ANITA MITTWOCH

ASPECTS OF ENGLISH ASPECT: ON THE INTERACTION OF PERFECT, PROGRESSIVE AND DURATIONAL PHRASES*

This paper addresses itself to a number of interlocking problems concerning English aspect. My starting point is a question recently reopened by Heny (1982) in response to Richards (1982): Do perfect sentences with durational phrases have two distinct readings, depending on different scope relations of the perfect and adverbial operators? More generally, are there two semantically distinct uses of the perfect? In Section 1 I argue for an affirmative answer to these questions, and in Section 2 I propose new truth conditions for the two uses and for temporal *since* phrases. Section 3 deals with negative sentences containing the perfect and durational phrases. Section 4 discusses the perfect in *This is the first proper meal I have had in a week* and in related examples. Section 5 raises the question why the progressive is normally incompatible with durational phrases. The discussion of this question and of some uses of the progressive that have not been discussed in the literature leads to substantial revisions of the truth conditions of the progressive proposed in Dowty (1979). Section 6 argues for a syncategorematic treatment of the perfect progressive. Section 7 attempts to shed light on some curious distributional restrictions of the adverb *already* noted in previous sections. The final section deals with the question why there is no progressive perfect.

Perfect, progressive and durational adverbials are treated throughout as operators on sentences rather than predicate phrases. This decision is motivated solely by considerations of simplicity and ease of exposition.

1. THE PERFECT AND DURATIONAL PHRASES

1.0. In the discussion that follows I shall adopt, like Richards and Heny (1982), the Extended-Now (XN for short) theory of the perfect. (Cf. McCoard, 1978.) This theory states that the perfect serves to locate some event within an interval stretching back in time from a given reference time; for a (non-embedded) present tense sentence the reference time is the time of utterance.

1.1. Consider

(1) Sam has been in Boston for 20 minutes. (= Richards (75), Heny (138))

Linguistics and Philosophy **11** (1988) 203–254.

This can mean that there has been a twenty-minute period in the relevant XN interval during which Sam was in Boston. It can also be used, more naturally in fact, to imply that the twenty minute-period extends up to the moment of utterance, with the further implication that Sam is still in Boston. In that case the twenty minute-period is in fact coextensive with the XN interval implied by the perfect. Such an interpretation is made explicit by the addition of *the last*:

(2) Sam has been in Boston for the last 20 minutes.

The problem is whether the second use represents a logically distinct reading of (1) or whether (1) has only the first reading, the second being merely compatible with this reading, a limiting case of it, that may in certain contexts be inferred by general conversational principles.

Dowty (1979), following a suggestion by Bennett and Partee (1972), and Richards (1982) opt for the view that (1) is genuinely ambiguous and account for the ambiguity by the relative scope of the perfect operator *have* and the durational adverbial *for* 20 *minutes*. On the first reading *have* has wider scope than the adverbial, on the second it is within the scope of the adverbial.

(3) *Pres* (w, i) [*Have* [*For* 20 *minutes* (Sam be in Boston)]] (= R (140), H (76))

(4) *Pres* (w, i) [*For* 20 *minutes* [*Have* (Sam be in Boston)]] (= R (143), H (79))

In support of this position Richards, following Dowty, cites a familiar argument from preposing of the adverb:

(5) For 20 minutes Sam has been in Boston (= R_1(142)).

(5) can only have the second interpretation, that in which *for* 20 *minutes* extends up to the present.

In spite of (5) Heny rejects (4) as a possible representation of (1). To explain his reasons for doing so I shall first cite the truth conditions for durational *for* adverbials and for the perfect as given in the two papers. The truth conditions for the adverbial are as follows:

(6) *For* 20 *minutes* (A) is true in M relative to (w, i') iff i' is an interval of 20 minutes duration and for every subinterval j of i' A is true in M relative to (w, j). (= R (138), H (74))[1]

For the perfect, however, there is a slight but crucial difference between the two papers:

(7) *Have* (A) is true in M relative to (w, i) iff there is a subinterval j of i such that A is true in M relative to (w, j). (= R (117))

(8) *Have* (A) is true in M relative to (w, i) iff there is a *non-final* subinterval j of i such that A is true in M relative to (w, j). (= H (63))

The modification is explained as follows (the numbers of the examples in quotations have been changed to fit the present paper): "The requirement that j in (8) be non-final introduces a (minimal) element of 'pastness' into the semantics of *have*. This seems essential if we are to account for the intuition that *Harry loves Mary* and *Harry has loved Mary* differ in truth conditions" (Heny, 1982 p. 139). (7) appears to be compatible with the analysis in (4) provided that the subinterval j of i in (7) is in fact equal to i. In fact, a strictly compositional application of (6) to (7) is not without its problems. For, as Heny points out, it would mean that "at every subinterval of $i, \ldots$, the proposition *Have* (*Sam be in Boston*) is true; not just *Sam be in Boston*. The structure forces us to take, as it were, infinitely many points of view (reference intervals) within i, and then within each to isolate a ... subinterval within which the base sentence is true" (pp. 145–6). While this result is merely counterintuitive, the combination of (6) and (8) leads to an actual contradiction, which Heny explains as follows: "If we unpack (4) we find that the proposition expressed by

Have (Sam be in Boston)

is required by (6), the definition of *for* 20 *minutes* ..., to be true throughout *every subinterval* of the present interval, i. By (8), then, *Sam be in Boston* must be true for some *non-final subinterval of every interval of i*. This is where incoherence threatens to creep in. For at the limit an interval is a single moment. There are singletons among the subintervals of i and these cannot of course have nonfinal subintervals" (p. 144). Accordingly Heny concludes that (3) is the only possible analysis of (1). "The supposed problematic reading ... is in fact (almost?) equivalent to the limiting case of the other reading, where (3) yields the relevant structure, and *For* 20 *minutes* (*Sam be in Boston*) is true in some (non-final) sub-interval of 'now' – namely that special case where the interval of 20 minutes immediately precedes evaluation time. There is really no reason to assign this interpretation of the sentence a separate semantic status – except for the claim that it *implies* that *Sam be in Boston* is still true at the moment of evaluation. We could only get that

implication by analysing the perfect in such a way that its normal significance, which crucially involves an element of 'pastness', was totally obscured" (p. 145).[2a]

1.2

I believe that in addition to the argument from preposing, which remains unaccounted for in Heny's analysis, there are several further reasons in favour of the bracketing in (4):[2b]

(a) The reading of (1) in which Sam's stay in Boston extends up to the moment of utterance is the more salient reading out of context. It is also the stronger reading, which entails the weaker one. In normal privative ambiguities e.g., *Everybody loves somebody*, *John and Bill fought*, the stronger reading ("everybody loves the same person", "John and Bill fought each other") is not the more salient. The saliency effect of (1) is even more pronounced in negative sentences, as will be shown in Section 3.[2c]

(b) If (4) were not a possible bracketing of (1) English would lack the means of expressing a concept that is expressible (by means of the simple present tense, sometimes with the addition of appropriate adverbials) in other languages.

(c) The most decisive argument in favour of (4) turns on independent evidence for this bracketing from *since* constructions. Consider

(9) Sam has been in Boston since 7.00.

Heny observes correctly (a) that (9) can be used to imply that Sam's being in Boston extends throughout the period since 7.00 or that it merely falls somewhere within that period; (b) that the two interpretations cannot be accounted for by differential scope relations between *since 7.00* and *have*, because temporal *since* "is directly tied to the presence of *have*" and must therefore have scope over *have*.[3] Heny in fact sees this as confirmation for his conclusion regarding *for* durationals: "There must be at least one subinterval at which the embedded proposition is true, in the interval between 7.00 and the time of utterance, and at the limit this can extend throughout that period" (p. 147).

Heny's conclusion will however make the wrong prediction for the negation of (9):

(10) Sam has not been in Boston since 7.00.

(10) can mean that there has been no subinterval in the interval since 7.00 when Sam was in Boston. This reading is compatible with Heny's analysis. (10) can also be used in a context in which the above reading

would be false, to make the weaker claim that Sam's stay in Boston did not extend backwards to 7.00 or forwards to the time of utterance:

(10′) Sam has not been in Boston since 7.00
(a) he got there only at 8.00
(b) he left an hour ago.

This shows that (10) is genuinely ambiguous; the reading highlighted by the sequels in (10′) cannot be subsumed under the first. Note that this case is the reverse of normal privative ambiguities. In the affirmative sentence (9), the reading in which *since 7.00* refers to the whole of the interval is the stronger reading and such readings cannot normally be denied in negative sentences. It would be odd to deny the classic *Every man loves a woman* by arguing: *That's not true*; *John loves Mary, Bill Liz* . . . .

In view of the fact that the ambiguity of (9) cannot be resolved by changing the scope relations of *have* and *since*, we seem to have reached an impasse. The way out of the impasse is to recognize that *since* itself is ambiguous. *Since 7.00* can mean *from 7.00 till now* or *at some time between 7.00 and now*. In the first sense *since 7.00* is a durational adverbial; in the second it is an extended time *when* (or frame) adverbial, like *last year, in January, during the vacation*. These two meanings are clearly distinguished in the Shorter Oxford English Dictionary and they are given distinct semantic analyses in Leech (1969, pp. 132ff). The first sense corresponds to a universal quantifier, the second to an existential one.[4,5]

Note furthermore that in the existential reading of

(11) Sam has been in Boston since Tuesday.

Tuesday is excluded from the range of possible intervals of Sam's being in Boston that are covered by the sentence. (He may have been in Boston on Tuesday, but that visit would not be included in what the sentence asserts.) In the universal reading of (11) Tuesday, or at least part of it, is included. Thus also

(12) Sam has been in Boston at least since Tuesday.

can only have the universal reading.

This difference is not simply an idiosyncrasy of *since* but follows from the two senses, as represented by the paraphrases. Consider the following diagram:

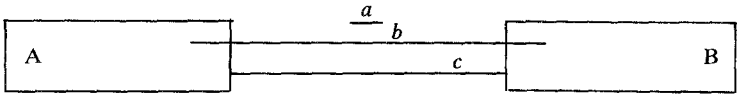

Fig. 1

Line *a* lies (or runs) between the boxes labelled A and B. Line *b* runs from A to B. (Imagine a railway line whose end-stations are Amsterdam and Warsaw: the train runs from Holland to Poland or vice versa). For line *c* both descriptions are possible; I shall come back to this point shortly.

I have demonstrated the existence of the bracketing (Durational Phrase (*Have* (A))) for *since* durationals. This provides prima facie evidence for the occurrence of *for* durationals in the same configuration. Further evidence for this bracketing will emerge in Section 6.2.

1.3

For the moment I shall take it for granted and note that the assumption that (1) can have the bracketing (4) does not commit us to the position that the other bracketing ((3)) excludes the state of affairs in which Sam's being in Boston fills the whole of the XN interval. This state of affairs is compatible with both bracketings, just as the formula $\forall x \exists y$ *Loves* (x, y) is compatible with a situation in which everyone loves the same person. (3) is compatible with either of the diagrams in Figure 2, (4) only with the second:

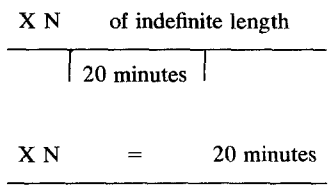

Fig. 2.

Since (4) entails (3) it can indeed represent the limiting case of (3), as argued by Heny. It would however lack the entailment that Sam is still in Boston. Similarly (9) even on the existential reading is compatible with a situation in which Sam's stay in Boston fills the whole of the interval since 7.00. Recall that line *c* in Figure 1 can be described as running between A and B or from A to B. According to the first description it represents an open interval, according to the second a closed one. This distinction will be utilized in Section 2.

There are in fact sentences which cannot have the analysis in (4). Consider

(13) John has already lived in England for 3 years.

Imagine a context in which John has to meet a three-year residence

requirement in England in order to be eligible for a scholarship (13) would be appropriate whether the three-year period terminates at utterance time or earlier. I shall present two arguments showing that even if it does terminate at utterance time the durational can not have wide scope. Both turn on the fact that where there is independent evidence that the durational must have wide scope, *already* is infelicitous.

The first argument depends on the infelicity of *already* with preposed durationals:

(14) *At first he commuted from Tel Aviv but for the last three months he has already lived in Jerusalem.

The second depends on the interaction of *already* with *since* adverbials. If I have arrived in Boston at 8.00 a.m. and am still there at 8.00 p.m., I can not say

(15) *I have already been in Boston since 8.00 this morning

but I can say

(16) I have already been in Boston for 12 hours.

In the following context however, *since* and *already* can cooccur:

(17) I have already seen them (twice) since they got back.

Hence *already* is incompatible with universal *since* but compatible with existential *since*. I shall come back to this point in Section 7.

1.4

Corresponding to the two senses of *since* we can speak of two uses of the perfect, a universal and an existential one (Cf. McCawley, 1981). As is well-known, these differ in the lexical aspect (Aktionsart) of the sentence embedded under them. The universal perfect, with universal *since*, selects for a state sentence, e.g. (18); (19) on its more natural reading shows that habitual activity is equivalent to a state:

(18) John has known that he is adopted/wanted to be a doctor since he was five.

(19) John has played the piano since he was five.

The existential perfect selects mainly for event sentences (this term subsumes Vendler's (1967) achievements and accomplishments):

(20) John has had a heart attack/bought a house since 1980.

(21) John has written two books/travelled round the world since 1980.

Event sentences lack the subinterval property: no proper subinterval of the interval for which A is true can itself be an interval for which it is true. (Cf. Bennett and Partee, 1972.) (Since achievements are punctual they have no proper subintervals.) By this criterion stative verbs with count frequency adverbials like *twice* or with durationals like *for two months* form event sentences (cf. Bach, 1981), and they do indeed occur within the existential perfect:

(22) John has lived here twice (since 1980).
(23) John has lived in his new house for only two months since he bought it; most of the time he has been away on business.

However (9) (repeated below), which is somewhat untypical, shows that certain state sentences can have an existential perfect reading even in the absence of such an adverbial:

(9) Sam has been in Boston since 7.00

For this particular example the existential reading could be brought out unambiguously, more idiomatically in fact, by substituting *to* for *in*:

(24) John has been to Boston since 7.00.

But in other cases there are no overt markers to distinguish between the two readings:

(25) John has been here/ill/chairman of the department since 1980.

For most state sentences the existential reading is very hard to get:

(26) John has wanted to be a doctor/owned a house (since 1980).

More plausible:

(27)a. At different times (since 1980) John has wanted to be a doctor, a postman and an astronaut.
b. At different times (since 1980) John has owned a house, a caravan and a windmill.

In view of (9), (25) and (27) the lack of subinterval property appears not to be a necessary condition for the occurrence of a sentence in the existential perfect. However these sentences all involve the so-called experiential use of the perfect. Note that they are related to questions like

(28) Has John even been to Boston/chairman of the department/ seriously ill?

I follow McCawley (1981) in subsuming this use under the existential perfect – though not without some misgivings.[6] According to Comrie (1976) "the experiential perfect indicates that a given situation has held at least once during some time in the past leading up to the present". This suggests that we can account for these sentences by postulating a covert existential quantifier corresponding to a count frequency adverbial. Alternatively, we might say that it is a sufficient condition for their truth that the embedded sentence is true at one moment, and that the actual interval occupied by their denotata is therefore irrelevant or viewed as contracted. In either case lack of the subinterval property would still be a defining characteristic for the existential perfect.

Activity sentences in the simple perfect are very strange. Consider:

(29) John has run (since 7.00).

This is only interpretable on a somewhat peculiar event reading, with *since* existential, i.e. John has had a turn at running or gone running. We do find examples of the experiential use, e.g.,

(30) I *have* smoked/eaten meat (but I don't usually).

We also find examples of McCawley's (1971) "hot news" sense, as when someone in a vegetarian community says, in answer to *what's all the fuss about*?

(31) John has just eaten meat.

This use is better accounted for by the second explanation suggested above for the occurrence in the existential perfect of sentences apparently having the subinterval property.

Normally activity sentences occur only in the perfect progressive:

(32) John has been running.
(33) John has been running since 7.00.
(34) John has been running for 20 minutes.

Note that (33) must be interpreted as universal. The perfect progressive will be taken up in Section 6.

Before proceeding I shall summarize the main conclusions of this section:

(a) Sentences like (1) have two analyses depending on the relative scope of *have* and the durational

(b) Sentences like (9) have two analyses depending on whether *since* is universal or existential.

(c) Notwithstanding (a) and (b) some situations can be described by both analyses.

(d) In sentences in which a durational has scope over the perfect operator the innermost proposition denotes a state. In other sentences it denotes an event.

2. Truth conditions for the perfect

2.0

In the last section I cited Heny's arguments against the bracketing (4) and showed that this bracketing must be part of the grammar nevertheless. The argument based on the non-final condition does not go through: I shall show below that this condition is unnecessary anyway. The other argument, viz. that a straightforward application of the truth conditions for the durational to those for the perfect would force us to take infinitely many points of view, remains valid. The only way to resolve the conflict is to give the two uses of the perfect, the existential and the universal, separate treatments, the common ground between them being that both are evaluated with reference to an XN interval. In 2.1 I shall propose revised truth conditions for the existential perfect. 2.2 will deal with the universal perfect and 2.3 with sentences containing *since* adverbials.

2.1

The XN theory of the perfect, as I defined it above, makes crucial use of the notion of reference time: it serves to locate an event within an interval stretching back from a reference time provided by the moment of utterance, a temporal adverbial or a contextually given event. (McCoard, in dubbing it Extended Now, was of course primarily thinking of the moment of utterance.) The truth conditions for the perfect given by Richards and Heny and cited as (7) and (8) above make no mention of reference time. (Heny gives an alternative analysis, which I shall deal with shortly.) For convenience I shall repeat Richards's formulation:

(7) *Have* (A) is true in M relative to (w, i) iff there is a subinterval j of i such that A is true in M relative to (w, j).

Here the perfect is evaluated for an interval which is left free-floating, as it were, until anchored in something outside the perfect sentence, e.g. present tense. It is only when thus anchored that the interval becomes an

XN interval. But there is nothing in (7) that demands that the interval *i* must be anchored in a reference time, and moreover one situated at its end. (Conceivably the reference time could be at the beginning or in the middle of *i* or coextensive with it.) This seems to me a fundamental shortcoming of the analysis. For a sentence without such anchoring just does not make sense. Consider

(35) I want to have finished *(by Monday).

(The asterisk stands for semantic deviance.) Because of the meaning of the matrix verb we know that we have to locate *i* in (35) somewhere subsequent to utterance time. But that is not sufficient; without the bracketed temporal adverbial the embedded perfect sentence cannot be interpreted. Next consider

(36) He is sure to have finished (by Monday).

Here the matrix verb does not impose the same constraint as in (35). With the temporal adverbial, *i* can be in the past, i.e. ending on the Monday prior to utterance time, or future relative to utterance time. Without this adverbial, *i* can only be past, with utterance time serving as the reference point; if it were future it would lack a reference point.

Let us compare (35) and (36) with the adverbial on its future interpretation with parallel sentences containing non-perfect infinitives:

(37) He wants to finish by Monday.
(38) He is sure to finish by Monday.

(35) and (37) are truth-conditionally equivalent; in both the event of finishing is located between utterance time and the following Monday. The difference is purely one of perspective, whether this event is viewed prospectively from utterance time or retrospectively from Monday. (36) and (38) are not truth-conditionally equivalent. Though the most obvious reading of (36) also places the event subsequent to utterance time, there is nothing to prevent an interpretation in which it precedes that time, i.e. in which *i* stretches back from the following Monday to some point prior to utterance time. This interpretation would come out in a context where the speaker does not know whether the person referred to by *he* has finished already or not.

Finally consider

(39) The letter is sure to have arrived within 7 days of being posted.

(39) is only interpretable if anchored in utterance time, with the arrival of

the letter definitely in the past. It is not appropriate in a context like the one sketched above, with the letter having been posted (say) three days before utterance time and the speaker not knowing whether it has arrived already or not.

The above argument for building reference time into the truth conditions for the perfect is, I think, supported by a further consideration. If the perfect were evaluated for the whole of *i* then it would obviously lack the subinterval property, i.e. there would be many subintervals of *i* in which *Have* (A) would not be true, in fact all those subintervals of *i* which precede *j* in the formula in (7). To see this consider

(40) John has been to America (once) since 1980.

where *since 1980* by common consent defines the beginning of *i*. Assuming that John's visit to America took place in 1982, (40) would be false for the interval 1980 to 1982. This raises the question, what sort of Aktionsart does the perfect operator define? It would clearly not belong to the well-known class of sentences lacking the subinterval property, viz accomplishments, for these denote cumulative processes (activities). The perfect operator does not denote a process at all (cf. Sections 7 and 8). I shall in fact argue that it is sui generis as regards Aktionsart; but it would still be strange if it shared so important a property with accomplishments.

As mentioned above, Heny provides an alternative formulation for the perfect, his (63′), which evaluates the perfect for reference time. I cite this as (41):

(41) *Have* (A) is true in *M* relative to (w, i) iff there is an interval *j* such that *i* is the final subinterval of *j* and for some nonfinal subinterval *k* of *j* A is true in *M* relative to (w, k).

(Heny leaves the decision between (8) and (41) open; I shall not go into the details of his discussion.)

I propose three further revisions of (41). First, I shall let the evaluation time *i* stand for a moment. For a present tense perfect this follows from the fact that utterance time is a moment. (Cf. Dowty, 1979, p. 188 and Prior, 1967, p. 13, who argues convincingly that utterance time is merely the first (and sometimes only) reference point for a sentence.) For a past tense or an untensed perfect it is less obvious. But consider

(42) When Mary wrote/was writing the book she had already signed a contract with a publisher.

The adverbial clause appears to determine an extended interval; in fact, the reference time for the perfect can only be the moment when Mary

started writing the book. Similarly, consider (35) and (36) above in which reference time is expressed as *by Monday*. In context, it seem to me, a speaker using these sentences must be referring to a moment, e.g. the beginning or end of normal working hours. Of course, if a perfect sentence is true at a moment *i*, it may also be true some time before *i* and must be true after *i*. It would not, however, express identical propositions at different reference points. Furthermore, if the perfect was evaluated for an extended interval it should be possible to add adverbials specifying the interval, i.e. it should be possible to say **He has arrived (for) 5 minutes* or **He has (for) 5 minutes arrived* to mean something like "He arrived 5 minutes ago".

Second, in accordance with (1.4) I shall stipulate that the base sentence (A) must be interpreted as an event.[7]

Third, I shall drop the non-final condition. Recall that Heny motivated this condition by the supposed need to distinguish between *Harry has loved Mary* and *Harry loves Mary*. This example is rather unfortunate since *love* typically forms state sentences, which require special interpretations in the existential perfect. The question to be asked is (a) whether we can, as claimed by Vendler (1967) in the wake of Ryle and Aristotle, use the perfect as soon as we can use the simple form of an achievement sentence, and (b) whether we can use the perfect of an accomplishment sentence at the final moment of the accomplishment. An affirmative answer to this question may represent an idealized situation because real-life utterances take longer than a moment. Furthermore the speaker embarking on the utterance would have to be in a position to confidently predict the achievement or the completion of the accomplishment. To envisage such a situation, think of a sports commentator timing his utterance of (43) or a speaker timing his utterance of (44) so that it encompasses the event or the last moment of the event reported:

(43) Mary has touched the finishing line.
(44) I have written the letter.

It seems to me that it both cases true statements would have been made.

The revised truth conditions for the existential perfect will therefore be as in (45), where the superscript E stands for 'existential':

(45) Have^{E} (A) is true in M relative to (w, i) iff i is the final moment of an interval j and for some subinterval k of j A is true in M relative to (w, k), where A is interpreted as an event.

There remain three further, interrelated issues. First, how do we

account for the well-known restrictions on temporal adverbials with the present perfect. Some representative examples are given below:

(46)a. I have seen her today.
b. *I have seen her yesterday/on Monday/a few hours ago.
c. I have never seen her at the University on a Monday.
d. I have seen her quite recently/not long ago.

Some rule must stipulate that any adverbial referring to the event time of the base sentence must either be non-specific or, if specific, must encompass the reference point.[8a] The question is whether this rule belongs to the semantics or some other component, the syntax and/or pragmatics. Second, are event sentences in the present perfect and the simple past tense always or sometimes truth-conditionally distinct? Third, how do we handle the neutralization between the simple past tense and the present perfect that is found in the "past perfect" and in non-finite perfect clauses? As is well-known, the past perfect can function either as a perfect or as a past in relation to a past reference point. The neutralization manifests itself in sentences with temporal adverbials but the crucial case involves sentences without such adverbials. Consider

(47)a. She had (already) left by 12.
b. She arrived in good time because she had left at 12 sharp.
c. She had left when Bill arrived.
d. She said that she had lost the key.

(47a) can only have the first interpretation (past tense perfect.) (47b) strongly suggests the second. (47c) is ambiguous between a reading in which the adverbial clause determines reference time for *Have* (*she leave*) or event time for *She leave*. (47d) leaves it open whether the speaker said *I lost the key* or *I have lost the key*, or, for that matter, spoke in a language lacking the English distinction.

The first and third questions are clearly interconnected. If the constraint against (46b) is semantic, the past perfect will have to be given two distinct analyses and (47d) will come out as ambiguous. If, furthermore, we accept Partee's (1973) claim that a past tense sentence always implies a specific time for which the corresponding untensed sentence is evaluated, a kind of zero adverbial, then there would be no overlap at all between the past tense and the present perfect. This claim is answered, convincingly in my opinion, in Heny (1982). Heny also argues for a pragmatic explanation for the constraint against (46b), mainly on the ground of the facts illustrated in (47). (He does not consider the possibility that the past perfect may be ambiguous.) I am less sure on this

point. If Heny is correct, then the only situations where past tense and present perfect event sentences could differ in their truth conditions would be of the kind that I suggested for (43) and (44), i.e. where the base sentence in the present perfect only becomes true at the moment of utterance. A past tense sentence would be false in this situation.

2.2

I shall for the moment treat the universal perfect syncategorematically with a durational adverbial, which, as it were, binds a variable inherent in the XN interval. Though in this case the embedded sentence is true for the whole of the XN interval, the arguments given in the previous section for evaluating the perfect at the end of this interval apply here too. Consider

(48) He wants to have been resident here for three years *(by January 1st).

(49) He is sure to have been resident here for three years (by January 1st).

Without the bracketed adverbial to establish the reference point, (48) is incoherent; (49) can take its reference point from utterance time; but if so it can only have the interpretation in which the period of residence precedes utterance time.

The truth conditions will therefore be as in (50), where the superscript U stands for 'universal' (cf. note 1):

(50) *For* 20 *minutes* (*Have*^{U} (A)) is true in M relative to (w, i) iff i is the final moment of an interval j such that j is of 20 minutes' duration and A is true in M relative to (w, j), where A is interpreted as a state.

By way of comparison the truth conditions for (1) with narrow-scope durational as in (3) are given in (42), where A stands for *John be in Boston*:

(51) *Have*^{E} (*For* 20 *minutes* (A)) is true in M relative to (w, i) iff i is the final moment of the interval j and there is a subinterval k of j such that k is of twenty minutes' duration and A is true in M relative to (w, k).

Notice that in (51) the Aktionsart of A is not specified; it can be a state or activity (process); but the combination *for* 20 *minutes* (A) represents an event as required by *Have*^{E}. Note furthermore that (50) entails (51).

And since k need not be a proper subinterval of j the two bracketings can express almost identical propositions, as pointed out in Section 2.3, the only difference being that (50) entails that A is true at i. ((51) does not of course preclude this situation.) Furthermore, even if k is a proper subinterval of i (51) can be nearly equivalent to (50) provided k is the (almost) final subinterval of j. The total length of j, including $j-k$, would however play a part in the evaluation of the sentence. To visualize such a situation, imagine that workers in my office are supposed to start work at 8.00, John came in at 9.00 and leaves at 12.00: if I say when he leaves

(52) Today you have been in the office for 3 hours

the interval j in relation to which the sentence is evaluated would consist of four hours.

Like other authors I have treated the universal perfect as always in the scope of a durational adverbial. In principle there is nothing wrong with this procedure. The interpretation of a simple present tense as futurate (e.g. *We leave at 7.00*) usually depends in analogous fashion on the presence of a temporal adverbial. But does the universal perfect in fact have to be bound in this fashion? I am not sure of the answer to this question. Normally, if a state has obtained for some time and still obtains at utterance time there is no motivation for using the perfect, and Gricean principles would dictate the use of the simple present. In response to *I haven't seen John lately* we would say, if we knew him to be ill at utterance time, *He is ill*. Similarly with Heny's *Harry has loved Mary*. But I think that the sentence

(53) It's been very hot (hasn't it).

is often used in a context where it is still hot. A similar example will be given in Section 5.2. I can see no way of deciding the question whether the truth of the base sentence at i is ever an entailment of a perfect sentence without durational. Note that, if it were, sentences like (53) would actually come out as ambiguous between an existential and a universal reading, with the base sentence interpreted as an event and state respectively. The truth conditions of the universal reading would be a reduced version of (50):

(54) *Have*^{U} (A) is true in M relative to (w, i) iff i is the final moment of an interval j such that A is true in M relative to (w, j), where A is interpreted as a state.

2.3

In view of the ambiguity of temporal *since* phrases there will clearly have to be two separate analyses, for which I shall again use superscripts.[8b] In order to represent the fact that *since*^{U} is inclusive, *since*^{E} exclusive I shall choose for my primary illustration the phrase *since Tuesday*, whose NP denotes an extended interval.

The truth conditions for *since*^{U} are as follows:

(55) *Since*^{U} *Tuesday* $\frown$ (*Have*^{U} (A)) is true in M relative to (w, i) iff i is the final moment of an interval j and there is an interval k such that k is a final subinterval of Tuesday and the initial proper subinterval of j and A is true in M relative to (w, j), where A is interpreted as a state.

(55) in effect says that at least part of Tuesday must be included in j. The stipulation that k must be the initial proper subinterval of j is meant to take care of the fact that we could hardly say *John has been here since Tuesday* on the Tuesday in question. (Or is this a pragmatic matter?) For *since*^{U} *noon*, noon would simply be the initial moment of j.

There is one type of sentence in which *since*^{U} occurs without the perfect:

(56) It is 2 years since he died.

The truth conditions are straightforward:

(57) Sentence (56) is true in M relative to (w, i) iff i is the final moment of an interval j such that j is of two years' duration and k is its initial moment and *he die* is true in M relative to (w, k).

The truth conditions for *since*^{E} are given in (58):

(58) *Since*^{E} *Tuesday* $\frown$ (*Have*^{E} (A)) is true in M relative to (w, i) iff i is the final moment of an interval j and Tuesday is the initial lower boundary interval of j, and for some subinterval k of j A is true in M relative to (w, k).

The term "lower boundary interval of j" is to be construed, following Dowty (1979, p. 140), as the extended interval immediately preceding j. For *since*^{E} *noon*, noon is the lower bound of j.

3. Negative sentences in the perfect with *for* and *since* adverbials

It is well-known that simple past tense sentences like

(59) John did not sleep for 12 hours

can have two readings, depending on whether the durational is inside or outside the scope of the negative (Cf. Mittwoch, 1977). (59) can mean either that there was no twelve-hour interval (or no union of intervals amounting to twelve hours) in the time of evaluation in which John slept – he might have slept for only eleven hours, for example – or that there was a twelve-hour interval (or, again, a union of intervals amounting to twelve hours) in which John was awake. These two readings can be represented as follows:

(60) ~(for 12 hours (John sleep)).
(61) for 12 hours (~(John sleep)).

(I have ignored tense, assuming that it will always be the highest operator). Since perfect *have* can be inside our outside the scope of the durational, the combination of negative, perfect and durational should theoretically yield six representations for the sentence

(62) John has not slept for 12 hours.

These representations are given in (63) to (68) and their paraphrases for present tense sentences in (63′) to (68′). In order to shorten the discussion I shall only give paraphrases for the situation in which the twelve hours form a continuous interval.

(63) ~(have (for 12 hours (John sleep))).
(64) ~(for 12 hours (have (John sleep))).
(65) for 12 hours (~(have (John sleep))).
(66) for 12 hours (have (~(John sleep))).
(67) have (~(for 12 hours (John sleep))).
(68) have (for 12 hours (~(John sleep))).
(63′) There has been no twelve-hour interval in the time of evaluation (the XN interval, which may span all his life but could be a shorter interval, for example one bounded by the interval denoted by *since he was eight years old*) for all of which John slept.
(64′) In the last twelve hours John has slept less than 12 hours (the limiting case being if he has not slept at all).
(65′) *It is true for 12 hours that John has not slept.

(66′) John has been awake for the last twelve hours.

(67′) There has been at least one occasion in the time of evaluation when John has slept less than twelve hours.

(68′) There has been at least one occasion in the time of evaluation when John has been awake for twelve hours.

(65), in which the durational has scope over the negative operator, is not a possible reading of (62). Since the reference point for the perfect is a moment, (65) leads to a contradiction. This is obvious for the present tense where reference time equals utterance time. For the past tense (65) would involve a sliding reference point and thus an infinite number of propositions.

Readings (67) and (68) are at best marginal and would require heavy stress on both *have* and *not*. The marginality of (67) follows from a general characteristic of the existential perfect. The bracketing *Have* (~(A)) is highly marked and requires exceptional phonological signals. Thus

(69) John has not asked for a second helping

could not normally be used to mean that there has been (at least) one occasion when John did not ask for a second helping. The reason is that a sentence in the scope of an existential perfect denotes an event, and negative sentences can not easily be interpreted as denoting events. The failure of an expected event to occur is only by special dispensation an event in its own right.

That leaves (63), (64) and (66) as normal readings of (62) – (63), I think, only if the negative comes out as *never* or if the XN interval is explicitly bounded as indicated in the paraphrase. Notice that according to Heny's analysis, in which the durational is always within the scope of *have*, (66) would come out as a special case of (68), and (64) would come out as a special case of either (67) or (68) i.e., the most salient readings would be special cases of the marginal ones, in which the XN interval is of unspecified length. This is counterintuitive and thus provides further evidence in favour of the analysis adopted in Section 1.

Consider now

(70) John has not slept since Tuesday.

As *since* is ambiguous between a universal and an existential sense, (70) should have four possible readings. (I am assuming that the negative can not intervene between *since* and *have*, as explained for (65) above; otherwise there would be six.) The readings and their paraphrases are

given below:

(71) ~(Since^{U} Tuesday (have (John sleep)))
(72) ~(Since^{E} Tuesday (have (John sleep)))
(73) Since^{U} Tuesday (have (~(John sleep)))
(74) Since^{E} Tuesday (have (~(John sleep)))
(71′) It is not the case that for all the interval since Tuesday John has slept.
(72′) John has been awake since Tuesday.
(73′) John has been awake since Tuesday.
(74′) There has been at least one interval since Tuesday when John has been awake.

Since $\sim\exists x(Fx) \equiv \forall x(\sim Fx)$, (72) and (73) appear to be logically equivalent, as the paraphrases indicate. But in view of the fact that *since*^{U} is inclusive, *since*^{E} exclusive (bounds an open interval), the equivalence is not complete. If John was asleep until the midnight between Tuesday and Wednesday and awake thereafter, (72) would be true (as would (71)), but (73) would come out as false by our truth conditions for *since*^{U}. It may be doubted however whether this is of any but theoretical interest.

4. The perfect after superlatives, cardinal numbers and *only*

Consider the use of the perfect in the subordinate clauses of the following sentences:

(75) This is the first/only proper meal I have had for a week.
(76) This is the first/only proper meal I have had since Tuesday.
(77) This is the most beautiful city I have ever/yet been to.
(78) This is the liveliest party I have been to for a long time/since John's.

What licenses the perfect in the relative clauses is the implicit comparison with earlier occasions on which meals have or have not been eaten, cities visited etc. The sentences entail negative propositions; hence also the non-assertive forms *ever* or *yet* in (77). An informal analysis of (75) is given in (79):

(79) Sentence (75) is true in M relative to (w, i) iff i is the final moment of an interval j and j is of one week's duration and

a. *I have a proper meal* is true in M relative to (w, i)
b. for every subinterval k of $j \sim$ (*I have a proper meal other than the one mentioned in Clause* (a)) is true in M relative to (w, k).

Since the negative entailment in Clause (b) is true for the whole of j the perfect must be universal; the only possible bracketing is one corresponding to (66) above, i.e.,

(80) For a week (Have (~(I have a proper meal)))

How then do we account for the use of *be to*, which usually signals the existential perfect, in (77) and (78), and for the occurrence of an event expression in the base sentences of (75) and (76)? The answer is that in a configuration like (80) the 'eventness' of A is cancelled; ~(A) evaluated over an interval is equivalent to a state (Cf. Mittwoch, 1977). Thus also *I haven't been to Paris for* 10 *years*.

If the perfect in these sentences is universal, then *since* in (76) must also be universal. But recall that *Since*^{U} *Tuesday* (*Have* (~(A))) is equivalent to ~(*Since*^{E} *Tuesday* (*Have* (A))). Could (76) perhaps be given either analysis? I shall invoke a piece of indirect evidence to show that only the universal analysis gives the correct results. In Note 5 I pointed out that in the 'prospective' mirror image of the perfect the two senses of *since* are distinguished; *before* corresponds to the existential sense, *until* to the universal. Consider now

(81) This is the last meal you will get until/before Tuesday.

Most speakers I have consulted reject *before*.

There are also sentences like (75) to (78) without a relative clause, so that *since* alone marks the XN interval:

(82)a. This is my first cup of coffee since breakfast.
b. He will be the youngest/the first Catholic president since John Kennedy.

I leave it to the reader to work out the truth conditions.

Finally I wish to draw attention to a related construction which, unlike the examples discussed so far, is dialectally restricted. Consider

(83)a. This is the first time that I have seen you wearing a skirt.
b. This is the second time that I have driven John's car (since he had the new engine put in).[9]

In some dialects (83) can be appropriately be uttered while the speaker sees the hearer wearing a skirt or while the speaker is driving John's

car. Other dialects use non-perfect forms, the simple present in (83a) and the present progressive in (83b) – at any rate in the version without the *since* clause. In the non-perfect form the focus is on the positive first entailment (*I see you now wearing a skirt, I am driving John's car now*) rather than on the negative one (*I haven't seen you wearing a skirt before, I have not driven John's car more than once before . . .*).[10]

5. The progressive and durational adverbials

5.1

Although much has been written on the progressive, there has been no serious discussion, to the best of my knowledge, of the progressive in relation to durational adverbials. It seems to have escaped the attention of the scholars who have dealt with this form of the verb that there is a problem here at all. The problem, I claim, is that notwithstanding examples scattered throughout much of the literature, the progressive in its primary sense (the 'imperfective' one) is incompatible in simple past tense sentences with durationals like *for 2 hours* that give an exact measurement of time.[11] Thus (84) is anomalous:

(84) It was raining for 2 hours

and (85) is acceptable only as a so-called futurate progressive:

(85) John was working for 2 hours.

Thus interpreted, (85) in fact has two readings, which may be paraphrased as in (86) and (87):

(86) John planned/was scheduled to work for 2 hours at some time in the future.

(87) For 2 hours there was a plan (John's or somebody else's) that John should work (but that the plan was changed).

In (86), the more natural of the two readings, the durational has narrow scope, i.e. over *John work*; in (87) it has scope over the progressive operator.[12]

My main concern however is to explain the anomaly of (85) on its non-futurate reading and of (84) which cannot have a futurate reading.

5.2

There have been broadly speaking two approaches to the progressive. One of these treats the verb in the progressive form holistically and points to a range of overlapping meanings or nuances carried by this form. This approach is represented by traditional grammarians and, among the moderns, by Leech (1969, p. 150), who states explicitly that the difference between the simple form and the progressive is not to be viewed in logical terms but rather in terms of physchological comprehension. By contrast, the truth-conditional approach, represented by Dowty (1977, 1979), Taylor (1977), Bennett (1981) and Vlach (1981), treats the progressive as an operator applied to a sentence (or, as in Bach (1980), a predicate) containing the base form of the verb. I believe that the truth-conditional approach is helpful to bring out the difference between minimal pairs like (88) and (89), due to Leech (1971, p. 17)

(88) When I came in she made some fresh coffee
(89) When I came in she was making some fresh coffee

but that none of the formulae so far proposed by proponents of this approach do justice to the complexities of the progressive.

I shall confine myself to the truth conditions given by Dowty (1979, p. 146) for what he calls the imperfective progressive. These run as follows:[13]

(90) PROG (A) is true in M at (i, w) iff there is an interval j such that $i \subset j$ and i is not a final subinterval for j, and there is a world w' for which A is true at (j, w') and w is exactly like w' at all times preceding and including i.

Dowty (p. 151) illustrates this by the diagram below, where the branching to the right represents alternative possible futures.

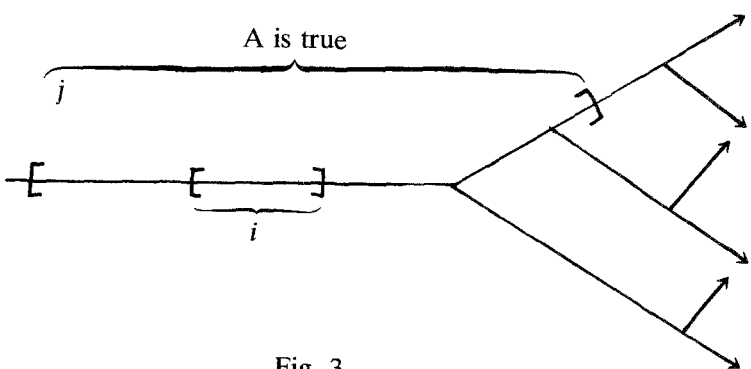

Fig. 3.

What this formula shows is that the most typical use of the progressive, the one illustrated in (89), picks out a subinterval of a larger interval in which the process denoted by the sentence in its scope is potentially true, i.e., that the progressive is usually partitive. Let us for the moment assume that (90) is correct and consider what would happen if a sentence in the progressive contained a durational. Theoretically there are again two possibilities here. The progressive could have scope only over the inner sentence A. But since the whole sentence is evaluated for the interval *i*, such a situation could only arise if the length of *j* was already predetermined at *i*. This is shown by the fact that

(91) It was raining for 2 hours when I arrived.

cannot mean that I arrived in the middle of a two-hour downpour. (91) exhibits the same sort of bizarreness as

(92) The level of the lake was rising 10 feet when I arrived

which cannot mean that the lake was rising when I arrived and it rose by ten feet. Similarly

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

cannot mean that John was in the midst of one out of what later turned out to be three cups of tea.[14] What these examples indicate is that certain sentences can only occur in the perfective mode, specifically sentences containing activity verbs with measure phrase objects or with durational phrases (which are also measure phrases) or with ordinary objects quantified by a numeral greater than one. Such sentences can only denote completed event (accomplishment) situations. They are problematic for Dowty's solution to the 'imperfective paradox' which makes the truth of the progressive dependent on the truth of the perfective sentence in some possible world. They provide support for theories which regard base sentences like *John build a house* as having, in addition to its event reading, at least the potential for an activity reading – the activity leading up to the end point – and which regard the progressive as picking out a subinterval of this activity reading.[15,16] Base sentences like *It rain for* 2 *hours*, *The level of the lake rise* 10 *feet*, *John drink* 3 *cups of tea* differ from *John build a house* in having no corresponding activity reading. The problem is of course how to characterize the activity situation that are associated with typical event situations. (See the references in Note 15.) In what follows I shall side-step this issue and simply stipulate that the sentence A embedded under the progressive

operator must be true on its activity reading. I shall accordingly drop the reference to "some possible world".

Returning to the problem posed by (85), if the length of *j* was known at *i* we can get an acceptable sentence. For example, if the speaker of (85) were referring to some moment when John was already in the middle of a two-hour work-stint he could say

(94) John was working for 2 hours when Bill unexpectedly came to relieve him, so that in fact he only put in an hour and half.

A more straightforward example would be

(95) I am staying 4 weeks

when uttered by someone in the middle of the four weeks. But in these situations we are, I think, faced with a special case of the 'futurate' progressive. That is to say, regardless of whether *i* is included in *j*, as in the contextualization of (85) given as (94), or whether it precedes *j*, as in the paraphrase of (85) given above as (86), a durational that has A in its scope and is itself within the scope of PROG can only occur in the so-called futurate sense, which would therefore be more appropriately termed the predictive or predeterminate sense.

The other possibility, the one that people usually have in mind when they give examples like (85) (cf. the references in Note 11), would be that the durational has scope over PROG. In that case, for (85) the interval *i* would consist of two hours and these two hours would be part of a larger interval *j*, in which *I work* holds in *w'*. It could hold before the beginning of the two hours and according to Dowty, must hold beyond the end in some possible world, though not necessary the actual one. Hence (85) would carry a strong implication that John in fact worked for more than two hours. For (84) the implication that it rained for more than two hours would come close to certainty since it is hard to imagine a situation in which *force majeure* or (in the present state of technology) human intervention puts a stop to rain. But in such situations, (84) and (85) would be uninformative, if not positively misleading; they would single out precise subintervals from intervals of indeterminate length for no conceivable reason. It is hard to imagine that any language should countenance a sentence with the truth conditions in (90) (or an emended version of (90) that does not mention possible worlds) within the scope of a durational.[17]

5.3

I have explained why the imperfective progressive according to Dowty's definition is incompatible with durationals. However, there are uses of the progressive (other than 'futurate' ones) for which this definition is problematic. And since these uses are also incompatible with durationals (with some exceptions which will be dealt with below) my explanation does not tell the whole story. In the light of these uses of the progressive I shall suggest a further revision of (90).

5.3.1. As a preliminary to the discussion, let me point out that in what I shall call nuclear uses of the progressive, e.g. (89) above, the internal picked out by the progressive is always anchored contextually. This is the framing effect of the progressive pointed out by Jespersen (1931, p. 180): the sentence within the scope of the progressive acts as a temporal frame for the sentence in the subordinate clause. It may be noted in passing that this provides an additional explanation for the ban against durationals with the progressive in nuclear uses; the length of the interval *i* is not determined independently but by the context. Consider

(96) I am working.

(97)a. At that time
b. At 5 o'clock } I was working.
c. When you came in

(98) The telephone rang at midnight. I was still working.[18]

In all these examples *i* is contextually determined as a moment. In (96) it is the moment of utterance, in (97) a moment determined by either the previous context, or the clock, or a specific event. In (98) it is a moment determined by the event related in the previous sentence.[19]

The analysis of Bennett and Partee (1972), which formed the basis for that of Dowty, had in fact stipulated that the interval of application of the progressive must be a moment. Dowty motivates his departure from this requirement by the existence of sentences like

(99) John was wearing sunglasses when I had lunch with him.

But notice that (99) does not differ truth-conditionally from

(100) John wore sunglasses when I had lunch with him.

(99) does not imply that John would in the normal course of things have gone on wearing the sunglasses after the lunch; it is not partitive. Nor does (100) imply that John did not wear the sunglasses after the lunch. Semantically, (99) and (100) are in free variation. Even if we replace the

adverbial clause by one denoting a moment of time, as in

(101) John was wearing/wore sunglasses when he stepped off the bus

both forms of the verb are possible with no truth-conditional difference in meaning (in my speech the progressive would be preferable).[20] This is because *wear* is semantically stative.

5.3.2. In order to establish whether there are cases where the interval picked out by PROG in Dowty's formula can or must ever be an extended one we have to look at a wider range of examples with temporal frame adverbials. Consider first the activity sentences

(102)a. {Last year / When I was in Boston} John was teaching at Harvard.
(103)a. {Last year / When I was in Boston} John taught at Harvard.

(102) and (103) are essentially no different from (99) and (100). The progressive in (102) again seems to pick out an extended interval but this interval need not be a proper subinterval of the interval in which *John teach at Harvard* is true. Neither (102) nor (103) carry any implication as to whether John's teaching at Harvard did or did not extend beyond the interval denoted by the temporal frame adverbial. They can both be followed by either of the following sequels:

(104)a. . . . and for all I know he may still be teaching/teach there.
b. . . . but this year he can't find any work.[21]

Consider now (105) and (106), which represent accomplishment sentences:

(105)a. {Last year / When I was in Boston} John was writing a book.
(106)a. {Last year / When I was in Boston} John wrote a book.

The non-progressive in (106) is clearly perfective; the progressive in (106) is imperfective but not necessarily partitive. The sentences in (105) are compatible with a situation in which the writing of the book involved a longer interval than those denoted by the adverbials as well as with a situation in which it took less time or exactly the same time. They can be followed by both the sequels in (107), whereas those in (106) can be followed only by (107b):

(107)a. It's nearly finished./It's a pity that he did not live to finish it.
b. He finished it in November/a month before I left.

The motivation for the choice of the progressive even where the speaker knows that the writing of the book was completed is that he/she is interested in the process rather than the end-result, e.g. if he/she wants to explain why John was too busy to do other things.

The evidence I have presented shows that whenever the progressive denotes an extended interval it is not unequivocally partitive. The only way to make the non-partitive uses fit Dowty's analysis is to postulate that the speaker is viewing the situation from some interval, or for that matter moment, located within the larger interval in which the process of John's teaching or writing a book goes on. This could be some particular moment, e.g. this time last year, or an occasion when the speaker was in touch with John; or it could be a series of moments, e.g. every time that the question of John's doing something else arose – he was writing a book and therefore he was too busy to see me or come to committee meetings; he was teaching at Harvard and it was therefore easy for Mary to talk to him whenever she wanted to, etc. Notice that according to this proposal the progressive would still be anchored in the sentences under discussion. Schematically this proposal could be represented as follows:

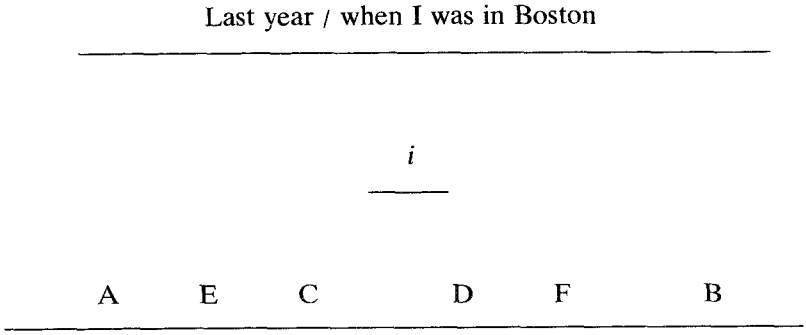

Fig. 4.

where *i* indicates the interval for which PROG is evaluated and *j*, the interval for which the base sentence is evaluated, could be any of the intervals AD, AB, CD, CB, EF, etc. However, in the absence of any solid evidence to confirm this proposal it seems to me an artificial way of saving (90).[22]

Could we account for (102) and (105) by saying that whenever the progressive picks out an extended interval it is truth-conditionally equivalent to the base sentence interpreted as a homogeneous situation? This would take care of the "imperfective paradox" for the accom-

plishment sentences, but it would fail to account for the constraint against durational adverbials. The constraint applies to extended-interval progressives too, even if they are not intended as partitive. (108), though not as bad as (91), is still ill-formed.

(108) Last year/when I was in Boston I was living in Mary's house for three months.[23]

The alternative is to capture the meaning of extended-interval progressives by means of a formula that does not require the subinterval *i* picked out by the progressive to be a proper subinterval of *j*:

(109) PROG (A) is true in *M* relative to (w, i) iff *i* is a subinterval of an interval *j* and A is true in relative to (w, j), where A is interpreted as an activity or state (i.e. homogeneous situation).

This definition accounts for the constraint against durationals because it allows for the possibility that *i* is a proper subinterval of *j*. It is rather like viewing a line on a piece of paper through a window cut out on a second piece of paper superimposed on the first. It should be stressed that the window does not correspond to the frame adverbial. The line extends right through the window, so that you cannot tell whether there is more of it covered by the top piece of paper at either end. In these circumstances it would be futile to try to measure the line since you would only be measuring the window. This comparison, incidentally, helps to explain why the base sentence of the progressive must correspond to a homogeneous situation. For in such circumstances you would usually be unable to tell whether what you see is part of a simple line or of an arrow.[24]

Note that if we were to put (109) within the scope of a temporal adverbial denoting a moment, *i* would have to come out as a proper subinterval of *j*, i.e. the progressive would have to be partitive. This is because sentences embedded under the progressive must denote extended situations, unlike sentences with true achievement verbs like *notice*, which do not occur in the progressive. (109) could therefore do duty for nuclear uses of the progressive, which are necessarily partitive, as well.[25] However, it omits one clause from Dowty's formula, namely the requirement that *i* must not be a final subinterval of *j*. Since *i* in (109) can be equal to *j* it is hardly possible to incorporate this requirement. For to stipulate that *i* must be either a non-final subinterval of *j* or equal to *j* would give us a disjunctive definition rather than one in which $(i = j)$ can be regarded as a limiting case of $(i \subseteq j)$.[26]

It is of course open to us to retain both definitions with the proviso that they are applicable to different uses of the progressive. In that case the

truth conditions for the nuclear progressive could be strengthened, as in (109′):

(109′) $PROG^N$ (A) is true in M relative to (w, i) iff i is a moment and i is a proper and non-final subinterval of an interval j such that A is true in M relative to (w, j) where A is interpreted as an activity or state.

In the interests of parsimony, however, I propose that we drop the requirement that i must be non-final in nuclear uses of the progressive and leave it to pragmatics to explain why the progressive is not appropriate for the final or, for that matter, the initial moment of application of the embedded sentence.

5.4

There is one kind of durational that occurs freely with non-partitive uses of the progressive, namely phrases beginning with *all*, as in

(110) He was working all morning.

This usage is historically related to the familiar use of the progressive with *always*, *for ever*, etc., as in

(111) He is always losing things

and is older than the partitive progressive.[27] We also find the progressive with vague and usually hyperbolic durationals like those in

(112) You were talking on the phone for hours
(113) They were working on that project for ages

and even with exact durationals that focus on the length of the time taken, as in

(114) He was coughing for half an hour.
(115) Last year we were wearing winter coats till May.
(116) When I say that I had a busy morning I mean that I was working for 5 hours.

((116) was suggested to me by Robert Ilson.) It is not surprising that the normal logic of the progressive should be relaxed in such cases especially since some of them represent a survival from an earlier stage of the language. Note that corresponding sentences which focus on the shortness of the time taken are much less acceptable:

(117) I was talking on the phone for a few minutes.

(118) He was coughing for only one minute.
(119) Last year we were wearing winter coats only till February.
(120) When I say that I had a slack morning I meant that I was (actually) working for only 2 hours.

(The last example, with *actually*, does not sound as bad to me as the others. Could it be that the progressive here marks yet another distinction – actually working as opposed to being in one's place of work?)

5.5

In contrast to the ban against the occurrence of durationals with the progressive in the past tense, durationals occur freely with the perfect (including the past perfect) progressive, as in

(121) I have been working for 2 hours.

Sentences like (121) will be discussed in Section 6.2.

5.6

I shall conclude this section with a remark on the stativeness of the progressive. Vlach (1981) points to a number of analogies between the progressive and statives:

(1) The parallel in the interpretation of *Max was here when I arrived* and *Max was running when I arrived*; in both sentences the situation described by the main clause (*Max be here*, *Max run*) is understood to have obtained before my arrival. (2) The use of *be*. (3) The historical connection between the progressive and locative constructions. (4) The synchronic equivalence of *Tweetie is flying* and *Tweetie is in flight*. (5) The fact that the progressive cannot take another progressive in its scope. To these may be added: (6) The occurrence of the progressive in the scope of *already* (Cf. Section 7) and (7) its occurrence within the scope of *seem*, as in *John seemed to be running*. (*John seemed to run* is only good on a habitual reading of the embedded sentence, and habituals are stative.) According to Vlach, the function of the progressive is to make stative sentences. But ordinary statives, unlike the progressive, occur with durationals *Max was here for 2 hours*; *Tweetie was in flight*/**flying for 2 hours*.

If we compare a stative sentence to an ordinary photograph and an activity sentence like *John run* (semelfactive) to a moving picture, we might say that the nuclear progressive, in capturing a moment of a

changing situation, is like a still from a moving picture. The photograph represents a static situation that can be extended in time; a changing situation must be extended; the still freezes a moment out of a changing situation (Cf. Dowty 1979, p. 168). And though *Max is running* can be true at successive moments, each of these moments would correspond to a different still. Ordinary statives can be evaluated both at a moment and for a extended interval.[28] There is a sub-group of statives which can only be evaluated at a moment, e.g., *it is 6 o'clock, John was on the point of leaving, the sun was at the zenith, it is exactly an hour since she left.* The nuclear progressive could be included in this sub-group. But the truth conditions I gave in (109), which include nuclear and non-nuclear uses, would make the progressive a sub-group of statives that is sui generis.

6. The perfect progressive

6.0

In Section 6.1 I shall deal with sentences in which the perfect progressive (henceforth PP) occurs without durational adverbials, in Section 6.2 with sentences including such adverbials.

6.1

In Section 1.4 I pointed out that if a sentence in the perfect is to be interpreted as an activity, the progressive is mandatory. In (29), repeated below for convenience, *John run* must be interpreted as an event; it is interpreted as an activity in (32), also repeated below:

(29) John has run.
(32) John has been running.[29]

Recall that it was on the basis of the non-standard interpretation of (29) that I incorporated into the truth conditions of the existential perfect the condition that the base sentence must be interpreted as an event. Further support for this condition comes from the fact that a sentence in the non-progressive perfect can not have a habitual (iterative) reading. Compare the following examples:

(122) Do you clean your teeth?
(123) Are you cleaning your teeth?
(124) Have you cleaned your teeth?
(125) Have you been cleaning your teeth?

In the non-perfect examples, the non-progressive is habitual, the progressive semelfactive; in the perfect examples, the non-progressive is semelfactive, while the progressive can be habitual or semelfactive. The reason why (124) must be semelfactive is that a habitual can not denote an event.

Since the truth conditions for the existential perfect, given in (45), require the base sentence to denote an event and the progressive operator itself forms a kind of state sentence, the straightforward application of (45) to (109) would lead to a contradiction. Nor could we save the situation by somehow overlooking the stativeness of the progressive and going straight to the base sentence – a fairly desperate move anyway. For the base sentence under PROG must, according to (109), denote an activity. Clearly the effect of the progressive element in the PP is to override the condition requiring the base sentence in the existential perfect to denote an event. A suggestion along these lines is already to be found in Hatcher (1951).

Suppose now that we modify the truth conditions for the perfect by dropping the event requirement on (A) and apply them to those for PROG. The formula will read as follows:

(126) *Have* (PROG (A)) is true in M relative to (w, i) iff i is the final moment of an interval j and there is a subinterval k of j such that PROG (A) is true at k, i.e. iff k is a subinterval of an interval l and A is true in M at (w, l) where A is interpreted as an activity.

Schematically this formula would correspond to any of the following diagrams:

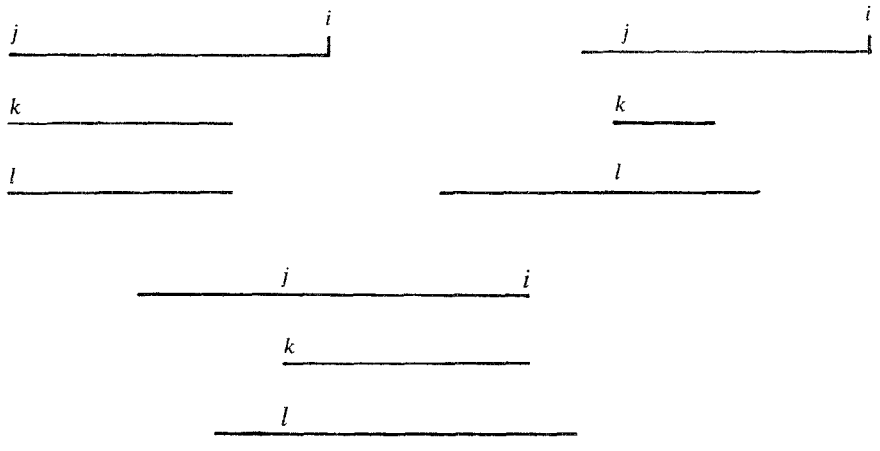

Fig. 5.

It should be obvious from Figure 5 that (126) is gratuitously complex. The introduction of the interval l does not really do any work for us, since the PP is never partitive. It just does not make any sense to say that the activity denoted by the base sentence may have begun before the interval determined by PROG or even before the XN interval.[30] True, it may continue beyond i, the reference point. This would be a possible implication of the second sentence in (127):

(127)a. I haven't seen you at the pool lately.
b. I have been working very hard.

But it is probably not an entailment of that sentence, and if it were (127) could be handled as a universal perfect (Cf. the discussion of Example (53)). I therefore propose simplifying (126) by introducing the operators syncategoremetically:

(128) *Have* (PROG (A)) is true in M relative to (w, i) iff i is the final moment of an interval j and there is a subinterval k of j such that A is true in M relative to (w, k), where A is interpreted as an activity.

The contribution of PROG is thus confined to imposing the activity reading of the base sentence.

It has often been claimed that the PP for accomplishment sentences is imperfective in the strong sense that it actually entails that the end-point has not been reached. Thus Leech (1971) states that

(129) Who has been eating my porridge?

implies that some of the porridge is left. If this were an entailment (128) would be inadequate; it is compatible with a situation in which the end-point of the process, the completion of the accomplishment, falls within k. However, the response in (130) is not contradictory:

(130)a. What has the little bear being doing?
b. He has been eating your porridge; it's all gone.

A similar example, from Hatcher (1951):

(131) I have been writing a difficult letter; thank goodness it's finished.

Like the simple progressive the PP is imperfective only in the weak sense of not entailing completion.

The main conclusion of this section may be an unwelcome one inasmuch as it is incompatible with a strictly compositional analysis of the

PP. In what follows I shall point out several other quirks of the PP which could not be predicted from its component parts and which are therefore at least suggestive of the same conclusion.

(a) Unlike the existential perfect and the simple progressive, the PP is incompatible with *already*. Consider the following as a sequel to *Bill is still asleep but . . .*

(132) John has already written a long letter this morning.
(133) John is already writing a letter.
(134) *John has already been writing a letter.

This constraint will be discussed in Section 7.

(b) As noticed by Jespersen and others, the PP is appropriate only for recent activities. Compare the following pairs of sentences, both uttered today, the second addressed to a person who has just returned from a twenty-five years' stay on a desert island:

(135)a. Freud has taught us that memory can play strange tricks.
b. Freud has been teaching us about the unconscious.
(136)a. Kennedy has been shot.
b. Kennedy has been quarrelling with Congress.

The reason for the inappropriacy of the (b) sentences will be explained in Section 7.

(c) The PP is strange in accomplishment sentences with verbs like *die* and *win*, which occur in the simple progressive:

(137) ?John has been dying/winning.

This may be partly due to the fact that the PP is never partitive, a point to which I shall return below. But I think that this is not the only reason since (138) is considerably better, even if we take the progressive to determined an extended interval:

(138) Last week John was dying but this week he is as fit as a fiddle.

(d) As pointed out in Section 1.4, the PP is incompatible with *since*^{E}; in (33), repeated below, *since* can not be existential:

(33) John has been running since 7.00.

The PP is never experiential.

I have postponed to this point one little-noticed distributional restriction on the interpretation of the base sentence which applies to the simple progressive as well as the PP but shows up more prominently in

the latter. Compare

(139)a. John was writing a letter at 6 p.m.
b. John was writing a book at 6 p.m.
c. John has been writing a letter.
d. John has been writing a book.

(139b) and (139d) are both strange, and for the same reason. The exact time specification in (129b) seems to convey the implication that John was actually sitting in front of the type-writer (or pen in hand) at the moment. Writing a book is a protracted and highly complex activity consisting of a hierarchy of innumerable sub-activities, and certainly not completable at one sitting. The gap between the totality and the finest sub-activity actually going on at any specific moment is apparently too great to be bridged by the progressive; it is as though they were no longer grasped as standing in the "part-of" relation to the whole. An analogy might be helpful: we talk of a grain of sand but hardly of a grain of the Sahara. Instead of (139b) and (139d) we would choose a form of expression containing a pure activity verb and a quasi-partitive preposition denoting the relationship between the activity and the end result:

(140)a. John was working on his book at 6 p.m.
b. John has been working on his book.

Note that we can say

(141) John was writing a book when I met him

but here the vaguer temporal adverbial does not lead to the implication that John was actually sitting at his desk at the time in question. To incorporate these subtleties into the semantics (or pragmatics for that matter) we would have to go into the internal structure of the activities denoted by progressive sentences and the implications of different temporal adverbials. I don't know whether it would be worth the effort.

6.2

I now turn to the PP with durationals. We have seen that in

(33) John has been running since 7.

since must be universal. The truth conditions for (33) will be in all essentials those given in Section 2.2 for *since*^{U}, the only difference being that A will be an activity sentence.

Consider now (34) repeated for convenience and (142), which is designed to show that the starting point of the activity does not have to be recent:

(34) John has been running for 2 hours.
(142) The earth has been turning on its axis for millions of years.

These examples are similar to (33) in that the durational, on a semelfactive reading, covers the whole of the XN interval, with the possible exception of an insignificant subinterval immediately preceding the reference point. This possibility would be exemplified if, while sitting in the college refectory, I explained why I am hoarse by saying *I have been teaching for 2 hours*. That the final subinterval must be insignificant rather than merely brief is shown by the fact that (143) is ill-formed:

(143) I have been staying with friends for 3 months and travelling for a week.

In (143) the week's interval, though brief in comparison with the three months, is made substantial by being specified.

The question arises whether the possibility of this subinterval prevents us from assigning (34) the bracketing in (144) and forces us to bracket it as in (145):

(144) *For 2 hours* (*Have* (PROG (*John run*)))
(145) *Have* (*For 2 hours* (PROG (*John run*)))[31]

The fact that the PP is not fully compositional anyway may at first blush appear to give support to (145), explaining why PROG can be in the scope of a durational. However, the interposition of this adverb between *Have* and PROG would in fact undermine the parallelism between (34) and the sentences discussed in Section 6.1. The sentence dominated by *Have* in (145), i.e. *For 2 hours* (PROG (*John run*)) is an event sentence, and this would make the whole formula an example of the existential perfect. It would predict, wrongly, that (145) is well-formed:

(146) John has been running for 2 hours since 7.00.

Further evidence against (145) derives for negation. In Section 3 I showed that (62), repeated below, has five possible readings:

(62) John has not slept for 12 hours.

Consider now

(147) John has not been working for 2 months.

(147) cannot have the readings corresponding to (63) and (67) in Section 3, which were shown to be marginal anyhow, or to (68), which requires contextual elaboration, i.e., it can not have the readings represented by

(148) ~*Have* (*For* 2 *months* (PROG (*John work*))))
(149) *Have* (~(*For* 2 *months* (PROG (*John work*))))
(150) *Have* (*For* 2 *months* (~(PROG (*John work*))))

Note that in these readings *Have* has scope over the durational. The elimination of (148) to (150) leaves us with two readings:

(151) ~(*For* 2 *months* (*Have* (PROG (*John work*))))
(152) (*For* 2 *months* (*Have* (~(PROG (*John work*))))[32]

However, on reading (152), which may be paraphrased as "He has been out of work/idle for two months", (147) is unidiomatic. (See Jespersen 1931, p. 194.) This may provide further support for treating the PP syncategorematically; the two components are fused together so tightly that not even a negative can separate them.

The truth conditions for the universal PP (in a somewhat pedantic formulation) will be as follows:

(153) *For* 2 *hours* (*Have* (PROG (A))) is true in M relative to (w, i) iff i is the final moment of an interval j and A, an activity, is true in M relative to either (w, j) where j is of two hours' duration, *or* $(w, j-k)$ where k is an insignificant final subinterval of j and $j-k$ is of two hours' duration.

In Section 5 we saw that the occurrence of the progressive in the scope of a durational produces anomaly. The sentences discussed in the present section escape the constraint involved because PROG is not in the immediate scope of the durational.

7. ALREADY

In Section 1.3 I mentioned that the universal perfect does not cooccur with *already*, as shown by the deviance of (14) repeated below:

(14) For the last three months he has already lived in Jerusalem.

On the basis of this I argued that a sentence containing *have* followed by *already*, e.g., (13), must be an instance of the universal perfect. In Section 6.2 I argued that

(34) John has been running for 2 hours

in an instance of the universal perfect, and, as predicted, (154) is deviant:

(154) John has already been running for 2 hours.

However, in Section 5.1 I pointed out that the PP even without a durational is incompatible with *already*, as shown by the deviance of (134), repeated below:

(134) John has already been writing a letter.

The ill-formedness of (154) could therefore simply derive from its being in the PP.

Before trying to sort out these restrictions I shall look at the distribution of *already* in simple (non-perfect, non-progressive) sentences. In the dialect I am describing the pattern is as follows:

(155) John was already in the office when I arrived.
(156) *John was already in the office for 2 hours yesterday.
(157) *John already wrote the letter/found the treasure some time ago.
(158) The baby already crawled at the age of six months.

The common factor uniting the acceptable sentences is that they denote states. (158) differs from (157) in the fact that it denotes habitual action, or perhaps better a disposition. (156) is ill-formed because the durational applied to a stative sentence creates an event sentence. *Already* is also found in the simple progressive, as in (133) repeated below:

(133) John is already writing a letter.

This falls into the pattern on the assumption that the progressive is a kind of stative Cf. Section 5.6. How then can we explain the peculiar fact that *already* goes with the existential perfect, indeed has a close affinity with this form, as has often been pointed out (cf. Traugott and Waterhouse, 1969), but not with the universal perfect or the unmodified PP?

The answer, I suggest, is to be found in Kenny's (1963) remark: "Performances" – what I have called events – "are brought to an end by states". The existential perfect has at least as part of its meaning the existence of the state resulting from a completed event. (Cf. Comrie, 1976, p. 52; Lyons, 1977, p. 714). Like other adherents of McCoard's XN theory of the perfect, I have not incorporated this meaning element into the truth conditions, but this is not to deny that it plays a part in the total interpretation of the perfect. From *John has (already) written the letter* we can usually infer the statal passive sentence *The letter is (already) written*. ("Usually" because the form in which the

inference is couched would not be appropriate if the letter has been destroyed.) From *John has been writing the letter* we can not infer this though we may know it to be true. (Note also that just as an activity sentence like *John write letters* is not found in the existential perfect – except in the experiential use with heavy stress on *has* – so the corresponding statal passive sentence *Letters are written* is quite strange.)[33,34]

This is not to say that we do not use the PP in order to point to states resulting from the activity denoted by the base sentence, states by virtue of which the activity has "current relevance". *I have been running* might be used to explain why I am out of breath; and *I have been working in the garden* could be appropriate in a context in which I am tired or sunburnt or dirty. The difference is that these states are not a logically necessary consequence of the activities in question. And since contingent results can be expected to fade fairly quickly the reason why the PP is appropriate only for recent activities becomes evident. *Already* with the existential perfect focuses on there obtaining at the reference point the state that is the logical outcome of the basic event sentence. Its semantic contribution to the whole sentence is an implicature that the state obtains relatively early (compared with somebody's expectation or a norm).

The deviance of (14) has a slightly different explanation. The universal perfect denotes a state obtaining over an XN-interval viewed retrospectively from its final moment. But the state is not viewed as the outcome of an event, and since at its reference point it has obtained for some time (the interval denoted by the durational) an adverb that focuses on its relative earliness at the point is inappropriate. This explanation carries over to (154) as well, except that I am doubtful whether the PP in any way inherits the stativeness of the normal progressive. If not, the absence of stativeness would be an additional (and sufficient) reason for the constraint against *already* in (157).

In my examples *already* has been in medial position. Universal perfect sentences with *already* in final position are considerably better:

(159) John has been working for 10 hours already.

But *already* in (159) does not implicate the relative earliness of the state (or activity) at its reference point. It has narrow focus, i.e. over the durational, and in this use it implicates that a relatively high point on a rising scale has been reached at the reference point.[35] The difference between (159) and

(160) John has already worked for 10 hours

depends on the wider context. If John has to put in ten hours of work

(which need not even be continuous), then (160) is appropriate, the implication being that his obligation is fulfilled. (159) would be appropriate (for some speakers) to indicate that the job is not finished and either that John will continue working or that it would be unreasonable to expect him to continue.

8. *PROG (*HAVE*....

What is wrong with the sentence

(161) *I am nearly having written/read this paper.

There have been two attempts to answer this question by analogy. McCawley (1971) argues that the perfect is stative and stative verbs can not appear in the progressive. (161) would thus run afoul of the same constraint that blocks **I am knowing French*. Before discussing this claim I shall take up the second analogy. According to Emonds (1976) progressive *be* is a verb of temporal aspect and the complements of such verbs may never begin with the perfect auxiliary *have*, as shown by the ill-formedness of

(162) *I started/stopped having written this paper.

An analogy is not yet an explanation. The reason for the constraint is, I suggest, a very simple one. A sentence in the scope of PROG is evaluated for an extended interval, and this regardless of whether the progressive operator itself is evaluated for a moment or for an extended interval. The perfect, on the other hand, is evaluated for a moment. Hence the combination PROG (*Have*.... leads to a contradiction. A sentence in the scope of the verbs cited by Edmonds is likewise evaluated for an extended interval:

(163) John began/stopped kicking Bill.

(163) can never be true if John gave Bill only one kick. (I exclude a slow-motion view of the situation.)

This example brings me to more complicated cases not covered by my explanation. (163) is well-formed on an iterative interpretation of the complement sentence. Gazdar et al. (1982) counter Emonds's analogy with the following data (their (60)):

(164)a. *Judy is having left.
b. ??Judy began having left.
c. Judy began having already left for lunch by the time Max arrived for work each day.

In (164c) the perfect is interpreted iteratively; it therefore has a variable reference point. The bracketing is

(165) Begin (each day (by the time Max arrive for work (have (Judy leave for lunch)))).

Speakers prepared to countenance (164c) are likely to still baulk at the corresponding sentence in the progressive:

(166) Judy was having already left for lunch by the time Max arrived for work each day.

I think that there are two reasons for the difference in acceptability. First, the complements of *begin* etc. are more naturally interpreted as iterative even in the absence of frequency adverbials than those of the progressive. Although for punctual verbs like *kick* such an interpretation is natural in a progressive sentence (*John is kicking Bill*), it is not natural for ordinary process verbs. *John started playing the piano* is far more likely to be interpreted iteratively than *John is playing the piano*. Second, *begin*, unlike progressive *be*, has its own stress. Now a sentence like (164c) is hard to process since the adverbial *each day*, which forces the iterative reading, comes right at the end. The stress on *begin* enables us to make a slight pause, which facilitates processing. I speculate that this mechanism may be at work even if we see the sentence in print. The absence of stress on progressive *be* is of course due to its being an auxiliary verb, and this is a syntactic characteristic. Although a semantic explanation for the non-occurrence of VPs in which progressive precedes perfect is sufficient for semelfactive sentences, Gazdar et al. may be right in claiming that the constraint needs to be stated in the syntax as well.

I now turn to the purported stativeness of the perfect. In Section 7 I mentioned the fact that part of the meaning carried by a perfect sentence is the existence of the state resulting from the event denoted by the base sentence. However if we assume (a) that there is a clear-cut distinction between semantics and pragmatics, (b) that the "present relevance" of the perfect belongs to the pragmatics, and (c) that stativeness is a semantic property, then McCawley's analogy will not stand up. Could we perhaps vindicate it on an entirely different ground? Could we argue that the perfect is stative because it is evaluated at a moment? For the only verbs forming sentences that can or must be evaluated at a moment are stative and achievement verbs. Since the perfect operator clearly does not form an achievement sentence it would thus have to form a state sentence. I think that this line of reasoning could not go through either. For the evaluation time of the perfect serves mainly as reference time for

a (usually) preceding event. In this respect it is very much like utterance time and it would be artificial to assign it any meaning of its own. Unlike the progressive, the perfect is not a true Aktionsart-creating operator. The fact that in its cooccurrence with *already* it behaves like a stative is probably connected with the purely pragmatic function of this adverb.

It is instructive in this connection to compare (161) with a superficially similar sentence that is well-formed in ancient Greek:

(167) etolma legein hos egō to pragm' eimi touto dedrakōs.
he-dared to-say that I the deed am this having-done

He dared to say that I was the one who had done this deed.

Here *eimi* is simply a copula, *dedrakōs* an ordinary (perfect) participle; and, unlike English, ancient Greek permits all participles to be used as predicative adjectives.[36] The existence of the periphrastic perfect alongside the more usual finite form provides ancient Greek with a subtle distinction not found in English. According to Goodwin (1889, p. 14), which is my source for the example, "each part of the compound generally retains its own signification, so that this form expresses more fully the continuance of the *result* of the action of the perfect to the *present* time..." (emphases in the original). Another way of putting this would be to say that this construction is truly stative.

NOTES

* I am indebted to Ruth Berman, Idit Doron, Hilary Glasman-Cohen, Robert Ilson, Robert Lees, Avishai Margalit, Yig'al Quart, Joseph Taglicht, Chava Vinner, Alan Timberlake for discussion and advice. I have also benefited from the comments of four anonymous reviewers.

[1] (6) can not be quite right as it stands. The subintervals of *i'* include singletons (moments) and process sentences in the non-progressive can not normally be true at moments. (Cf. Dowty 1979, pp. 167 ff., Taylor, 1977). Hence (6) for process verbs would have to read "... and for every extended subinterval *j* of *i'*...". Another problem is presented by *John lived in Chicago on and off for 30 years* (Cf. McCawley, 1981). To get the right truth conditions we would have to replace the simple verb by the progressive. I am also uneasy at the fact that, since durational adverbials are a kind of measure phrase, we might be led by analogy to say that *a ten-inch piece of string* means something like "a ten-inch interval such that for every subinterval of it there is string". I shall ignore these problems in the present paper. The definitions I shall give in Section 2 will not, in fact, make reference to the subintervals of *i'* because they stipulate that the sentence within the scope of the *for*-adverbial is a state. An anomymous reviewer has pointed out to me that any definition of state should be such that, if a state is true with respect to an interval, it is true with respect to all the moments (or subintervals) in that interval. The same would, I think, be basically true for the only other kind of Aktionsart that goes with *for*-adverbials, namely activities. Hence (4) is probably redundant anyway.

[2a] Heny's conclusion, though more formally grounded, is essentially the same as that of a

number of other scholars who have argued for a unified analysis of the perfect. See Bauer, 1971; Inoue, 1978; McCoard, 1978.

[2b] An anonymous reviewer challenges the argument from preposing on the ground that it could also be used in support of giving the durational wide scope over the tense operator. He points out that "this possibility is discarded on theory-internal grounds within the Richards-Heny framework: a tense-operator is a theoretical entity which can never be in the scope of an adverbial. Obviously, if the argument from preposing doesn't have any effect on the tense operator, it is not clear why it should have any bearing on the scope of aspectual operators..." I believe that the analogy between the tense and perfect operators does not go through. Tense is connected with utterance time (or some secondary reference point in certain subordinate clauses) and relates the time of the situation denoted by the sentence to that time. A durational adverbial denotes the length of a certain interval. There is no extended interval in the offing which could possibly be bound by a durational with scope over tense. (In Section 5 I shall argue that durationals can take scope over the progressive operator in its futurate use.)

[2c] An anonymous reviewer has queried my claim that the more salient reading of (1) is the reading in which the 20-minute period extends up to the moment of utterance. He refers to Heny's judgement that

(i) Sam has been in Boston for (the last) twenty minutes but is just on his way home now.

is not contradictory on any reading. I disagree with this judgement. He also cites

(ii) I haven't seen you for ages

commenting that the time denoted by the *for*-adverbial "certainly does not include the moment of speech on the most salient reading" of (ii). This example is complicated by the negative, but, anticipating Section 3, I shall assume that the analysis is indeed *For ages* (*Have* (~(A))). But note that (ii) is hyperbolic in any case, and I am inclined to think that on the reading in question (and in a face-to-face conversation) the use of the perfect produces a statement that is literally false quite apart from the hyperbole. How about the following example said by someone in the middle of a hearty dinner?

(iii) I haven't eaten anything for twelve hours.

Surely (iii) would be literally false in these circumstances.

[3] The truth conditions that Heny gives in his (86), which is identical to Richards' (149), demand that the embedded sentence be true for the whole of the interval since 7.00; but this must be an oversight.

For some speakers the dependence of temporal *since* on the perfect does not hold (cf. Note 8b). Even in standard dialects we find some sentences in which *since* adverbials occur without the perfect (cf. examples (56), and (82) below).

Dowty (1979, p. 348) claims that the second reading of sentences like (9) "vanishes when the adverbial is preposed (for most, though not quite all speakers....)". This judgement seems to me an almost classic example of the fallibility of speakers' intuitions. For, to be consistent, such speakers would also have to reject the impeccable sentence *Since January he has been in Boston twice*.

[4] Compare the two readings of *any* in *I don't want any present*: "any present at all" versus "just any old present". Ladusaw (1980), Taglicht (1983) and others have argued that this is not just a scope ambiguity but that *any* itself is ambiguous between an existential and a universal reading.

[5] For the end-point of an interval the two senses of *since* are distinguished by separate lexical items, *until* for the universal sense, *by* or *before* for the existential:

He was/will be in Boston until Tuesday.
he was/will be in Boston by/before Tuesday.

(*By* differs from existential *since* in being 'inclusive'.) I owe this point to Ruth Berman (cf. also Leech 1969, pp. 132 ff).

[6] In McCawley, 1971 this use alone is called 'existential', the term being used in a narrower sense than in his 1981 paper, where all uses other than the universal are subsumed under it and given a unified analysis.

[7] Bennett (1981) tried to capture this fact by requiring that the interval for which the base sentence is true (k in our formulation below) must be closed. For a critique and a formal treatment of the semantics of Aktionsart see ter Meulen (1983).

[8a] I differ from Heny (1982) in stating the restriction as applying to a specific rather than a definite time. The reason is that (i) is infelicitous if the speaker has a particular day in mind:

(i) I have seen her on a wet Monday in January.

Heny claims that

(ii) John has arrived on Tuesday

has an acceptable reading if uttered on Tuesday (presumably the Tuesday in question) and that its bracketing would be

(iii) On Tuesday (Have (John arrive))

As regards the acceptability of (ii) in this situation I have no quarrel; its oddness is not different from that of *Anita Mittwoch is tired* when uttered by me. But I think that the bracketing in (iii) would not work in my analysis. According to Heny the perfect is evaluated for the whole of the XN interval, so that the adverb would relate to that part of this interval preceding the moment of utterance in a present tense sentence. But if, as I have argued, the perfect is evaluated for the final moment of this interval, (iii) does not entail that John's arrival occurred on the Tuesday in question. I shall illustrate the problem with the pair of tensed sentences

(iv) John has done his homework today
(v) Today John has done his homework.

I think that (v) can be uttered truthfully in a situation where the homework was done prior to the day of utterance, to explain why John is well-prepared or feels confident. (Cf. *This time John has done his homework.*) In this situation the adverb would have wide scope. In the normal reading of (iv), which is like Heny's example, the bracketing is

(vi) Have (today (John do his homework))

[8b] An anonymous reviewer queries my treatment of *since* adverbials on the basis of

(i) Since meeting Harry I eat a banana every day for breakfast
(ii) John is eating less meat since his operation.

These examples are not grammatical in my dialect (cf. note 3). As far as I can see the truth conditions for both of them would be equivalent to those I have given for universal *since* and *have*.

[9] I am grateful to Hilary Glasman-Cohen for drawing my attention to these sentences.

[10] I have found a similar vacillation with respect to the Hebrew translation equivalents of (75) and (76) in the version with *first* (except that the vacillation is not dialectal). Informants say that present and past tense are equally possible. For the versions of these sentences with *only* and for (77) and (78) only the past tense is possible. (I think the facts are similar in German). One might wonder why a language that translates the English universal perfect into its present tense should suddenly use the past tense in this construction. The reason lies in the negation of the base sentence. The Hebrew equivalent of sentences with the bracketing Durational Adverbial (*Have* (~(A))) usually have the past tense.

[11] See, for example, Leech (1969, p. 150), Palmer (1974, p. 55), David Bennett (1975, p.

103), Dowty (1979, p. 157), Michael Bennett (1981) and Vlach (1981). The Leech example is particularly interesting; it slides almost imperceptibly from *I was playing the piano from ten to eleven o'clock* to *I was playing the piano between ten and eleven o'clock. From 10 to 11* is particularly interesting; it slides almost imperceptibly from *I was playing the piano from 11* is a temporal frame adverbial (cf. Section 1.2).

[12] Cf. Dowty's example (attributed to Ellen Prince, Dowty, 1979, p. 157)

(i) Lee was going to Radcliffe until she was accepted by Parsons.

Dowty paraphrases this only with the wide-scope reading of the durational, as

(ii) Lee's going to Radcliffe (at some future date) was the plan until she was accepted by Parsons.

Actually (ii) also has a futurate reading in which the durational has narrow scope. Assuming that it was known in advance that Lee would be accepted by Parsons but not known when this would happen, (ii) could mean

(iii) Lee's going to Radcliffe until such time as she was accepted by Parsons was the plan.

I have omitted Dowty's bracketed *at some future date* for a reason that will become apparent shortly. Dowty's non-futurate reading of (i) will be discussed in Note 23.

[13] I have substituted the symbol A for Dowty's ϕ and changed the position of the first bracket in order to make the formula more comparable with those in Section 1. In the diagram I have added the symbol j in the top line. Dowty refines his truth conditions on p. 149, but since this refinement is not crucial for my purpose I have chosen to give the simpler analysis.

[14] (93) is due to Declerck (1979) who points out that it has the unlikely interpretation that "John was simultaneously drinking three cups of tea". (83) also has the reading "John was going to drink three cups of tea", and this regardless of whether he has started drinking or not. Cf. the text below.

[15] E.g., Bennett (1981), Vlach (1981), ter Meulen (1983). A further piece of evidence for such theories is the fact that event sentences are not as sharply demarcated in all languages as they are in English. In Biblical Hebrew there are sentences like the following (1 Kings 7.1), which splits an accomplishment into process (activity) and end-point:

ve et-beito bana šlomo šloš esrei šana va yexal
and his (own) house built Solomon thirteen year(s) and he finished
et-kol-beito.
all his house.

I have encountered sentences similar to the first conjunct in modern spoken Hebrew. Informants' reactions when presented with such sentences are variable.

The way translators handle the Biblical verses is of interest in connection with my claim that the progressive is incompatible with durationals. The King James version renders it:

> And Solomon was building his own house thirteen years and he finished all his house.

I have consulted six twentieth century versions. One of these repeats the King James version verbatim. None of the other five uses the progressive. Instead, they render it:

> It took Solomon thirteen years to build his place
> Solomon spent thirteen years in building his own house
> Solomon was engaged in the building of his own house for thirteen years
> Solomon was thirteen years building his own house (not a contemporary progressive construction)
> Solomon has been engaged on his building for thirteen years

[16] Abusch (1985) mentions (i), suggested by Dowty, as problematic for such theories:

(i) John was making Bill a millionaire.

The problem is supposed to be that there are innumerable different activities by which the end-result can be reached, and none of these have any necessary connection with it. This strikes me as irrelevant. Even if ten thousand people unbeknown to each other and unintentionally contribute to the end result by buying John's goods in different department stores, we can speak of an 'activity' roughly expressible as *John's bank balance is growing*, which they cause by their actions.

[17] The term "imperfective" for the English progressive is rather treacherous; in languages that have the aspectual distinction usually called perfective/imperfective, e.g. Russian and Ancient Greek, both forms can occur with durationals. (Comrie, 1976, p. 17).

Furthermore, in these languages the imperfective is the normal form for iterative sentences with frequency adverbials like *often, three times a month*. The English progressive is typically semelfactive, and sentences like (i) and (ii) are anomalous out of context:

(i) She was often watching television.
(ii) He was phoning her every day.

In special contexts such sentences are possible:

(iii) When he came in she was often watching television
(iv) At that time he was phoning her every day.

But the progressive is not in the immediate scope of the frequency adverbial in either of these sentences. The bracketings are:

(v) Often (when he came home (PROG (she watch television)))
(vi) At that time (PROG (every day (he phone her)))

Spanish has both the perfective/imperfective and the progressive/non-progressive distinction in the past tense. The progressive does not co-occur with durational or frequency adverbials. (I owe this information to Isaac Ben Abu.) The French imparfait is like the English (and Spanish) progressive in not permitting durational or frequency adverbials.

[18] (14) is an example of so-called free indirect thought (*erlebter Gedanken*). When the progressive appears in subordinate clauses its interval of application is anchored in the main clause:

(i) While I was working, { (a) there was a knock at the door / (b) he read the paper / (c) he was reading the paper }

(ii) As I was walking down the street, I suddenly remembered the letter

In (i)(c) the two progressives seem to be mutually anchored.

[19] McCawley (1981a, p. 346) builds the relationship between the progressive and its 'anchor' into the semantics. He provides truth conditions for a progressive sentence within the scope of a temporal adverbial clause, where the moment of application of the progressive is bound by the iota operator. (i) is assigned the analysis in (ii):

(i) When Tom entered Agnes's office, she was writing a letter.
(ii) $(\iota t\colon \mathrm{R}_t$ (Tom enter Agnes's office $)(\exists I\colon t \in \mathrm{I})\ \mathrm{R}_{\mathrm{I}}$ (Agnes write a letter)

where the operators R_t and R_{I} indicate that the expressions they are combined with are true at the indicated time. Similarly Gabbay and Moravcsik (1980). Kamp and Rohrer (1983) build the relationship into discourse grammar. They present an informal model in which each sentence of a text goes through a level of discourse representation rules which assigns it a structure on that level. In discussing the difference between the French passé simple

and imparfait, which partly corresponds to that between the non-progressive and the progressive past in English, they point out that the imparfait has to be related to a reference point ("anchor" in my terminology) in the same sentence or the context. (Presumably an imparfait or progressive sentence which does not meet this requirement at the point where it occurs in a text could not be assigned a coherent discourse representation.) This seems to me a more promising approach in view of examples like (98) above. The reference point for a progressive may even be located in a following sentence:

(iii) We were all playing cards. Suddenly the lights went out.

Hence the discourse representation rules must be able either to suspend processing of a sentence or to return to a sentence that has already been processed.

[20] To say that two sentences are truth-conditionally equivalent is not, of course, to absolve semantics from further work. It may reflect the limits of truth-conditional semantics or, more likely, the crudeness of the truth conditions so far proposed and their reliance on too narrow a data base. I think that my own preference for the progressive in (99) and (101) reflects a rule that for certain semantically stative verbs like *wear* the progressive marks semelfactive versus habitual state. If this is correct, the distinction is still aspectual but different from that between imperfective and perfective aspect. The most convincing account I have seen of this facet of the progressive is Carlson's (1980) distinction between predicating on stages of individuals and predicating on individuals. For another recent discussion, see Goldsmith and Woisetschlaeger (1982).

[21] A sentence consisting of (102a) and (104b) was suggested by an anonymous reviewer.

[22] It could only be tested by intensive investigation of the occurrence of such sentences in discourse. Even if it has some plausibility for (102) to (106), it seems to me very far-fetched for the following example:

(a) I have just come back from Paris.
(b) What were you doing there?

[23] Some speakers may allow such sentences to slip through in special contexts. According to Dowty (1979, p. 188) (i) can be an answer to (ii):

(i) Rob was working on the research project until he got the job at U. of M.
(ii) What was Rob doing last year?

A careful speaker would however switch to the non-progressive if his answer included a durational. Similarly, Dowty, following Ellen Prince, gives Example (i) of Note 2, repeated here as (iii), the imperfective paraphrase (iv):

(iii) Lee was going to Radcliffe until she was accepted by Parsons.
(iv) Lee's going to Radcliffe was in progress until she was accepted by Parsons.

Note incidentally that since (i) and (iii) have activity predicates in the progressive they are truth-conditionally equivalent to the corresponding forms with the non-progressive, (i) does not entail that Rob would have continued on the research project in a world in which he did not get the job at U. of M. The same holds mutatis mutandis for (iii).

If such sentences are really grammatical for any speakers then one of the distinctions between the progressive and the non-progressive has become eroded in their dialect. In view of the well-attested expansion of the territory of the progressive in English, this would not be altogether surprising. This matter deserves further study.

[24] The example of the line (versus the arrow) shows that the widely accepted assumption that count nouns always refer heterogeneously is untenable. Many count nouns denoting mathematical concepts refer homogeneously.

[25] After writing the above, I came across König (1980), which deals with the "interpretive" use of the progressive, exemplified by

> If I should go to one of the tea-parties in a dressing gown and slippers, I should be insulting society and eating peas with my knife.

König considered accounting for this use by letting $i \subseteq j$ in the truth conditions for PROG but rejected it because he believed (erroneously, in my opinion) that what I have called nuclear uses of the progressive require the stronger condition. He therefore assigned separate truth conditions to the interpretive use. I believe that this is unnecessary.

[26] Similarly, if we were to stipulate that i, if extended, must be open, so as to exclude the final moment of j. This might conceivably explain the ban on durationals, since these denote closed intervals. But since a singleton interval is closed, the definition would again be disjunctive.

[27] It goes back to the Old English *beon* + present participle construction. The modern progressive developed out of a merger between this construction and the *on* (*a*−) + gerund construction. Jespersen (1931, p. 191) notes that the progressive with *all day*, etc. is particularly frequent in Middle English, before the merger had taken place. Thus from Chaucer

Singinge he was or flowtinge, al the day.

[28] Jackendoff (1981) points out that sentences with verbs like *remain*, *stay*, *keep* can not be true at a moment.

[29] Sometimes there is a choice with a subtle difference in implication:

(i) I have just talked/been talking to Bill about it

The non-progressive suggests an element of finality about the conversation that is absent from the progressive version.

[30] A progressive under *have* can be partitive if it is not in the immediate scope of *have*. Consider (i) from Comrie

(i) Have you ever been watching television when the tube has exploded?

The bracketing of the untensed sentence is

(ii) *Have* ($\exists t$ (at t (the tube explode & PROG (you watch television))))

Palmer (1974) cites (iii), which is ambiguous:

(iii) Every time that I have seen them they have been swimming.

On one reading the progressive is partitive and the reference point for the perfect in both clauses is the moment of utterance. This reading is represented by

(iv) *Have* ($\forall t$ (at t I see them $\supset$ at t PROG (they swim)))

On the other reading *have* in the matrix clause is what Palmer calls the perfect of a perfect and has variable reference time (cf. McCawley, 1981); the progressive is not partitive. The analysis is

(v) *Have* ($\forall t$ (at t I see them $\supset$ at t *Have* (PROG (they swim))))

(i) and (iii) on both its readings are experiential perfects.

[31] On an iterative reading of (34) the bracketing is

Have (PROG (*For* 2 *hours* (*John run*)))

Note that on this reading the preposition *for* can be omitted.

[32] I exclude the bracketing: *For* 2 *hours* (*Have* (PROG (~(A)))). As the only contribution of the progressive is to determine the activity reading of the base sentence, this could at best be equivalent to (155), with the reverse order of negation and PROG. It may be mentioned in passing that for a partitive progressive the bracketing PROG (~(A)) does not make sense either, since it would denote part of a "non-process". One can not be in the middle of not running. König (1980) has an example of a modal use of the progressive with this bracketing.

[33] I am not suggesting that unquantified subjects can never occur with statal passives.

Consider

(i) In those days letters were hand-written.
(ii) There was utter chaos. Doors that were supposed to be always open were locked, corridors were obstructed with furniture and telephones were jammed.

I think that the reason why it is hard to contextualize *Letters were written* is that it is hard to imagine the subject noun to refer either generically like that of (i) or to specific entities like those of (ii).

[34] The statal passive is only suggestive; for not all existential perfect sentences have corresponding statal passive sentences. Corresponding to *John has read Middlemarch* we do not get *Middlemarch is read*. It is useful however in cases where the existence of the state might not otherwise be obvious. Thus Declerck (1979) argues against Dowty that the accomplishment sentence *The workers shored up the entire wall in two days* does not denote the coming into being of a positive state as a result of the workers' efforts but rather the prevention of a negative one, the wall's being "not up", and that the state described by *The wall is not (not up)* is merely perpetuated by the event described by the original sentence. But the moment *The workers have shored up the wall* is true *The wall is shored up* is also true.

[35] I assume that the scope of *already* is always the whole sentence, so that it applies at the reference point. For an explication of the distinction between scope and focus as applied to other focussing adverbs see Taglicht, (1983). My understanding of narrow focus *already* has been greatly helped by Lobner (1984).

[36] This difference is neatly illustrated in the following example if we compare the literal gloss with the translation in the line below; the use of the participle *differing* in predicative position is ungrammatical:

ti pot' estin houtos ekeinou diapherōn
how then is this (man) from that (man) differing

How is this man different from that one?

References

Abusch, Dorit: 1985, *On Verbs and Time*, University of Massachusetts doctoral dissertation.

Bach, Emmon: 1980, 'Tenses and Aspects as Functions on Verb-Phrases', in C. Rohrer (ed.), *Time Tense and Quantifiers: Proceedings of the Stuttgart Conference on the Logic of Tense and Quantification*, Niemeyer, Tübingen, pp. 19–38.

Bach, Emmon: 1981, 'On Time, Tense and Aspect: An Essay in English Metaphysics', in P. Cole (ed.), *Radical Pragmatics*, Academic Press, New York, pp. 63–81.

Bauer, Gero: 1970, 'The English 'Perfect' Re-considered', *Journal of Linguistics* **6**, 189–198.

Bennett, David C.: 1975, *Spatial and Temporal Uses of English Prepositions: An Essay in Stratificational Semantics*, Longman, London.

Bennett, Michael: 1981, 'Of Tense and Aspect: One Analysis', in P. J. Tedeschi and A. Zaenen (eds.), *Syntax and Semantics* 14: *Tense and Aspect*, Academic Press, New York, pp. 13–29.

Bennett, Michael and Barbara H. Partee: 1972, 'Toward the Logic of Tense and Aspect in English', Systems Development Corporation, Santa Monica, California.

Carlson, Gregory: 1980, *Reference to Kinds in English*, Garland, New York.

Comrie, Bernard: 1976, *Aspect: An Introduction to the Study of Verbal Aspect and Related Problems*, Cambridge University Press, Cambridge.

Declerck, Renaat: 1979, 'Aspect and the Bounded/Unbounded (Telic/Atelic) Distinction', *Linguistics* **17**, 761–794.

Dowty, David: 1979, *Word Meaning and Montague Grammar*, D. Reidel, Dordrecht.

Emonds, Joseph E.: 1976, *A Transformational Approach to English Syntax: Root, Structure-Preserving and Local Transformations*, Academic Press, New York.

Gabbay, Dov and Julius Moravcsik: 1980, 'Verbs, Events and the Flow of Time', in C. Rohrer (ed.), *Time, Tense and Quantifiers*, Niemeyer, Tübingen, pp. 59–84.

Gazdar, Gerald, Geoffrey K. Pullum, and Ivan A. Sag: 1982, 'Auxiliaries and Related Phenomena in a Restrictive Theory of Grammar', *Language* **58**, 591–638.

Goldsmith, John and Erich Woisetschlaeger: 1982, 'The Logic of the English Progressive', *Linguistic Inquiry* **13**, 79–89.

Goodwin, William W.: 1889, *Syntax of the Moods and Tenses of the Greek Verb*, Macmillan, London.

Hatcher, Anna G.: 1951, 'The Use of the Progressive Form in English', *Language* **27**, 254–280.

Heny, Frank: 1982, 'Tense, Aspect and Time Adverbials, Part II', *Linguistics and Philosophy* **5**, 109–154.

Jackendoff, Ray: 1978, 'Grammar and Evidence for Conceptual Structure', in M. Halle, J. Bresnan and G. A. Miller (eds.), *Linguistic Theory and Psychological Reality*, MIT Press, Cambridge, Mass., pp. 201–228.

Jespersen, Otto: 1931, *A Modern English Grammar on Historical Principles*, Part IV, Allen and Unwin, London.

Inoue, Kyoko: 1978, 'How Many Senses Does the English Perfect Have?', *Papers from the Fourteenth Regional Meeting, Chicago Linguistics Society*, pp. 167–178.

Kamp, Hans and Christian Rohrer: 1983, 'Tense in Texts', in R. Bäuerle, C. Schwarze and A. von Stechow (eds.), *Meaning, Use and Interpretation of Language*, De Gruyter, Berlin, pp. 250–269.

Kenny, Anthony: 1963, *Action, Emotion and Will*, Routledge, London.

König, Ekkehard: 1980, 'On the Context-Dependence of the Progressive in English', in C. Rohrer (ed.), *Time, Tense and Quantifiers*, Niemeyer, Tübingen, pp. 269–292.

Ladusaw, William A.: 1980, *Polarity Sensitivity as Inherent Scope Relations*, Indiana University Linguistics Club, Bloomington, Indiana.

Leech, Geoffrey N.: 1969, *Towards a Semantic Description of English*, Longman, London.

Leech, Geoffrey N.: 1971, *Meaning and the English Verb*, Longman, London.

Lyons, John: 1977, *Semantics*, Cambridge University Press, Cambridge.

McCawley, James D.: 1971, 'Tense and Time Reference in English', in C. J. Fillmore and D. T. Langendoen (eds.), *Studies in Linguistic Semantics*, Holt, Rinehart and Winston, New York, pp. 97–113.

McCawley, James D.: 1981a, *Everything that Linguists Have Always Wanted to Know about Logic but were Ashamed to Ask*, University of Chicago Press, Chicago.

McCawley, James D.: 1981b, 'Notes on the English Present Perfect', *Australian Journal of Linguistics* **1**, 81–90.

McCoard, Robert W.: 1978, *The English Perfect: Tense-Choice and Pragmatic Inferences*, North-Holland Publishing Company, Amsterdam.

Meulen, Alice ter, 1983, 'The Representation of Time in Natural Language', in Alice G. B. ter Meulen (ed.), *Studies in Modeltheoretic Semantics*, Foris, Dordrecht, pp. 177–191.

Mittwoch, Anita: 1977, 'Negative Sentences with *Until*', *Papers from the Thirteenth Regional Meeting, Chicago Linguistics Society*, pp. 410–417.

Mittwoch, Anita: 1982, 'On the Difference between *Eating* and *Eating Something*', *Linguistic Inquiry* **13**, 113–121.

Mourelatos, Alexander, P. D.: 1978, 'Events, Processes, and States', *Linguistics and Philosophy* **2**, 415–434. Reprinted in Philip Tedeschi and Annie Zaenen (eds.), *Syntax and Semantics* **14**: *Tense and Aspect*, Academic Press, New York, pp. 191–212.

Palmer, Frank R.: 1974, *The English Verb*, Longman, London.
Partee, Barbara H.: 1984, 'Compositionality', in F. Landman and F. Veltman (eds.), *Varieties of Formal Semantics*, Foris, Dordrecht.
Prior, Arthur: 1967, *Past, Present and Future*, Oxford University Press, Oxford.
Richards, Barry: 1982, 'Tense, Aspect and Time Adverbials, Part I', *Linguistics and Philosophy* **5**, 59–107.
Taglicht, Joseph: 1983, *Message and Emphasis: On Focus and Scope in English* Longman, London.
Taylor, Barry: 1977, 'Tense and Continuity', *Linguistics and Philosophy* **1**, 199–220.
Traugott, Elizabeth Closs and Waterhouse, John: 1967, ''Already' and 'Yet': A Suppletive Set of Aspect-Markers?', *Journal of Linguistics* **5**, 287–304.
Vendler, Zeno: 1967, *Linguistics in Philosophy*, Cornell University Press, Ithaca, New York.
Vlach, Frank: 1981, 'The Semantics of the Progressive', in P. J. Tedeschi and A. Zaenen (eds.), *Syntax and Semantics* **14**: *Tense and Aspect*, Academic Press, New York, pp. 271–292.

Department of English
Hebrew University
Mount Scopus
Jerusalem
Israel.