correct prediction for outcome-associated progressives when combined with the assumption that the progressive represents a part of the event described by its underlying predicate as holding. What OPTION 2 tells us is that relative to the time at which that part of the event holds, there arises a modal connection between it and its associated outcome.

However, this assumption fails (dramatically) to account for the meaning of outcome-associated predicates in non-progressive contexts. To begin with, we want to predict that the following claim entails that there was a complete cross-Atlantic passage, which took place before the present:

(28) Mary crossed the Atlantic.

But if we assume that, in (28), the past tense locates the event characterized by the predicate ‘cross the Atlantic’ within the past and if we assume that OPTION 2 provides us with an appropriate schematic meaning for that predicate, then (28) may be true even if *no* part of a cross-Atlantic passage occurs in the past, contrary to fact. All that matters is that the relevant modal condition be satisfied by any part that is realized.

So we need to ensure, somehow, that a non-progressive claim like (28) characterizes the whole of a cross-Atlantic passage. The smallest adjustment to the current proposal which would allow us to secure this result would be to assume the following:

OPTION 3:

An outcome-associated predicate,  $\phi$ , characterizes a complete  $\phi$  event, and indicates that, relative to any part of the event that holds, there is a modal connection (of the relevant sort) between it and the outcome associated with  $\phi$ .

OPTION 3 allows us to predict, correctly, that (28) entails that a cross-Atlantic passage occurred within the past. It also allows us to explain why modal interpretations arise in the progressive en-

vironment. Relative to any part of the event that is selected by the progressive, a modal connection (of the relevant sort) is assumed to obtain between it and its associated outcome.

OPTION 3 gives us more than what we want, however. In addition to predicting that (28) entails that a whole cross-Atlantic passage occurred in the past, this option forces the condition that a modal connection (of the relevant sort) obtain between each of the parts of that event and its associated outcome. So, it predicts not only that a cross-Atlantic passage occurred but also that, throughout the period over which that event developed, it was possible for that event to be completed across a range of circumstances. This is an unwanted layer of modality. A claim like (28) does not encode the sort of modal condition that we see in connection with its progressive counterpart. Moreover, as I have argued, this plausibly explains the absence of entailments from claims that describe outcome-associated events as fully actualized to claims that describe those events as in progress. But just such an entailment would be ensured by OPTION 3 since it assumes that the very modal condition encoded by outcome-associated progressives (via outcome-associated predicates) is encoded by non-progressive counterparts such as (28) (again via outcome-associated predicates).

What we are looking for, then, is an option that allows us to block this unwanted layer of modality. Since we are assuming that an outcome-associated predicate contributes a modal meaning that gets expressed in progressive environments, we should consider the possibility that the semantics of a non-progressive claim like (28) is more complicated than it might at first seem to be and, in particular, that it contains an element that neutralizes this modal meaning and prevents its expression there.

Let us assume, for the sake of argument, that sentences like (28) include, in addition to a past tense operator, a 'perfective operator,' which indicates that the actual world is the only world that is inertial. Insofar as many theorists do assume that a past tense claim like (28) contains a silent

perfective operator and insofar as this operator has been implicated in attempts to explain why modal expressions in this environment license entailments that concern what the actual world is like (i.e., ‘actuality entailments’),<sup>31</sup> this assumption appears to have some independent motivation.

We have, then, the following package of options to consider:

OPTION 4A:

An outcome-associated predicate,  $\phi$ , characterizes a complete  $\phi$  event, and indicates that, relative to any part of the event, there is a modal connection (i.e., an inertial connection) between it and the outcome associated with  $\phi$ .

OPTION 4B:

The perfective operator, PERF, indicates that the actual world represents the only inertial world.

These options allow us to explain why the layer of modality present in outcome-associated progressive claims is absent in their ‘perfective’ counterparts. Moreover, we retain the benefits of OPTION 3, which allowed us to predict that (28) entails that a whole cross-Atlantic passage occurred sometime in the past as well as to predict that its progressive counterpart bears a modal interpretation.

Nonetheless, this package of options faces insuperable difficulties. First, although the perfective has been invoked to explain why modals in certain environments—‘perfective’ environments, it is claimed—come to characterize what the actual world is like, the modal dimension of their meaning is not neutralized—they continue to characterize what is necessary or possible, as the case may be. So, for example, Valentine Hacquard observes that when French necessity modal ‘devoir’ combines with the perfective in (29), it both indicates what had to happen (i.e., Jane had to take the train) and indicates that that did happen:

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<sup>31</sup> See, for example, Hacquard (2009).

(29) Pour aller à Londres, Jane a dû prendre le train.

To go to London, Jane **must-past-PERF** take the train

*'To go to London, Jane had to take the train.'*

As expected, we see a contrast between this necessity modal and the French possibility modal 'pouvoir,' so that (30) indicates that it was possible, though not necessary, for Jane to take the train and indicates that she did take the train:

(30) Pour aller à Londres, Jane a pu prendre le train.

To go to London, Jane **can-past-PERF** take the train

*'To go to London, Jane was able to take the train.'*

It is troubling to assume, in light of this, that the perfective neutralizes the modal dimension of the meanings we are attempting to attribute to outcome-associated predicates. Why should the perfective suppress the modal dimension of meaning associated with those predicates but not the modal dimension of meaning of recognized modals?

Of course, it might be said that the modality introduced by outcome-associated predicates (as per our assumption) is of a special variety and that, for this reason, it is a mistake to expect that outcome-associated predicates should pattern along the lines of other recognized modals. But even if we accept that the variety of modal meaning introduced by outcome-associated predicates is not to be analyzed alongside other varieties of modal meaning (which is highly doubtful), and even if we ignore the fact that our assumption about perfective meaning is tailored to outcome-associated predicates and remains idle with respect to non-outcome-associated predicates (which is problematic), it still appears that 4B rules out too much.

The reason is that the sort of modal interpretation that attaches to outcome-associated progressives (on our going assumption) also appears to arise in connection with other expressions and *in perfective environments* (or at least environments with equal claim to being perfective environments). Bar-el, Davis, and Matthewson (2005) claim, for example, that ‘non-culminating accomplishments’ give rise to this variety of modal interpretation in past tense perfective environments (environments that are a match for (28)). These are expressions that characterize temporally extended and outcome-associated events (like our ‘outcome-associated’ predicates) and yet may be used to characterize events that are associated with unrealized outcomes (hence the label ‘non-culminating’). So, for example, they report that the Salish analogue of (31) can be interpreted as indicating that a part of a canoe was built by Mary and that, under inertial circumstances, a whole such canoe would have been built by her though it was not, in fact, built:

(31) Mary built a canoe, but she didn’t finish it.

Though we may not even need to look beyond English for support for this possibility. The following sentence would seem to be interpreted as meaning (roughly) that, for a period of time, preparations were made for Mary work at 5pm and she would have under inertial circumstances, though she did not actually do so, as the continuation in (32) shows:

(32) Mary worked at 5pm, but the schedule was changed at the last minute.

If that is correct, then (32), too, presents us with a strong *prima facie* counterexample to this assumption about perfective meaning.

We appear to be forced, yet again, to move on to a different approach. Where, though, to go from here? So far, I have considered various proposals regarding the meaning of outcome-associated predicates as well as other key expressions (such as the perfective), all as part of an

effort to explain, among other things, why outcome-associated progressives bear the modal interpretations they do and why certain non-progressive counterparts of these claims do not. Throughout, I have avoided building in reference to outcome displacement. My reason for avoiding an appeal to displacement in the meanings of outcome-associated predicates is, again, that it would be unexplanatory. We would have to appeal to a disjunctive set of conditions, as in the following representation:

OPTION 5:

An outcome-associated predicate,  $\phi$ , characterizes a complete  $\phi$  event and one of the following conditions obtains:

(i) A part of a  $\phi$  event obtains and its outcome is displaced, in which case there is a modal connection (of the relevant sort) that obtains between that part and its associated outcome. [the progressive condition]

(ii) A  $\phi$  event obtains and its outcome is not displaced, in which case there is no modal connection (of the relevant sort) that obtains between any of the parts of that event and its associated outcome. [the non-progressive condition]

OPTION 5 does not represent a candidate meaning for outcome-associated predicates. It is, instead, a disjunctive description of the conditions under which modal interpretations arise and those under which they do not—which is precisely what we have been attempting to *explain*, not *redescribe*.

It appears, however, that this is the only sort of linguistically encoded “meaning” that is close to being extensionally adequate—that would appear close, in other words, to correctly predicting those outcome-associated sentences that have modal interpretations and those that do not. This is no accident either. OPTION 5 mimics the condition spelled out by the Displacement Hypothesis, which correctly predicts that modal interpretations attach to progressive claims whenever the pro-

gressive combines with an outcome-associated predicate but not otherwise (not in connection with non-outcome-associated progressives nor in connection with non-progressive claims that embed outcome-associated predicates but do not displace their outcomes).

This basic approach can, of course, receive more sophisticated articulation and can take on more explanatory value, though that cannot make up for the fact that it merely redescribes what it is supposed to explain. One might, for example, attempt to capture the content of the Displacement Hypothesis in terms of various abstract semantic features might be assumed to be associated with the natural language expressions that figure in our pattern. This proposal would not necessarily be bereft of explanatory value. It is not like the disguised ambiguity approach that we first considered, which simply fails to reveal the generality of the pattern that we are attempting to explain. A feature approach could, to some extent, capture the fact that this pattern is a general one. After all, it would recognize certain semantically relevant properties and group these properties together in a way that conforms to the predictions of the Displacement Hypothesis (so that outcome displacement goes together with modal displacement). However, the approach would still fail to constitute a response to the challenge that was initially posed, which was to explain the success of the Displacement Hypothesis in terms of candidate natural language meanings (including semantic features as components of meaning). There is absolutely no independent evidence for the existence of a modal feature that is triggered in displacement environments but not outside of those environments. This is simply an *ad hoc* assumption. As with its more flat-footed relative, a proposal that makes appeal to a feature like this presents us with a redescription of the facts to be explained, not with an explanation of them.

The options for anchoring the modal interpretations of outcome-associated progressives in linguistically encoded modal meanings are, in my judgment, now exhausted. In light of this, I would like turn to an alternative approach, which does not attempt to anchor these modal interpretations

in linguistically encoded modal meanings, but attempts to explain them in terms by appeal to an interface between the language system and modal cognition.

## 4.2 Cognition

I would like to propose that an outcome-associated predicate such as ‘cross the Atlantic’ characterizes a complete event (e.g., a complete cross-Atlantic passage). This sort of predicate does not, on the present proposal, encode a modal condition of the sort that could anchor or explain the modal interpretations that attach to outcome-associated progressives. Of course, this is not to flatly deny that these predicates ever encode modal conditions. My concern has never been to deny that. The point is that they do not, in general, encode the particular modal condition that we discern in connection with the progressive claims that embed them.

This assumption gives as much as we can ask for with respect to linguistically encoded meaning. Crucially, it allows us to explain the fact that (28) (i.e., ‘Mary crossed the Atlantic’) describes a complete cross-Atlantic passage without requiring any resort to artificial linguistic conditions. (Whether we assume that this sort of event is located entirely within the past by the past tense or by a perfective operator or in some other way—perhaps by means similar to those by which the progressive comes to be an environment that *excludes* outcomes—can be settled at another time.)

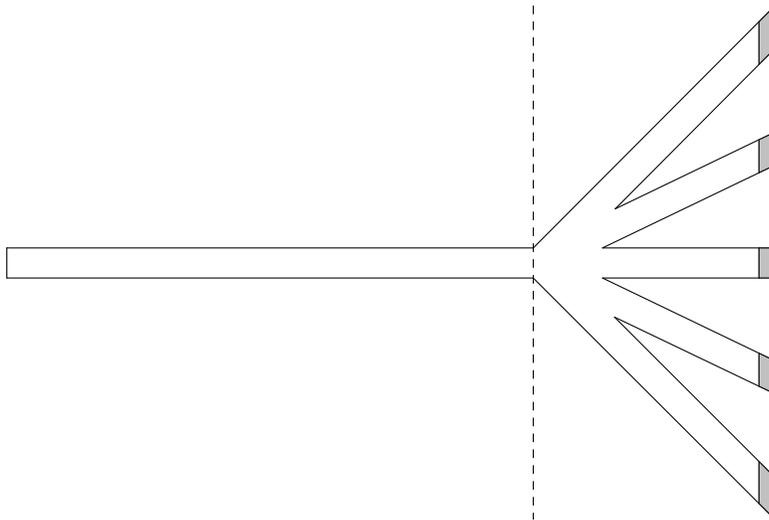
This leaves us with the task of explaining why modal interpretations emerge when the outcomes of outcome-associated predicates are displaced. But notice that this is *all* that requires an explanation, which is as it should be. We have a characterization of the progressive environment which allows us to identify a semantic difference between outcome-associated progressives and non-outcome-associated progressives: the outcomes of outcome-associated predicates get displaced in progressive contexts. But there is no comparable semantic difference between outcome-associated and non-outcome associated claims in the non-progressive environment represented by

a sentence like (28). An explanation of these modal interpretations should exploit these facts, not obscure them.

I propose that the displacement of outcomes triggers a response on the part of modal cognition and that that response ultimately explains why outcome displacement gets interpreted as modal displacement, that is to say, why outcome-associated progressives (to take our central example) give rise to modal interpretations. On this view, these modal interpretations do not reflect any linguistically encoded modal conditions or set of instructions for interpretation. What they reflect is the structure of modal cognition—that system of cognition that underwrites our capacity for modal thought and talk—not the structure of modal language. This assumption should be uncontroversial. It is forced by the fact that we see interpretations with modal structure, structure that is not encoded by linguistic structure, and by the convention of labeling that aspect of cognition responsible for modal interpretations ‘modal cognition.’

What I am proposing, then, is a certain division of labor between the set of instructions for interpretation that is encoded by language and those aspects of interpretation that reflect extra-linguistic semantic structure. The progressive, as already proposed, indicates that a momentary part or state of an event characterized by its underlying predicate obtains at a time. If this predicate is not associated with an outcome, that is all we get. If this predicate is associated with an outcome, the progressive may select any non-terminal part of the event characterized by that predicate. (In terms of the diagram below, this means that the vertical line may move left or right along the event represented, though it cannot occupy any of the shaded regions representing the realization of its outcome.) In this second case, the outcome associated with the event is invariably displaced; it is never what is in progress when the event with which it is associated is said to be in progress. This triggers an interpretation of the sentence on which that outcome is also modally displaced. I have suggested that it is an inertial modal condition that mediates between that part or state of

the event that holds (that part that intersects with the vertical line) and its outcome (though one may, of course, replace this inertial condition with some other modal condition).<sup>32</sup> The sentence is understood, therefore, to require that that part of the event that is selected would eventuate in that outcome under non-disruptive conditions (represented below by the realization of an outcome along each of the branching possibilities):



There follows from this no general requirement that that part that holds eventuate in that outcome in the actual world. This is the result we want since, as is known, the actual world can thwart the paths that would be cut into the future under more hospitable circumstances.

### 4.3 Semantic Explanation

If the account developed in this paper is correct, it shows that semantic explanation can reach well beyond linguistic form. Outcome-associated progressives represent a striking case in point. These progressives are never interpreted strictly in accordance with the linguistic meanings that

<sup>32</sup> I myself do not think that there is reason to do so, but nothing much hangs on this for our purposes here.

they encode. A sentence like ‘Mary is crossing the Atlantic,’ for example, is not associated with an interpretation according to which Mary is simply part way across the Atlantic (which is roughly the meaning it encodes). It is invariably interpreted as indicating that Mary arrives across the Atlantic across a range of possible circumstances (perhaps those that do not present barriers to the development of that event). This is an invariant, not invited, interpretation.

For this reason, my account rules out a view of semantic explanation on which its proper domain is linguistic form. There are different versions of this thesis, some stronger than others. A quite strong construal of this view has been defended recently by Wolfram Hinzen ((2006) and (2008)). On the view that he defends, the computational or syntactic system with which humans are endowed *forms* possible human thought. On this view, a theory of syntax is, effectively, a theory of semantics. Proponents of this view recognize that natural language has semantic structure and that this structure is highly constrained (so that there can be a scientific theory of it), they just think that these constraints are to be understood as emerging from syntactic or computational constraints. This sort of position is set against more standard views on which it might be said, by way of contrast, that syntax *formats* (that is, provides a format for) conceptual structures or thoughts that exist independently of a syntactic system that subserves their expression in language. Insofar as my account adduces evidence for “a semantic process that is systematic, monotonic, and *unsupported by syntactic laws,*” ((Hinzen 2006); original emphasis) the ‘semantics is syntax’ view cannot be maintained.

My account bears equally, though, on more moderate construals of this thesis. So, for example, it is commonplace to assume that linguistic form can, through the semantic information that it encodes, recruit resources from extra-linguistic cognitive systems. Semantic information that is embedded within these systems comes to be relevant to the project of offering semantic explanations, but this is only on the assumption that it is routed through linguistically encoded instructions.

There is, at present, active speculation about these matters as they relate to modal expressions. Angelika Kratzer (2013) has recently claimed, for example, that quantificational elements of modal expressions (e.g., the universal quantificational force of ‘must’) reflect the contribution of (the semantic component of) the language faculty, not modal cognition, whereas the projection of modal domains (i.e., those possible circumstances over which there is quantification) occurs through the linguistic recruitment of resources from modal cognition. It is important to emphasize that if my findings in this paper are correct, this way of thinking of semantic explanation needs to be broadened so as to include those cases in which extra-linguistic cognitive systems contribute to the interpretation of linguistic form, are engaged by language, but not via meanings (thought of as instructions to these systems) that recruit this material.

This is not to say, however, that the modal interpretations discussed in this paper are irrelevant to the project of providing semantic explanations for linguistic forms. Far from being the case, what these interpretations reveal is of great interest for semantic theories of linguistic modality. As I mentioned before, questions concerning the division of labor between linguistically encoded meaning and modal cognition as well as the nature of modal meanings (including the sorts of instructions that they might issue to modal cognition and their access to it) are wide open and it is clear that our assumptions about these matters must take into consideration what is known or what we have reason to believe about its structure. The modal interpretations considered in this paper are important, in part, because they give us a direct window into this system and, so, provide us with the sort of information that we need to adjudicate these and other claims about natural language modality.

We might, for example, take as evidence against the claim that quantification is proprietary to the language faculty, the fact that our default modal interpretations are amenable to an analysis in terms of universal quantification over inertial possible circumstances, though this structure

is—including the apparent quantificational component—not contributed by the language faculty. And it appears plausible to assume that outcome-associated progressives will provide us with clues, at least, as to the possible differences between the mechanisms involved in the domain projection of modals and outcome-associated progressives.<sup>33</sup> And there are surely other facets of our theory of linguistic modality that could profitably be considered alongside the modal interpretations discussed here.

What my approach to our progressive puzzle has shown, I hope, is that there is much to be gained by taking cognitive considerations seriously in the pursuit of semantic explanation. While we should, for this reason, exploit what is known of the cognitive systems that interface with the language faculty in offering semantic explanations (a recent series of papers<sup>34</sup> focusing on how ‘most’-claims like ‘Most of the dots are blue’ constrain the operations of the visual system provide an excellent example), it should be kept in mind that there are various modes of access to such interfaces and various means by which we may come to knowledge of these systems. What the modal interpretations of outcome-associated progressives suggest is that our knowledge of these systems can be guided by language to a considerable extent *if* we are sensitive to its limits.

## 5 Conclusion and Future Directions

For close to fifty years, the progressive has cast a shadow much larger than its size. Many theorists have thought, and many still do, that the progressive has a modal meaning. Some analyses invoke elaborately wrought models that can keep track the actual and counterfactual continuations of events, other analyses appeal the machinery of inertial worlds to keep track of their uninterrupted continuations, though, of course, many other variations on this theme could be and have been tried.

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<sup>33</sup> The possibility of a difference between the domains projected by modals like ‘can’ and progressives was noted in passing by Szabó (2008).

<sup>34</sup> See Pietroski et al. (2009) and Lidz et al. (2011).

We have also seen that there are non-modal analyses of the progressive on which the progressive encodes conditions that concern, not merely the partial realization of an event, but, as on the Bennett-Partee analysis, its continued development in the actual world.

Accounts that attribute conditions like these to the progressive are responsive to genuine complexities in the interpretation of some progressive sentences, but these complexities reside with outcome-associated progressive claims, not with non-outcome-associated progressive claims. Outcome-associated progressives give rise to a substantive modal interpretation that does not arise in connection with their non-outcome-associated counterparts. For this reason, attempts to (i) root this complexity in the meaning of the progressive and to (ii) provide a genuinely unified analysis of its meaning (one that reveals exactly what is in common across outcome-associated and non-outcome-associated progressives) are doomed to fail. Accounts that attribute a simpler meaning to the progressive, one designed with a view to explaining the interpretations of non-outcome-associated progressives, are also responsive to the interpretations of some progressive sentences. To say nothing more, however, is to leave the complexity of outcome-associated progressives untouched and, therefore, to leave the most interesting part of the story untold.

On my view, the meaning of the progressive is quite simple and so this complexity cannot be explained by appeal to its meaning alone. The progressive indicates—whatever the predicate with which it combines—that a state of the event characterized by that predicate holds at a time. There is no inertial modality here and there are no forced continuations either. This meaning captures exactly the condition that can be generalized across outcome-associated and non-outcome-associated progressives.

There is an important difference, though, in the way that outcome-associated and non-outcome-associated predicates interact with the condition encoded by the progressive. The former are associated with outcomes and these outcomes are not among the parts of an event (charac-

terized by such predicates) that are available to be selected by the progressive. We can describe the interaction that sets outcome-associated predicates apart by saying that their outcomes are *displaced* from the progressive environment.

This property of outcome-associated progressives turns out to be very important. The modal interpretations that attach to outcome-associated progressives arise just when the outcomes associated with those predicates are displaced—which is the content of my Displacement Hypothesis. The Displacement Hypothesis predicts that outcome-associated progressives invariably give rise to modal interpretations (since these outcomes are invariably displaced in the progressive environment) and it predicts that these modal interpretations do not arise in environments in which those predicates are not displaced. And the evidence does appear to support the Displacement Hypothesis (some of it quite surprising).

Although the Displacement Hypothesis tells us *where* these modal interpretations are to be expected, it does not tell us *why* they arise. One approach to answering this question is to try to anchor our modal interpretations in modal meanings. I have argued that this strategy cannot be made to work in an explanatory manner. There is, however, an alternative approach to answering this question, which does not appeal to linguistically encoded meaning but to extra-linguistic cognition. The answer suggested by this approach is that our modal interpretations reflect the modal structure of cognition, not the modal structure of language. This solution allows us to tell a very natural and simple story about the meanings of expressions implicated in the progressive and non-progressive environments that are our concern and it presents a unique opportunity to reflect on our assumptions about linguistic modality and its connection to this system.

There is, in addition, good reason to expect that this approach has explanatory benefit even beyond accounting for the modal interpretations of outcome-associated progressives. This is because there is good reason to think that there are other linguistic constructions involving outcome-

associated predicates to which my analysis can be extended. As has already been observed, across various contexts, predicates that are associated with outcomes—like the predicates that I have labeled ‘outcome-associated predicates’—are implicated in the generation of modal interpretations with an inertial modal flavor (though it is universally assumed that these modal interpretations are due to modal meanings). I think that these expressions can be shown to be associated with these modal interpretations in the environment isolated by the Displacement Hypothesis, though the challenge lies in showing this in detail (in showing how it might be, for example, that the predicate ‘cross the Atlantic’ in ‘Mary is crossing the Atlantic tomorrow’ applies to an outcome-associated event, *a part of which holds in the present*).<sup>35</sup> But this has an important consequence if correct and here lies the promise for anyone who would pursue analyses for these constructions along the lines sketched in this paper: their application would allow for a systematic explanation of the modality expressed across these cases, both within and across languages, in contrast to an explanation on which each of these expressions gives rise to a modal interpretation in virtue of having a modal meaning and, in this way, bears only an accidental connection to the others.

In addition to the challenges raised in connection with this linguistic program, the explanatory project pursued in this paper brings into focus a set of broad theoretical and philosophical problems at the intersection of the study of language and mind. Foremost among them is the fact that we do not yet have a way of understanding how it is possible for language to engage extra-linguistic cognitive systems in the absence of explicit linguistic instructions that are legible to these systems.

We do not have, to take the case that is our present concern, developed theories concerning how

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<sup>35</sup> I have in mind, in particular, futurate progressives (e.g. ‘Mary is crossing the Atlantic tomorrow’), statives with ‘for’-adverbials (e.g. ‘Mary is in Paris for a week’), non-culminating accomplishments, and certain sentences in which frustratives (such as the Tohono O’odham ‘cem’) appear to mark the frustration a goal that lies along an inertial path, but where the source of that inertial path does not have an obvious explanation (e.g. there is no prospective aspect that can explain it, for example). For an extension of my account to the case of futurate progressives see my ‘Modality Without Modals’ (2014c). For some discussion of the modal interpretations of certain statives with ‘for’-adverbials, see Hallman (2009a) to whom this observation is due. For a discussion of the connections between inertial modality and non-culminating accomplishments, see Bar-el et al. (2005). And for discussions of the connection between inertial modality and frustratives (among other expressions including progressives and futurate progressives), see Copley (2009) and Copley and Harley (2010).

it is possible for modal cognition to make use of linguistically-encoded information that does not (or need not) itself encode modal concepts. The task of arriving at a theory of this phenomenon takes on even more urgency when we consider that our present-day philosophy of mind is deeply shaped by claims to the effect that the mind is massively modular or largely comprised of modular ‘core’ systems each with their own domains, operations, and proprietary representations. All of this puts pressure on the assumption that there is relatively free exchange across cognitive systems and makes the possibility of the cognitive interpretations that I have been concerned with (modal or otherwise) seem mysterious. A philosophy of mind that takes these claims seriously must, however, account for this capacity and for the appearance of free exchange.<sup>36</sup>

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<sup>36</sup> For more discussion of these themes see my ‘Modality as a Window into Cognition’ (2014b).

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