

English Time and Place Adverbials\*

Michael L. Geis

Linguists of various theoretical persuasions have assumed that English time and place adverbials function alike in sentences. The traditional grammarian Sweet (1968), for instance, would say that the time and place adverbials of a sentence like (1) modify the main verb, an analysis that has also been given by the case grammarian Fillmore 1968, as well as by a number of more orthodox transformational linguists.

- (1) John will wake up in his own bed this morning.

Lyons 1968 has offered a strikingly different analysis of sentences like (1), but, again, one in which time and place adverbials are said to function alike. According to Lyons, in his own bed and this morning are sentence modifiers, each modifying John will wake up. The generative semanticists G. Lakoff and J. Geis 1970 would agree with Lyons that the time and place adverbials of (1) are sentence modifiers, and in this respect function alike, but would argue that in his own bed modifies John will wake up and that this morning modifies John will wake up in his own bed.

The view that time and place adverbials might function alike in sentences is sharply contradicted by properties of sentences like (2), sentences which predicate locations of concrete objects.

- (2) John was in Boston this morning.

In sentence (2), in Boston does not modify be, for a semantically empty constituent can participate in no semantic relationships. Even less plausible is the view that in Boston is a sentence modifier, for this would amount to claiming that it modifies the ungrammatical and uninterpretable string \*John was. Thus, neither the Sweet-Fillmore nor the Lyons-Lakoff-Geis analysis of the location adverbial in (1) is at all appropriate for the one in (2). Instead we must say, I think, that the function of the place adverbial in (2) is to predicate a location of John.

The time adverbial of (2) also does not modify the semantically empty verb be. On the other hand, the view advanced by Lyons, G. Lakoff, and J. Geis that time adverbials are sentence modifiers is an eminently reasonable analysis of the function of the time adverbial of (2). More precisely what I think we want to say is that this morning and the past tense work together to temporally locate the state of affairs 'John be in a strange bed'. I shall justify this claim below. What I would like to draw your attention

to now is that the time and place adverbials of (2) do not function at all alike. The place adverbial of (2) serves to locate John in space, but, as the unacceptability of (3) suggests, time adverbials cannot locate concrete objects in time.

(3) \*John was this morning.

We simply cannot predicate times of people though we can predicate locations of them.

In our brief discussion of (2), we have seen that time and place adverbials do not function alike in such sentences. We have further seen that location adverbials are neither verb modifiers nor sentence modifiers in sentences like (2). Thus, if we are to provide a univocal treatment of the place adverbials of data like (1) and (2), an eminently reasonable goal I would think, then we must either show that the place adverbial of (1) serves to predicate a location of John or we must reject the view that it serves this function in (2).

In this paper, I shall try to demonstrate the plausibility of the view that the function of place adverbials in English sentences is uniformly to locate concrete objects in space, and, thus, that all occurrences of place adverbials are traceable back to semantic sub-structures like that which underlies (2), i.e. to semantic sub-structures which predicate locations of concrete objects. Let us call this hypothesis A. I shall also argue that the function of time adverbials and the auxiliary system is to locate states of affairs and actions and the like in time. Let us call this hypothesis B.

In order to demonstrate the viability of A and B, it will be necessary to examine three classes of sentences, illustrated by (1), (2), and (4).

- (4) a. John was miserable in New York last year.  
 b. In his garden last night, John ate a poisonous mushroom.

In what follows, I shall examine examples like (2) in greater detail and show that they are consistent with A and B. I shall then argue, following the lead of J. Geis 1970, that (4a) and (4b) are derived from the structures underlying (5a) and (5b), respectively, by a series of rules that delete during the time (obligatorily for some speakers and optionally for others), he was, and while.

- (5) a. ?John was miserable during the time while he was in New York last year.  
 b. ?During the time while he was in his garden last night, John ate a poisonous mushroom.

The final section of this paper will be concerned with data like (1). I shall argue that J. Geis' analysis of data like (4) cannot be extended to cases like (1), but that a similar analysis should be given. I shall argue that (1) is derived from a semantic structure

something like that which underlies (6).

- (6) At the time when John wakes up this morning, he will be in his own bed.

Data (5) and (6) are somewhat unnatural--more natural paraphrases could have been constructed--but their surface structures bring out a crucial feature of the theory of time and place adverbials being advocated here. Observe that the sentences of (5) and (6) each consist of two propositions. One of these propositions is a dated state of affairs or action. The other--the underlined one--consists of a dated spatial prediction. Thus, data (1), (2), and (4) would appear to be consistent with A and B insofar as their semantic structures are concerned.

I. Let us turn now to consider data like (2) in some detail. I suggested above that the function of the place adverbial of this sentence is to predicate a location of John. That this is so is demonstrated among other things by the fact that in Boston restricts the class of subjects it can occur with. The data of (7) illustrate this fact.

- (7) a. \*Christmas was in Boston.  
b. \*My best idea was in Boston.  
c. \*The fact that John left was in Boston.

The place preposition in also constrains the class of objects it can occur with, of course, and, as (8) and (9) illustrate, in defines a specific relationship between its subject and object, namely the thing its subject refers to must be smaller than the thing that its object refers to.

- (8) a. The pin is in the chest of drawers.  
b. ?The chest of drawers is in the pin.
- (9) a. Columbus is in Ohio.  
b. \*Ohio is in Columbus.

In light of the above we must conclude that the place preposition in is a relational predicate. Let us therefore represent place prepositions as two place predicates in subsequent semantic representations of sentences of the sort we are considering. Similar arguments could, of course, be given for the other place prepositions in English.

As we have seen, sentences like (2) are consistent with hypothesis A. Let us turn now to investigate the appropriateness of hypothesis B to such sentences. Since B applies to a much broader class of sentences than that illustrated by (2), we shall concern ourselves with a broader range of examples.

In my statement of B, time adverbials and the auxiliary system are said to serve together to date states of affairs and actions.

That there is a close connection between time adverbials and the auxiliary *has*, of course, been noted by numerous linguists. Therefore, let me just briefly review some of the facts that support such a point of view.

As is well known, the distribution of time adverbs like now and then and of time adverbs like yesterday, today, and tomorrow is a function in part of the character of the auxiliary--of the tense marker and modals in particular. Moreover, as (10) and (11) show, Adverb Preposing cannot move a time adverbial through an auxiliary that conflicts with it in temporal reference.

- (10) a. I expect to have time to work on causatives tomorrow.  
 b. Tomorrow, I expect to have time to work on causatives.
- (11) a. I expected to have time to work on causatives tomorrow.  
 b. \*Tomorrow, I expected to have time to work on causatives.

Since (10a) and (11a) differ only in regard to the tense associated with the highest verb, it is necessary to appeal to this difference in tense in order to account for the fact that (10b) is acceptable and (11b) is not.

A third fact which supports the view that tense and modals are closely related to time adverbials was discussed in my thesis, where I argued that in order to account for the phenomenon of tense harmony illustrated by (12) one must assume (a) that time adverbials have temporal reference; (b) that the temporal reference of any time adverbial that occurs in a clause is consistent with the temporal reference of the auxiliary of that clause; and (c) that the identity condition associated with relativization must be sensitive to the temporal reference of time adverbials.

- (12) a. I will leave at the time when you leave.  
 b. \*I will leave at the time when you left.

The data which are most crucial to an evaluation of the correctness of this account of the tense harmony phenomenon are (13) and (14).

- (13) I will leave at the time when you said you might leave.  
 (14) You said you might leave tomorrow.

In (13), when can be interpreted as modifying might leave but not said. But, as (14) shows, nonpast time adverbs can occur with might leave when might leave is in the complement of the past tense verb said, and, thus, if we assume that the constituent underlying when in (13) is somehow marked as nonpast in reference before it is moved to clause-initial position, we can account for the acceptability of (13) in a straightforward way. Thus, the phenomenon of tense

harmony clearly supports the view that time adverbials are closely connected with tense and modals.

Let us now turn to the question of the function of the time adverbials. In my view a convincing case for the claim that time adverbials are sentence modifiers, as opposed to verb modifiers, has been made by G. Lakoff and J. Geis, among others. Let me here simply present one line of argument in support of this analysis.

As we have already noted the statement of the distribution of adverbs like now and then and of adverbs like yesterday, today and tomorrow requires reference to tenses and modals and not just to main verbs. As (15) and (16) show, the presence or absence of other elements of the auxiliary is also relevant to the statement of the distribution of some time adverbials.

- (15) a. \*I studied physics at noon.  
b. I was studying physics at noon.
- (16) a. \*I studied for four hours by noon.  
b. I had studied for four hours by noon.

Moreover, as (17) and (18) show, properties of subjects and objects are also relevant to a statement of the distribution of time adverbials.

- (17) a. \*The plane arrived all night.  
b. The planes arrived all night.
- (18) a. \*John had solved physics problems by midnight.  
b. John had solved ten physics problems by midnight.

It is only reasonable to assume that all of the elements that govern the distribution of time adverbials are within their scope, and, thus, that time adverbials are sentence modifiers.

In order to account for the very close connection between the auxiliary system and time adverbials and for the fact that time adverbials are sentence modifiers, I shall assume that time prepositions are sentential operators mapping states of affairs and actions and the like into dated states of affairs and actions. Given such a representation, we might represent a sentence like (19) either as in (20) or in (21) where T represents the time preposition and L the place preposition.

- (19) John was at home at noon.  
(20) PAST (T (L (John, home), noon))  
(21) (Et) (T (L (John, home), t) & PAST (t) & IS (t, noon)).

According to (20), the past tense is a sentential operator; according to (21), it is a temporal predicate. The past tense could, of course, be treated as a two place predicate as in (22).

- (22) (Et) (T (L (John, home), t) & Earlier (t, now) IS (t, noon)).

This is not the place to go into the question of the relative virtues of (19), (20), and (21) in much detail. My preference is for (21) or (22), for they make an explicit connection between tenses and time adverbials while (20) does not. An analysis like (22) would, for example, allow us to account for the fact that a sentence like (23) is semantically deviant in a straightforward way.

(23) \*John studied now.

According to the suggested analysis, (23) would have to be derived from the ill-formed semantic structure (24).

(24) (Et) (T (John studied, t) & Earlier (t, now) & IS (t, now)).

I would like, now, to turn to data like (4). During the 1969 Summer Meeting of the LSA, I argued that while-clauses are restrictive relative clauses whose antecedents have been deleted--obligatorily, for most people. Thus, according to this analysis, which was also presented in M. Geis (1970), (25) and (26) are derived from (27) and (28) respectively, by deleting during the time.

(25) John was miserable while he was in New York last year.

(26) While he was in his garden last night, John ate a poisonous mushroom.

(27) ?John was miserable during the time while he was in New York last year.

(28) ?During the time while he was in his garden last night, John ate a poisonous mushroom.

In what follows, I shall assume the correctness of this analysis.

J. Geis has shown that while-clauses are subject to further reduction. Deletion of he was from (25) and (28) gives rise to (29) and (30), respectively, and deletion of while from (29) and (30) gives rise to (31) and (32), respectively.

(29) John was miserable while in New York last year.

(30) While in his garden last night, John ate a poisonous mushroom.

(31) John was miserable in New York last year.

(32) In his garden last night, John ate a poisonous mushroom.

It should be clear that sentences (27) and (28) are consistent with hypothesis A. Thus, if we could show that (31) and (32) are derived from (27) and (28), respectively, then we could conclude that the place adverbials of (31) and (32) like those of sentences like (2) also serve to predicate locations of concrete objects.

The suggested analysis of (31) and (32) does have the virtue of being semantically correct, for (26), (27), (29), and (31) are semantically equivalent and (26), (28), (30), and (32) are semantically equivalent. Moreover, each step in the derivations of

(31) and (32) results from the application of a quite natural deletion rule. However, there are other reasons for adopting this analysis.

As (33) and (34) show, some occurrences of location adverbials can have then or at the time as their apparent pronominal reflexes.

- (33) John was miserable in New York and his wife was miserable then too.  
 (34) In his garden, John ate a poisonous mushroom; at the time, he also ate a dead bug.

In (33), then means 'while he was in New York', in (35), at the time means 'while he was in his garden'. And, as (35) and (36) show, if the location adverbials of such sentences are accompanied by a time adverbial, both are pronominalized as a unit.

- (35) John was miserable in New York last year and his wife was miserable then too.  
 (36) In his garden last night, John ate a poisonous mushroom; at the time, he also ate a dead bug.

The hypothesis that the locative adverbials of (33) and (34) are residues of while-clauses can account for the fact that they are pronominalized as if they were time adverbials. And, if we say that in New York last year in (35) and in his garden last night in (36) are residues of while-clauses; we can account for the fact that they too have then or at the time as their pronominal reflex, and for the fact that these phrases function as a constituent. The fact that in his garden last night is a constituent in (36) is further confirmed by the fact that this phrase preposes as a unit. In New York last year can also be preposed in (35), as (37) shows.

- (37) In New York last year, John was miserable.

The hypothesis that place adverbials are derived from semantic substructures that predicate locations of concrete objects amounts to saying, of course, that there is a semantic relationship between the subjects of the sentences we are considering and the location adverbials that occur in them. Data (38) and (39) provide direct evidence of the existence of this relationship.

- (38) a. John annoyed me.  
       b. John annoyed me in the park.  
 (39) a. That John left annoyed me.  
       b. \*That John left annoyed me in the park.

As (36a) and (39a) show, annoy can take concrete noun phrases or that-clauses in subject position. The while-clause analysis of the locatives of these data can account for these data as a comparison of (38b) with (40) and (39b) with (41) will reveal.

- (40) John annoyed me while he was in the park.  
 (41) \*That John left annoyed me while it was in the park.

The unacceptability of (41) is clearly due to the fact that that John left cannot be the subject of in the park. Thus, if we adopt a while-clause analysis of the locatives of (38b) and (39b), we can account for the unacceptability of (43b).

This analysis is further confirmed by data like (42) and (43).

- (42) a. John was in love with Mary in London.  
       b. ?John loved Mary in London.  
 (43) a. John was in love with Mary while in London.  
       b. ?John loved Mary while in London.

As (42b) shows, love cannot happily occur with the locative in London, but as (43b) shows, neither can it occur with while-clauses. Thus, if we were to adopt the while-clause analysis of the locatives of (42), we could account for the deviance of (42b) and (43b) in the same way and thereby avoid the disjunctive statement that love cannot occur either with locatives or while-clauses. Now compare (43a) with (44). Sentences (43a) and (44) differ only in tense. But why should a difference in tense be relevant to the distribution of place adverbials? This mystery could be accounted for if we were to say that the locative of (44) is a while-clause locative, for (45) is also unacceptable.

- (44) \*John is in love with Mary in London.  
 (45) \*John is in love with Mary while he is in London.

Given this analysis, the place adverbial of (44) is a constituent of a time adverbial, and, thus tense could reasonably be expected to have a bearing on the distribution of such a locative.

I have shown, I think, that the locatives that occur in sentences that describe states of affairs, as in (31), and those that occur in some action sentences, as in (32), should be analyzed as residues of while-clauses. Thus these occurrences of place adverbials are consistent with hypothesis A, for these while-clauses consist of dated spatial predications. Let us now turn to consider occurrences of location adverbials in sentences for which the while-clause analysis is incorrect.

Although sentence (47) entails (46), these sentences do not have the same meaning.

- (46) John will wake up while he is in his own bed this morning.  
 (47) John will wake up in his own bed this morning.

As a result, it would appear that the while-clause analysis of place adverbials should not be extended to a sentence like (47). There are other reasons to reject such an analysis.

We noted in connection with (33) and (34) that locatives that receive the while-clause analysis can have then or at the time as their apparent pronominal reflex. As (48) shows, the locative of this sentence cannot.

(48) \*John will wake up in his own bed, even though he doesn't intend to take up then.

Moreover, we noted that the place and time adverbials of sentences like (35) and (36) function as a unit with respect to pronominalization and Adverb Preposing. As (49) shows, in his own bed this morning does not have then as its pronominal reflex.

(49) \*John will wake up in his own bed this morning even though he doesn't intend to take up then.

That in his own bed this morning is not a constituent in (47) is further confirmed by the fact that if preposed together, the resultant sentence is somewhat strange, as (50) shows.

(50) \*In his own bed this morning, John will wake up.

Thus, if we were to adopt the while-clause analysis of in a strange bed this morning we would falsely predict that (49) and (50) are acceptable.

In spite of the fact that a while-clause analysis of the locative of (47) would be incorrect, there is nevertheless good reason to believe that hypothesis A holds for such sentences, that is that the place adverbial of (47) does serve to predicate a location of John. Observe that (47) entails (50), a proposition that does predicate a location of John.

(51) John will be in his own bed.

If we were to say that the place adverbial of (47) modifies the main verb, as Sweet and Fillmore would have it, or that it modifies John will wake up, as Lyons, G. Lakoff, and J. Geis would have it, it would be necessary to postulate some novel rule of inference or some otherwise unmotivated nonlogical axiom in order to account for this entailment. Moreover, either analysis would require a disjunctive statement of the environments in which place adverbials occur, one statement covering the place adverbials of sentences like (51) and of while-clause locatives, and another for the place adverbials of sentences like (47).

Not only does (47) entail (51), it also entails (52).

(52) At the time that John wakes up this morning he will be in his own bed.

And, in (52), as in the case of sentences containing while-clause locatives, we have two dated propositions--(53a) and (53b)--one of which--(53b) predicates a location of a concrete object.

- (53) a. John will wake up at some time this morning.  
 b. John will be in his own bed at that time.

Thus, if we were to say that (47) is derived from the structure underlying (52), we could account for the fact that (47) entails both (51) and (52), and do so in a way that is consistent with hypothesis A.

The proposed analysis can account for data (48)-(50). Since the phrases in his own bed and in his own bed this morning are not constituents of a time adverbial in (52) we would not expect them to have then as a possible pronominal reflex in (48) and (49). And, since the phrase in his own bed this morning is not a constituent in (52), we would not expect it to prepose as a constituent in (50). Thus, if we were to adopt the while-clause analysis for data like (31) and (32) and adopt the analysis just proposed for data like (47), we could account for the differential behavior of the time and place adverbials of these two classes of sentences with respect to the phenomena of Pronominalization and Adverb Preposing.

There is evidence from pronominalization which does support the proposed analysis of (47), as (54) shows.

- (54) John woke up in a strange bed; at the time he didn't know where he was.

In (54), at the time means 'at the time John woke up'. But John woke up is scarcely a time adverbial and, thus, should not have a time adverbial as a pronominal reflex. The proposed analysis can account for this apparent anomaly, for note that John woke up is a constituent of a time adverbial in (55).

- (55) At the time that John woke up, he was in a strange bed.

According to the proposed analysis of (47), John functions as the subject of both woke up and in his own bed. In this light, consider (56).

- (56) John will wake up in a match box.

For (56) to be true, John would have to be very small or the match box would have to be very large. I don't see how we can account for the strangeness of (46) unless we say that the function of in a match box in this sentence is to predicate a location of John. The proposed analysis does, of course, make just this claim.

I have argued that the locatives that occur in sentences that describe states of affairs and actions and the like serve the function of predicating locations of concrete objects. In a nutshell, what this amounts to saying is that states of affairs and actions and the like can be located in space only because their participants can be located in space. In the case of data like (4),

the suggested analysis is not only well motivated, but also poses no particular syntactic mystery, for the deletion rules required are motivated for other constructions, including, for example the derivations of adverbial subordinate clauses and pronominal adjective modifiers. On the other hand, the idea that (47) might have (52) as an intermediate stage in its derivation seems syntactically implausible, and I am presently unable to suggest a well-motivated alternative. Unfortunately, it is an increasingly common characteristic of research on syntax and semantics that the more we seem to learn about semantic structure the less we seem to know about syntax.

#### Note

\*Paper read at the 1973 LSA annual meeting, San Diego, Calif.

#### References

- Fillmore, Charles. 1968. The case for case. *Universals in Linguistic Theory*, ed. E. Bach and R. Harms, 1-88. New York: Holt, Rinehart and Winston.
- Geis, Jonnie. 1970. *Some Aspects of Verb Phrase Adverbials in English*. Champaign, Ill.: University of Illinois dissertation.
- Geis, Michael L. 1970. *Adverbial Subordinate Clauses in English*. Cambridge, Mass.: M.I.T. dissertation.
- Lakoff, George. 1970. Pronominalization, negation, and the analysis of adverbs. *Readings in English Transformational Grammar*. ed. R. A. Jacobs, 145-165. Waltham, Mass.: Ginn & Co.
- Lyons, John. 1968. *Introduction to Theoretical Linguistics*. Cambridge: Cambridge University Press.
- Sweet, Henry. 1968. *New English Grammar*. Oxford: Clarendon Press.