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INCOMPLETE EVENTS, INTENSIONALITY AND IMPERFECTIVE ASPECT*

I discuss two competing theories of the progressive: the theory proposed in Parsons (1980, 1985, 1989, 1990) and the theory proposed in Landman (1992). These theories differ in more than one way. Landman regards the progressive as an intensional operator, while Parsons doesn't. Moreover, Landman and Parsons disagree on what uninflected predicates denote. For Landman, *cross the street* has in its denotation complete events of crossing the street; the aspectual contribution of English simple past (perfective aspect) is the identity function. For Parsons, both complete and incomplete events of crossing the street can be in the denotation of the base VP; perfective aspect restricts its denotation to the events that culminate. I present a version of Parsons's theory that avoids the problems raised by Landman, in particular the problem posed for Parsons by creation verbs. The repaired version and Landman's theory still differ in the way they analyze uninflected predicates. I present evidence from Slavic languages that both theories are needed. Finally, I discuss some evidence that may favor one or the other approach to the semantics of the English progressive.

1. THE PROBLEM OF INDIRECT ACCESS

In the study of tense and aspect, one runs into statements of the following sort:

'Carnap flew to the moon' is true iff 'Carnap fly to the moon' is true relative to some time t < now.

If 'Terry build a house' is true relative to an interval i, there is no proper subinterval of i relative to which 'Terry build a house' is true.

If 'Terry be at home' is true relative to an interval i, then 'Terry be at home' must also be true relative to every subinterval of i.

As these examples show, in analyzing the meaning of temporal and aspectual features, we make assumptions about the truth conditions of uninflected clauses like 'Carnap fly to the moon', 'Terry build a house' and 'Terry be at home'. However, we have only indirect evidence of how these sentences are interpreted by native speakers, since they do not occur as independent clauses in English. I'll refer to the problem of determining the truth conditions of the base sentences that are the input to tense and aspect markers as the *problem of indirect access* in the semantics of tense and aspect.

Making hypotheses based on indirect evidence is common practice in the natural sciences and I have no intention of arguing that the task of providing a truth-conditional analysis of temporal and aspectual features is hopeless or misconceived because of the problem of indirect access. I'm interested instead in the relevance of this problem for the analysis of the progressive. I'll argue that the choice between different approaches to the semantics of the progressive that are currently available in the literature involves choosing between different analyses of the meaning of base predicates: to decide which approach to the semantics of the progressive is empirically more adequate, we have to find evidence, even if indirect, that allows us to establish what event types these predicates denote.

I'll proceed as follows. First, I'll review two competing theories of the progressive: the theory proposed by Parsons (1980, 1985, 1989, 1990) and the theory proposed by Landman (1992). These theories champion two different approaches to the semantics of the progressive: Landman's theory regards the progressive as an intensional operator, whereas Parsons's doesn't. The reasons put forward by Landman in favor of his theory have nothing to do with the problem of indirect access; they focus, mainly, on the difficulties Parsons's theory runs into with creation verbs. I'll argue that these difficulties can be overcome by presenting a repaired version of Parsons's theory that avoids the problems raised by Landman and other problems as well. The repaired version and Landman's theory still differ in the way they analyze uninflected predicates. First, I'll present evidence from Slavic languages that both theories are needed. Then, I'll come back to English and discuss some evidence that may favor one or the other approach to the semantics of the progressive.

2. Two Theories of the Progressive

2.1. *Parsons's Theory*

Parsons suggests the following analysis of the progressive and of the simple past:

- 'x is F-ing' is true iff there is an F-event in development (or holding) to which x bears the relation ϑ, where ϑ is the thematic role associated with the subject of F.
- 'x F-ed' is true iff there is a culminated (completed) F-event occurring in the past to which x bears the relation ϑ, where ϑ is the thematic role associated with the subject of F.

Here are some examples of the translations that Parsons assigns to progressive sentences and simple past sentences:

(1)   John is crossing the street.

(1′) $\exists e \exists I \exists t$ [I = now ∧ t ∈ I ∧ crossing(e) ∧ Agent(e, John) ∧ Theme(e, the street) ∧ Hold(e, t)]

(2)   John crossed the street.

(2′) $\exists e \exists I \exists t$ [I < now ∧ t ∈ I ∧ crossing(e) ∧ Agent(e, John) ∧ Theme(e, the street) ∧ Cul(e, t)]

According to this analysis, the events in the denotation of the predicates that are the inputs to the progressive and the simple past need not be completed (culminated) events. For example, the predicate *cross the street* may have in its denotation both events in which the agent gets across and events that are only partial crossings. The progressive restricts the denotation of the predicate to the events that are in development, the simple past to the events that culminate at some past time. I'll refer to this analysis of the progressive as the *incomplete events approach*. A desirable prediction of this approach is that (1) fails to entail that there is a time at which (2) is true, because (1) does not say that the crossing event culminates.

2.2. *Landman's Theory*

According to Landman, progressive sentences, unlike simple past ones, relate actual events to possible events:

- 'x is F-ing' is true iff there is an actual event that has a possible F-event on its continuation branch to which x bears the relation ϑ, where ϑ is the thematic role associated with the subject of F.
- 'x F-ed' is true iff there is an actual F-event occurring in the past to which x bears the relation ϑ, where ϑ is the thematic role associated with the subject of F.

The continuation branch of an event *e* in a world *w* is built according to these instructions. Follow the development of *e* in *w* and put every event

of which e is a stage in the continuation branch. Take the maximal event of which e is a stage in w and go to the closest world w' in which this event continues (i.e., in which this event is a stage of a larger event), if there is one. If w' is not a reasonable option for e in w, stop; otherwise follow the development of this event in w' until you reach the maximal event of which this event is a stage in w'. Then, go to the closest world in which this event continues, if there is one. And so on, until there is no world in which the event continues or you reach a world that is not a reasonable option for e in the base world w.

To see how the definition of continuation branch works, consider the following example. Suppose John starts crossing the street in w. This event is our initial e. Construct the continuation branch for e in w in this way. Follow the development of e in w. If John gets across in w, put the complete crossing in the continuation branch and you are done, since there is no other world in which this crossing event continues. If John does not get across in w, go to the world w_1 most similar to w in which the crossing continues. Here you are faced with a choice. If w_1 is not a reasonable option relative to e in w, go no further. If w_1 is a reasonable option relative to e in w, follow the crossing in w_1. If the crossing is completed in w_1, add the completed crossing to the continuation branch and stop. Otherwise, go to the closest world in which the crossing is not interrupted, and so on.

According to this procedure, every time we follow the development of an event e in a world other than the base world w (the world we started from), we have to check whether the world we jump to is a reasonable option for e in w. How do we decide whether this is the case? Landman's answer is that we only have to pay attention to what is internal to e in w. More precisely: w' is a reasonable option for e in w iff, based on what is internal to e in w, there is a reasonable chance that e could continue as far as it does in w'. To see why Landman states the truth conditions of progressive sentences in this way, let's discuss some examples.

Like Parsons's theory, Landman's theory predicts that (1) fails to entail (2). Landman's translations for (1)–(2) are reported in (1″)–(2″) below (where $\tau(e)$ denotes the run time of the event denoted by e). The semantic rule for PROG(e, P) in the translation of progressive sentence (1) reflects the truth-conditions for progressive sentences informally stated above.

(1)   John is crossing the street.

(1″) $\exists e'[\tau(e') = \text{now} \land \text{PROG}(e', \lambda e \exists y(\text{the street}(y) \land \text{cross}(e) \land \text{Agent}(e) = \text{John} \land \text{Theme}(e) = y))]$

(2)   John crossed the street.

(2″) $\exists e[\tau(e) < now \land \exists y[\text{the street}(y) \land cross(e) \land \text{Agent}(e) = John \land \text{Theme}(e) = y]]$

$[\![\text{PROG}(e, P)]\!]_{w, g} = 1$ iff $\exists e' \exists w'$ such that $\langle e', w' \rangle \in \text{CON}(g(e), w)$ and $[\![P]\!]_{w', g}(e') = 1$

['PROG(e, P)' is true relative to a model M and a variable assignment g iff there is an event-world pair $\langle e', w' \rangle$ on the continuation branch for the event denoted by e in w such that e' belongs to the set denoted by P in w'.]

According to translation (1″), sentence (1) is true (in the real world) iff there is an event that has on its continuation branch an event of John's crossing the street. As this event on the continuation branch may occur at a world other than the real one, (1) is predicted to make no commitment about the existence of a (completed) crossing event in the real world. On the other hand, according to translation (2″), sentence (2) is true iff there is a past (completed) event of John's crossing the street occurring in the real world. So, (1) does not entail (2).

Landman's theory makes some further predictions. Consider the following situations:

Situation A: John starts walking toward the opposite side of the street. No cars are in sight. In a few seconds he'll get across.

Situation B: John starts walking toward the opposite side of the street. A car will hit him. If that car had not been there, he would have got across.

Intuitively, situation A can be appropriately described by saying that John is crossing the street. Landman's theory captures this intuition: as John's walking toward the opposite side of the street doesn't get interrupted, the continuation branch will contain an event of John crossing the street and (1) is predicted to be true in A. Sentence (1) is intuitively true in situation B as well, since it seems appropriate to report what happened in B by saying that John was crossing the street when he was hit by a car. Again, Landman's theory captures this intuition. Although the walking event John starts is interrupted, the closest world in which it is allowed to continue (a world as similar as possible to the one we started from but where the car doesn't hit him) is a reasonable option for the event John initiated in situation B. It's reasonable since, if we consider only what's internal to John's walking toward the opposite side of the street, we should disre-

gard the car, and if we disregard the car, there is a reasonable chance that his walking could get him across. So, Landman's theory seems to make correct predictions about (1) in situations A–B.

Now, consider sentence (3) uttered in situation C:

(3)   Mary is wiping out the Roman army.

Situation C: Mary is fighting a Roman soldier. She will kill three Roman
              soldiers before getting killed.

Intuitively, (3) is false in C. What is Landman's prediction? As you follow Mary's fighting and keep jumping to worlds in which the fighting goes on, eventually you will reach a world in which she killed, say, a hundred Roman soldiers. This world is not a reasonable option for the fighting event she initiated in the base situation C: that fighting event doesn't have enough momentum of its own to develop into an event in which Mary kills a hundred Roman soldiers. Thus, the continuation branch for Mary's fighting in C will not contain an event of her wiping out the Roman army, and (3) is correctly predicted to be false.

2.3. *The Meanings of Base Predicates*

Landman's theory and Parsons's theory disagree on what types of event uninflected predicates denote. For Landman, 'cross the street' has in its denotation complete events of crossing the street; the aspectual contribution of English simple past (perfective aspect) is the identity function. For Parsons, both complete and incomplete events of crossing the street can be in the denotation of the base VP; perfective aspect restricts its denotation to the events that culminate. In other words, these theories of the progressive give different answers to the problem of indirect access. I'll come back to this issue in section 5. Now, let's turn to examining some difficulties for Parsons's theory.

3.   Some Problems for Parsons's Theory

3.1. *Does the Analysis Say Enough?*

Parsons's theory of the progressive rests on the idea that progressive aspect contributes conditions of the form Hold(e, t) to logical forms.

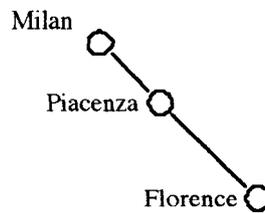(1)   John is crossing the street.

(1′) $\exists e \exists I \exists t$ [I = now $\wedge$ t $\in$ I $\wedge$ crossing(e) $\wedge$ Agent(e, John) $\wedge$
           Theme(e, the street) $\wedge$ Hold(e, t)]

However, he doesn't say much about the conditions that must obtain for an event to hold at a time. As a consequence, the theory doesn't have much predicative power. For example, how does Parsons's theory account for our intuitions about the truth of (1) in situations A–B described above? How does his theory account for our intuitions about the falsity of (3) in situation C? The notion 'event e holds at time t' needs to be analyzed further to make predictions about these cases.

3.2. *The N-arity of Cul and Hold*

Another problem for Parsons's theory is raised by the following example. Suppose Gianni was going by train from Milan to Florence, but, due to a strike of the railroad workers, he only went as far as Piacenza.

Let e be the trip that Gianni took on this occasion and t the time at which he reached Piacenza. Event e does not culminate at t, since e is an unfinished trip to Florence and Gianni is in Piacenza at t (he never gets to Florence). But e is also a trip to Piacenza. So, e culminates at t, since Gianni gets to Piacenza at t. It follows that there is a time at which the same event both culminates and doesn't culminate.

A possible reaction to this difficulty is to deny that the event that makes 'Gianni went to Piacenza' true in the circumstance described is the same event that makes 'Gianni was going to Florence' true. This means that we posit two events: an unculminated trip of Gianni from Milan to Florence and a culminated trip from Milan to Piacenza. These events occupy the same space-time region, but are not the same event.

A way out that lets Gianni take just one trip in this case is possible if we recognize that the same event may culminate relative to the property of being an event of Gianni's going from Milan to Piacenza without culminating relative to the property of being an event of Gianni's going from Milan to Florence. This suggests that culminating should be seen as a relation between events, times, and properties with respect to which events culminate. Namely, the culmination condition introduced by perfective aspect should have the form Cul(e, t, P), where P is the property of events

described by the predicate to which perfective aspect is applied. The same move may be suggested for the predicate Hold. At the time when Gianni gets to Piacenza, his trip is in development relative to the property of going to Florence, but is not in development relative to the property of going to Piacenza.

3.3. *Creation Verbs*

The problem in section 3.1 shows that Parsons's theory needs to be integrated with a theory of the notion event-in-development, and the problem in section 3.2, as we saw, can be dealt with in different ways within the theory. But Parsons's analysis of the progressive runs into another problem. Consider sentence (4) and Parsons's translation (4′):

(4)   Mary is building a house.

(4′) $\exists e \exists I \exists t[I = now \wedge t \in I \wedge building(e) \wedge Agent(e, Mary) \wedge \exists x[house(x) \wedge Theme(e, x)] \wedge Hold(e, t)]$

(5′) $\exists x(house(x))$

If (4′) is true, (5′) must be true. Thus, by Parsons's analysis, if Mary is building a house, there is a house. But suppose that so far she only built the foundations. Then, she is building a house, but there is no house yet.

Parsons is aware of the difficulty, but he claims that we should stick to the prediction of the theory: if Mary is building a house, then there is a house. If the building process is interrupted, the house exists, but is unfinished. Notice that Parsons is also committed to claim that, if (6) below is true, there is a circle. What if John is interrupted after he draws an arc? Is there a circle? By the geometrical definition of circle, the answer should be no. Parsons's answer is: "People do refer to unfinished houses and even – though more reluctantly – to unfinished circles as circles" (Parsons 1990, p. 178).

(6)   John is drawing a circle.

Although Parsons's appeal to unfinished objects seems to allow a way out of the problem posed for his theory by creation verbs, Landman points out that this solution, quite apart from the issue of its plausibility when applied to geometrical objects, is not general enough. Suppose that God started uttering the words that would bring the unicorn into existence, but then changed his mind. Landman's intuition is that (7) is true in this case:

(7)   God was creating the unicorn when he changed his mind.

If this intuition is correct, it shows that there is something wrong in an analysis of (7) that predicts that (7) entails the existence of a unicorn, since in Landman's scenario there is no unicorn, not even an un unfinished one, which is brought into existence by the creation activity.

There is also another way of describing the problem with creation verbs that I think is worth mentioning to illustrate the consequences of Parsons's approach for these verbs. Suppose (8) is true:

(8)   Mary was building a house when she died.

According to Parsons, the object of the building event that makes (8) true is a house. Call it Villa Maria. Villa Maria may not be much of a house, but it's what Mary built. So, (9) is true:

(9)   Mary built Villa Maria.

But (10) is also true:

(10)   Villa Maria is a house.

Thus, we conclude that (11) is true:

(11)   Mary built a house.

So, if (8) is true, (11) is true. The conclusion is not reached by purely logical means: in Parsons's translation, (11) does not follow from (8) by predicate logic. But if (8) entails that there is a house (as Parsons claims), we can always get to (11) from (8) by following this recipe: take the unfinished house; since Mary built it, it follows that she built a house. So, Parsons's analysis brings back a version of the imperfective paradox for creation verbs: if Mary was building a house, she built one.

4. REPAIRING PARSONS'S THEORY

4.1. *Are Creation Verbs Intensional?*

In dealing with the problem posed by creation verbs, both Parsons and Landman reject the possibility that creation verbs are intensional. If creation verbs were intensional, they claim, we should expect (11) to have a reading that doesn't entail the existence of a house, on a par with (12) having a reading that fails to entail the existence of a unicorn. But (11) lacks such a reading. Thus, they conclude that creation verbs are not intensional.

(11)   Mary built a house.

(12)   Mary looked for a unicorn.

In fact, contrast (11)–(12) doesn't show that creation verbs are not inten-
sional. It only shows that, if they are intensional, they are not intensional
in the same way as the verb *look*: an event of looking for a unicorn may
culminate without there being a unicorn, whereas, if an event of building
a house is completed, then there is a house. As we will see in a moment,
by treating creation verbs as intensional in this sense, we can predict contrast
(11)–(12) and avoid Landman's problem for Parsons's theory.

4.2. *Intensional Verbs in Parsons's Semantics*

To account for intensional verbs like *look* in Parsons's logical forms,
thematic roles must be able to relate events to intensional entities.[1] I'll
distinguish two predicates of the translation language, Theme and Theme′,
which denote respectively a relation between events and individuals and
a relation between events and intensions of generalized quantifiers. The
de dicto reading of (12) is represented by (12′):

(12)   Mary looked for a unicorn.

(12′) $\exists e \exists I \exists t [I < now \wedge t \in I \wedge looking(e) \wedge Agent(e, Mary) \wedge$
        $Theme'(e, \text{^}\lambda P \exists x[unicorn(x) \wedge P(x)]) \wedge Cul(e, t)]$
                                                    [*de dicto* reading]

If the verb *build* is intensional, a reading of the same type is also possible
for (11) and (13):

(11)   Mary built a house.

(11′) $\exists e \exists I \exists t [I < now \wedge t \in I \wedge building(e) \wedge Agent(e, Mary) \wedge$
        $Theme'(e, \text{^}\lambda P \exists x[house(x) \wedge P(x)]) \wedge Cul(e, t)]$
                                                    [*de dicto* reading]

(13)   Mary was building a house.

(13′) $\exists e \exists I \exists t [I < now \wedge t \in I \wedge building(e) \wedge Agent(e, Mary) \wedge$
        $Theme'(e, \text{^}\lambda P \exists x[house(x) \wedge P(x)]) \wedge Hold(e, t)]$
                                                    [*de dicto* reading]

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[1] The analysis of intensional verbs I'm sketching in this section may also be stated in a theory
that treats verb denotations as relations between events and individuals without appealing
to theta roles with semantically uniform contents across verbs. I mention this since the
existence of such roles is controversial (see Dowty 1991 for discussion). Here I stick to the
thematic role version of the account since I'm only interested in showing how Parsons's theory
may be modified to deal with the problem posed by creation verbs.

Under translation (13′), sentence (13) no longer entails the existence of a house. But now the problem is that, under translation (11′), sentence (11) also fails to entail the existence of a house. So, we have to say something more about the meaning of creation verbs to insure this entailment.

4.3. *The Intensionality of Creation Verbs*

Following Montague (1973), I define the relation Theme* in this way:

Theme* abbreviates $\lambda e \lambda x[\text{Theme}'(e, {}^{\wedge}\lambda X\ X(x))]$

The fact that (11), unlike (13), entails the existence of a house that Mary built follows from this necessary principle:[2]

> *The Building Principle*:
> $\forall e \forall t \forall x \forall Q[[\text{building}(e) \wedge \text{Agent}(e, x) \wedge \text{Cul}(e, t)] \rightarrow [\text{Theme}'(e, Q) \leftrightarrow {}^{\vee}Q\lambda y(\text{Theme*}(e, y))]]$

This principle says that, if *e* is a culminated building event whose agent is Mary, then the intension of the NP *a house* is the theme of *e* just in case there is an individual house which is the theme of *e*. Given this principle, logical form (11′), unlike logical form (13′), entails (11″) below, which says that there is a house that is the theme of a past building event whose agent is Mary:[3]

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[2] I thank Ede Zimmermann for suggesting this formulation of the Building Principle. If, as proposed in section 3.2, culmination is relative to properties, the proper statement of this principle is as given in (i):

(i) $\forall e \forall t \forall x \forall Q[\text{Cul}(e, t, {}^{\wedge}\lambda e[\text{building}(e) \wedge \text{Agent}(e, x) \wedge \text{Theme}'(e, Q)]) \rightarrow (\text{Theme}'(e, Q) \leftrightarrow {}^{\vee}Q\lambda y(\text{Theme*}(e, y)))]$.

[3] At a superficial glance, it may seem that translation (11″) incorrectly predicts that sentence (11) entails that the house Mary built exists at the time of utterance, since (11″) entails (i):

(11)   Mary built a house.

(11″) $\exists e \exists I \exists t[I < \text{now} \wedge t \in I \wedge \text{building}(e) \wedge \text{Agent}(e, \text{Mary}) \wedge \exists x[\text{house}(x) \wedge \text{Theme*}(e, x) \wedge \text{Cul}(e, t)]]$

(i) $\exists x[\text{house}(x)]$

This prediction would certainly be incorrect, since (11) may be true even though the house Mary built was destroyed and no longer exists now. In fact, (11″) does not support this prediction, as the quantifiers in Parsons's logical forms range over all entities past, present, and future; thus (i) does not mean that a house exists at the time of utterance. Notice that for the same reason, (11′) does not entail that the building event occurs at the moment of utterance, although (11′) entails (ii):

(ii) $\exists e[\text{building}(e)]$

(11″) $\exists e \exists I \exists t[I < now \wedge t \in I \wedge building(e) \wedge Agent(e, Mary) \wedge$
$\exists x[house(x) \wedge Theme*(e, x) \wedge Cul(e, t)]]$

Thus, this way of dealing with creation verbs in Parsons's theory avoids Landman's problem.[4]

4.3.1. *Historical Note: Bennett (1977) on Verbs of Creation*

Before I turn to the remaining difficulty observed for Parsons's theory (its lack of predictive power), two more observations are in order about the treatment of creation verbs outlined in the previous section. The first is that the idea of treating verbs of creation as intensional is not new. Bennett (1977) proposed this account of verbs of creation:[5]

My own view is that the fact that **John is building a house** has a reading that does not imply the existence of a house should be explained by analyzing **build** as an intensional verb. More precisely, I propose to analyze the performance verb phrase **build a house** as **build something to be a house**. This allows for **a house** to have narrow scope with respect to an intensional context, and this explains why **John is building a house**, on one reading, does not imply that there is, or will be, a house. . . . There are several verbs like **build** that

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[4] Zoltan Szabo (p.c.) finds postulates like the Building Principle objectionable since, in his view, simple past sentences with creation verbs fail to entail the existence of the object of creation. His reason for holding this view is this. Suppose that Jones is writing a book and that every night his enemies burn the pages he has written up to that moment. As Jones does not realize this, he goes on writing new chapters until the book is finished. At that point, it's true that Jones wrote a book, although the book never existed in its entirety. With some ingenuity a similar example may be constructed for buildings as well. One way to cope with Szabo's objection is to weaken the principles that validate existence entailments for verbs of creation. For example, instead of adopting (i), we might adopt a weaker principle like (ii):

   (i)   If an event of writing a book culminates, there is a book that is the theme of
               that event.

   (ii)   If an event of writing a book culminates, there are some book parts that would
               constitute a book, if they existed at the same time.

However, as Scott Soames points out (p. c.), Szabo's reason for rejecting (i) may not be conclusive. The noun *book* may apply to physical objects (as in *A book is on the table*) or to abstract objects (as in *John's new book is good*). When we utter (iii) in the circumstances described by Szabo,

   (iii)   Jones wrote a book, but the book never existed.

what we mean is that there is an abstract object which is a book that Jones wrote, but no physical copy of this book existed at any time. If this is correct, *Jones wrote a book* does entail that there is a book that Jones wrote. What (iii) shows is not that this entailment fails, but only that books (as abstract objects) need not be instantiated by physical objects.

[5] More recently, the view that verbs of creation are intensional has been advocated by Arnim von Stechow in a series of talks. See, for example, Stechow (1997) on this (the underlying ideas for this talk were first presented at the University of Oslo in 1992).

allow for such non referential readings: **draw, paint, compose, write**, and **make**. Such verbs form a special class that I will call verbs of creation. (pp. 504–5)

. . .

However, **John built a house last year** should imply **a house existed last year**. But how does this follow if the former sentence is analyzed as **John built something to be a house last year**? We impose the condition that if John is in the extension of **build something to be a house** at a closed interval I, then something is in the extension of **be a house** at the final endpoint of I. (p. 508)

In Bennett's theory, activities are represented by *open* intervals (no endpoints) and performances (complete events) by *closed* intervals. As progressive sentences describe activities, they are true iff the corresponding non-progressive sentences are true at *open* intervals surrounding the time of evaluation. Simple past sentences, on the other hand, always describe performances, as they entail completion. Thus, simple past sentences are true iff the corresponding untensed sentences are true at *closed* intervals preceding the time of utterance. By the condition imposed by Bennett on 'build something to be a house', it follows that, if John built a house, then a house existed.

Although Bennett's analysis of the progressive, unlike Parsons's, does not make use of events explicitly, it should be clear that his treatment of creation verbs is an instance of the same strategy proposed here to amend Parsons's theory: creation verbs are assumed to be intensional, and a condition is added to insure that, when these verbs occur in the simple past, the existence of an individual with the property described by the object NP is entailed. Apart from the difference in the ontological setup, Bennett's theory differs from the amended version of Parsons's theory in another respect. While Bennett's analysis of creation verbs allows us to block the inferences of form (A) with these verbs, it commits us to inferences of form (B):[6]

(A)   x is V-ing an N $\not\Rightarrow$ there is an N

(B)   x is V-ing an N $\Rightarrow$ there is an individual that is the object of
                                  x's V-ing

The reason why Bennett's theory commits us to (B) is that in his paraphrase 'build something to be a house' the object NP is in the scope of an intensional operator, but the existential quantifier 'something' is not. If we wanted to, we could amend the analysis of creation verbs sketched in section 4.2 along the lines suggested by Bennett, and this would validate

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[6] This result is intended by Bennett (p. 508).

inferences of form (B). But Landman's example of God's creating the unicorn calls into question exactly this type of inference. If Landman's intuition is right, creation activities may take place without yielding any individual object that may be identified with the theme of these activities. The repaired version of Parsons's analysis presented here reflects this intuition, as it does not export the existential quantifier out of the scope of the intensional verb.[7]

4.3.2. *Just in Case*

The second observation about treating creation verbs as intensional is needed in case you think that Landman's theory is simpler than the amended version of Parsons's theory because Landman doesn't have to appeal to special principles for creation verbs. Consider Landman's translation of (14) in (14′):

(14)   John was crossing a street.

(14′) $\exists e'[\tau(e') < now \land PROG(e', \lambda e \exists y[Street(y) \land cross(e) \land Agent(e) = John) \land Theme(e) = y])]$ [Landman]

Translation (14′) does not entail that there is a street. To validate entailments of the form 'John is crossing the street ⇒ there is a street', Landman's theory must be supplemented with appropriate principles concerning the stages of events in the denotation of extensional verbs. In particular, for *cross* we need a principle that tells us that, if an event *e* occurring in *w*

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[7] The reason Bennett gives for assuming that verbs of creation involve paraphrases like 'V something to be NP', instead of regarding them as intensional verbs like *seek*, has to do with the invalidity of argument (i)–(iii):

(i)   This ring is this gold.

(ii)   John made this ring.

(iii)   ∴ John made this gold.

Bennett argues that his analysis of creation verbs allows him to make (i)–(iii) invalid and to maintain that *is* in (i) is the identity predicate (see his footnote 16 on p. 505 for discussion). However, the assumption that (i) expresses identity causes trouble also with verbs that are not verbs of creation. For example, it predicts incorrectly that, if (i) is true, (iv) should be contradictory, as the same entity cannot be both P and not-P.

(iv)   This gold existed in 1950, but this ring did not exist in 1950.

Thus, the fact that Bennett's paraphrase allows us to make (i)–(iii) invalid and to hold on to the view that (i) is an identity statement is only weak evidence for his paraphrase, as it's not clear that the view that (i) is an identity statement is tenable. For further discussion of this issue, see Perry (1970), Link (1983), and Bach (1986).

has a possible event e' of crossing the street on its continuation branch, then there is a street in w that is the theme of e'. On the other hand, Parsons needs no additional principle to capture this entailment. Since *cross* is an extensional verb, sentence (14) is translated by Parsons as (14″), which entails the existence of a street:

(14″) $\exists e \exists I \exists t\ [I < now \wedge t \in I \wedge crossing(e) \wedge Agent(e, John) \wedge \exists x[Theme(e, x) \wedge street(x) \wedge Hold(e, t)]]$

Notice by the way that, although Landman's theory and the amended versions of Parsons's theory presented here differ on the source of the intensionality in (13), they both predict that there is also a *de re* reading of (13) entailing the existence of a house.

(13)   Mary was building a house.

This reading may be obtained by raising the object NP out of the scope of the intensional context, which in Landman's theory is created by the progressive and in the amended version of Parsons's theory by the creation verb. However, the existence of such a reading is harmless, since (13) has also a *de dicto* reading which does not entail that a house came into existence as a consequence of Mary's building activity.

4.4. *How to Landman a Parsons*

We still need to deal with the objection that Parsons's theory doesn't say enough. One may, if one chooses, use Landman's analysis of the PROG relation to spell out in the incomplete-event approach what it means for an event to hold. This requires regarding the predicates Cul and Hold as expressing relations between events, times, and the properties described by VPs, a move that, as we saw in section 3.2, may be advocated for independent reasons in Parsons's theory. In this case, the interpretation of progressive VPs would be restated as follows:

$$AspP \qquad\qquad \lambda t \lambda e[Hold(e, t, {^\wedge}VP') \wedge VP'(e)]$$

$$Asp_{+progressive} \qquad VP$$

Sentence (1), reported below as (15), would now be translated as (15′):

(15)   John is crossing a street.

(15′) $\exists e \exists I \exists t\ [I = now \wedge t \in I \wedge crossing(e) \wedge Agent(e, John) \wedge Theme(e, the\ street) \wedge Hold(e, t, {^\wedge}\lambda e[crossing(e) \wedge Theme(e, the\ street)])]$ [Parsons (revised)]

Using Landman's analysis of PROG to spell out the meaning of the Hold relation amounts to stating the truth conditions for Hold(e, t, ^P) by requiring the event denoted by e to have a culminated event of the type denoted by ^P on its continuation branch:

$$\llbracket \text{Hold}(e, t, \char94 P)\rrbracket_{w, g} = 1 \text{ iff } \exists e'\exists w'\exists t' \text{ such that } \langle e', w'\rangle \in \text{CON}(g(e), w, \llbracket\char94 P\rrbracket_{w, g}) \text{ and } \llbracket P\rrbracket_{w', g}(e') = 1 \text{ and } \llbracket \text{Cul}(e, t, \char94 P)\rrbracket_{w', g[e/e', t/t']} = 1$$

The notion continuation branch for an event e in the world w relative to the property P should now be understood in this way. Follow the development of e in w. If by doing so you find an event f of which e is a stage that culminates relative to P, stop; otherwise take the maximal event f of which e is a stage in w and go to the closest world where f goes on. Check whether this world is a reasonable option for the event denoted by e in the base world w. If it is, follow the development of f in this world, and so on until you find a culminated event of the right type or you reach a world that isn't a reasonable option for the event you started out from in the base world w. The exact definition of continuation branch needed for stating the truth conditions of Hold(e, t, ^P) is given in the Appendix. This way of spelling out the interpretation of Hold in the incomplete events approach makes predictions similar to Landman's for the cases he discusses.

5.   BACK TO THE PROBLEM OF INDIRECT ACCESS

The repaired version of the incomplete events approach avoids the problems raised for Parsons's theory. Moreover, if the interpretation of Hold is spelled out in terms of the notion continuation branch, the repaired version of the incomplete events approach and Landman's theory become very similar. Does this mean that these theories are notational variants? No. They still disagree on what kinds of event sets base predicates denote. In Landman's theory, the base VP *build a house* has in its denotation completed events of building a house, whereas in the repaired theory both complete and incomplete events of building a house can be in the denotation of the base VP. So, these theories still disagree on what the contributions of perfective aspect and progressive aspect are. In the repaired theory, perfective aspect combines with predicates of complete/incomplete events and yields predicates of complete events, while progressive aspect combines with predicates of complete/incomplete events and yields predicates of complete/incomplete events. In Landman's theory, perfective aspect combines with predicates of complete events and yields predicates of complete events,

while progressive aspect combines with predicates of complete events and yields predicates of complete/incomplete events. If we try to establish which theory is right, we are back to the problem of indirect access: choosing between them involves making a decision about what types of events base predicates denote.

It should be emphasized that, while we present this decision as a choice between two specific theories – Landman's and the repaired version of Parsons's – the issue is more general. To the extent to which it is possible to translate theories that do not make use of events in their official formulation into event-based theories, it may be seen that the analyses of progressive and perfective aspect proposed in the formal semantic literature generally take a stand on the problem of indirect access. For example, although events do not figure among the official ingredients of Bennett's theory, if we take seriously his claim that activities are represented by open intervals and complete events by closed intervals, his theory is a version of the incomplete events approach.[8] On the other hand, if we informally understand the notion 'Sentence φ is true at the interval i' as 'An event of the type described by φ occurs at i', Montague (1970), Bennett and Partee (1972) and Dowty (1979) give the same answer as Landman to the problem of indirect access, as they assume that base accomplishment sentences describe complete occurrences. Nonetheless, as the approaches proposed by Parsons and Landman overcome some difficulties of previous theories, I'll keep concentrating on them in discussing this problem.

6. THE SLAVIC CASE

So far, I have argued that there is a viable version of the incomplete events approach. This version avoids the problems raised by Landman and makes predictions similar to Landman's theory about the conditions under which progressive sentences are true. We now have two theories that, at least as far as the evidence considered here is concerned, are both possible hypotheses about how perfective and progressive aspects work, but differ in the assumptions they make about the meanings of base predicates. In this section, I'll show that there is empirical evidence that both theories are needed. In particular, I'll argue that both the function posited by Parsons

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[8] Indeed, according to Bennett, base accomplishment predicates can be true of both closed intervals and open intervals. Given Bennett's intuitive characterization of open intervals and closed intervals, this means that base accomplishment predicates can describe both complete and incomplete events.

to model the perfective and the function posited by Landman to model the progressive are instantiated in Slavic languages and that the intensionality of creation verbs is also attested in these languages.

6.1. *Perfective and Imperfective in Slavic*

In Slavic languages, most verbs are classified as either perfective or imperfective.[9] The perfective form of accomplishment verbs describes complete events, while the imperfective form fails to entail completion. In most cases, the nonderived verb stem is imperfective, and the perfective form is derived from the imperfective one by adding a prefix. The prefixed form (perfective) can sometimes be imperfectivized by adding a suffix; this happens, typically, when the perfectivizing prefix introduces a meaning change that goes beyond aspect change. This is illustrated in Table 1 from Comrie (1976):

Table 1 (Russian)

	'write'	'write out'
simple verb	*pisat'* (Impfv.)	
prefixed form (Pfv.)	*na-pisat'* (Pfv.)	*vy-pisat'*
suffixed form (Impfv.)	_____	*vy-pisyvat'*

In some cases the perfective form is basic and the imperfective one is derived by adding a suffix. This is illustrated in Table 2:

Table 2 (Russian)

	'give'	'convince'
simple verb (Pfv.)	*dat'* (Pfv.)	*ugovorit'*
derived verb (Impfv.)	*davat'* (Impfv.)	*ugovarivat'*

6.2. *Translations for Aspectual Affixes*

The derivation of a perfective form by prefixing a verb stem (illustrated in Table 1 by *pisat'* $\Rightarrow$ *na-pisat'*) instantiates the function posited by Parsons to interpret perfective aspect: the perfective prefix *na-* takes as input a predicate of complete/incomplete events and yields a predicate of complete

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9 For recent work on the perfective/imperfective distinction in Slavic see Cochrane (1978), Filip (1991), Krifka (1992), Piñón (1995), Zuber (1977, 1990).

events. The semantic function of perfectivizing prefixes is best described in this way since assuming that for these pairs the perfective prefix combines with a predicate of complete events would require positing verbs that never occur as independent forms. For example, if the perfective prefix *na-* is assumed to combine with predicates of complete events, then, in addition to the imperfective form *pisat′*, we would have to posit a homophonous perfective form *pisat′* that never occurs unless it's combined with a perfective prefix.

On the other hand, the derivation of an imperfective form by suffixing a perfective form (illustrated by *vy-pisat′* ⇒ *vy-pisyvat′* and by the forms in Table 2) instantiates the function posited by Landman to interpret progressive aspect: the imperfective suffix takes as input a predicate of complete events and yields predicates of complete/incomplete events. Again, this is the most natural way of regarding imperfective suffixes, since the absence of isolated forms like *pisyvat′* tells us that the imperfective suffix *-yva-* takes perfective forms like *vy-pisat′* as inputs.

Both Parsons's and Landman's translations can be fitted to represent the meanings of these verb forms. However, it should now be clear that, whether we choose Landman-style translations or Parsons-style translations, a formal analysis of the meanings of perfective and imperfective affixes must incorporate insights from both theories. Namely, translations for the perfectivizing prefixes must add a completion condition to the translations of the verbs, just as in Parsons's analysis of the English perfective. On the other hand, assuming that the transition from perfective forms to imperfective forms is to be analyzed via the notion continuation branch, translations for the imperfectivizing suffixes must require the events in the denotations of the resulting verbs to have a completed event of the type described by the input verb on their continuation branch, just as in Landman's analysis of the English progressive.

6.2.1. *Parsons-Style Translations*

Let's start showing how the analysis informally sketched in the previous section may be carried out with Parsons-style translations for aspectual affixes. The translations for the perfectivizing prefix *na-* and the imperfectivizing suffix *-yva-* may be stated as follows (the variable Q is of type $\langle s, \langle\langle e, t\rangle, t\rangle\rangle$, i.e. it denotes a generalized quantifier intension):

$$[_{V[+pfv]} \text{ na-}[_{V[+impfv]} \alpha]] \Rightarrow \lambda Q\lambda x\lambda e\lambda t[\alpha'(Q)(x)(e) \wedge \text{Cul}(e, t, {}^{\wedge}\alpha'(Q)(x))]$$

$$[_{V[+impfv]} [_{V[+pfv]} \alpha] \text{ -yva-}] \Rightarrow \lambda Q\lambda x\lambda e\lambda t[\text{Hold}(e, t, {}^{\wedge}\alpha'(Q)(x))]$$

Let's illustrate how these translations work with some examples. Recall that, according to Parsons, the predicate of the translation language 'writing' may have both complete and incomplete events in its denotation. The imperfective verb *pisat′* ('write') may thus be translated in this way:

$$[V_{[+impfv]} \text{ pisat}′] \Rightarrow \lambda Q\lambda x\lambda e[\text{writing}(e) \wedge \text{Agent}(e, x) \wedge \text{Theme}′(e, Q)]$$

The prefix *na-* applies to an imperfective verb to yield a perfective verb. If *na-* is applied to *pisat′*, the resulting perfective verb form *napisat′* will be translated as follows:

$$[V_{[+pfv]} \text{ napisat}′] \Rightarrow \lambda Q\lambda x\lambda e\lambda t[\text{writing}(e) \wedge \text{Agent}(e, x) \wedge \text{Theme}′(e, Q) \wedge \text{Cul}(e, t, {}^\wedge\lambda e[\text{writing}(e) \wedge \text{Agent}(e, x) \wedge \text{Theme}′(e, Q)])]$$

According to this translation, the perfective *napisat′*, unlike the imperfective *pisat′*, expresses a relation to writing events that culminate. In this sense, the function of the perfectivizing prefix corresponds, at the verb level, to the function assigned by Parsons to perfective aspect: the input predicate does not require the events in its denotation to culminate; perfective aspect then adds the culmination condition. Recall that, if John is writing a letter, the letter comes into existence only when the writing event is completed. As the events described by the imperfective form *pisat′* need not be complete, writing events of this type need not have individual letters as themes. This result is achieved by treating the object position of *pisat′* as intensional. On the other hand, since the perfective form *napisat′* expresses a relation to culminated writing events, we need to make sure that, whenever a writing event of this type occurs, the theme of this event is an individual. This result is achieved by adopting a principle similar to the one proposed for building events in the discussion of creation verbs:

> *The Writing Principle*:
> $\forall e\forall t\forall x\forall Q[\text{Cul}(e, t, {}^\wedge\lambda e[\text{writing}(e) \wedge \text{Agent}(e, x) \wedge \text{Theme}′(e, Q)]) \rightarrow (\text{Theme}′(e, Q) \leftrightarrow {}^\vee Q\lambda y(\text{Theme}*(e, y)))]$

Now, let's illustrate how the imperfectivizing suffix *-yva-* works. This suffix applies to a perfective verb to yield an imperfective verb. Consider, for example, the verb *vypisat′*. As this is a perfective form, its translation will denote a relation to culminated writing events. For simplicity, I abbreviate the translation of *vypisat′* as write-out′ and I express this property of the denotation of *vypisat′* by assuming that the following condition is met:[10]

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[10]   I refrain from spelling out the translation of *vypisat′* fully, since I don't want to prejudge

$$\forall e \forall e \forall Q[\text{write-out}'(Q)(x)(e) \rightarrow \exists t[\text{Cul}(e, t, {}^\wedge\text{write-out}'(Q)(x))]]$$

The imperfective form resulting from applying the suffix *-yva-* to the perfective form *vypisat'* is translated in this way:

$$[_{V[+impfv]} \text{vypisyvat}'] \Rightarrow \lambda Q \lambda x \lambda e \lambda t[\text{Hold}(e, t, {}^\wedge\text{write-out}'(Q)(x))]$$

Notice that, although write-out' denotes a relation to culminated writing events, the translation of the imperfective *vypisyvat'* does not. In particular, assuming the Landman-style interpretation of Hold in section 4.4, an event *e* stands in the relation denoted by *vypisyvat'* to an intension *Q* and an individual *x* at the world *w* only if *e* has a (culminated) event of *x*'s writing-out *Q* on its continuation branch. As the world on the continuation branch in which the writing-out event occurs need not be the world of evaluation *w*, the event *e* need not culminate in *w*. Thus, although in describing the aspectual transition caused by the imperfectivizing prefix *-yva-* we made use of Parsons's predicate Hold (with augmented argument structure), the function assigned to this prefix corresponds to the function assigned by Landman to progressive aspect: the input predicate denotes a relation to complete events, and imperfective aspect requires that these events are completed in some world on the culmination branch (as defined in the Appendix).

6.2.2. *Landman-Style Translations*

Landman assumes that the predicate of the translation language 'write' denotes a set of complete writing events. Thus, to represent the meaning of the basic imperfective form *pisat'* in Landman-style translations, we need to use Landman's PROG relation:

$$\text{pisat}'_{[+impfv]} \Rightarrow \lambda Q \lambda y \lambda e'[\text{PROG}(e', \lambda e[\text{write}(e) \wedge \text{Agent}(e) = y \wedge {}^\vee Q(\lambda x \text{Theme}(e) = x)])]$$

Again, Q is a variable of type $\langle s, \langle \langle e, t \rangle, t \rangle \rangle$; that is, Q ranges over intensions of generalized quantifiers. Thus, the object argument of the imperfective verb *pisat'* is an intensional entity. As before, this feature is motivated by the fact that this verb need not denote a relation to individual themes. Given the interpretation of the PROG relation assumed by

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the issue of how the meaning of the perfectivizing prefix *vy-* differs from the meaning of the perfectivizing prefix *na-* (Comrie's glosses in Table 1 suggest that, unlike *na-*, the prefix *vy-* introduces a meaning change that goes beyond simple aspect change). For the purposes of my discussion, all that matters is that both these prefixes yield perfective forms, namely forms that describe culminated writing events.

Landman, the verb *pisat′* expresses a relation to events that have a complete writing event on their continuation branch (as defined by Landman).

The PROG relation doesn't help to describe the semantic transition caused by the perfectivizing prefix *na-*. We need to find a way to express in Landman-style logical forms the semantic transition assigned by Parsons to perfective aspect: the transition from predicates of (un)culminated events to predicates of culminated events. As in the previous section, we may express this transition by assigning the following translation to the prefix *na-*:

$$[_{V[+pfv]} \text{ na- } [_{V[+impfv]} \quad \alpha]] \quad \Rightarrow \quad \lambda Q \lambda x \lambda e \lambda t[\alpha'(Q)(x)(e) \ \wedge$$
$$\text{Cul}(e, t, {}^{\wedge}\alpha'(Q)(x))]$$

Applied to the imperfective verb form *pisat′*, this rule yields the following translation for the perfective verb form *napisat′*:

$$\text{napisat′}_{[+pfv]} \quad \Rightarrow \quad \lambda Q \lambda y \lambda e' \lambda t[\text{PROG}(e', \quad \lambda e[\text{write}(e) \ \wedge$$
$${}^{\vee}Q(\lambda x \text{Theme}(e) = x) \wedge \text{Agent}(e) = y]) \wedge \text{Cul}(e, t, {}^{\wedge}\lambda e'[\text{PROG}(e',$$
$$\lambda e[\text{write}(e) \wedge \text{Agent}(e) = y \wedge {}^{\vee}Q(\lambda x \text{Theme}(e) = x)])])]$$

Again, according to this translation, the perfective *napisat′*, unlike the imperfective *pisat′*, expresses a relation to events that culminate (relative to the property of being events of the type described by *pisat′*). To secure the entailment that, whenever a writing event of the type described by *napisat′* occurs, the theme of this event is an individual, we still need to adopt a version of the writing principle. As the predicate of the translation language 'write' denotes a set of culminated writing events, this principle should now be stated in this way:

$$\forall e \forall t \forall x \forall Q[\text{Cul}(e, t, {}^{\wedge}\lambda e'[\text{PROG}(e', \lambda e[\text{write}(e) \wedge \text{Agent}(e) =$$
$$y \wedge {}^{\vee}Q(\lambda x \text{Theme}(e) = x)])]) \rightarrow {}^{\vee}Q(\lambda x \text{Theme}(e) = x)]$$

The imperfectivizing suffix *-yva-* takes a predicate of culminated events to yield a predicate of events in progress. As we saw, this is essentially the function assigned by Landman to progressive aspect. Thus, this suffix will simply introduce the PROG relation in the translation:

$$[_{V[+impfv]} [_{V[+pfv]} \alpha] \text{ -yva-}] \Rightarrow \lambda Q \lambda y \lambda e'[\text{PROG}(e', \alpha'(Q)(y))]$$

To illustrate how this rule works, let's again abbreviate the translation of *vypisat′* as write-out′, assuming as before that this predicate denotes a relation to culminated writing events. The imperfective form resulting from applying the suffix *-yva-* to the perfective form *vypisat′* is thus translated in this way:

$$\text{vypisyvat′}_{[+impfv]} \Rightarrow \lambda Q \lambda y \lambda e'[\text{PROG}(e', {}^{\wedge}\text{write-out′}(Q)(y))]$$

To summarize, the Landman-style translations and the Parsons-style translations proposed here for aspectual affixes agree on these points: imperfective forms of creation verbs are intensional with respect to the object position; perfectivizing affixes introduce a culmination condition in the translation; and imperfectivizing affixes require the events in the denotations of the resulting verbs to have an event of the kind denoted by the perfective form on the continuation branch.

7. THE ENGLISH CASE

In Slavic languages the predicates that are the inputs of aspectual affixes occur as independent verb forms. Thus it's a relatively straightforward matter to determine what kinds of events they denote. In English, however, we lack direct evidence about the meanings of the VPs to which perfective aspect (simple past) and progressive aspect are applied, as these VPs do not occur as matrix predicates. Thus we cannot directly determine whether base accomplishment/achievement predicates denote sets of complete events or not by checking the intuitions of English speakers. Nonetheless, we may try to infer what kind of events these VPs denote in other ways. In the following sections, I'll discuss three types of evidence related to this issue.[11]

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[11]   F. Landman (p. c.) suggests a different kind of argument for choosing between his account of the English progressive and the repaired version of the incomplete events approach. In section 4, I argued that the difficulties raised by creation verbs for Parsons's approach may be overcome by assuming that these verbs are intensional in Montague's sense – that is, by assuming that they express relations to intensions of generalized quantifiers. Zimmermann (1992) has argued, however, that prototypical intensional verbs like *look* are best analyzed as expressing relations to properties, since this accounts for the fact that (ii), unlike (i), lacks a *de dicto* reading:

  (i)   John looked for a unicorn.

  (ii)   John looked for every unicorn.

Landman suggests that the availability of a *de dicto* reading for (iii) below (i.e., of a reading that doesn't presuppose the existence of unicorns in the actual world) indicates that creation verbs are not intensional:

  (iii)   God was creating every unicorn (when he changed his mind).

However, as Chierchia (1995) points out, *de dicto* readings with *every* seem also possible for standard intensional verbs in some cases, as shown by (iv):

  (iv)   Herod wants every male baby of this region.

Cases like (iv), however they may be accounted for in Zimmermann's theory, seem to me to cast doubt on the effectiveness of (iii) as evidence that creation verbs are not intensional. See also Stechow (1997) on this point.

7.1. *Mittwoch on the Progressive*

An argument that progressive aspect requires base predicates describing incomplete events for its application is given by Mittwoch (1988). Mittwoch observes that sentence (16) below is anomalous and that (17) is only acceptable as a so-called futurate progressive, meaning either that there was a plan that John should work for two hours or that for two hours there was a plan that John should work. The lack of a non-futurate reading for the progressive in (17) is shown by the fact that (18) cannot mean that I arrived in the middle of a two-hour period during which John was working. Similarly, sentence (19) cannot mean that I arrived in the middle of an event in which John drank three cups of tea one after the other, and sentence (20) cannot mean that I arrived in the middle of an event in which the lake rose by ten feet.

(16)   It was raining for two hours.

(17)   John was working for two hours.

(18)   John was working for two hours when I arrived.

(19)   John was drinking three cups of tea when I arrived.

(20)   The level of the lake was rising ten feet when I arrived.

Mittwoch argues that facts (16)–(20) indicate that the truth conditions of (nonfuturate) progressive sentences should be stated as in (A):

(A)   A sentence of the form PROG S is true at an interval i iff there is an interval j containing i such that S is true at j, where S is interpreted as an activity.

Once we assume these truth conditions for the progressive, we may explain why (16)–(20) are anomalous (barring futurate progressive readings) in the following way. If the durational adverb is in the scope of the progressive in (16)–(18), the progressive operator in (16)–(20) is applied to the base sentences 'John work for two hours', 'It rain for two hours', 'John drink three cups of tea', and 'The level of the lake rise ten feet'. But these sentences cannot occur in the progressive, because they can only describe complete events and thus lack activity readings. On the other hand, if the durational adverb has scope over the progressive operator in (16)–(18), two hours must be the duration of the past interval at which the progressive sentences 'John be working' and 'It be raining' are true. However, as the progressive operator allows the sentence to which it applies to be true at a superinterval of the interval of evaluation of the progressive sentence,

(16)–(18) should carry an implication that the sentences 'John be working' and 'It be raining' are true for an interval larger than two hours. Thus, if the durational adverb is given scope over the progressive operator, (16)–(18) "would be uninformative, if not positively misleading: they would single out precise subintervals from intervals of indeterminate length for no conceivable reason."

If Mittwoch's account is correct, (16)–(20) pose a problem for Landman's analysis of the progressive.[12] According to Landman, base accomplishment sentences describe complete events and the truth of progressive sentences depends on the truth of the corresponding base sentences in some world on the continuation branch. As Mittwoch points out, in this account the fact that some base sentences can only describe complete events should not prevent them from occurring in the progressive. Thus, by Landman's analysis of the progressive, there should be no reason to expect (16)–(20) to be anomalous. On the other hand, the incomplete event approach seems to fare better in this respect. According to this approach, base accomplishment predicates may have both complete and incomplete events in their denotations and a progressive sentence is true iff an event in the denotation of the corresponding base predicate is in development. Let's assume that an event of a given kind is in development only if it's an incomplete event of that kind. For example, an event *e* in the denotation of *build a house* is in development only if *e* is an incomplete event of building a house. This does not exclude the possibility that *e* may be part of a large event of building a house that culminates; thus it correctly allows for the consistency of discourses like *In 1983 John was building a house and in 1987 he finished it*. However, if base predicates like *work for two hours/rain for two hours*/etc. can only denote sets of complete events, the assumption that events in development must be incomplete leads us to expect that these predicates should be unable to occur in the progressive, since no event in their denotations can be in development.

A problem with Mittwoch's argument is that it doesn't explain why the base predicates in (16)–(20) lack readings describing incomplete events. By Mittwoch's reasoning, base sentences like 'John go to Chicago' and 'John cross the street' must have these readings since, as (21) below shows, they can occur in the progressive:

(21) a. John was going to Chicago when I met him.
     b. John was crossing the street when I met him.

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[12] Mittwoch argues that (16)–(20) are problematic for Dowty's account of the progressive, but her argument does also apply to Landman's account.

But why should the base sentences in (21) have readings that describe incomplete events and the base sentences in (16)–(20) lack such readings? Why doesn't the locative PP *to Chicago* in (21a) or the object NP *the street* in (21b) fix the endpoint of the event as much as the durational adverb *for two hours* in (16)–(18) or the object NPs *three cups of tea* and *ten feet* in (19)–(20)? Sentence (19) is particularly puzzling in this respect:

(19)   John was drinking three cups of tea when I arrived.

This sentence, Mittwoch says, "cannot mean that [when I arrived] John was in the midst of one out of what later turned out to be three cups of tea." However, as Mittwoch observes, this sentence has a reading by which John was simultaneously drinking three cups of tea when I arrived (as well as a reading according to which John was going to drink three cups of tea).[13] Although she does not try to account for the simultaneous reading, by her reasoning we should conclude that the base predicate *drink three cups of tea* may have incomplete events of simultaneously drinking three cups of tea in its denotation, but not incomplete events of sequentially drinking three cups of tea. Why is this the case? Mittwoch does not try to answer this question since, in stating the truth conditions for the progressive, she sidesteps the issue of how activity readings of base predicates are related to perfective readings. However, unless we explain why some base accomplishment predicates should only denote sets of complete events and other base accomplishment predicates should also allow incomplete events in their denotations, there is no obvious reason for assuming that (16)–(20) are anomalous because the corresponding base predicates can only describe complete events. Since the object NPs in (19) and (21b) and the locative PP in (21a) seem to "measure out" the event as much as the durational adverbs in (16)–(18), by Mittwoch's account we should also expect (21) to be anomalous and (19) to lack a simultaneous reading.

   Let's focus our attention on sentence (19) for the moment. In general, my being engaged in an activity that is part of an event of type F is not sufficient ground to assert that I'm F-ing. I may be now engaged in a walk that will eventually take me to the police station, since in a couple of minutes from now I'll witness a robbery and I'll head to the police station to report it, but this is insufficient to warrant the assertion that I'm now walking to the police station.[14] For this assertion to be justified, the walking activity

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[13]   See foonote 14 of Mittwoch's paper on this. Sentence (19) is originally due to Declerck (1979), who points out that the sentence has a simultaneous reading.

[14]   This point is due to R. Schwarzschild. Notice that, by Landman's account, my being engaged in an activity that is part of an event of type F is not sufficient to justify the asser-tion that I'm F-ing. According to Landman, a sentence of the form 'x is F-ing' is true iff

in which I'm now engaged must be aimed at reaching the police station. Let's then ask the question: what circumstances could warrant the assertion that John's activity, at the time of my arrival, was aimed at realizing a complete event of drinking three cups of tea in a sequence or a complete event of drinking three cups of tea simultaneously? For the latter case, the answer seems clear: if at the time of my arrival John is vigorously sipping tea from three cups at once, then we would be inclined to assume that his activity was directed at realizing a complete event of drinking three cups of tea simultaneously. In the former case, however, things are not so simple. Suppose that John is taking a sip from a cup of tea at the time when I arrive. Is this activity aimed at realizing a complete event of drinking three cups of tea in a sequence? In the absence of additional information, we cannot answer this question. To decide whether at any given moment John is engaged in an activity of drinking three cups of tea in a sequence we cannot simply look at the pattern displayed by John's activity at that moment; instead, we must determine from the surrounding circumstances obtaining at that moment whether his activity is aimed at realizing such an event. Suppose, for instance, that John announced that he would drink three cups of tea and that, when I come in, he has three cups of tea lined up in front of him and is in the middle of drinking the first cup. In this case, it seems appropriate for me to say that he is drinking three cups of tea. This shows that the problem with (19) is not that the base sentence 'John drink three cups of tea' is unable to occur in the progressive because it describes complete events. Sentence (19) can be used to report that I arrived in the middle of an event of drinking three cups of tea, in a sequence or simultaneously, provided that appropriate conditions obtain.

Similar considerations may also explain why sentence (20) is anomalous. Suppose I arrive while the lake is rising. What evidence would enable me to say that the lake is rising ten feet? Normally, if a lake is rising at a given moment, we cannot determine whether the lake will rise ten feet by looking at the rising activity at that moment or at the circumstances surrounding the activity at that moment. Thus, it's not clear what evidence could warrant the utterance of (20), since the fact that the lake rose by ten feet after I arrived is not by itself sufficient ground for uttering (20).

Notice, by the way, that the problem described for (20) does not arise for (21):

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in the actual world there is an event-stage of a (complete) F-event on the continuation branch. However, being a stage of a possible F-event is not the same as being a part of it. Thus, even if my walk will eventually end up at the police station, this is not enough to conclude that I'm now walking to the police station, unless my walking now is assumed to be a stage of the walk to the police station.

(21) a. John was going to Chicago when I met him.
     b. John was crossing the street when I met him.

We assert that John was crossing the street if we see him take a step toward the opposite side of the street while the light is green and we assert that he is going to Chicago if we see him on a plane that is flying to Chicago. In other words, in uttering progressive sentences like (21), we may base our assertions on evidence gathered by looking at the pattern displayed by the activity John is engaged in.[15]

Now consider sentence (17) again:

(17)   John was working for two hours.

Paolo Casalegno has pointed out to me that, while (22b) below is anomalous, sentence (22a) is more acceptable, although presumably the evidence appropriate for uttering (22a) should also be appropriate for uttering (22b):

(22) a. John was doing a one-hour run when I arrived.
     b. John was running for one hour when I arrived.

If this is correct, the account proposed here for (19)–(20) cannot explain why base predicates modified by *for*-adverbs are anomalous in the progressive. Indeed, if the reason why (22b) is anomalous depended only on the circumstances that warrant its assertion, we should expect (22a) to be anomalous as well, since the circumstances appropriate for asserting (22a) would presumably also warrant the assertion of (22b). Notice, by the way,

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[15]   Mittwoch (p. c.) objects that sentence (i) below is unacceptable for her even if, at the time the book fell off my lap, I was avidly reading a page close to the end of the book. By the account suggested here we should expect (i) to be acceptable if uttered in this situation, since the pattern of the activity indicates that the activity is aimed at reading the whole book. A similar problem is posed by the awkwardness of (ii) below, reported by Kearns (1991: 290):

(i)   #I was reading the whole book when it fell off my lap into the water.

(ii)   #John was eating the whole cake when I arrived.

I don't know how to account for these intuitions. Notice, however, that, if I find John alone in the kitchen avidly eating a cake of which he has already consumed a large part, it seems appropriate for me to utter (iii) below. Similarly, if John promised that he would only read the first chapter of the book and, after waiting for several hours, I discover that he is in the middle of the fourth chapter, I can complain by uttering (iv):

(iii)   Look! He is eating the whole cake!

(iv)   Look! He is reading the whole book!

Thus, base sentences like 'He eat the whole cake' and 'He read the whole book' can be asserted in the progressive if the activity John is engaged in at the time of evaluation is clearly perceived as aimed at reading the whole book or eating the whole cake.

that contrast (22) is also puzzling for Mittwoch's account of why base predicates modified by *for*-adverbs are anomalous in the progressive: it's hard to imagine a reason why the base predicate *do a one-hour run*, but not the base predicate *run for one hour*, should denote a set of complete events. What contrast (22) indicates is that the reluctance of *run for one hour* to occur in the progressive must be explained by digging into the semantics of *for*-adverbs and by identifying what sets them apart from simple predicates of intervals like *one hour*. In Krifka (1989), predicates modified by *for*-adverbs are analyzed as predicates of events. For example, *run for one hour* is a predicate that denotes the set of running events that go on for an hour. According to this account, *for*-adverbs are also predicates of events in the sense that they add to the logical representation conjuncts like 'one-hour(e)', where e is the event argument of the verb. In this account, the fact that the predicate *run for one hour* is anomalous in the progressive is mysterious, since (22b), like (22a), should assert that a one-hour running is in progress. Following Dowty (1979), Moltmann (1991) has argued, however, that *for*-adverbs are not event predicates, but universal quantifiers over subintervals of measured intervals. For example, according to Moltmann, the sentence *John ran for one hour* would be represented as in (22c):

(22) c. John ran for one hour $\Rightarrow \exists t(\text{one hour}(t) \land \forall t'(t' \text{ is part of } t \rightarrow \exists e(\text{run}(e, \text{John}) \land \text{at}(e, t') \land \text{past}(t))))$

In this account, the predicate *run for one hour* is not a predicate of events. As a result of combining the *for*-adverb with the VP, the event argument of the verb is existentially closed and the resulting predicate *run for one hour* denotes a relation between individuals and intervals:

(22) d. run for one hour $\Rightarrow \lambda t\lambda x(\text{one hour}(t) \land \forall t'(t' \text{ is part of } t \rightarrow \exists e(\text{run}(e, x) \land \text{at}(e, t'))))$

According to Landman and Parsons, however, progressive aspect applies to predicates of events. In Parsons's account, the progressive combines with an event predicate P and yields a predicate denoting the set of P-events that are in progress, whereas in Landman's account it combines with an event predicate P to yield a predicate denoting the set of stages of P-events occurring on the continuation branch. Thus, if Moltmann is right, under both accounts we have a good reason to expect base predicates modified by *for*-adverbs to be anomalous in the progressive, since they are of the wrong semantic type to be the input to progressive aspect.[16]

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[16] Here, I'm assuming that the durational adverb is prevented from taking scope over the

Let's summarize the main points of this discussion. I argued that the facts noted by Mittwoch fail to provide a conclusive argument against the view that the progressive applies to predicates of complete events. The argument doesn't explain why the predicates *work for two hours, rain for two hours, drink three cups of tea*, and *rise ten feet* should denote sets of complete events and the predicates *cross the street* and *go to Chicago* shouldn't. Moreover, the behavior of *drink three cups of tea* and *rise ten feet* may be explained compatibly with the assumption that the progressive applies to predicates of complete events. Finally, I argued that the reason why predicates modified by *for*-adverbs are anomalous in the progressive is that they are not predicates of events (because of the quantificational nature of *for*-adverbs).

7.2. *Bare Infinitive Complements*

Even if uninflected VPs do not occur as matrix predicates in English, they do occur, for example, as complement of perception verbs. We may try to find out whether base accomplishment VPs denote complete events or not by investigating the meanings displayed by bare infinitive complements. Consider sentence (23):

(23)   John saw Mary cross the street.

In (23) the bare predicate *cross the street* seems to denote a set of complete crossing events, since (24) is contradictory:

(24)   #John saw Mary cross the street. He saw the bus hitting her when she was halfway across.

One might try to make (24) consistent with the assumption that the bare predicate *cross the street* allows unculminated events in its denotation by assuming that the verb *see* in (23) requires the event that is the theme of

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progressive for pragmatic reasons of the kind suggested by Mittwoch. Notice that, if this account is correct, the futurate progressive reading of (17), paraphrased by Mittwoch as in (i) below, must be accounted for separately from nonfuturate uses of the progressive, since the possibility of this reading for (17) would indicate that the futurate progressive does not require an event predicate as input.

(i)   There was a plan that John work for two hours at some time in the future.

This conclusion is consistent with paraphrase (i), since in this paraphrase the futurate reading is spelled out through the predicate *plan* and the propositional complement *that John work for two hours at some time in the future*. Notice that Mittwoch's truth conditions for the progressive reported in (A) in section 7.1 are also not meant to account for the futurate progressive.

the seeing to culminate. According to this proposal, the verb *see* with bare infinitive complements would not be translated as (ii), but as (i):

(i) $\lambda P \lambda x \lambda e[\text{seeing}(e) \wedge \text{Agent}(e, x) \wedge \exists e' \exists t[^{\vee}P(e') \wedge \text{Theme}(e, e') \wedge \text{Cul}(e, t, P)]]$

(ii) $\lambda P \lambda x \lambda e[\text{seeing}(e) \wedge \text{Agent}(e, x) \wedge \exists e'[^{\vee}P(e') \wedge \text{Theme}(e, e')]]$

Translation (i) tells us that, if John saw Mary cross the street, the crossing must culminate at some point. Contrast (23)–(24) is expected under this translation. Moreover, since the culmination condition responsible for the contradictory interpretation of (24) is contributed by the meaning of bare infinitive-taking *see* and not by the bare event predicate *cross the street*, this predicate can be assumed to have also incomplete events in its denotation, as in Parsons's approach. However, there are good reasons to reject this analysis of the meaning of bare infinitive-taking *see*. Introducing a culmination condition in the semantics of this verb is stipulative, since it's not clear why the relation of direct visual perception should require this assumption. Moreover, translation (i) runs into trouble with sentence (25):

(25) John saw Mary crossing the street.

Presumably, the verb *see* in (25) has the same meaning as *see* in (23). Indeed, (25), like (23), asserts that John bears a relation of direct visual perception to an event of Mary's crossing the street.[17] Yet, sentence (25), unlike sentence (23), allows John to bear a relation to an incomplete event of crossing the street, as shown by the fact that (26), unlike (24), is not contradictory:

(26) John saw Mary crossing the street. He saw the bus hitting her when she was halfway across.

If completion is contributed by the direct perception verb, we should expect (25) to mean that John saw Mary perform a complete crossing. Thus, (26) should be contradictory like (24). On the other hand, a theory that assumes that bare predicates like *cross the street* denote sets of complete events has no trouble in accounting for (23)–(26). In this theory, the verb *see* in (23)–(26) may be assigned the translation in (ii); thus it does not add any culmination condition. According to (23), the event John sees is a complete

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[17] Sentence (25) has also a reading according to which John stands in a direct visual relation to an ordinary individual and not to an event. In this case, the phrase *crossing the street* is interpreted as a reduced relative clause, and (25) would mean roughly the same as *John saw Mary while she was crossing the street*. For the purpose of this discussion, only the event reading of (25) is relevant.

crossing since the bare predicate *cross the street* denotes a set of complete crossings. Thus, (24) is contradictory. In (25), the predicate *crossing the street* allows for the crossing to be incomplete (due to the *-ing* morphology) and sentence (26) is correctly predicted to have a noncontradictory interpretation.

Up to this point, pattern (23)–(26) seems to indicate that a Landman-style approach is preferable for English, since such pattern is expected by this approach, but not by the incomplete events approach. Notice, however, that this conclusion is convincing only insofar as we are willing to accept that the syntax plays no role in accounting for (23)–(26). As bare infinitive complements lack aspectual morphology of their own, let's suppose that their aspect is syntactically dependent on the aspect of the matrix verb. This assumption is compatible with Parsons's view that base predicates are not inherently specified as to whether the events in their denotations are complete or not. If bare infinitive complements inherit their aspect from the matrix verbs because they lack aspectual specifications, we should also assume that this dependence does not obtain for *-ing* complements to perception verbs, since they carry their own aspect as is indicated by the presence of progressive *-ing*. By these assumptions, the underlying aspectual features of (23)–(26) should be as follows:

(23)   John saw$_{[+perfective]}$ Mary cross the street$_{[+perfective]}$.

(24)   #John saw$_{[+perfective]}$ Mary cross the street$_{[+perfective]}$. He saw the bus hitting her when she was halfway across.

(25)   John saw$_{[+perfective]}$ Mary crossing the street$_{[+progressive]}$.

(26)   John saw$_{[+perfective]}$ Mary crossing the street$_{[+progressive]}$. He saw the bus hitting her when she was halfway across.

By these aspectual specifications, the interpretations of (23)–(26) are expected in Parsons's account. Indeed, although Parsons does not explicitly discuss (23)–(26), he suggests precisely this inheritance device for complements of direct perception verbs.[18] He observes that, if the aspect of bare infinitive complements is dependent on the aspect of the matrix verb, we predict, what's intuitively correct, that (27a), unlike (27b), should not be contradictory, since the bare infinitive complement in (27a) should inherit progressive aspect from the matrix verb and thus the event John was watching may have been an incomplete crossing:

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[18]   See the semantics for a fragment of English in the last chapter of Parsons (1990).

(27) a. John was watching Mary cross the street, when she was hit by
      a bus.
    b.#John watched Mary cross the street, when she was hit by a
      bus.

In Landman's theory, the same prediction for (27) is achieved by purely
semantic means. According to his theory, *John was watching Mary cross
the street* is true if there is a past event such that its continuation branch
includes a world where there is a watching event whose theme is an event
in the denotation of the sentence '*Mary cross the street*' at that world. Thus,
the truth of *John was watching Mary cross the street* does not require that
the crossing culminate in the real world, and (27a) is expected to be non-
contradictory. The point, however, is that bare infinitive complements do
not by themselves provide evidence for the incomplete events approach
or for a Landman-style approach. Whether their interpretation can be
regarded as evidence for one approach or the other depends on what
syntactic assumption we are willing to make about the underlying aspect
of the bare infinitive predicates.

7.3. *Other Nonfinite Complements*

Suitable syntactic assumptions may perhaps account for the behavior of bare
infinitive complements compatibly with the view that base predicates do
not require events in their denotations to culminate. But is this view really
plausible if we look at the behavior of other types of infinitive comple-
ments? Consider pattern (28)–(29):

(28) a. John started to cross the street.
    b. John began to cross the street.
    c. John continued to cross the street.

(29) a. John wanted to cross the street.
    b. John promised to cross the street.
    c. John tried to cross the street.
    d. John suggested Bill to cross the street.
    e. John permitted Bill to cross the street.
    f. John forbade Bill to cross the street.
    g. John helped Bill to cross the street.
    h. John forced Bill to cross the street.
    i. John got Bill to cross the street.

The matrix verbs in (28) are all aspectual verbs; that is, they have the
function of predicating certain properties of stages of events in the

denotations of the infinitive complements. Sentences (28a, b) assert the existence of an initial stage of a possible event of crossing the street and (28c) asserts that a stage of a possible event of crossing the street follows some contextually determined stage of the same type. None of the sentences in (28) entails that John crosses the street at some time or other, but this is plausibly attributed to the meanings of the matrix verbs, as these verbs only require the existence of stages of events in the denotations of the infinitive complements. Now consider the sentences in (29). The matrix verbs in (29) do not predicate properties of stages of the event types denoted by the infinitive complements. Sentences of the form *John wanted/promised/ tried/suggested Bill/permitted Bill to VP* say that the alternatives compatible with John's desires/promises/attempts/suggestions/permissions are alternatives in which events in the denotation of the infinitive complement occur. The sentence *John forbade Bill to VP* means that the alternatives compatible with John's prohibitions are those in which an event in the denotation of the infinitive complement does not occur. And *John helped Bill/forced Bill/got Bill to VP* mean that John brought about an actual event of the type described by the infinitive complement by helping/ coercing/ affecting Bill in some way. Now, suppose that base predicates allow both complete and incomplete events in their denotations. As the matrix verbs in (29) require that events in the denotations of the infinitive complements occur in certain possible circumstances, we should expect that these events need not culminate in these circumstances. But this is not the case. Sentence (29f) cannot mean that John forbade events of Bill's crossing the street, be they culminated or not. John's prohibition is violated only if at some point or other Bill crosses the street. Similarly, (29a–e) do not mean that in the alternatives compatible with John's desires/promises/attempts/suggestions/permissions Bill is either engaged in an incomplete event of crossing the street or he gets across. John's desires/promises/attempts/suggestions/permissions are met only if Bill crosses the street in the relevant alternatives. And (29g–i) mean that John brought about a complete event of crossing the street.

There are two ways in which we can try to reconcile these facts with the incomplete events approach. We may appeal to a syntactic device of the kind suggested for bare infinitive complements and assume that the infinitives in (29) inherit perfective aspect from the matrix verbs. Or we may assume that some other component of the infinitive complements, the infinitive marker *to* for example, is the bearer of perfective meaning. The first option is problematic, since, if John was trying to cross the street, the alternatives compatible with John's attempt are still those in which he succeeds in crossing the street, despite the fact that the matrix verb bears

progressive aspect.[19] In any case, the problem with both options is that they leave an important generalization unexplained. The data in (29) illustrate the fact that, setting aside the cases in which imperfectivity is overtly signalled by the presence of progressive aspect or by the occurrence in the scope of predicates that are clearly aspectual, like *begin, start*, and *continue*, English base predicates are understood as describing complete events. If the incomplete events approach were right in assuming that English base predicate do not require events in their denotations to culminate, we might expect this to show up sometimes in forms that are not overtly marked for aspect, but this prediction is not borne out.[20]

8. CONCLUSIONS

The lack of clear instances of base forms denoting incomplete events is a serious problem for an incomplete-event analysis of the English progressive. Although the evidence is not one-sided, this fact favors a Landman-style analysis for English. Yet, on the way to this conclusion we also reached other conclusions that are worth recalling. We saw that Landman's approach and the incomplete events approach are less far apart than it might seem at first: the basic insights of Landman's analysis of the notion event in progress can be incorporated into the incomplete events approach. We also saw that the problems raised by creation verbs for Parsons's analysis of the progressive can be overcome by treating these verbs as intensional. The intensionality of creation verbs is attested in Slavic languages. The analysis of the meanings of aspectual affixes in these languages requires combining features from both Landman's approach and the incomplete events approach. The discussion of the Slavic case and of the English case

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[19] Indeed, if John was trying to cross the street, this implies that, at some time in the past, John tried to cross the street. And this predicts that the inference observed for (29a) (John tried to bring about a complete event of his crossing the street) should be preserved if the matrix verb is in the progressive.

[20] An argument of a similar form is also given by Bennett and Partee (1972). They reject the possibility that base forms of accomplishment predicates have also activity readings, since these readings never show up in the simple past:

Notice that we cannot simply say that a verb phrase such as *build a house* is ambiguous between a nonstative, nonsubinterval sense and a subinterval sense. This is because a sentence like (j) does not have a reading corresponding to the subinterval sense.

(j)   John built a house last year   [p. 16]

The fact that (j) entails completion, however, cannot be construed as an argument against Parsons's incomplete-event approach, since in Parsons's theory the simple past is assumed to introduce a culmination condition.

suggests that adopting one or the other approach should be motivated by language-specific evidence concerning the interpretation of the predicates that are the inputs of aspectual specifications.

APPENDIX

Let e be an event in the denotation of P in w. The *continuation branch* for e in w relative to $^\wedge P$ (CON($g(e)$, w, $^\wedge P$)) is the smallest set of event-world pairs defined thus:

1. For every event f in the denotation of P in w such that e is a stage of f, $\langle f, w \rangle \in$ Con(e, w, $^\wedge P$). (The set of event-world pairs you get by executing this step is the continuation stretch of e in w.)

2. Take the maximal event f (if there is one) in the continuation stretch of e in w. If f culminates relative to $^\wedge P$ in w you are done. Otherwise, go to the closest world w_1 in which f continues. If w_1 is not a reasonable option for e in w, you are done. If w_1 is a reasonable option for e in w, then $\langle f, w_1 \rangle \in$ Con(e, w, $^\wedge P$).

3. For every event g in the denotation of P in w_1 such that f is a stage of g, $\langle g, w_1 \rangle \in$ Con(e, w, $^\wedge P$). (The set of event-world pairs you get by executing this step is the continuation stretch of f in w_1.)

4. Take the maximal g (if there is one) in the continuation stretch of f in w_1. If g culminates relative to P in w_1 you are done. Otherwise, go to the closest world w_2 in which g continues. If w_2 is not a reasonable option for e in w, you are done. If w_2 is a reasonable option for e in w, then $\langle g, w_1 \rangle \in$ Con(e, w, $^\wedge P$). Etc.

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